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**Current  
Affairs  
(CONSOLIDATION)**

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# Polity and Governance

## Highlights

- *Delimitation*
- *Ladakh's Demand of Sixth Schedule*
- *Delegated Legislation*
- *Doctrine of Separation of Powers*
- *Supreme Court on Freedom of Speech of Ministers*
- *Centre Vs Union*
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- *Year-End Review-2022: Department of Space*

## Delimitation

### Why in News?

The Assam state Cabinet recently approved the merger of four districts with their constituent districts.

- On 27<sup>th</sup> December, the **EC announced the process of delimitation of Assembly and Parliamentary constituencies in Assam**, saying it would be based on Census data from 2001. Assam currently has 14 Lok Sabha constituencies and 126 Assembly constituencies.

### What is Delimitation?

- **About:**
  - **Delimitation** literally means the act or process of fixing limits or boundaries of territorial constituencies in a country to represent changes in population.
  - The Delimitation Commission is to **work without any executive influence**.
  - The Constitution **mandates that the Commission's orders are final and cannot be questioned before any court** as it would hold up an election indefinitely.
  - When the orders of the Delimitation Commission are laid before the Lok Sabha or State Legislative

Assembly, they cannot effect any modification in the orders.

#### ➤ **Need:**

- To provide equal representation to equal segments of a population.
- **Fair division of geographical areas** so that one political party doesn't have an advantage over others in an election.
- To follow the principle of **"One Vote One Value"**.

#### ➤ **Composition:**

- The Delimitation Commission is appointed by the **President of India** and works in collaboration with the **Election Commission of India**.
  - Retired **Supreme Court judge**
  - Chief Election Commissioner
  - Respective State Election Commissioners

### What is the Process of Delimitation?

- **Under Article 82**, the Parliament enacts a Delimitation Act after every Census.
- **Under Article 170**, States also get divided into territorial constituencies as per Delimitation Act after every Census.
- Once the Act is in force, the Union government sets up a Delimitation Commission.

Note:



- The **first delimitation exercise** was carried out by the President (with the help of the Election Commission) in 1950-51.
- The **Delimitation Commission Act was enacted in 1952**.
- Delimitation Commissions have been set up four times — 1952, 1963, 1973 and 2002 under the Acts of 1952, 1962, 1972 and 2002.
- There was no delimitation after the 1981 and 1991 Censuses.

### **What are the Issues with Delimitation?**

- States that take **little interest in population control** could end up with a greater number of seats in Parliament. The southern states that promoted family planning faced the possibility of having their seats reduced.
- In 2002-08, **Delimitation was done based on the 2001 census**, but the total number of seats in the Assemblies and Parliament decided as per the 1971 Census was not changed.
  - The **87<sup>th</sup> Amendment Act of 2003** provided for the delimitation of constituencies on the basis of 2001 census and not 1991 census. However, this can be done without altering the number of seats allotted to each state in the Lok Sabha.
- The Constitution has also **capped the number of Lok Shaba & Rajya Sabha seats to a maximum of 550 & 250 respectively** and increasing populations are being represented by a single representative.

## **Ladakh's Demand of Sixth Schedule**

### **Why in News?**

Recently, the Ministry of Home Affairs (MHA) constituted a high-powered committee for the Union Territory of Ladakh to “ensure protection of land and employment” for the people of Ladakh.

- According to a few members of the committee, the MHA's order is vague and does not address their demand for inclusion in the **Sixth Schedule**.
- In September 2019, the **National Commission for Scheduled Tribes** recommended the inclusion of Ladakh under the Sixth Schedule, noting that the

new UT was **predominantly tribal (more than 97%)** and its distinct cultural heritage needed preservation.

### **Why was the Committee Formed?**

- **Background:**
  - Civil society groups in Ladakh have been **demanding protection of land, resources and employment for the past three years** after the special status of the erstwhile State of Jammu and Kashmir under **Article 370** of the Constitution was revoked by **Parliament** in 2019.
  - The **fear of big businesses and conglomerates taking away land and jobs** from the local people have contributed to this demand.
- **Purpose:**
  - To **discuss measures to protect the region's unique culture and language** taking into consideration its **geographical location and strategic importance**.
  - To strategize inclusive development and discuss issues related to the empowerment of the Ladakh Autonomous Hill District Councils of Leh and Kargil.

### **What is the Government's Stand?**

- As far as special status for Ladakh is concerned, the government is **not very eager to give it**.
  - The MHA informed a parliamentary standing committee recently that the **objective for inclusion of tribal population under the sixth schedule is to ensure their overall socio-economic development**, which the UT administration has already been taking care of and that sufficient funds are being provided to Ladakh to meet its overall developmental requirements.
- According to the Ministry of Home Affairs, **Ladakh's inclusion in the Sixth Schedule would be difficult**.
  - The Constitution is very clear, **Sixth Schedule is for the Northeast**. For tribal areas in the rest of the country, there is the Fifth Schedule.
- According to a recent report tabled in Rajya Sabha, **Ladakh administration recently increased the reservation for the Scheduled Tribes in direct recruitment from 10% to 45%** which will significantly help the tribal population in their development.
- However, it remains the **prerogative of the government** — it can, if it so decides, bring a Bill to amend the Constitution for this purpose.

Note:

### What is the Sixth Schedule?

- **Article 244:** The Sixth Schedule under **Article 244 provides for the formation of autonomous administrative divisions — Autonomous District Councils (ADCs)** — that have some legislative, judicial, and administrative autonomy within a state.
  - The Sixth Schedule contains special provisions for the administration of tribal areas in the four north-eastern states of Assam, Meghalaya, Tripura and Mizoram.
- **Autonomous Districts:** The tribal areas in these four states have been constituted as autonomous districts. The **governor** is empowered to organise and re-organise the autonomous districts.
  - The acts of Parliament or the state legislature do not apply to autonomous districts or apply with specified modifications and exceptions.
  - The power of direction, in this regard, lies either with the President or Governor.
- **District Council:** Each autonomous district has a **district council** consisting of 30 members, of whom four are nominated by the Governor and the remaining 26 are elected on the basis of adult franchise.
  - The elected members hold **office for a term of five years** (unless the council is dissolved earlier) and nominated members hold office during the pleasure of the governor.
  - Each autonomous region also has a separate regional council.
- **Powers of the Council:** The district and regional councils **administer the areas under their jurisdiction**.
  - They can make laws on certain specified matters like land, forests, canal water, shifting cultivation, village administration, the inheritance of property, marriage and divorce, social customs and so on. But all such laws require the assent of the Governor.
  - They can constitute village councils or courts for trial of suits and cases between the tribes. They hear appeals from them. The jurisdiction of the high court over these suits and cases is specified by the governor.
  - The district council can establish, construct or manage primary schools, dispensaries, markets, ferries, fisheries, roads and so on in the district.

- They are empowered to assess and collect land revenue and to impose certain specified taxes.

## Delegated Legislation

### Why in News?

In the **Supreme Court judgement on the Central Government's decision of demonetisation**, the majority ruling **upheld the validity of the delegated legislation** while the dissenting verdict noted that excessive delegation of power is arbitrary.

### What is Delegated Legislation?

- **About:**
  - Since the Parliament cannot deal with every aspect of the governance system by themselves, they **delegate these functions to the authorities established by law**. This delegation is noted in statutes, commonly called **delegated legislations**.
  - E.g. - **Regulations** and **by-laws (law made by a local authority which applies only in its area)** under legislations.
- **SC's View on Delegated Legislation:**
  - The SC in **Hamdard Dawakhana v Union of India (1959)** case **struck down delegation of powers** on the grounds that it was vague.
    - It held that the Centre's power of specifying diseases and conditions under **Drug and Magic Remedies (Objectionable Advertisements) Act 1954** is 'uncanalised', 'uncontrolled', and going beyond the permissible boundaries of valid delegation. Hence, the same was **deemed unconstitutional**.
  - The **Supreme Court in a 1973 ruling** held that the concept of delegated legislation has evolved out of **practical necessity and pragmatic needs** of a modern welfare State.
- **Delegated Legislation in Demonetisation Case:**
  - As per the **RBI Act, 1934** (Section 26(2)) the **Central govt. is empowered to notify ceasing a particular denomination of currency as legal tender**.
    - Parliament, here, has delegated the power to alter the nature of legal tender to the central

Note:

govt. which the latter exercised by issuing a **gazette notification** (legislative basis).

- This delegation of power to the Centre was challenged on the basis that Section 26(2) contains **no policy guidelines on how the Centre can exercise its powers**, thus it is arbitrary (and unconstitutional).

### **What is the Significance and Criticism of Delegated Legislation?**

- **Significance:**
  - It **allows flexibility and adaptability** in the law-making process. By delegating certain powers, the legislature can respond more quickly and efficiently to changing circumstances and emerging issues.
  - **Delegated authorities with extra skills**, experience, and knowledge (in fields like technology, environment etc. **where the Parliament may not always have an expertise**) are more suitable for making law.
- **Criticism:**
  - It can lead to a **lack of accountability/transparency** in the law-making process as **laws made by executive agencies/administrative bodies are not subjected to the same level of public scrutiny** and debate as laws made by legislature.
  - Additionally, it can also lead to a **concentration of power in the executive** and administrative branches of government, which may **undermine the principle of separation of powers**.
    - However, certain types of delegated legislation, such as **ordinances must be approved by the legislature**.

## **Doctrine of Separation of Powers**

### **Why in News?**

Recently, **Vice-President of India** has rekindled the debate over the **doctrine of separation of powers** by citing the Supreme Court's landmark **1973 Kesavananda Bharati case**, which ruled that Parliament has the authority to amend the Constitution but not its basic structure.

### **What is the Doctrine of Separation of Powers?**

- Separation of powers is the **division of the legislative, executive, and judicial functions of government**.
  - Article 50 says that states shall take steps to separate the Judiciary from the Executive.
- The constitutional demarcation precludes the concentration of excessive power by any branch of the government.
- The **Indian Constitution** lays down the structure and defines and determines the role and functions of every organ of the State and establishes norms for their inter-relationships and **checks and balances**.

### **What are the Instruments of Checks & Balances?**

- **Legislature Control:**
  - **On Judiciary:** Impeachment and the removal of the judges. Power to amend laws declared ultra vires by the Court and revalidating it.
  - **On Executive:** Through a no-confidence vote it can dissolve the Government. Power to assess works of the executive through the **question hour and zero hour**.
- **Executive Control:**
  - **On Judiciary:** Making appointments to the office of **Chief Justice** and other judges.
  - **On Legislature:** Powers under **delegated legislation**. Authority to make rules for regulating their respective procedure and conduct of business subject to the provisions of this Constitution.
- **Judicial Control:**
  - **On Executive:** **Judicial review** i.e., the power to review executive action to determine if it violates the Constitution.
  - **On Legislature:** Unamendability of the constitution under the **basic structure doctrine** pronounced by the Supreme Court in Kesavananda Bharati Case 1973.

### **What are the Issues with the Separation of Powers?**

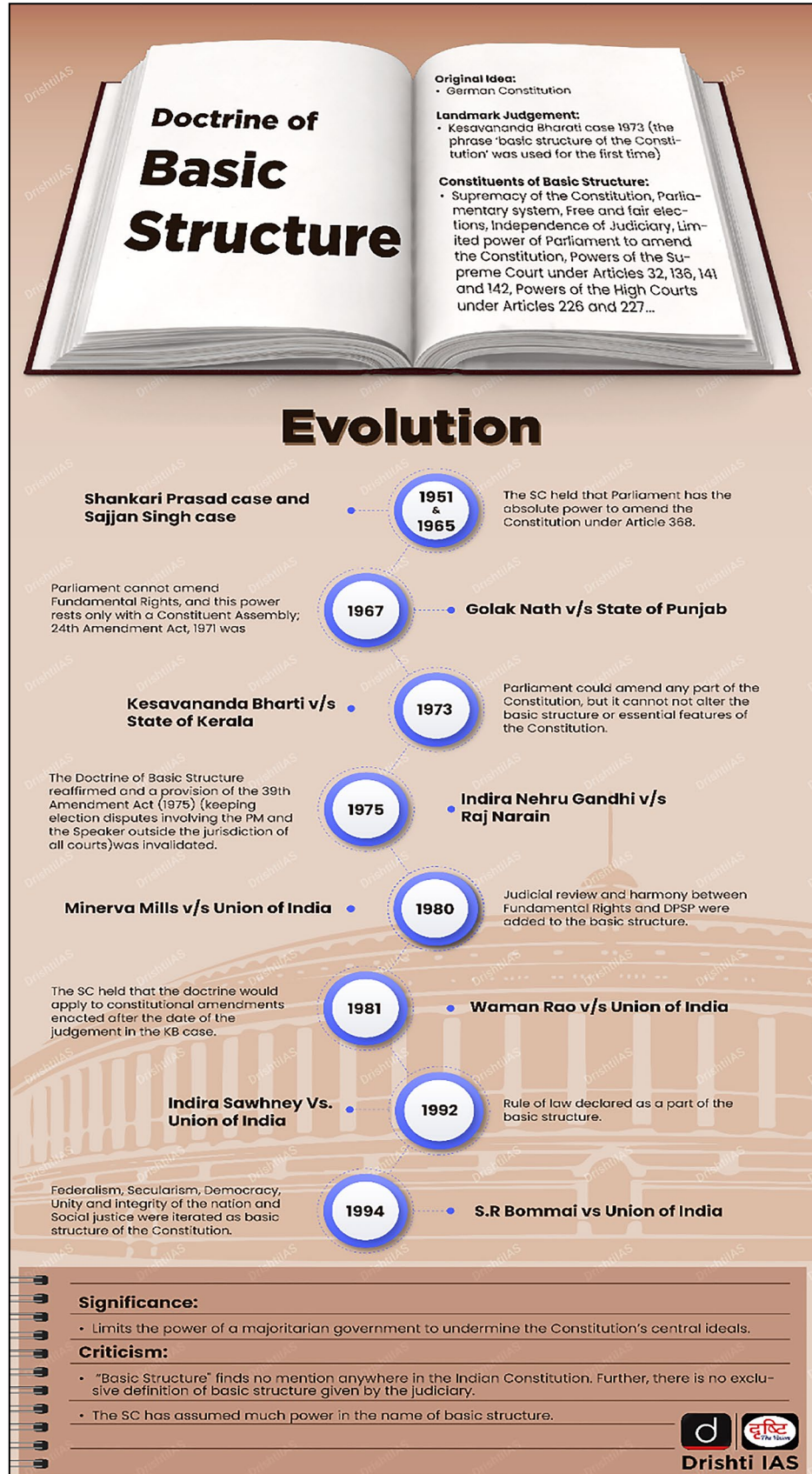
- **Weakened Opposition in India:** Democracy works on the principle of checks and balances. It is these checks and balances that prevent democracy from turning into majoritarianism.

Note:



- In a Parliamentary system, these checks and balances are **provided by the opposition party**.
- However, the majority of a single party in the Lok Sabha **has diminished the role of an effective opposition in the Parliament**.
- **Judiciary Being Averse to Checks & Balances:** The Supreme Court has held the **99<sup>th</sup> constitutional amendment**, which provided for the establishment of the **National Judicial Appointments Commission** as ultra-vires.
  - The **NJAC could guarantee the independence of the system from inappropriate politicization**, strengthen the quality of appointments, enhance the fairness of the selection process, promote diversity in the composition of the judiciary, and rebuild public confidence in the system.
- **Judicial Activism:** In many recent judgments, the SC has become hyper-activist in making judgements that are deemed as laws and rules. This transgresses the domain of legislature and executive.
- **Executive Excesses:** Executive in India is alleged of over-centralisation of power, weakening of public institutions and passing laws to strengthen law, order & security of the state but curbs freedom of expression as well.

### What is the Basic Structure of the Constitution?



Note:

## Supreme Court on Freedom of Speech of Ministers

### Why in News?

Recently, a Constitution Bench of the **Supreme Court** unanimously and rightly ruled out any additional curbs on free speech by ministers.

### What is the Background?

- The case (*Kaushal Kishor v the State of UP*), relates to the Bulandshahar rape incident of 2016, in which the then Minister of the State termed the incident a 'political conspiracy and nothing else'.
- A **writ petition** was filed by the survivors before the SC and the court raised an important question: "Can restrictions be imposed on a public functionary's freedom of speech and expression?"

### What is the Judgement of the Court?

#### ➤ Majority Judgement:

- **On Reasonable Restrictions:**
  - Like other citizens, **ministers are guaranteed the right to freedom of expression** under Article 19(1) (a), governed by the reasonable restrictions laid out in Article 19(2) — and those are enough.
  - Because "The role of the court is to protect **fundamental rights** limited by lawful restrictions and not to protect restrictions and make the rights residual privileges."
- **On Collective Responsibility:**
  - The majority ruling also **made a valid distinction on the government's vicarious responsibility for ill-judged or hateful remarks** made by its individual ministers.
    - The **flow of stream in collective responsibility** is from the Council of Ministers to the individual ministers.
    - The flow is **not on the reverse**, namely from the individual ministers to the Council of Ministers.
  - It is **not possible to extend the concept of collective responsibility** to "any and every statement orally made by a Minister outside the House of the People/Legislative Assembly".

#### ○ Statement by an Individual Minister:

- The court also **addressed the question of whether the statement of a minister**, that is inconsistent with the fundamental rights of citizens, can result in a **constitutional tort**.
  - A **constitutional tort** is a **legal tool that provides for the state to be held vicariously accountable** for the actions of its agents.
- A mere statement by a minister that **goes against an individual's fundamental rights may not be actionable**, but becomes actionable if it results in actual harm or loss.

#### ➤ Dissenting Judgement:

##### ○ Over a Hateful Public Discourse:

- The **minority judgment expresses concern over a hateful public discourse** - "**hate speech**, whatever its content, denies people dignity".
- It speaks of the **special duty of public functionaries and other persons of influence** to be more responsible and restrained in their speech, to "understand and measure their words".

##### ○ On Collective Responsibility:

- It is **possible to attribute vicarious responsibility to the government** if a minister's view represents that of the government and is related to the affairs of the state.
- If such a statement is not consistent with the view of the Government, then it is **attributable to the Minister personally**.

##### ○ Statement by an Individual Minister:

- It holds the view that **there should be a proper legal framework to define acts** and omissions that amount to 'constitutional tort'.

### What is Article 19?

- **Article 19 of the Constitution of India guarantees the right to freedom of speech** and expression, and is typically invoked against the state.
  - Article 19(1) in The Constitution Of India 1949, All citizens shall have the right
    - (a) to freedom of speech and expression;
    - (b) to assemble peaceably and without arms;
    - (c) to form associations or unions;
    - (d) to move freely throughout the territory of India;

Note:

- (e) to reside and settle in any part of the territory of India; and
- (f) omitted
- (g) to practise any profession, or to carry on any occupation, trade or business.
- **Article 19(2) in The Constitution of India 1949,**
  - Nothing in sub clause (a) of clause (1) shall affect the operation of any existing law, or prevent the State from making any law, in so far as such law **imposes reasonable restrictions on the exercise of the right conferred** by the said sub clause **in the interests of the sovereignty and integrity of India, the security of the State,** friendly relations with foreign States, public order, decency or morality or in relation to contempt of court, defamation or incitement to an offence.

## Centre Vs Union

### Why in News?

Since the Tamil Nadu government shunned the usage of the term **'Central government' in its official communications by replacing it with 'Union government'**, it has erupted the **Union Vs Centre Debate**.

- It has been seen as a major step towards regaining the consciousness of Indian Constitution.

### What is the Constitutionality of the Term Union/Centre?

- There is no mention of the term 'Central government' in the Constitution of India because the Constituent Assembly did not use the **term 'Centre' or 'Central government'** in all of its **395 Articles in 22 Parts and eight Schedules in the original Constitution**.
- There are only references of the **'Union' and the 'States'** with the executive powers of the Union wielded by the President acting on the aid and advice of the **Council of Ministers** headed by the Prime Minister.
- Even though there is no reference to the **'Central government' in the Constitution**, the **General Clauses Act, 1897 gives a definition for it**.
  - The 'Central government' for all practical purposes is the **President** after the commencement of the Constitution.

### What is the Intent of the Constituent Assembly?

- Article 1(1) of the Constitution of India says **"India, that is Bharat, shall be a Union of States."**
- On 13<sup>th</sup> December, 1946, **Jawaharlal Nehru** introduced the aims and objectives of the Constituent Assembly by resolving that India shall be a Union of territories willing to join the **"Independent Sovereign Republic"**.
  - The emphasis was on the consolidation and confluence of various provinces and territories to form a strong united country.
- While submitting the draft Constitution in 1948, **Dr B R Ambedkar**, chairman of the drafting committee, had said that **the committee had used the word 'Union' because**:
  - (a) the Indian federation was **not the result of an agreement by the units**, and
  - (b) the component units **had no freedom to secede from the federation**.
- The members of the Constituent Assembly were **very cautious of not using the word 'Centre' or 'Central government'** in the Constitution as they intended to keep away the **tendency of centralizing of powers in one unit**.

### What is the Difference Between Union & Centre?

- According to constitution expert Subash Kashyap, from the point of the usage of the words, **'center' indicates a point in the middle of a circle, whereas 'Union' is the whole circle**.
  - In India, the relationship between the so-called 'Centre' and States, as per the Constitution, is **actually a relationship between the whole and its parts**.
- Both **the Union and the States are created by the Constitution**, both derive their respective authority from the Constitution.
  - The one is not subordinate to the other in its own field and the authority of one is to coordinate with that of the other.
- The **judiciary is designed in the Constitution to ensure that the Supreme Court**, the tallest court in the country, has no superintendence over the High Court.
  - Though the Supreme Court has appellate jurisdiction, not only over High Courts but also over other courts and tribunals, they are not declared to be subordinate to it.

Note:

- In fact, the High Courts have wider powers to issue prerogative **writs** despite having the power of superintendence over the district and subordinate courts.
- In very common parlance, Union gives a sense of Federal while centre gives more of a sense of unitary government.
  - But practically both are the same in the Indian political system.

### **What are the Associated Issues with the Term Central Government?**

- **Discarded By Constituent Assembly:** The word 'Centre' is not used in the Constitution; the makers of the Constitution specifically discarded it and instead used the word 'Union'.
- **Colonial Legacy:** 'Centre' is a hangover from the colonial period because the bureaucracy in the Secretariat, New Delhi who are used to using the word 'Central Laws,' 'Central legislature,' etc, and so everyone else, including the media, started using the word.
- **Conflict With Idea of Federalism:** India is a **federal government**. The power to govern is divided between a government for the whole country, which is responsible for subjects of common national interest, and the states, which look after the detailed day-to-day governing of the state.
  - According to Subash Kashyap, using the term 'Centre' or 'central government' would mean state governments are subservient to it.

## **Supreme Court Expands Article 19 Ambit**

### **Why in News?**

Recently, the **Supreme Court** has ruled that a fundamental right under **Article 19/21 can be enforced** even against persons other than the State or its instrumentalities.

- The court took this view while ruling that the right of **free speech and expression guaranteed under the Article 19(1)(a) cannot be curbed by any additional grounds** other than those already laid down in Article 19(2).

### **What is Article 19?**

- Article 19 of the Constitution of India guarantees the **right to freedom of speech and expression, and is typically invoked against the state.**
- **Article 19(1)** in The Constitution Of India 1949, All citizens shall have the right
  - (a) to freedom of speech and expression;
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  - (d) to move freely throughout the territory of India;
  - (e) to reside and settle in any part of the territory of India; and
  - (f) omitted
  - (g) to practise any profession, or to carry on any occupation, trade or business.
- **Article 19(2)** in The Constitution Of India 1949,
  - Nothing in sub clause (a) of clause (1) shall affect the operation of any existing law, or prevent the State from making **any law, in so far as such law imposes reasonable restrictions on the exercise of the right conferred by the said sub clause** in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign States, public order, decency or morality or in relation to contempt of court, defamation or incitement to an offence.
  - Some fundamental rights, such as those prohibiting untouchability, trafficking, and bonded labor, **are explicitly against both the state and other individuals.**

### **What is the Reference for this SC's Ruling?**

- **Enforcing Rights against Private Entities:**
  - This interpretation **brings an obligation on the state to ensure that private entities also abide by Constitutional norms.**
  - It opens up a **range of possibilities in Constitutional law, potentially allowing for the enforcement of privacy rights against a private doctor** or the right to free speech against a private social media entity.
- **Reference to Previous Court Rulings:**
  - The Court referenced the **2017 verdict in Puttaswamy**, in which a nine-judge bench unanimously upheld **privacy as a fundamental right.**

Note:

- The government had argued **that privacy is a right enforceable against other citizens and, therefore, cannot be elevated** to the status of a fundamental right against the state.
- **International Perspectives:**
  - The Court also looked to **foreign jurisdictions, contrasting the American approach with the European Courts.**
  - The US Supreme Court's ruling in ***New York Times vs. Sullivan***, which found that **defamation law as applied by the state against The New York Times** was inconsistent with the Constitutional guarantee of freedom of speech and expression, was cited as an example of a shift in US law from a "purely vertical approach" to a "horizontal approach."
  - A **vertical application of rights** would mean it can be enforced only against the state while a **horizontal approach** would mean it is enforceable against other citizens.
    - For example, a horizontal application of the right to life would enable a citizen to bring a case against a private entity for causing pollution, which would be a violation of the right to a clean environment.

## Right to Strike

### **Why in News?**

The **Kerala High Court** has reiterated that government employees who participate in general strikes, affecting the normal life of the public and Public Exchequer, **are not entitled to be protected under Article 19(1)(c) of the Constitution** and are also a violation of the provisions of the Kerala Government Servants' Conduct Rules, 1960.

### **What is Right to Strike?**

- **About:**
  - Strike is the **collective refusal by employees** to work under the conditions required by employers. Strikes arise for a number of reasons, though **principally in response to economic conditions** (defined as an economic strike and meant to improve wages and benefits) or **labour practices** (intended to improve work conditions).
  - In each country whether it is democratic, capitalist, socialist, give the **right to strike to the workers.**

But this right **must be the weapon of last resort because if this right is misused, it will create a problem** in the production and financial profit of the industry.

- This would ultimately **affect the economy** of the country.
- In India, the **right to protest is a fundamental right under Article 19** of the Constitution of India.
- But right to strike is **not a fundamental right but a legal right** and with this right statutory **restriction is attached in the Industrial Dispute Act, 1947.**
  - The Industrial Dispute Act, 1947 is subsumed under **The Industrial Relations Code, 2020.**
- **Position in India:**
  - In India, unlike America, the right to strike is not expressly recognized by the law.
  - The trade union Act, 1926 for the first time **provided limited right to strike by legalizing certain activities of a registered trade union** in furtherance of a trade dispute which otherwise breach of common economic law.
  - Nowadays a right to strike is **recognized only to a limited extent permissible under the limits laid down by the law itself**, as a legitimate weapon of Trade Unions.
  - The right to strike in the Indian constitution **set up is not an absolute right but it flows from the fundamental right to form a union.**
  - As every other fundamental right is subject to reasonable restrictions, the same is also the case to form trade unions to give a call to the workers to go on strike and the **state can impose reasonable restrictions.**
- **Right to strike under International Convention:**
  - Right to strike has also been **recognised by the conventions of the International Labour Organization (ILO).**
    - India is a founder member of the ILO.

### **What are the Important Supreme Court Judgements related to Right to Strike?**

- The Supreme Court in ***Delhi Police v. Union of India (1986)*** upheld the restrictions to form association by the members of the non-gazetted police force after the Police Forces (Restriction of Rights) Act, 1966, and the Rules as amended by Amendment Rules, 1970, came into effect.

Note:

- In *T.K. Rangarajan v. Government of Tamil Nadu (2003)*, the Supreme Court held that the **employees have no fundamental right to resort to strike**. Further, there is prohibition to go on strike under the Tamil Nadu Government Servants' Conduct Rules, 1973.

## Supreme Court's Verdict on Demonetisation

### Why in News?

Recently, the **Supreme Court** has passed a verdict on the **demonetisation** of currency notes of Rs 500 and Rs 1,000 in a majority 4-1 by a five-judge **Constitution Bench**.

### What are the Rulings of the Verdict?

- **Majority Ruling:**
  - The majority held that **Centre's notification dated November 8, 2016 is valid** and satisfies the **test of proportionality**.
  - The RBI and the Centre had been in consultation with each other for **six months prior to the November 8 notification issued under Section 26(2) of the RBI (Reserve Bank Of India) Act, 1934**.
  - The statutory procedure under Section 26(2) of the RBI Act was not violated merely because the **Centre had taken the initiative to "advise" the Central Board to consider recommending demonetisation**.
  - The government was empowered under the **provision to demonetise "all series" of banknotes**.
  - On hasty decision, the court said such measures **undisputedly are required to be taken with utmost confidentiality** and speed. If the news of such a measure is leaked out, it is **difficult to imagine how disastrous the consequences would be**.
  - Demonetisation was done for the **"proper purposes" of eliminating fake currency, black money and terror financing**.
- **Minority Dissent:**
  - The government could have issued a notification under Section 26(2) of the RBI Act only if the RBI had initiated the proposal to demonetise by way of a recommendation.
  - Therefore, the government's notification issued **under Section 26(2) of the RBI Act was unlawful**.
- In cases in which the government initiates demonetisation, it should take the opinion of the RBI. The opinion of the Board should be **"independent and frank"**.
- If the Board's opinion was in the negative, the Centre could still go forward with the demonetisation exercise, but only by **promulgating an ordinance or by enacting a parliamentary legislation**.
- Describing the Parliament as the "nation in miniature", "without the Parliament, democracy will not thrive".

### What is the Test of Proportionality?

- The test of proportionality is a **commonly employed legal method used by courts around the world**, typically constitutional courts, to decide cases where two or more legitimate rights clash.
- When such cases are decided, **one right typically prevails at the expense of the other and the court thus has to balance the satisfaction of some rights and the damage to other rights resulting from a judgment**.
- The principle of proportionality ordains that the **administrative measure must not be more drastic than is necessary for attaining the desired result**.

### What was Demonetisation?

- **About:**
  - On **8<sup>th</sup> November 2016**, the government announced that the **largest denomination of Rs 500 and Rs 1000 were demonetised with immediate effect ceasing to be a legal tender**.
  - It is the **act of stripping a currency unit of its status as legal tender or fiat money**.
  - It occurs whenever **there is a change of national currency and the current form or forms of money is pulled from circulation and retired**, often to be replaced with new notes or coins.
- **Objectives of Demonetisation:**
  - To **discourage the use of high-denomination notes for illegal transactions** and thus **curb the widespread use of black money**.
  - To encourage **digitisation of commercial transactions, formalise the economy** and so, boost government tax revenues.
    - The formalisation of the economy means **bringing companies under the regulatory regime of government** and subject to laws related to manufacturing and income tax.

Note:

### ➤ Operation Clean Money:

- It was launched by the Income Tax Department (CBDT) for e-verification of large cash deposits made during the period from **9th November to 30th December 2016**.
- The programme was launched on 31st January 2017 and entered into the second phase in May 2017.
- It aimed to verify cash transaction status (exchange/savings of banned notes) of taxpayers during the demonetisation period and to take tax enforcement action if transactions do not match the tax status.

### ➤ Impact of the Move:

- Currency with the public stood at Rs. 17.97 lakh crore on **4th November 2016** and declined to Rs 7.8 lakh crore in January 2017 after demonetisation.
- Demands fell, businesses faced a crisis and **gross domestic product (GDP) growth declined**, with many small units and shops being shut down and it also created a **liquidity shortage**.
  - Liquidity shortages or crises arise when financial institutions and industrial companies scramble for, and cannot find the cash they require to meet their most urgent needs or undertake their most valuable projects.

## Census

### Why in News?

Recently, the government has **extended the date for states and Union territories to finalise their administrative boundaries** by June 2023, which may delay the Census 2021 Exercise.

- During a Census operation – both the house-listing phase and the population enumeration – the states and Union territories are **not supposed to change the boundaries of districts, towns, villages and tehsils**.

### What are the Implications of Delay?

#### ➤ Affect Political Representation:

- Census are used to determine the **number of seats to be reserved for SCs and STs in Parliament**, State legislatures, local bodies, and government services.
- Therefore, delay in the Census means that the data from the 2011 Census would continue to be used.

- In many towns and even panchayats that have seen rapid changes in the composition of their population over the last decade, this would mean **that either too many or too few seats are being reserved**.

#### ➤ Delimitation of Of Constituency:

- **Delimitation** of parliamentary and Assembly constituencies would continue to be based on 2001 Census till **data from a Census after 2026 are published**.

#### ➤ Unreliable Estimates on Welfare Measures:

- The delay will impact government schemes and programmes, and would result in **unreliable estimates from other surveys on consumption, health and employment**, which depend on census data to determine policy and welfare measures.
  - As many as 100 million people are likely being excluded from the government's food subsidy programme—the **Public Distribution System (PDS)**—as the population **figures used to calculate the number of beneficiaries are from the 2011 census**.

#### ➤ Impact Houselisting:

- It takes nearly a year to prepare an **abridged house list for the entire country which the enumerator uses to locate an address**.
- The main purpose of the houselisting is **to prepare a list of all households that are to be surveyed before undertaking population enumeration**, besides providing data on housing stock, amenities and the assets available with each of the households.
- The population enumeration **follows the houselisting after a year**.
  - So, for Census 2011, the government conducted houselisting between April and September 2010, and the population enumeration in February 2011.
- Houselisting is important because unlike the US, India does not have a robust address system.

#### ➤ Migration:

- The images of migrant workers rushing out of the cities and walking the highways towards their villages during the first COVID lockdown brought their plight to the spotlight and raised queries on the numbers, **causes and patterns of migration, which could not be answered using outdated 2011 Census data**.

Note:

- For example, the **Centre had no answers on how many migrants were likely to be stranded in each city or State** and in need of food relief or transport support.
- The new Census is likely to capture the extent of the observed movement in migration trends towards smaller two-tier towns apart from the large metropolitan centres.
  - It could help answer questions of what kind of healthcare and social services are most needed for migrants and where.

### **How is the 2021 Census being Different from Previous ones?**

- For the first time the data is **collected digitally via mobile applications** (installed on enumerator's phone) with a provision of working in offline mode.
- The **Census Monitoring & Management Portal will act as a single source** for all officers/officials involved in Census activities to provide multi-language support.
- First time that information of a person from the **Transgender Community and members living in the family will be collected**.
  - Earlier there was a column for male and female only.

### **What is the Census?**

- **Definition:**
  - **Population Census** is the total process of **collecting, compiling, analyzing and disseminating demographic**, economic and social data pertaining, at a specific time, of all persons in a country or a well-defined part of a country.
  - Census is the **basis for reviewing the country's progress in the past decade, monitoring the ongoing schemes** of the government and plan for the future
  - It provides an **instantaneous photographic picture of a community**, which is valid at a particular moment of time.
  - The census also provides **the trends in population characteristics**.
- **Frequency:**
  - **The exercise is undertaken every 10 years in India.**
    - The first complete census of an Indian city was conducted in 1830 by **Henry Walter (known as the father of the Indian Census)** in Dacca.

- First non-synchronous Census was conducted in India in 1872 **during the reign of Governor-General Lord Mayo**.
- The first synchronous census was taken in 1881, by W.C. Plowden, Census Commissioner of India. Since then, censuses have been undertaken uninterruptedly once every ten years.

#### ○ **Other Countries:**

- Every 10 years in many countries (Ex. United States and Britain) and every **five years (Ex. Canada, Japan) or at irregular intervals** in some countries.

#### ➤ **Nodal Ministry:**

- The decennial Census is conducted by the **Office of the Registrar General and Census Commissioner**, Ministry of Home Affairs.
- Until 1951, the Census Organisation was set up on an ad-hoc basis for each Census.

#### ➤ **Legal/Constitutional Backing:**

- Census is conducted under the provisions of the **Census Act, 1948**.
  - The bill for this Act was piloted by **Sardar Vallabhbhai Patel**, the then Home Minister of India.
- The population census is a **Union subject under Article 246** of India Constitution.
  - It is listed at serial number 69 of the **seventh schedule** of the constitution.

#### ➤ **Confidentiality of Information:**

- The information collected during the population Census is so confidential that it is not even accessible to the courts of law.
  - The confidentiality is guaranteed by the Census Act, 1948. The law specifies penalties for both public and census officials for non-compliance or violation of any provision of the Act.

### **What is the Significance of the Census?**

#### ➤ **Source of Information:**

- The Indian Census is the **largest single source of a variety of statistical information** on different characteristics of the people of India.
- Researchers and Demographers use census data to analyze growth and trends of population and make projections.

Note:



- **Good Governance:**
  - The data collected through the census is used for **administration, planning and policy making** as well as management and evaluation of various programmes by the Government.
- **Demarcation:**
  - Census data is also used for **demarcation of constituencies** and allocation of representation to Parliament, State legislative assemblies and the local bodies.
  - The Census data are also used to determine the **number of seats to be reserved for SCs and STs in Parliament, State legislatures, local bodies, and government services.**
    - In case of panchayats and municipal bodies, reservation of seats for SCs and STs is based on **their proportion in the population.**
- **Better Access for Businesses:**
  - The census data is also **important for business houses and industries for strengthening and planning** their business for penetration into areas, which had hitherto remained, uncovered.
- **Giving Grants:**
  - The Finance Commission provides grants to the **states on the basis of population figures available from the Census data.**

## Stalemate Between Telangana and AP

### Why in News?

Recently, Andhra Pradesh has approached before the **Supreme Court** seeking **“Just, Reasonable and Equitable Apportionment”** of assets and liabilities under the **Andhra Pradesh Reorganisation Act 2014.**

### What is the Background?

- On 2<sup>nd</sup> June, 2014 the northwestern part of Andhra Pradesh was separated and 29<sup>th</sup> state **Telangana was created.**
- The **States Reorganisation Act (1956) merged the Telugu-speaking areas of Hyderabad state with the Andhra state** to create the enlarged Andhra Pradesh state.

- The **Andhra Pradesh Reorganisation Act (2014)** bifurcated Andhra Pradesh (AP) into two separate states, namely, the Andhra Pradesh (residuary) and the Telangana.
- Now more than eight years after the bifurcation of the erstwhile united Andhra Pradesh, division of assets and liabilities between the two States remain elusive as the States make their own interpretation of the provisions under the **Andhra Pradesh Reorganisation Act 2014.**

### What are the Issues?

- **12 Institutions not Mentioned in the Act:**
  - The issue involves 245 institutions with a total fixed asset value of ₹1.42 lakh crore.
  - There are 91 institutions under **Schedule IX and 142 institutions under Schedule X of the Act.**
  - The division of another 12 institutions not mentioned in the Act has also **become contentious between the States.**
- **Delays in Division of Assets and Liabilities:**
  - AP laments that the Telangana government had selectively accepted the recommendations given by the **expert committee headed by Sheela Bhide, leaving others which was resulting in delays in division of assets and liabilities.**
    - The committee has made recommendations with respect to the division of 89 out of the 91 Schedule IX institutions.
  - Andhra Pradesh argues that recommendations were accepted hastily to expedite the process of division and finalized the division of these institutions.
- **Contention over Division of Assets:**
  - The expert committee’s recommendations on the division of assets that are not a part of the headquarter **assets attracted criticism from the Telangana government,** saying it is against the **spirit of the Reorganisation Act.**

### What is the Role of the Centre?

- The Ministry of Home Affairs (MHA) has given clarity about the headquarter assets way back in 2017.
- MHA states that in the case of one single comprehensive State undertaking (which includes the headquarters and the operational units in one facility) which is exclusively located in, or its operations are confined in one local area, it shall be **apportioned on the basis**

Note:

of location as per sub-section (1) of Section 53 of the Reorganisation Act.

- The Act empowers the Union Government to intervene as and when needed.

**Note:**

- The SC in its original jurisdiction decides disputes between states.
  - As per **Article 131 of the Constitution** reads, the SC have original jurisdiction in any dispute between the Government of India and one or more States or between the Government of India and any State or between two or more states.
- Under Article 263 of the Constitution, the **Inter-state council is expected to inquire and advise on disputes, discuss subjects common to all states** and make recommendations for better policy coordination.

### **What Can be Done to Resolve Inter-State Disputes?**

- The responsibilities assigned to the Inter State Council by the Constitution (in terms of resolving inter-state disputes) need to be fulfilled in reality and not just in papers.
  - Similarly, **Zonal councils** need to be revived to discuss the matters of common concern to states in each zone—matters relating to social and economic planning, border disputes, inter-state transport, etc.
- India is the epitome of unity in diversity. However, to strengthen this unity furthermore, **both the Centre and state governments need to imbibe the ethos of cooperative federalism.**

## **Assisted Reproductive Technology**

### **Why in News?**

The Kerala High Court has said that **personal choice to build a family is a fundamental right** and fixing an upper age limit for the same was a restriction which needs a relook.

### **What is the Issue?**

- The court **passed the directive while disposing of a batch of petitions challenging the age limit of 50**

**years for women and 55 years for men prescribed under the Assisted Reproductive Technology (ART) (Regulation) Act, 2021**, for undergoing the assisted reproductive technology.

- According to the petitioners, **prescription of the upper age limit under Section 21 (G) of the ART Act is irrational**, arbitrary, unreasonable and violative of their right to reproduction, which is acknowledged as a **fundamental right**.
- They **sought to declare it as unconstitutional**.
- The High Court has directed the **National Assisted Reproductive Technology and Surrogacy Board to alert the Union government** about the need for having a relook at the upper age limit prescribed for using assisted reproductive technology.
- Apart from this, the petitioners have also **challenged the provision wherein medical practitioners have been brought within the purview of the Indian Penal Code (IPC)** and offences have been made cognizable.
- These provisions are having a **chilling effect on IVF practitioners across the country dissuading them from performing their professional duties** due to the fear of prosecution.

### **What are the Provisions of the ART (Regulation) Act, 2021?**

- **Legal Provisions:**
  - The **ART (Regulation) Act 2021 provides a system for the implementation of the law on surrogacy** by setting up of the National Assisted Reproductive Technology and Surrogacy Board.
  - The **Act aims at the regulation and supervision of ART clinics and assisted reproductive technology banks**, prevention of misuse, and safe and ethical practice of ART services.
- **Definition of ART Services:**
  - The Act defines ART to include **all techniques that seek to obtain a pregnancy by handling the sperm or the oocyte (immature egg cell)** outside the human body and transferring the gamete or the embryo into the reproductive system of a woman. These include gamete donation (of sperm or egg), **in vitro fertilization (IVF)**, and gestational surrogacy.
  - ART services will be provided through: (i) ART clinics, which offer ART related treatments and procedures, and (ii) ART banks, which collect, screen and store gametes.

Note:

- **Eligibility Criteria for Donors:**
  - A bank may obtain semen from **males between 21 and 55 years of age**, and **eggs from females between 23 and 35 years of age**. The woman may donate eggs only once in her life and not more than seven eggs may be retrieved from her. A bank must not supply gamete of a single donor to more than one commissioning party (i.e., couples or single women seeking services).
- **Conditions for Offering Services:**
  - ART procedures must be conducted only with the **written consent of the commissioning parties and the donor**. The commissioning party will be required to provide insurance coverage in favour of the egg donor (for any loss, damage, or death).
- **Rights of a child born through ART:**
  - A child born through ART will be **deemed to be a biological child of the commissioning couple** and will be entitled to the rights and privileges available to a natural child of the commissioning couple. A donor **will not have any parental rights over the child**.
- **Shortcomings:**
  - **Exclusion of Unmarried and Heterosexual Couples:**
    - The **Act excludes unmarried men, divorced men, widowed men**, unmarried yet cohabiting heterosexual couples, trans persons and homosexual couples (whether married or cohabiting) from availing ART services.
    - This exclusion is relevant as the **Surrogacy Act** also excludes above said persons from taking recourse to surrogacy as a method of reproduction.
  - **Reduces the Reproductive Choices:**
    - The **Act is also limited to those commissioning couples who are infertile** - those who have been unable to conceive after one year of unprotected coitus. Thus, it is limited in its application and significantly reduces the reproductive choices of those excluded.
  - **Unregulated Prices:**
    - The **prices of the services are not regulated**; this can certainly be remedied with simple directives.

## Draft Norms Announced by UGC for Foreign Universities

### Why in News?

The **University Grants Commission (UGC)** has announced **draft norms for facilitating foreign universities and educational institutions to set up campuses in India** which allow them autonomy in decision making.

**FOREIGN** universities in the top 500 category in world rankings can apply **WILL BE FREE** to fix their admission criteria and fee structure  
**AUTONOMY** to recruit faculty and staff from India and abroad  
**CAN REPATRIATE** funds to home jurisdiction  
**SHALL NOT** offer any programme that jeopardises India's national interest

### What are the Draft

### Norms Announced by the UGC?

- **Sets Criteria:**
  - A foreign university with a rank **among the top 500 global rankings or a foreign educational institution of repute in home jurisdiction can apply to the UGC** to set up a campus in India.
- **Application Process:**
  - The application will be considered by a **standing committee appointed by the UGC** which will submit its recommendations within 45 days after examining the institution's credibility, programmes offered, their potential.
  - Subsequently, within 45 days, the UGC may grant in-principal approval to the foreign institution to set up campuses in India within two years.
  - The initial approval will be for 10 years, which can be extended.
- **Mode of Teaching:**
  - It will also have **autonomy to recruit faculty and staff from India and abroad**.

Note:

- The courses to be offered cannot be in online and open and distance learning mode.
- The qualifications **awarded to the students in the Indian campus should have equivalence** with those awarded by the institutions in their country of origin.
- Such universities and colleges **cannot offer any such programme of study which jeopardises the national interest** of India or the standards of higher education in India.
- **Fund Management:**
  - Foreign universities will be allowed to repatriate funds to parent campuses.
  - Cross-border movement of funds and maintenance of Foreign Currency Accounts, mode of payments, remittance, repatriation, and sale of proceeds, if any, will be as per the **Foreign Exchange Management Act (FEMA) 1999 and its Rules**.
  - It will also have the **autonomy to decide its fee structure**, and will face no caps that are imposed on Indian institutions. The fee should be “reasonable and transparent.”

### **What is the Significance of the Move?**

- Nearly 13 lakh students were studying abroad in 2022 according to the Ministry of External Affairs data; and as per the RBI, Rs 5 billion was lost in foreign exchange due to students going overseas in FY 2021-2022
- Allowing foreign universities to set-up campuses in India will also ensure that all our students — there are around 40 million pursuing higher education — **have access to global quality education.**
- The ideal of setting up foreign universities’ campuses in India is also mentioned in the **National Education Policy (NEP) 2020.**
  - The NEP says that the top 100 universities in the world will be facilitated to operate in India through a legislative framework.
  - In a way, the draft regulations released only seek to institutionalize the NEP’s vision.
- This move will **pave the way for India to become a global destination for education.**
- It will not only help prevent brain drain and loss of forex due to Indian students studying overseas, but also **help to attract overseas students to India.**
- It will **encourage competition among various players in the country**, and allow faculty to faculty research collaboration among various universities.

- After Chinese students, Indians are the largest category of foreign students in countries like the U.S., the U.K. and Australia.

### **What are the Concerns?**

- It is believed that the social justice **concerns have been ignored which is very important in our context** where higher education is very effective means for social change.
- Draft regulations have **no provisions for caste-based/economic-based/minority-based/armed forces-based/Divyang-based/Kashmiri migrants/representation-based/women reservation** in student admissions.
- Section of educational practitioners **has expressed reservations about allowing international universities to operate in India as it would raise the cost of education**, rendering it out of reach for a large part of the population.
- Repatriation of funds to the parent institution abroad, which was prohibited previously, has also been allowed.
- There’s also **no requirement for foreign education providers to maintain a corpus fund to operate in India.**

## **National Geospatial Policy 2022**

### **Why in News?**

The **Ministry of Science and Technology** has notified a **National Geospatial Policy (NGP) 2022**, with the goal of making India a world leader in the Global Geospatial Sector.

- India’s geospatial economy is expected to cross Rs 63,000 crore by 2025 at a growth rate of 12.8% and to provide employment to more than 10 lakh people.

### **What is Background?**

- In 2021, the Ministry of Science and Technology issued “**Guidelines for acquiring and producing Geospatial Data and Geospatial Data Services** including Maps”.
- While the Guidelines deregulated the Geospatial sector by liberalizing Geospatial data acquisition/production/ access, the 2022 Policy takes it further by laying down an overarching framework for holistic development of the Geospatial ecosystem.

Note:

## What is National Geospatial Policy 2022?

### ➤ About:

- It is a citizen-centric policy based on Geo-Spatial technology, which seeks to **strengthen the Geospatial sector to support national development**, economic prosperity and a thriving information economy.
- The policy is aimed to **set up high resolution topographical survey and mapping, with a high-accuracy Digital Elevation Model (DEM) by 2030.**

### ➤ Vision and Goals:

- It aims to make India a **World Leader in Global Geospatial space** with the best in the class ecosystem for innovation.
- To develop a **coherent national framework in the country** and leverage it to move towards a digital economy and improve services to citizens.
- To develop **Geospatial infrastructures, Geospatial skill and knowledge, standards, Geospatial businesses.**
- To promote **innovation and strengthen the national and sub-national arrangements for generation** and management of Geospatial information.

### ➤ Institutional framework:

- A Geospatial Data Promotion and Development Committee (GDPDC) at the **national level shall be the apex body for formulating and implementing strategies related** to promotion of the Geospatial sector.
- GDPDC would replace and subsume the functions and powers of the National Spatial Data Committee (NSDC) constituted in 2006 and GDPDC constituted in 2021.
- Department Of Science & Technology shall continue to be the **nodal Department of the Government and GDPDC shall make suitable recommendations to DST** in the discharge of its functions relating to the Geospatial regime.

### ➤ Milestones towards Realization of the Policy's Vision:

- **Year 2025:**
  - Put in place an enabling policy and legal framework that supports liberalization of Geospatial sector and **democratization of data for enhanced commercialization with Value Added Services.**
- **Year 2030:**

- **High resolution topographical survey & mapping** (5-10 cm for urban & rural areas and 50 cm-100 cm for forests & wastelands).

### ○ Year 2035:

- High resolution/accuracy **Bathymetric Geospatial Data of inland waters and sea surface topography of shallow/deep seas** - to support Blue Economy.
- **National Digital Twin of major cities and towns.** The **Digital Twin** is a **virtual replica of a physical asset**, process or service that lies at the core of the new digital revolution.
  - National Digital Twin would be an ecosystem of smart, dynamic, connected Digital Twins, enabled by secure and interoperable data sharing, to facilitate better decision-making.

### ➤ Significance:

- Geospatial technology and data can act as agents of transformation for achieving the **Sustainable Development Goals (SDGs).**
- This is a vibrant initiative to promote the Start-Up & reduce the last mile dependencies on the foreign soil.
- Geospatial data play a vital role in a **wide spectrum of frequencies for critical data management applications**, such as military operations, disaster and emergency management, environmental monitoring, land and city planning.

## What are the Related Concerns?

### ➤ Complex Data:

- Geospatial data can be described as complex data objects with complex relationships among them.
- Securing this type of data poses major challenges and bottlenecks that are yet to be fully understood and addressed.

### ➤ Security Concerns:

- Although a variety of models and techniques are available to manage access and share geospatial data, **little attention has been paid to addressing the National security concerns**, such as access control, securities and privacy policies, the development of secure and in particular interoperable GIS applications in the areas of Defence (Tri-Services).

### ➤ Data Misuse and Privacy Violations:

- If the entire body of geospatial data would be made available by simply integrating the data

Note:

from the different repositories, there is **severe chances of potential data misuse and privacy violations**.

- And “also sensitive information such as building

ownerships might be revealed or information about **critical infrastructure could become publicly accessible** and it is a major concern in context to the applications in Defence.

# GEOSPATIAL TECHNOLOGY

GT facilitates the process of capturing/storing/processing/displaying/disseminating information tied to a location (static or dynamic)

## TECHNOLOGIES UNDER GT

- **Remote sensing** – Detecting/monitoring the physical characteristics of an area typically from satellite or aircraft
- **Global Positioning System (GPS)** – A satellite navigation system to determine the ground position of an object
- **Geographic Information System (GIS)** – Computer system for capturing, storing and displaying data related to positions on Earth's surface
- **3-D Modelling** – Creating three-dimensional representations of an object or a surface

## APPLICATIONS OF GT

- Climate Change and Disaster Management (Ex- Advance Warnings)
- Earth Observation Capabilities (Ex- Vegetation, water quality)
- Healthcare (Ex- Monitoring contact tracing)
- Societal Problems (Ex-Education, livelihood, financial inclusion)
- Logistics (Ex- Tracking goods)
- Real estate (Ex- Analyzing real estate objects remotely)

## INDIA'S GEOSPATIAL SECTOR

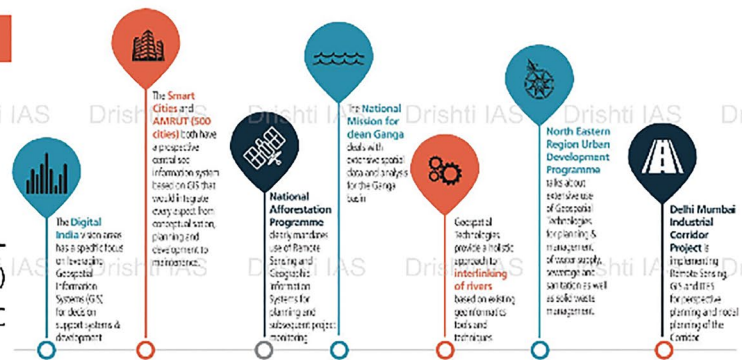
### ■ GEOSPATIAL ECONOMY

- ◆ Expected to cross ₹63,000 crore by 2025
- ◆ Growth rate of 12.8%

### ■ National Geospatial Policy 2022

- ◆ **Geospatial Data Promotion and Development Committee** (apex body to be formed)
- ◆ **DST to be the nodal dept.** of GT; GDPDC will recommend DST
- ◆ **Milestones to Achieve:**

- By 2030 - High resolution topographical survey and mapping
- By 2035 - National Digital Twin (virtual replica) of major cities/towns



Note:

## Draft Rules for Online Gaming

### Why in News?

Recently, the Ministry of Electronics and IT (MeitY) has released the Draft Rules for Online Gaming.

- The proposed rules have been introduced as an amendment to the **Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021**.

### What are the Draft Rules?

- **Self Regulatory Body:**
  - Online games will have to register with a self-regulatory body, and only games cleared by the body will be allowed to legally operate in India.
    - The self-regulatory body will have a board of directors with **five members from diverse fields**, including online gaming, public policy, IT, psychology and medicine.
  - There could be more than one self-regulatory body and all of them will have to inform the Centre about the games they have registered along with a report detailing the criteria for registering.
- **Due Diligence:**
  - Online gaming firms **will be required to undertake additional due diligence, including KYC of users, transparent withdrawal and refund of money, and a fair distribution of winnings.**
  - For KYC, they will have to **follow norms laid down for entities regulated by the Reserve Bank of India (RBI)**.
- **Random Number Generation Certificate:**
  - Gaming companies will also have to secure a Random Number Generation Certificate, which is typically **used by platforms that offer card games to ensure that game outputs are statistically random and unpredictable.**
  - They will also have to get a **“no bot certificate”** from a reputed certifying body.
- **Restrictions on Betting:**
  - Online gaming companies **will not be allowed to engage in betting on the outcome of games.**
- **Compliance:**

- Similar to social media and e-commerce companies, **online gaming platforms will also have to appoint a compliance officer** who will ensure that the platform is following norms, a nodal officer who will act as a liaison official with the government and **assist law enforcement agencies, and a grievance officer who will resolve user complaints.**

### What is the Need for the Rules?

- Around 40 to 45 % of the gamers in India are women, and therefore it was all the more important to keep the gaming ecosystem safe.
- It is believed to be a great first step for comprehensive regulation for online gaming and will reduce the **state-wise regulatory fragmentation that was a big challenge for the industry.**
- The revenue of the Indian mobile gaming industry is expected to reach USD 5 billion in 2025.
- The industry grew at a **compound annual growth rate (CAGR) of 38%** in India between 2017-2020, as opposed to 8 % in China and 10% in the US.
- It is expected to grow at a CAGR of 15 % to reach Rs 153 billion in revenue by 2024, as per a report by VC firm Sequoia and management consulting company BCG.

## 17<sup>th</sup> Pravasi Bharatiya Diwas Convention

### Why in News?

**Pravasi Bharatiya Divas (PBD)** is celebrated on 9<sup>th</sup> January to mark the contribution of the **Overseas Indian community** to the development of India.

- The Prime Minister **inaugurated the 17<sup>th</sup> three-day Pravasi Bharatiya Divas Convention in Indore, Madhya Pradesh** and a digital exhibition on the **contribution of the diaspora in the freedom struggle**. He also released a commemorative stamp, **‘Surakshit Jaayen, Prashikshit Jaayen’** on the occasion.

### What is Pravasi Bharatiya Diwas?

- **Background:**
  - 9<sup>th</sup> January was chosen as the day to celebrate PBD **since it was on this day in 1915 that Mahatma Gandhi**, the greatest Pravasi, returned to India from South Africa, **led India’s freedom struggle** and changed the lives of Indians forever.

Note:

- This day came into effect in 2003, but in 2015 it was revised and was decided to be celebrated every two years. It was then a theme-based conference that was set up every year during the interim period.
- PBD Conventions are held once every two years.
  - **PBD 2023:** The theme is “Diaspora: Reliable partners for India’s progress in Amrit Kaal”.
- On this day, the Government also confers Pravasi Bharatiya Samman Award.
  - It is the highest honour conferred on a **Non-Resident Indian (NRI)**, **Person of Indian Origin (PIO)**; or an organisation or institution established and run by **NRI OR PIO**, who have made **significant contributions to a better understanding of India** abroad, support India’s causes and concerns in a tangible way.
- **Significance:**
  - This day plays a significant role as the overseas Indian community gets a shared platform to get themselves engaged with the government and the native people of the land.
  - The conventions are very useful in networking among the overseas Indian community residing in various parts of the world and enable them to share their experiences in various fields.

#### What are the Government Initiatives related to Overseas Indians?

- **Pravasi Kaushal Vikas Yojana (PKVY):** To institutionalize the process of skill development of emigrant Indian workers.
- **Scholarship Programme for Diaspora Children (SPDC):** 100 scholarships per annum are granted to **PIO and NRI students** for undergraduate courses.
- **Know India Program’ (KIP):** It familiarizes Indian-origin youth (18-30 years) with their Indian roots and contemporary India.
- **E-migrate System:** It is a foreign employers database. It ensures the welfare and check on exploitation met to emigrants.
- **VAJRA (Visiting Advanced Joint Research Faculty) Scheme:** It formalizes a rotation program wherein top NRI scientists, engineers, doctors, managers and professionals serve Indian public sector organizations for a brief period, lending their expertise.

## First Aspirational District Deploying 5G Technology

### Why in News?

Recently, Vidisha, an aspirational district of Madhya Pradesh became the first-ever district in India for on-ground deployment of innovative 5G use cases offered by startups.

### What are the Highlights of the Initiative?

- It is a joint initiative by Vidisha District Administration and Centre for Development of Telematics (C-DOT), **Department of Telecommunications (DoT)** under the guidance of Additional Secretary (Telecom) & Administrator **Universal Service Obligation Fund (USOF)**.
- **The 5G will be deployed at community & district health centers, Model Schools, Agri & Dairy Farmers, and skill development centers** for a period of 1 year and may be extended subsequently as per the need.
- These digital solutions will also be powered by **BharatNet broadband** to provide uninterrupted services to user communities of Vidisha.

### What is the Aspirational District Programme?

- It was launched in 2018 which aims to transform districts that have shown relatively lesser progress in key social areas.
- Aspirational Districts are those districts in India, that are affected by poor socio-economic indicators.
  - It covers 112 districts across the country.
- At the Government of India level, programme is anchored by **NITI Aayog**. In addition, individual Ministries have assumed responsibility to drive the progress of districts.

### What is 5G Technology?

- 5G is the 5th generation mobile network. It is a new global wireless standard after **1G, 2G, 3G, and 4G** networks.
- 5G works in **3 bands (Low, Mid and High frequency spectrum)** - all of which have their own uses as well as limitations.
- It enables a new kind of network that is designed to connect virtually everyone and everything together including machines, objects, and devices.

Note:



## Aspirational Blocks Programme

### **Why in News?**

Recently, **Aspirational Blocks Programme (ABP)** has been launched during the **2<sup>nd</sup> National Conference of Chief Secretaries** held from 5th January to 7th January, 2022.

### **What is Aspirational Blocks Programme?**

- It is a development initiative aimed at **improving the performance of areas that are lagging on various development parameters.**
- It was announced in the **Union Budget 2022-23.**
- It will **initially cover 500 districts across 31 states and Union Territories**, with over **half of these blocks located in six states** – Uttar Pradesh, Bihar, Madhya Pradesh, Jharkhand, Odisha and West Bengal.
- The ABP is based on the **Aspirational District Programme (ADP).**

### **What is Aspirational District Programme?**

- **About:**
  - It was launched in 2018 which aims to **transform districts** that have shown relatively **lesser progress in key social areas.**
  - Aspirational Districts are those districts in India, that **are affected by poor socio-economic indicators.**
    - It covers 112 districts across the country.
  - At Government of India level, **programme is anchored by NITI Aayog.** In addition, individual Ministries have assumed responsibility to drive progress of districts.
- **Broad Contours of the Programme:**
  - **Convergence** (of Central & State Schemes)
  - **Collaboration** (of Central, State level 'Prabhari' Officers & District Collectors),
  - **Competition** among districts through monthly **delta ranking.**
    - The delta ranking of the Aspirational Districts combines the **innovative use of data with pragmatic administration**, keeping the district at the locus of inclusive development.
- **Objectives:**

- It focuses **on the strength of each district, identifying low-hanging fruits for immediate improvement and measuring progress** by ranking districts on a monthly basis.
- Districts are prodded and encouraged to first catch up with the best district within their state, and subsequently aspire to become one of the best in the country, by **competing with, and learning from others in the spirit of competitive & cooperative federalism.**
- The Government is committed to raising the living standards of its citizens and ensuring inclusive growth for all – **"Sabka Saath Sabka Vikas aur Sabka Vishwas"**.
- The ADP is essentially aimed at **localizing Sustainable Development Goals**, leading to the progress of the nation.

### ➤ **Parameters for Ranking:**

- The ranking is based on the incremental progress made across 49 Key Performance Indicators (KPIs) under **5 broad socio-economic themes** -
  - **Health & Nutrition (30%)**
  - **Education (30%)**
  - **Agriculture & Water Resources (20%)**
  - **Financial Inclusion & Skill Development (10%)**
  - **Infrastructure (10%)**

### ➤ **Various Programmes:**

- Various programmes such as – **Saksham Bitiyan Abhiyan, Anemia Mukh Bharat and Surakshit Hum Surakshit Tum**, are some of the flagship initiatives that have been taken up by **NITI Aayog** in this regard.

## 76<sup>th</sup> Foundation Day of BIS

### **Why in News?**

Recently, the **76<sup>th</sup> Foundation Day of Bureau of Indian Standards (BIS)** was celebrated in New Delhi and various initiatives were launched by the **Ministry of Consumer Affairs, Food & Public Distribution.**

### **What are the Various Initiatives Launched?**

- **Portal for Mapping of Industrial Units and Laboratories:**
  - This is a **centralized platform** for information on industrial units and laboratories across the country.

Note:

- This will **enable analysis of test facilities** in the country and **help entrepreneurs in accessing information** about testing facilities.
- **Standards National Action Plan (SNAP) 2022- 27:**
  - This is a document to **serve as strong foundation for standardization to meet the emerging technologies and concerns of sustainability and climate change.**
  - SNAP 2022 - 27 will play an important role in **steering the national standardization efforts** which would lead to standards becoming a key enabler of India's economic aspirations.
  - The implementation of key recommendations and strategies of the document will be **pivotal in enriching and strengthening "Quality Culture" in the Nation.**
- **Revision Exercise of National Building Code of India 2016 (NBC 2016):**
  - **Published by the BIS, NBC is a "recommendatory document",** and state governments are expected to **incorporate it into their local building by laws, making the recommendations a mandatory requirement.**
    - BIS is initiating the Exercise of Revision NBC 2016 to include:
      - Sustainable City Planning Norms
      - New and Sustainable Building Materials
      - Design Concepts
      - Construction Technologies
      - Building and Plumbing Services
- **Revised National Electrical Code of India 2023 (NEC 2023):**
  - NEC 2023, a **comprehensive electrical installations Code prepared by BIS,** is a national instrument **providing guidelines for regulating the Electrical Installations practices** across the country.
    - India's first National Electrical Code was **formulated in the year 1985,** which was subsequently **revised in the year 2011.**
    - The **current revision** includes the requirements of electrical installation **as per the latest International best practices.**
      - Some of the important new chapters added in the revised NEC are **requirements related to Electrical installations at special locations**

like Hospitals, Community facilities, Hotels, Swimming Pools, Amusement Parks, Supplies for Electric vehicles, multi-storied buildings etc.

- **Training Courses on National Building Code of India 2016 and National Electrical Code of India:**
  - BIS through its training arm, the **National Institute of Training for Standardization (NITS)** has designed **training courses** on NBC 2016 and NEC 2023 for national capacity building.
- **Standards Clubs in Schools:**
  - Through Standards Clubs, BIS aims to **expose science students of class 9<sup>th</sup> and above to the concepts of Quality and Standardization through student centric activities.**
  - BIS has till date **established over 4000 Standards Clubs across India** and upon realizing the potential and success of the novel endeavor, the target is **ambitiously enhanced to creating 10,000 clubs by the end of 2022-23.**

### What is BIS?

- It has been established for the harmonious **development of the activities of standardization, marking and quality certification of goods** and for matters connected therewith or incidental thereto.
- It was **established by the BIS Act, 1986** which came into effect in December 1986. It works under the aegis of the **Ministry of Consumer Affairs, Food & Public Distribution**
- A new **BIS Act 2016** has been brought into force with effect from October 2017.
  - The Act establishes the **BIS as the National Standards Body of India.**

## National Green Hydrogen Mission

### Why in News?

The Union Government has approved a **Rs 19,744 crore National Green Hydrogen mission** that aims to make India a 'global hub' for using, producing and exporting green hydrogen.

Note:

# NATIONAL GREEN HYDROGEN MISSION



## NODAL MINISTRY

- Ministry of New and Renewable Energy

## OBJECTIVE

- Decarbonise energy/industrial/mobility sector
- Develop indigenous manufacturing capacities
- Create export opportunities for GH<sub>2</sub> and its derivative

## COMPONENTS OF NGHM

- Strategic Interventions for Green Hydrogen Transition Programme (SIGHT)
- Strategic Hydrogen Innovation Partnership (SHIP) (PPP for R&D)

GH<sub>2</sub> is not commercially viable at present; current cost in India is around ₹350-400/kg.  
The National Hydrogen Energy Mission aims to bring it down under ₹100/kg.

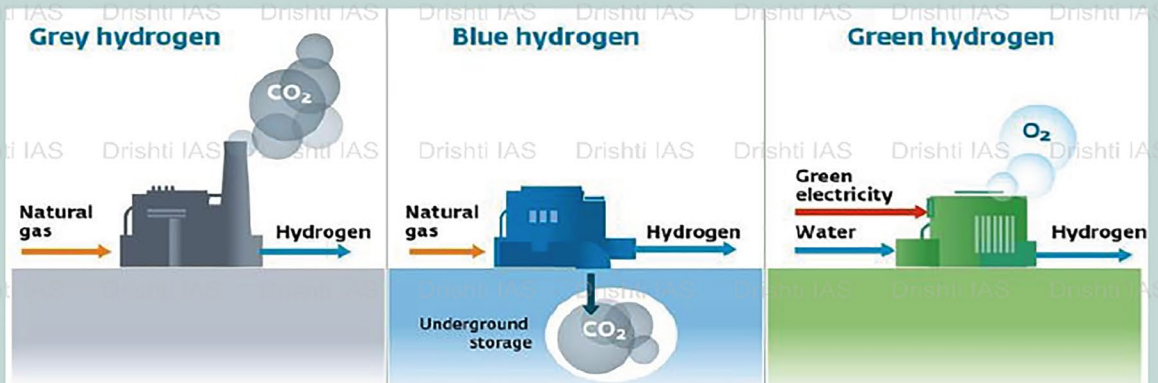
### Expected Outcomes by 2030

- ◆ Atleast 5MMT GH<sub>2</sub> annual production
- ◆ Rs 1 lakh crore fossil fuel import savings
- ◆ 6 lakh jobs
- ◆ 50MMT CO<sub>2</sub> annual emissions averted
- ◆ ₹ 8 lakh crore investment

## HYDROGEN AND GREEN HYDROGEN

Hydrogen is the most common element in nature but exists only in combination with other elements. It has to be extracted from naturally occurring compounds (like water).

Green Hydrogen (GH<sub>2</sub>) is made by splitting water through an electrical process called electrolysis, using an electrolyser powered by renewable energy (RE).



Read More - [National Green Hydrogen Mission](#)

Note:

## Make in India

### Why in News?

Recently, over a dozen “restrictive and discriminatory” conditions which prevented local suppliers from participating in the bidding process were flagged by the Union Government to boost ‘Make in India’ initiative.

- These conditions were in violation of the Public Procurement (Preference to Make in India) Order, 2017, issued to protect the interests of local suppliers and to promote manufacturing and production of goods and services in India with a view to enhance income & employment.

### What is Make in-India Programme?

#### ➤ About:

- Launched in 2014, Make in India aims to transform the country into a leading global manufacturing and investment destination.
- It is being led by the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India.
- The initiative is an open invitation to potential investors and partners across the globe to participate in the growth story of ‘New India’.
- Make In India has substantial accomplishments across 27 sectors under Make in India 2.0 which include strategic sectors of manufacturing and services as well.

#### ➤ Objectives:

- To attract foreign investment for new industrialisation and develop the already existing industry base in India to surpass that of China.
- Target of an increase in manufacturing sector growth to 12-14% per annum over the medium term
- To increase the share of manufacturing sector in the country’s Gross Domestic Product from 16% to 25% by 2022
- To create 100 million additional jobs by 2022.
- To promote export-led growth.

#### ➤ Four Pillars:

- **New Processes:**
  - ‘Make in India’ recognizes ‘Ease of Doing Business’ as the single most important factor to promote entrepreneurship for which a number of initiatives have already been undertaken.

- The aim is to de-license and de-regulate the industry during the entire life cycle of a business.

#### ○ **New Infrastructure:**

- The government intends to develop industrial corridors, strengthen existing infrastructure, and design a fast-paced registration system as part of its commitment to the growth of the industry.

#### ○ **New Sectors:**

- ‘Make in India’ has identified 27 sectors in manufacturing, infrastructure and service activities and detailed information is being shared through interactive web-portal and professionally developed brochures.

#### ○ **New Mindset:**

- ‘Make in India’ intends to bring a paradigm shift in how Government interacts with industry.
- The Government will partner industry in economic development of the country and the approach will be that of a facilitator and not regulator.

#### ➤ **Outcomes:**

- **Foreign Direct Investment (FDI) Inflows:** To attract foreign investments, Government of India has put in place a liberal and transparent policy wherein most sectors are open to FDI under the automatic route.
  - FDI inflows in India stood at USD 45.15 billion in 2014-2015 and have since consecutively reached record FDI inflows for eight years.
    - The year 2021-22 recorded the highest ever FDI at USD 83.6 billion
  - On the back of economic reforms and Ease of Doing Business in recent years, India is on track to attract USD 100 Billion in FDI in the current Financial Year (2022-23)
- **Production Linked Incentive (PLI):** The Production Linked Incentive (PLI) scheme across 14 key manufacturing sectors, was launched in 2020-21 as a big boost to the Make in India initiative.

#### ➤ **Related Initiatives:**

- **National Single Window System (NSWS)**
- **PM Gati Shakti Programme**
- **One-District-One-Product (ODOP)**
- **Scheme for building Semiconductor Ecosystem:** Recognising the importance of semiconductors in

Note:

the world economy, the Government has launched a USD 10 billion incentive scheme to build a semiconductor, display, and design ecosystem in India.

## Jallikattu

### Why in News?

A **Constitution Bench** of the **Supreme Court** reserved for judgment a batch of petitions seeking to strike down a **Tamil Nadu law** which protects **Jallikattu** by claiming that the **bull-taming sport** is a **cultural heritage of the State** and is protected under **Article 29 (1) of the Constitution**.

- While these practices may be **deeply rooted** in the **culture and traditions of certain communities**, they are often controversial and have been criticized by animal welfare advocates.

### What is Jallikattu?

- **Jallikattu** is a traditional sport that is popular in the Indian state of **Tamil Nadu**.
- The sport involves **releasing a wild bull** into a crowd of people, and the participants attempt to **grab the bull's hump and ride it** for as long as possible, or attempt to bring it under control.
- It is celebrated in the month of **January**, during the **Tamil harvest festival, Pongal**.

### What are the Associated Concerns?

- The primary question involved was whether **Jallikattu** should be granted constitutional protection as a collective **cultural right under Article 29 (1)**.
  - **Article 29 (1)** is a **fundamental right** guaranteed under **Part III** of the Constitution to protect the **educational and cultural rights** of citizens.
- The court examined if the laws "**perpetuate cruelty to animals**" or were actually a means to ensure "**the survival and well-being of the native breed of bulls**".
- The **five-judge Bench** heard parties on whether the new **Jallikattu laws** were "**relatable**" to **Article 48 of the Constitution**, which urged the state to endeavor to organize agriculture and animal husbandry on modern and scientific lines.
- The Constitution Bench also looked into whether **Jallikattu** and **bullock-cart** races laws of **Karnataka**

and **Maharashtra** would actually **sub-serve the objective of "prevention" of cruelty to animals under the Prevention of Cruelty to Animals Act of 1960**.

### What are the

### Associated Legal Interventions?

- In **2011**, the Centre added **bulls** to the list of animals whose **training and exhibition** is **prohibited**.
- The **Supreme Court** banned **Jallikattu** through a judgment in **May 2014** in the **Animal Welfare Board of India vs A. Nagaraja case on the grounds of cruelty to animals**.
- In **2018**, the **Supreme Court** referred the **Jallikattu case** to a **Constitution Bench**, where it is pending now.
- The bone of contention is the **Prevention of Cruelty to Animals (Tamil Nadu Amendment) Act of 2017** and **Prevention of Cruelty to Animals (Conduct of Jallikattu) Rules of 2017**, which had **re-opened** the gates for the conduct of the popular **bull-taming sport** in the name of culture and tradition despite a **2014 ban** by the **Supreme Court**.

### What were the Arguments

### adduced for and against Jallikattu?

- **Argument in Favour:**
  - In Tamil Nadu, jallikattu is **both a religious and cultural event celebrated by the people of the State** and its influence extends beyond the confines of caste and creed.
  - "A practice which is centuries-old and symbolic of a community's identity can be regulated and reformed as the human race evolves rather than being completely obliterated," the State government submitted.
  - It added that any ban on such a practice would be viewed as "hostile to culture and against the sensitivities of the community".
  - Describing jallikattu as "a tool for conserving this precious indigenous breed of livestock," the government argued that the traditional event **did not violate principles of compassion and humanity**.
  - It contended that the traditional and cultural significance of the event and its intertwining with **the sociocultural milieu was being taught in high school curriculum** so that "the significance is maintained beyond generations."

Note:

### ➤ Arguments in Opposition:

- The **petitioners' line of argument** was that animal life was inextricably connected to the lives of humans. Liberty was "inherent in every living being, whether it be in any form of life," an aspect that had been recognized by the **Constitution**.
- The **Tamil Nadu** law was brought to circumvent the ban on **jallikattu** imposed by the **Supreme Court**.
- **Deaths and injuries** have been caused to humans as well as bulls which had taken place in several districts of the State while conducting **jallikattu**.
- The petitioners contended that contrary to the arguments advanced by **Tamil Nadu**, several tamers pounced on bulls.
- According to them, "**extreme cruelty**" was inflicted on the animals.
- There was no material to justify **jallikattu** as a part of culture.
- The critics had equated the event with practices such as **sati and dowry**, which were also once recognized as part of culture and stopped through legislation.

### What is the Position in Other States for Similar Sports?

- **Karnataka** too passed a law to save a similar sport, called **Kambala**.
- Except in **Tamil Nadu** and **Karnataka**, where **bull-taming** and **racing continue** to be organized, these sports remain **banned** in all other states including **Andhra Pradesh, Punjab** and **Maharashtra** due to the **2014** ban order from the **Supreme Court**.

## BIND Scheme

### Why in News?

The Cabinet Committee on Economic Affairs approved the proposal of the **Ministry of Information and Broadcasting** regarding the **Central Sector Scheme** "Broadcasting Infrastructure and Network Development" (BIND) Scheme with an outlay of Rs.2,539.61 crore up to 2025-26.

### What is a BIND Scheme?

- **About:**
  - It is a scheme for providing **financial support to Prasar Bharati** for expenses related to expansion

and upgradation of its broadcasting infrastructure, content development and civil work related to the organization.

- **Prasar Bharati**, as the public broadcaster of the country, is the most important vehicle of information, education, entertainment and engagement for the people especially in the remote areas of the country through Doordarshan (DD) and All India Radio (AIR).
- **Prasar Bharati** played a stellar role in communicating public health messages and awareness to the public during the **covid pandemic**.

### ➤ Scope:

- It will widen **Prasar Bharati's** reach, including in the **LWE (Left Wing Extremism)**, border and strategic areas and provide high quality content to the viewers.
- It will increase coverage of AIR FM (frequency modulation) transmitters in the country **to 66% by geographical area and 80% by population, up from 59% and 68% respectively**. The Scheme also envisages free distribution of over 8 lakh DD Free Dish STBs (Set Top Box) to people living in remote, tribal, LWE and border areas.

### ➤ Significance:

- In addition to enhancing the scope of public broadcasting, the Project has the **potential to generate indirect employment by way of manufacturing and services related to supply** and installation of broadcast equipment.
- Content generation and content innovation for AIR & DD has the potential of indirect employment of persons with varied experience of different media fields in the content production sector including TV/Radio production, transmission and associated media related services.

## The Indian Telegraph (Infrastructure Safety) Rules 2022

### Why in News?

Recently, the **Department of Telecommunications** under the **Ministry of Communications** has formulated the **Indian Telegraph (Infrastructure Safety) Rules, 2022**.

Note:

- The **Central government** has envisioned fulfilling the **communication needs** of the **citizens** and **enterprises** through establishment of a **resilient, secure, accessible** and **affordable Digital Communications Infrastructure and Services**.

### **What is the Indian**

#### **Telegraph (Infrastructure Safety) Rules, 2022?**

- Under the Rules, **any person who wishes to exercise a legal right to dig or excavate any property** which is likely to cause damage to a telegraph infrastructure **must give notice to the licensee**.
- The person digging or excavating shall take appropriate action on precautionary measures provided by the licensee.
- Any person, who has dug or excavated any property causing damage to a telegraph infrastructure, will be liable to pay the damage charges to the telegraph authority.
- Once the asset owner agencies map their underlying assets with GIS coordinates on **PM GatiShakti National Master Plan platform**, it will also be possible to know the presence of underlying utility assets, at the point of interest, before start of excavation.

#### **What are the Associated Advantages?**

- Many utilities can be saved from **unwanted cuts** and **wasteful costs** towards **restoration**.
  - Thus, saving thousands of crores for businesses and associated tax loss to Government.
- Inconvenience caused to citizens because of frequent breakdown may be reduced due to better synergy between the agencies.

#### **What is PM Gati Shakti -National Master Plan for Multi-modal Connectivity?**

- **Aim:**
  - To ensure integrated planning and implementation of infrastructure projects in the next four years, with focus on expediting works on the ground, saving costs and creating jobs.
  - Besides **cutting logistics costs**, the scheme is also aimed at increasing **cargo handling capacity** and reducing the turnaround time at ports to boost trade.
  - It will help in fulfilling the **ambitious targets** set by the government for **2024-25**, including

expanding the length of the **national highway network to 2 lakh kms**, creation of more than **200 new airports, heliports and water aerodromes**.

- **PM Gati Shakti is based on Six Pillars:**
- **Comprehensiveness:** It will include all the existing and planned initiatives of various Ministries and Departments with one centralized portal. Each and every Department will now have visibility of each other's activities providing critical data while planning & execution of projects in a comprehensive manner.
- **Prioritization:** Through this, different Departments will be able to prioritize their projects through cross-sectoral interactions.
- **Optimization:** The National Master Plan will assist different ministries in planning for projects after identification of critical gaps. For the transportation of the goods from one place to another, the plan will help in selecting the most optimum route in terms of time and cost.
- **Synchronization:** Individual Ministries and Departments often work in silos. There is lack of coordination in planning and implementation of the project resulting in delays. PM Gati Shakti will help in synchronizing the activities of each department, as well as of different layers of governance, in a holistic manner by ensuring coordination of work between them.
- **Analytical:** The plan will provide the entire data at one place with GIS based spatial planning and analytical tools having 200+ layers, enabling better visibility to the executing agency.
- **Dynamic:** All Ministries and Departments will now be able to visualize, review and monitor the progress of cross-sectoral projects, through the GIS platform, as the satellite imagery will give on-ground progress periodically and progress of the projects will be updated on a regular basis on the portal. It will help in identifying the vital interventions for enhancing and updating the master plan.
- **Gati Shakti Digital Platform:**
- It involves the creation of a **common umbrella platform** through which **infrastructure projects** can be **planned and implemented** in an efficacious manner by way of **coordination between various ministries/departments** on a real-time basis.
- It is essentially a digital platform to bring 16 Ministries including Railways and Roadways together.

Note:

**GatiShakti myGov**  
National Master Plan for  
Multi-modal connectivity  
मो मो सरकार

**Pragati Ki Gati  
Bharat Ki Shakti**

## Connecting Pillars of New India

- To cover infrastructure initiatives like Bharatmala, Sagarmala, Ports, UDAN, Economic Zones, Railways etc
- Social infrastructure such as hospitals, universities to be integrated in the next phase
- To develop new possibilities for the creation of future economic zones

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**Pragati Ki Gati  
Bharat Ki Shakti**

## Making India the hub of world-class infra

- Comprehensive master plan mapping all existing/planned initiatives of Ministries
- Guide the creation of economic zones & connectivity infrastructure
- Help remove regional & sectoral imbalances in infrastructure & connectivity
- Aid faster growth of key sectors, employment generation & spearheading growth

## National Exit Test

### Why in News?

Recently, the **National Medical Commission (NMC)** issued the proposed draft regulations related to the **National Exit Test (NExT)**.

### What is the Objective of the Regulation?

- To provide **consistency across the nation in the summative evaluation** with regard to the minimum common standards of education and training for a medical graduate.
- The objective of the NExT is to **improve the quality of healthcare in India** by ensuring that **all doctors have a minimum level of competency and knowledge** before they begin practicing medicine.

### What is National Exit Test?

- The **NExT** is a medical licensing exam that is designed to assess the competency of medical graduates.
- Students who received their medical degrees from NMC approved medical institutions and overseas students also will have to qualify the National Exit Test.**
- To register for medical practice in India, they must pass **the NExT** test.
- This centralized common exam will be conducted by a body formed by the commission for this purpose.
  - National Medical commission (Amendment) Bill, 2022**, proposes an autonomous board, '**Board of Examinations in Medical Sciences**', which, when comes to effect, will be responsible for holding the NExT exam.
  - Currently, the **National Board of Examinations in Medical Sciences (NBEMS)** is responsible for holding exams like **NEET PG** (National Eligibility cum Entrance Test Postgraduate), **Foreign Medical Graduate Examination (FMGE)**.
- NExT will take the place of tests like **FMGE** and **NEET PG**.
- The NExT will comprise two separate exams called 'Steps'.

### Who is Eligible to Appear in the NExT?

- All the students who have completed the **final MBBS course** from a **Commission-recognised medical college** would be eligible to appear in the exam.

Note:



- There is **no restriction in the number of attempts** provided that the candidate passes both the steps within **10 years** of joining **MBBS**.
- Just by clearing the **NExT** exam the foreign medical graduates will get licentiate to become practicing doctors.

### What is the National Medical Commission?

#### ➤ About:

- The **National Medical Commission (NMC)** is a **statutory body** in India that was established in **2019** by the Indian government to replace the **Medical Council of India (MCI)**.
- The **NMC** has been constituted by an act of Parliament known as **National Medical Commission Act, 2019**
- The **NMC** is a regulatory body for the medical education sector in India.

#### ➤ Mission and Vision:

- The Aim of the **National Medical Commission** are to
  - Improve access to quality and affordable medical education.
  - Ensure availability of adequate and high quality medical professionals in all parts of the country.
  - Promote equitable and universal healthcare that encourages community health perspective and makes services of medical professionals accessible to all the citizens.
  - Encourages medical professionals to adopt the latest medical research in their work and to contribute to research.
  - Objectively assess medical institutions periodically in a transparent manner.
  - Maintain a medical register for India.
  - Enforce high ethical standards in all aspects of medical services.
  - Have an effective grievance redressal mechanism.
  - It also has the authority to **regulate fees** for **medical courses** and to conduct inspections of medical colleges to ensure that they meet the necessary standards.

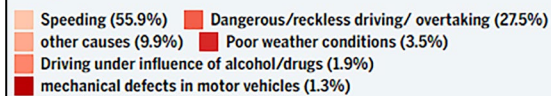
## Road Accidents in India

### Why in News?

As per the Minister of Road Transport and Highways the **Indian road accident scenario, with 415 deaths and many injured every day, is more severe than Covid-19.**

### Road Accidents in India: What's the Scenario?

#### Major causes of road accident deaths in 2021



#### ➤ Present Situation:

- **Over 1.5 lakh people died from road accidents in 2021**, and this has been the trend for several years.
- According to **National Crime Records Bureau (NCRB)** data from 2021, driving under the influence of drugs/alcohol **contributed to 1.9% of deaths from accidents**.
- Further, nearly **90% of deaths on the road were due to speeding, overtaking, and dangerous driving**.
- According to the **World Bank's** data from 2019, **India ranked first among the top 20 countries for road accidents**.

#### ➤ Causes:

- **Infrastructural Deficits:** Pathetic conditions of roads and vehicles, poor visibility and poor road design and engineering – including quality of material and construction, especially a single-lane with a sharp curve.

Note:

- **Negligence and Risks:** Over speeding, driving under the influence of alcohol or drugs, tiredness or riding without a helmet, driving without seatbelts.
- **Distraction:** Talking over mobile phones while driving has become a major cause of road accidents.
- **Overloading:** To save on the cost of transportation.
- **Weak Vehicle Safety Standards in India:** In 2014, crash tests carried out by the **Global New Car Assessment Programme (NCAP)** revealed that some of India's top-selling car models have failed the UN (United Nations)'s frontal impact crash test.
- **Lack of Awareness:** Regarding the importance of safety features like airbags, **Anti lock Braking system** etc.

➤ **Impacts:**

- **Economy:**
  - As per the World Bank, **road crashes cost the Indian economy 3 to 5% of GDP each year.**
- **Social:**
  - **The Burden on Households:**
    - Every road accident death causes the depletion of nearly seven months' household income in poor families and pushes the kin of victims into a cycle of poverty and debt.
  - **Vulnerable Road Users (VRUs):**
    - VRUs bear a disproportionately large burden of road crashes and **account for more than half of all road crash deaths** and serious injuries in the country.
      - ◆ It is often the poor, especially male road-users of working age, that constitute the category of VRUs.
  - **Gender-Specific Impact:**
    - Women in the families of victims bore the burden across poor and rich households, often taking up extra work, assuming greater responsibilities, and performing caregiving activities.
    - According to World Bank's report "**Traffic Crash Injuries and Disabilities: The Burden on Indian Society, 2021,**"
      - ◆ About 50% of women were **severely affected** by the decline in their household income after a crash.
      - ◆ About 40% of women **reported a change in their working patterns post-accident,**

while around 11% reported taking up extra work to deal with the financial crisis.

- ◆ The **income decline for low-income rural households** (56%) was the most severe compared to low-income urban (29.5%) and high-income rural households (39.5%).

**What are the Initiatives Related to Road Safety?**

➤ **Global:**

○ **Brasilia Declaration on Road Safety (2015):**

- The declaration was signed at the second Global High-Level Conference on Road Safety held in Brazil. India is a signatory to the Declaration.
- The countries plan to achieve **Sustainable Development Goal 3.6** i.e., to halve the number of global deaths and injuries from road traffic accidents by 2030.

○ **Decade of Action for Road Safety 2021-2030:**

- The **UN General Assembly** adopted resolution "Improving global road safety " with the ambitious target of preventing at least **50% of road traffic deaths and injuries by 2030.**
- The Global Plan aligns with the **Stockholm Declaration**, by emphasizing the importance of a holistic approach to road safety.

○ **The International Road Assessment Programme (iRAP) :**

- It is a registered charity dedicated to saving lives through safer roads.

➤ **India:**

○ **Motor Vehicles Amendment Act, 2019:**

- The Act **hikes the penalties for traffic violations, defective vehicles, juvenile driving,** etc.
- It provides for a **Motor Vehicle Accident Fund**, which would provide compulsory insurance cover to all road users in India for certain types of accidents.
- It also **provides for a National Road Safety Board**, to be created by the Central Government.

○ **The Carriage by Road Act, 2007:**

- The Act provides for the **regulation of common carriers, limiting their liability and declaration of the value of goods** delivered to them to determine their liability for loss of, or damage to, such goods occasioned by the negligence

Note:

or criminal acts of themselves, their servants or agents and for matters connected therewith or incidental thereto.

- **The Control of National Highways (Land and Traffic) Act, 2000:**
  - The Act provides for the control of land within the National Highways, right of way and traffic moving on the National Highways and also for removal of unauthorized occupation thereon.
- **National Highways Authority of India Act, 1998:**
  - The Act provides for the constitution of an authority for the development, maintenance and management of NHs and for matters connected therewith or incidental thereto.

## SMART Program for Ayurveda

### *Why in News?*

Recently, the National Commission for Indian System of Medicine (NCISM) and the Central Council for Research in Ayurvedic Sciences (CCRAS), the two prominent institutions under the Ministry of Ayush, have launched 'SMART' program.

- The **SMART (Scope for Mainstreaming Ayurveda Research in Teaching Professionals) program** aims to boost scientific research through Ayurveda colleges and hospitals.

### *What is the SMART Program?*

- It was observed that the research potential of the large community of Ayurveda teachers remains underutilized mostly. Therefore, the 'SMART' program will **have a deep long term rejuvenating impact on research in the field of Ayurveda and it will be a great service to the nation.**
- It aims to **identify, support and promote innovative research ideas** in healthcare research areas including Osteoarthritis, Iron Deficiency Anaemia, Chronic Bronchitis, Dyslipidemia, Rheumatoid Arthritis, Obesity, Diabetes Mellitus, Psoriasis, Generalised Anxiety Disorder, Non-alcoholic fatty liver disease (NAFLD).
- The program will motivate teachers for taking up projects in designated areas of healthcare research and create a large database.

### **What is Ayush?**

- Ayush is Traditional & Non-Conventional Systems of Health Care and Healing which includes **Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homoeopathy.**
- The positive features of the Indian systems of medicine namely **their diversity and flexibility; accessibility; affordability, a broad acceptance by a large section** of the general public; comparatively lesser cost and growing economic value, have great potential to make them providers of healthcare that the large sections of our people need.

### **What Initiatives has the Government taken for Development of Ayurveda?**

- **National Ayush Mission**
- **Aahaar Kranti Mission**
- **New Portals on Ayush Sector**
- **ACCR Portal and Ayush Sanjivani App**

## Year-End Review-2022: Department of Space

### *Why in News?*

Recently, the **Year-End-Review of the Department of Space for the year 2022** under the Ministry of Science and Technology was released.

### *What are the Key*

### *Achievements of the Department of Space?*

- **Key Missions:** Altogether 44 spacecraft missions, 42 launch vehicle missions and 5 technology demonstrators, have been successfully realized, since 2014.
  - **Chandrayaan-2 Mission:** In 2019, Chandrayaan-2 was successfully launched.
    - It is **providing valuable science data for the research community.**
  - **50<sup>th</sup> PSLV Launch:**
    - The launch of PSLV-C48/ RISAT-2BR1 in Dec 2019 marked the **50th launch of PSLV**, the workhorse launch vehicle.
    - RISAT-2BR1 will keep a check on infiltration by allowing round-the-clock surveillance across the border.

Note:

- **ISRO System for Safe & Sustained Operations Management (IS4OM):**
  - In July 2022, the Ministry of science dedicated **ISRO System for Safe & Sustained Operations Management (IS4OM)** to the nation in.
  - It is a facility that is conceived with a holistic approach towards ensuring safety and sustainability while reaping the **benefits of sustainable utilization of outer space for national development.**
- **Launch Vehicle Mark (LVM) 3:**
  - LVM3 /OneWeb India-1 Mission was **successfully accomplished in October 2022.**
  - With this launch, LVM3 exemplifies **Atmanirbharata** and enhances India's competitive edge in the global commercial launch service market.
- **Integrated Main Parachute Airdrop Test (IMAT):**
  - As part of **Gaganyaan programme**, IMAT of crew module deceleration system was successfully carried out at **Babina Field Fire Range (BFFR), Jhansi, Uttar Pradesh** in November 2022.
- **Inflatable Aerodynamic Decelerator:**
  - **Indian Space Research Organisation (ISRO)** successfully demonstrated new technology with Inflatable Aerodynamic Decelerator (IAD) – a game changer with multiple applications for future missions.
  - The IAD has **huge potential in a variety of space applications like recovery of spent stages of rocket**, for landing payloads on to Mars or Venus and in making space habitat for human space flight missions.
- **PSLV-C54:**
  - **PSLV-C54 successfully launched** EOS-06 satellite in November 2022 along with **Eight Nanosatellites including INDIA-BHUTAN SAT (INS-2B).**
  - The launch of the new satellite is part of India's efforts to back Bhutanese King Jigme Khesar Namgyel Wangchuck's plans to use advanced technology, including ICT and space technology, for the development of Bhutan.
- **Academic Support, Capacity building and Outreach:**
  - **Space Technology Incubation Centers (STIC):**
    - In order to boost the space research activities, STIC have been established, since 2018.
  - Under this initiative, **nine Space Technology Cells (STC), Six STIC and Six Regional Academic Centre for Space (RACS)** are operational.
- **Satish Dhawan Centre for Space Sciences:**
  - Recently, Satish Dhawan Centre for Space Sciences was jointly established by ISRO/DoS and Central University of Jammu.
- **Unispace Nanosatellite Assembly & Training by ISRO:**
  - In June 2018, India announced a capacity building training programme **UNNATI (UNispace Nanosatellite Assembly & Training by ISRO)** on Nanosatellites development through a combination of theoretical coursework and hands-on training on **Assembly, Integration and Testing (AIT).**
- **Young Scientist Programme:**
  - In 2019, ISRO launched an annual special programme called "Young Scientist Programme" or the "**Yuva Vigyani KARYakram**" (YUVIKA) in line with the Government's vision "**Jai Vigyan, Jai Anusandhan**".
  - The Program is primarily aimed at imparting basic knowledge on Space Technology, Space Science and Space Applications **to the young talents with the intent of encouraging them in the fascinating domain of outer space.**
- **SpaceTech Innovation Network (SpIN):**
  - ISRO and Social Alpha signed an MoU in December 2022 to launch SpIN, India's first **dedicated platform for innovation curation and venture development** for the burgeoning space entrepreneurial ecosystem.
- **Reforms and Enhanced Participation of Industries:**
  - **NewSpace India Limited (NSIL):**
    - In 2019, the NSIL got incorporated as a **wholly owned Government of India Undertaking/ Central Public Sector Enterprise (CPSE).**
    - It was aimed at enabling **Indian Industries to scale up high-technology manufacturing base for space programme** and to commercially exploit the products and services emanating from the Indian Space Programme for meeting the domestic and global customer needs.
    - **GSAT-24 communication satellite** which is the first demand driven mission of NSIL was launched from Kourou, French Guiana, in June 2022.

Note:

- **IN-SPACe:**
  - IN-SPACe was launched to provide a level playing field for private companies to use Indian space infrastructure.
  - It acts as a single-point interface between ISRO, and everyone who wants to participate in space-related activities or use India's space resources.
- **Indian Space Association (ISpA):**
  - ISpA aspires to be the collective voice of the Indian Space industry. ISpA will be represented by leading domestic and global corporations that have advanced capabilities in space and satellite technologies.
- **First Private Launchpad & Mission Control Center:**
  - First private launchpad & mission control center established by M/s Agnikul Cosmos Pvt. Ltd., Chennai in ISRO campus at SDSC, SHAR in November 2022.
- **Indian Space Policy – 2022:**
  - Indian Space Policy – 2022 policy is cleared by the Space Commission. The Policy has undergone extensive deliberations with industry groups, inter-ministerial consultations, has been reviewed by Empowered Technology Group and is under further approval process.
- **Disaster Management:**
  - **Monitoring flood inundation**, generation of flood hazard zonation atlases of flood prone states, developing flood early warning models, multiple daily detections & dissemination of active forest fires, forecasting cyclone track; intensity & landfall, **damage assessment due to earthquakes and landslides, etc. were carried out.**
- **Covid-19 Related Supports:**
  - During the Covid-19 pandemic period, devices like **Mechanical Ventilator & Medical Oxygen Concentrator** were developed and the technologies are transferred to Indian industries.



Note:

# Economic Scenario

## Highlights

- Depreciation of Indian Rupee
- Purchasing Managers Index
- Currency in Circulation
- Corporate Tax
- Ganga Vilas Cruise
- Honey Mission and Sweet Revolution
- FSSAI Standards for Basmati Rice
- Ban on Wheat Export
- International Year of Millets
- Deep Tech Startups
- Crypto Awareness Campaign

## Depreciation of Indian Rupee

### Why in News?

The **Indian Rupee depreciated** by around 10% against the US dollar and the rupee was the **worst-performing Asian currency** in 2022.

- This decline was mainly on account of appreciation in the US currency on safe haven appeal amid fears of **recession** and **inflation** across many parts of the world and **Russia-Ukraine war**.

### How did the Rupee Perform in 2022?

- During the year, the rupee fell to a lifetime low of 83.2 against the dollar. Compared to rupee, **depreciation of other Asian currencies was to a lesser extent**.
  - During the year, the Chinese Yuan, Philippine Peso and Indonesian Rupiah fell around 9%. South Korean Won and Malaysian Ringgit declined by nearly 7% and 6%, respectively.
- However, the **Reserve Bank of India (RBI)** heavily **intervened in the forex market to defend rupee**. Since the beginning of 2022, the country's foreign exchange reserves have fallen by USD 70 billion. It stood at USD 562.81 billion as of 23<sup>rd</sup> December 2022.
- Reserves have witnessed a bit of erosion but the central bank is now starting to again build up its reserves and that would act as a buffer in times of uncertainty.

### What was the Reason for Capital Outflows?

- The US Fed aggressively raised interest rates by 425 basis point (bps) in 2022 in its **fight against inflation**.

This led to a **higher interest rate differential between the US and India**, and investors pulled out money from the domestic market and started **investing in the US market to take advantage of higher rates**.

- In 2022, **Foreign Portfolio Investors (FPIs)** pulled out **Rs 1.34 lakh crore from the Indian markets** – the highest-ever yearly net outflow.
  - They withdrew Rs 1.21 lakh crore from the stock markets and Rs 16,682 crore from the debt market in 2022, **putting pressure on the rupee**.
- Russian invasion of **Ukraine accentuated the FPI withdrawals with the global economic slowdown** making inflows tougher.

### What may be the Impact of Depreciation on the Indian Economy?

- **Positive:**
  - Weaker rupee should theoretically **give a boost to India's exports**, but in an environment of uncertainty and weak global demand, a fall in the external value of rupee may not translate into higher exports.
- **Negative:**
  - It poses **risk of imported inflation**, and may make it difficult for the central bank to maintain interest rates at a record low for longer.
  - India meets more than two-thirds of its domestic oil requirements through imports.
  - India is **also one of the top importers of edible oils**. A weaker currency will further escalate imported edible oil prices and lead to a higher food inflation.

Note:



**What is the****Outlook on Rupee for 2023?**

- Even though the outlook on the rupee remains weak in the near future, the **depreciation in local currency may not continue for a longer period** as India remains the fastest-growing economy.
- The terminal interest rate for the US Fed was anticipated, **but it cannot be the case that their monetary policy will be tightened endlessly.**
- When the (US Fed) tightening is over, **the tide will surely turn.**

**What is Appreciation vs Depreciation of Currency?**

- In a floating exchange rate system, **market forces (based on demand and supply of a currency) determine the value of a currency.**
- **Currency Appreciation:** It is an **increase in the value of one currency** in relation to another currency.
  - Currencies appreciate against each other for a variety of reasons, including government **policy, interest rates, trade balances and business cycles.**
  - Currency appreciation discourages a country's export activity as its products and services become costlier to buy.
- **Currency Depreciation:** It is a fall in the value of a currency in a floating exchange rate system.
  - Economic fundamentals, **political instability, or risk aversion can cause currency depreciation.**
  - Currency depreciation encourages a country's export activity as its products and services become cheaper to buy.

**What are Devaluation and Depreciation?**

- In general, devaluation and depreciation are often used interchangeably.
- They both have the same effect – **a fall in the value of the currency which makes imports more expensive, and exports more competitive.**
  - However, there is a difference in the way they are applied.
- A devaluation occurs when a country's central bank makes a conscious decision to lower its exchange rate in a fixed or semi-fixed exchange rate.
- **A depreciation is when there is a fall in the value of a currency in a floating exchange rate.**

**Purchasing Managers Index****Why in News?**

As per the S&P Global India Manufacturing **Purchasing Managers' Index (PMI)**, the manufacturing sector in India had its most significant production growth in 13 months in December 2022.

- For the **October to December quarter**, the **PMI averaged 56.3**, the highest in a year. It indicates that the manufacturing sector is performing well and may be contributing to job creation.

**What is Purchasing Managers Index?**

- It is a **survey-based measure** that asks the respondents about changes in their perception about key business variables as compared with the previous month.
- The **purpose** of the **PMI** is to provide information about current and future business conditions to company decision makers, analysts, and investors.
- It is **calculated** separately for the **manufacturing and services sectors** and then a composite index is also constructed.
- The **PMI** is a number from **0 to 100**.
  - A print above **50** means expansion, while a score below that denotes contraction.
  - A reading at **50** indicates no change.
- If PMI of the previous month is higher than the PMI of the current month, it represents that the economy is contracting.
- It is usually released at the start of every month. It is, therefore, considered a good leading indicator of economic activity.
- PMI is compiled by **IHS Markit for more than 40 economies worldwide**.
  - IHS Markit is a global leader in information, analytics and solutions for the major industries and markets that drive economies worldwide.
  - IHS Markit is **part of S&P Global**.

**What is the Significance of PMI?**

- The **PMI** is widely followed as an indicator of economic health because the manufacturing and services sector is a key driver of economic growth.
- In general, a **high PMI** reading is seen as a positive sign for the economy, as it indicates that the

Note:

**manufacturing** and **services** sectors are performing well and contributing to **economic growth**.

- A **low PMI** reading is seen as a **negative sign**, as it indicates that the **manufacturing and services sectors** are **struggling** and may be **dragging down overall economic performance**.

## Currency in Circulation

### Why in News?

Nearly six years and two months after the government announced **demonetisation** in 2016, currency with the public is at a new high (74% increase from the days before demonetisation was announced).

- Currency with the public is arrived at after **deducting cash with banks from total Currency in Circulation**.
- Cash in the system has been steadily rising, even though the government and the **Reserve Bank of India (RBI)** pushed for a “less cash society”, digitisation of payments and slapped restrictions on the use of cash in various transactions.

### What is Currency in Circulation?

- Currency in circulation **refers to cash or currency within a country that is physically used to conduct transactions** between consumers and businesses.
- Currency in circulation is an important component of a country's **money supply**.
- Monetary authorities of **central banks pay attention to the amount of physical currency** in circulation because it represents one of the most liquid asset classes.
- Currency in Circulation includes **notes in circulation, rupee coins and small coins**.
- The RBI has the **sole right to issue currency notes**. The Government of India is the issuing authority of coins and supplies coins to the Reserve Bank on demand.

What is Money Supply?

- The **total stock of money in circulation** among the public at a particular point of time is called money supply.
  - It **needs to be noted that total stock of money is different from total supply of money**.
  - Supply of money is **only that part of total stock of money** which is held by the public at a particular point of time.

- The **circulating money involves the currency, printed notes, money in the deposit accounts and in the form of other liquid assets**.
- RBI publishes figures for four alternative measures of money supply, viz. M1, M2, M3 and M4.
  - $M1 = CU + DD$
  - $M2 = M1 + \text{Savings deposits with Post Office savings banks}$
  - $M3 = M1 + \text{Net time deposits of commercial banks}$
  - $M4 = M3 + \text{Total deposits with Post Office savings organisations (excluding National Savings Certificates)}$
- CU is currency (notes plus coins) held by the public and DD is net demand deposits held by commercial banks.
- The word ‘net’ implies that only deposits of the public held by the banks are to be included in money supply.
  - The interbank deposits, which a commercial bank holds in other commercial banks, are not to be regarded as part of money supply.
- **M1 and M2** are known as **narrow money**. **M3 and M4** are known as **broad money**.
- These gradations are in decreasing order of liquidity.
  - M1 is most liquid and easiest for transactions whereas M4 is least liquid of all.
  - M3 is the most commonly used measure of money supply. It is also known as aggregate monetary resources.

## Corporate Tax

### Why In News?

Recently, **corporate tax collections** exceeded **3% of the GDP** after a gap of two years in **2021-22**.

- It is reflecting overall improvement in profitability of India Inc propelled by an **increase in demand for goods and services**.
- However, the **corporate tax collection** is yet to surpass its five-year high of 3.51% of GDP recorded in 2018-19.

### What are the Key Highlights?

- In actual terms, the **net corporate tax collection** in **2021-22** stood at **Rs 7.12 lakh crore**.

Note:



- The **Gross Domestic Product (GDP)** at the current market price was **Rs 236.64 lakh crore**.
- The **percentage of net corporate tax to GDP** worked out to be **3.01%**.
- In 2019-20, government cut corporate tax rates for new manufacturing units by almost **10 % points** as it looked to pep up investments.
- The rate of **Minimum Alternate Tax (MAT)** too had been reduced to **15 %** from **18.5 %** in 2019.
  - The **Minimum Alternate Tax** is a strategy designed to close the **income tax loophole** for all businesses. The **MAT** makes sure that no business, even one with **strong financial standing** and **significant revenue**, may escape paying income tax, even after claiming exemptions.
- The **tax cut** was reflected in the realization of **corporate taxes** in **2019-20**, when collections fell to over **Rs 5.56 lakh crore (2.77% of GDP)**.

### What is the Corporate Tax?

- **Corporation tax** is payable by both **public and private companies** registered in India under the **Companies Act 1956**.
- **Corporation tax** is a **direct tax** placed on a company's net income or profit from its operations.
  - The tax is imposed on the **net profits of the corporation**, which is calculated by subtracting allowable expenses such as the cost of goods sold, operating expenses, and depreciation from the corporation's total revenue.

### What is the Significance of Corporate Tax?

- **Corporate tax** is an **important source of revenue** for governments, as it helps to fund **public goods and services** such as **schools, hospitals, roads, and defense**.
- **Corporate tax** also plays a role in **redistributing wealth** and **addressing income inequality**, as it imposes a **higher tax burden** on corporations that are more profitable.
- In addition, **corporate tax** can also have other **economic and social impacts**.
  - **For example, corporate tax** can affect the **competitiveness of businesses**, as a **higher corporate tax rate** may make a country or region less attractive for investment compared to other jurisdictions with **lower tax rates**.

- **Corporate tax** can also influence the **location and type of businesses** that operate in a jurisdiction, as businesses may be more or less likely to invest in a particular area depending on the **tax environment**.

## Ganga Vilas Cruise

### Why in News?

- Recently, the Prime Minister of India **flagged off the world's longest river cruise, MV Ganga Vilas in Varanasi**.
- During the event, the Prime Minister **also inaugurated Tent City in Varanasi and laid the foundation stones for several other inland waterways projects**.

### Ganga Vilas Cruise: What You Need to Know?



#### ➤ About:

- The cruise will be **managed by private operators, the Inland Waterways Authority of India (IWAI)**, under the Ministry of Shipping, Ports and Waterways (MoPSW) has supported the project.
- It will **explore forty historic sites** on the banks of the river Ganga including, **Mahabodhi temple, Hazarduari Palace, Katra Masjid, Bodh Gaya, Chandanagar church, Char Bangla Temple** and more.
- Besides connecting **National Waterway 1 (NW-1) which includes Ganga and National Waterway 2 (NW-2) on Brahmaputra**, the cruise will cross 27 river systems.
  - The Ganga - Bhagirathi-Hooghly River system between Haldia (Sagar) and Allahabad (1620 km) **was declared as NW-1 in 1986**.
- The **51 days cruise is planned with visits to 50 tourist spots** including **World Heritage Sites, National Parks, River Ghats, and major cities** like Patna in Bihar, Sahibganj in Jharkhand, Kolkata in West Bengal, Dhaka in Bangladesh and Guwahati in Assam.

Note:

- **Significance:**
  - The sector **would generate employment opportunities in the hinterland.**
  - The project **will boost river cruise tourism** and bring about a new age of tourism for India. The cruise has been **curated to showcase the best of India to the world.**
  - The journey will give **foreign tourists an opportunity to embark upon an experiential voyage** and indulge in the art, culture, history, and spirituality of India and Bangladesh.

#### What is the Inland Waterways Authority of India?

- It came into existence on **27<sup>th</sup> October 1986** for the development and regulation of inland waterways for shipping and navigation.
- It primarily **undertakes projects for development and maintenance of IWT infrastructure on national waterways** through grants received from the Ministry of Shipping.

- It is **headquartered in Noida** with regional offices at Patna (Bihar), Kolkata (West Bengal), Guwahati (Assam) and Kochi (Kerala) and **sub-offices at other places throughout India.**

## Honey Mission and Sweet Revolution

### Why in News?

Under the **Honey Mission**, **1 lakh and 75 thousand bee boxes** have been distributed so far by the **Khadi and Village Industries Commission (KVIC)** after providing **beekeeping training to 17 thousand 500 beneficiaries** across the country.

- As per the National Horticulture Board (NHB), **Uttar Pradesh, West Bengal, Punjab, Bihar, Rajasthan, Himachal Pradesh, Haryana, Uttarakhand, Madhya Pradesh and Karnataka** were the **top ten honey-producing states in 2021-22.**

# SWEET REVOLUTION

- An ambitious initiative of the Govt for **promoting apiculture**
- Launched in 2016 under **Khadi and Village Industries Commission (KVIC)** (Ministry of MSME)
- Along its lines, the **Honey Mission** was launched in 2017

### BEEKEEPING IN INDIA (APICULTURE)

**About Beekeeping**

- An agro-based activity undertaken by farmers/ landless labourers in rural areas as a part of **Integrated Farming System (IFS)**

**Significance**

- Useful in **pollination** of crops
- **Increases income** of the farmers
- **High value beehive products** - honey, beeswax, bee pollen, etc.

**World Bee Day**

- 20 May

### NATIONAL BEEKEEPING AND HONEY MISSION (NBHM)

**About**

- **Central Sector (CS) Scheme**
- Announced as a part of **Atmanirbhar Bharat Scheme** (for 2020-21-2022-23)
- Implemented by the **National Bee Board (NBB)** (under MoA&FW)

**Objectives**

- Development of scientific beekeeping to achieve the goal of 'Sweet Revolution'
- Enhance **agri/ horticulture production**
- Set up **Integrated Beekeeping Development Centre (IBDC)**, Aoi-therapy centres and Bee disease diagnostic labs
- **Empowerment of women** through beekeeping

Read More - [Honey Mission and Sweet Revolution](#)

Note:

## FSSAI Standards for Basmati Rice

### *Why in News?*

For the first time in India, the **Food Safety and Standards Authority of India (FSSAI)** has specified the identity standards for **Basmati Rice** which will be enforced with effect from **01 August 2023**.

### *What are the Characteristics of Basmati Rice?*

- **Basmati has its origin from India** (and some parts of Pakistan); it is a premium variety of rice **cultivated in the Himalayan foothills** of the Indian subcontinent.
  - It is universally known for its **long grain size, fluffy texture and unique inherent aroma** and flavour.
- It is cultivated in **Himachal Pradesh, Punjab, Haryana, Delhi, Uttarakhand, Madhya Pradesh, UT of Jammu and Kashmir and western Uttar Pradesh**.
  - Agro-climatic conditions of the areas where Basmati rice is grown; as well as the method of harvesting, processing and ageing of the rice contribute to the uniqueness of Basmati rice.
- Basmati is widely consumed both domestically and globally and **India accounts for 2/3rd of its global supply**.
  - Being a premium quality rice and fetching a price higher than the non-basmati varieties, **Basmati rice is prone to various types of adulteration** for economic gains such as **undeclared blending of other non-basmati varieties of rice**.

### *What are the Standards for Basmati Rice?*

- The standards have been notified under **Food Safety and Standards (Food Products Standards and Food Additives) First Amendment Regulations, 2023**.
  - They are aimed at **establishing fair practices in the trade of Basmati rice** and protecting consumer interest, both domestically and globally.
- **Standards:**
  - Basmati rice **shall possess the natural fragrance characteristic** of basmati rice
    - Basmati rice has a unique fragrance and flavour due to the presence of a chemical called **2-acetyl-1-pyrroline**.

- It should be **free from artificial colouring, polishing agents and artificial fragrances**.
- Further, these standards **also specify the average size of Basmati grains** and their **elongation ratio after cooking; maximum limits of moisture, amylose content, uric acid, defective/damaged grains** and incidental presence of other non-basmati rice etc.

## Ban on Wheat Export

### *Why in News?*

The government is **considering lifting a ban on wheat exports** and is looking at the current supply of wheat in the central pool and the distribution needs under the **National Food Security Act (NFSA), 2013**.

- Due to the recent discontinuation of the **Pradhan Mantri Garib Kalyan Yojana (PMGKAY)**, the overall distribution of wheat is expected to be lower.

### *What is the Current Scenario of Wheat Distribution Across the Country?*

- India is the **world's second-biggest wheat producer after China**. But it accounts for less than 1% of the global wheat trade. It keeps a lot of it to **provide subsidised food for the poor**.
- Its **top export markets** are Bangladesh, Nepal and Sri Lanka - as well as the United Arab Emirates (UAE).
- According to the **Food Corporation of India (FCI)**, **wheat stocks have been decreasing at a rate of 2 million tonnes per month** over the last six months and are currently the lowest in six years.
  - The government is **considering lifting the ban on wheat exports once stocks are sufficient** and to ensure that food security is maintained.
- The government has **taken a number of measures to address concerns about low wheat procurement and rising wheat prices**. These measures include:
  - Reducing wheat allocation to some states and territories, increasing the allocation of rice, **banning the export of broken non-basmati rice**, and considering open market sales to keep prices in check.
- The **wheat output for the year 2023 is expected to be better than last year**, which could help increase the wheat supply in the market.

Note:



### What are the Reasons for the Banning of Export of Wheat?

- **Price of Wheat Globally:** India suspended the export of wheat in May 2022. In a notification published in the government gazette, the **Directorate General of Foreign Trade (DGFT)** justified the ban by giving reasons that **soaring global wheat prices have put pressure on food security, not only in India but also in neighbouring and vulnerable nations.**
  - However, the export will be allowed on the basis of **permission granted by the Government of India to other countries to meet their food security needs** and based on the request of their governments.
- **Impact on Wheat Production:** The ban also prompted a **decrease in wheat production**, after its production was affected by a **heatwave** that swept across the country during March-April 2022, while the FCI was **unable to accumulate adequate buffer stocks.**
- **Rising Inflation:** The **rising inflation** also prompted this step. The **Wholesale Price Index (WPI)** in India has moved up from 2.26% at the start of 2022 to 14.55 (May 2022). Retail inflation, too, hit an eight-year high of 7.79% in April, 2022 **driven by rising food and fuel prices.**

## International Year of Millets

### Why in News?

India has shared the vision to make **International Year of Millets 2023** a 'People's Movement' alongside positioning **India as the 'Global Hub for Millets'**.

### What is International Year of Millets?

- **About:**
  - India's proposal to observe an International Year of Millets in 2023 was approved by the **Food and Agriculture Organisation (FAO)** in 2018 and the **United Nations General Assembly** has declared the year 2023 as the International Year of Millets.
  - This was adopted by a United Nations Resolution for which India took the lead and was supported by over 70 nations.
- **Objectives:**
  - Awareness of the contribution of millet to **Food Security** and nutrition.

- Inspire stakeholders to improve sustainable production and quality of millets.
- Focus on enhanced investment in research and development and extension services to achieve the other two aims.

### What is Millet?

- **About:**
  - Millet is a **collective term referring to a number of small-seeded annual grasses** that are cultivated as grain crops, primarily on marginal lands in dry areas in temperate, **subtropical and tropical regions.**
  - Some of the common millets available in India are Ragi (Finger millet), Jowar (Sorghum), Sama (Little millet), Bajra (Pearl millet), and Variga (Proso millet).
    - The earliest evidence for these grains has been found in **Indus civilization** and was one of the first plants domesticated for food.
  - It is **grown in about 131 countries** and is the traditional food for around 60 crore people in Asia & Africa.
  - India is the largest producer of millet in the world.
    - It **accounts for 20 % of global production** and 80% of Asia's production.
- **Global Distribution:**
  - **India, Nigeria and China are the largest producers of millets** in the world, accounting for more than **55% of the global production.**
  - For many years, **India was a major producer of millets.** However, in recent years, millet production has increased dramatically in Africa.
- **Significance:**
  - **Nutritionally Superior:**
    - **Millets are less expensive and nutritionally superior** to wheat & rice owing to their high protein, fibre, vitamins and minerals like iron content.
    - **Millets are also rich in calcium and magnesium.** For example, Ragi is known to have the highest calcium content among all the food grains.
    - **Millets can provide nutritional security** and act as a shield against nutritional deficiency, especially among children and women. Its high iron content can fight high prevalence of anaemia in India women of reproductive age and infants.

Note:

- **Gluten-free a low Glycemic Index:**
  - Millets can help tackle lifestyle problems and health challenges such as obesity and diabetes as they are gluten-free and have a low glycemic index (a relative ranking of carbohydrate in foods according to how they affect blood glucose levels).
- **Super Crop at Growing:**
  - Millets are **Photo-insensitive** (do not require a specific photoperiod for flowering) & **resilient to climate change**. Millets can grow on poor soils with little or no external inputs.
  - Millets are **less water consuming** and are capable of growing under drought conditions, under non-irrigated conditions even in very low rainfall regimes.
  - Millets have **low carbon and water footprint** (rice plants need at least 3 times more water to grow in comparison to millets).

#### What are the Related Initiatives Taken by the Government?

- **Initiative for Nutritional Security through Intensive Millet Promotion (INSIMP)**
- **Increase in Minimum Support Price (MSP):** The government has hiked the Minimum Support Price of Millets, which came as a big price incentive for farmers.
  - Further, to provide a steady market for the produce, the government has included millets in the public distribution system.
- **Input Support:** The government has introduced provision of seed kits and inputs to farmers, building value chains through Farmer Producer Organisations and supporting the marketability of millets.

## Deep Tech Startups

### Why in News?

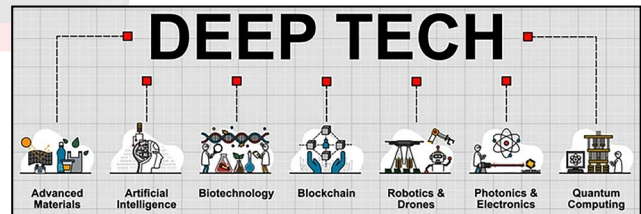
Government will launch the **Digital India Innovation Fund** to support **deep tech startups**.

### What is Deep Tech?

- **About:**
  - Deep tech or deep technology refers to a **class of startup businesses that develop new offerings**

**based on tangible engineering innovation** or scientific discoveries and advances.

- Usually, such startups operate on, but are not limited to, agriculture, life sciences, chemistry, aerospace and green energy.
- Deep tech fields like **Artificial Intelligence**, advanced materials, **blockchain**, **biotechnology**, robotics, **drones**, photonics, and **quantum computing** are moving more and more quickly from early research to market applications.
- **Characteristics of Deep Tech:**
  - **Impact:** The deep tech innovations are **very radical and disrupt an existing market or develop a new one**. Innovations based on deep tech often change lives, economies, and societies.
  - **Time & Scale:** The time required for deep technology to develop the technology and reach the market-ready maturity is way more than shallow technology development (like mobile apps and websites). It took decades for artificial intelligence to develop and it is still not perfect.
  - **Capital:** Deep tech often requires a lot of early-stage funding for research and development, prototyping, validating hypothesis, and technology development.



### What is the State of India's Deep Tech Startups?

- India had over 3,000 deep-tech start-ups, dabbling in new-age technologies like **Artificial Intelligence**, **Machine Learning (ML)**, **Internet of Things**, Big Data, **quantum computing**, robotics, etc., at the end of 2021.
- According to **NASSCOM**, deep-tech start-ups in India raised USD 2.7 billion in venture funding in 2021, and now account for over 12% of the country's overall startup ecosystem.
- In the last decade **India's deep tech ecosystem has grown 53%** and is at par with that in developed markets like the US, China, Israel, and Europe.
  - Bengaluru accounts for 25-30% of India's deep-tech start-ups, followed by Delhi-NCR (15-20%) and Mumbai (10-12%).

Note:

- Deep-tech start-ups are making their **presence felt across sectors like drone delivery and cold chain management** to climate action and clean energy.

### What are the Challenges Faced by Deep Tech?

- For deep-tech startups, **funding is one of the biggest challenges**. Less than 20% of startups receive financing.
  - Government funds are underutilized, and domestic capital is lacking for such startups.
- **Talent and market access, research guidance, investors' understanding of deep-tech**, customer acquisition and cost for talent are the major challenges faced by them.

### What are the Related Initiatives?

- The **Atal New India Challenge** has been launched under the **Atal Innovation Mission (AIM) of the Niti Aayog**, with an objective to serve as a platform for the promotion of Innovation Hubs, Grand Challenges, startup businesses, and other self-employment activities, particularly in technology-driven areas.
- Launched in 2021, **NASSCOM's Deep Tech Club (DTC) 2.0** is aimed at scaling the impact to over 1,000 firms that are leveraging technologies such as AI, ML, Internet of Things, robotics, and blockchain.

## Crypto Awareness Campaign

### Why in News?

The **Investor Education and Protection Fund (IEPF)** will launch an outreach programme to create awareness of **Cryptocurrencies** and Online Gaming.

### What is the Outreach Programme?

- The need for the outreach programme is based on the observation that **both crypto-assets and online gaming (that extends to gambling and betting) are still being promoted in a risky manner** despite the recent turmoil in the sector.
- The programme will help potential investors to thoroughly educate themselves before making any decision since cryptocurrency investing is a **complex and risky endeavour**.

### What is the IEPF?

- It is managed by the IEPF Authority, **which was set up in 2016 under the provisions of Section 125 of the Companies Act, 2013**.
- The Authority is entrusted with the responsibility of administration of the IEPF, which, besides promoting awareness among investors, **makes refunds of shares, unclaimed dividends, matured deposits and debentures** and so on to rightful claimants.
- As for investment education, the idea is to reach out to household investors, housewives and professionals alike in rural and urban areas and teach them the basics.
- **Focus areas include primary and secondary capital markets**, various saving instruments, the instruments for investment (such as mutual funds, equity, among others), making investors **aware of dubious Ponzi and chit fund schemes and existing grievance redressal mechanisms**, among other things.

### Why is there a Concern about Cryptocurrency?

- The crypto dilemma stems from concerns about the **unregulated currency having a destabilising effect** on the monetary and fiscal stability of a country.
- Further, crypto exchanges in India are being investigated for their alleged involvement in unlawful practices such as **drug trafficking, money laundering, violating foreign exchange legislation and evasion of GST (Goods and Services Tax)**.
  - As on December 2022, Rs 907.48 crore have been attached/seized, three persons have been arrested and four prosecution complaints have been filed before the Special Court, **Prevention of Money Laundering Act (PMLA)**.
- The immutable, public nature of the blockchain makes crypto a poor choice for money laundering because it allows law enforcement to uncover and trace money laundering far easier than cash transactions."
- The **Reserve Bank of India (RBI)** has recommended framing legislation on the sector. It is of the view that **cryptocurrencies should be prohibited**.

### What about Online Gaming?

- The Ministry of Electronics and Information Technology (MeitY) has been appointed the nodal industry for

Note:

online gaming in India; for e-sports, the nodal agency is the Department of Sports, under the Ministry of Youth Affairs and Sports.

- A proposed framework for Central regulation by MeitY is **expected to address issues faced by the sector.**
- For instance, there is confusion about the **definitions of a 'game of chance' like fantasy games, and a 'game of skill'**, a term which has been used in the Public Gaming Act (1867) but has not been spelt out. There are risks from cybercrimes as well.
- In a 'game of skill', while the element of chance cannot be entirely ruled out, it is the 'element of skill' (mental

or physical skill of the user) that **plays a dominant role in determining the outcome of the game** rather than pure chance.

- As per several rulings of the **Supreme Court** and several **High Courts** clearly establish '**Games of Skill**' as **legitimate business activities protected under Article 19(1)(g)** of the Indian Constitution.
- These rulings have also emphasized a clear distinction between 'Games of Skill' and 'Games of Chance'.
- Despite these court rulings, **online skill games have faced restrictions in a few States due to addiction, financial losses and the thin line between skill and chance.**



Note:

# International Relations

## Highlights

- The Indian Diaspora

- India-US Trade Policy Forum

## The Indian Diaspora

### Why in News?

Recently, the Prime Minister **inaugurated the 17th Pravasi Bharatiya Diwas convention** in Madhya Pradesh on the occasion of Pravasi Bhartiya Diwas (PBD).

- Over the years, the convention, which began in 2003, **has grown in size and scope, particularly since 2015, when the yearly convention became a biennial affair.**

### What is Diaspora?

#### Origin:

- The term diaspora **traces its roots to the Greek diaspeiro, which means dispersion.** The **Indian diaspora** has grown manifold since the first batch of Indians **were taken to counties in the eastern pacific and the Caribbean islands under the 'Girmitiya' arrangement** as indentured labourers.

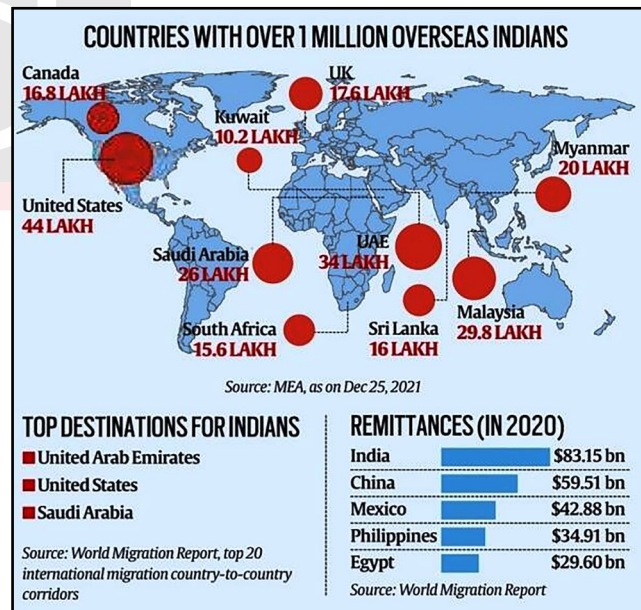
#### Classifications:

- Non-Resident Indians (NRI):** NRIs are Indians who are residents of foreign countries. A person is considered NRI if:
  - She/he is **not in India for 182 days or more** during the financial year Or;
  - If he/she is **in India for less than 365 days** during the 4 years preceding that year and less than 60 days in that year.
- Persons of Indian Origin (PIOs):** PIO refers to a foreign citizen (except a national of Pakistan, Afghanistan Bangladesh, China, Iran, Bhutan, Sri Lanka and Nepal) who:
  - At any time held an Indian passport, or who or either of their parents/ grandparents/great grandparents **was born and permanently resided in India** as defined in the **Government of India Act, 1935** or who is a spouse of a citizen of India or a PIO.
    - The PIO category **was abolished in 2015 and merged with the OCI category.**

- Overseas Citizens of India (OCIs):** A separate category of OCI was **carved out in 2005.** An OCI card was given to a foreign national:

- Who was eligible to be a citizen of India on January 26, 1950
- Was a citizen of India on or at any time after January 26, 1950 or belonged to a territory that became part of India after August 15, 1947.
- Minor children of such individuals, **except those who were a citizen of Pakistan or Bangladesh,** were also eligible for OCI cards.

#### Geographical Spread:



- According to the **World Migration Report 2022, India has the largest emigrant population in the world in 2020, making it the top origin country globally, followed by Mexico, Russian and China.**
- The data shared by the government in Parliament in 2022 showed that the **geographical spread of the Indian diaspora is vast. The countries with over 10 lakh overseas Indians include:**
  - United States of America, the United Kingdom, United Arab Emirates, Sri Lanka, South Africa, Saudi Arabia, Myanmar, Malaysia, Kuwait and Canada.

Note:



- **Remittances:**
  - According to the **World Bank Migration and Development Brief, released in 2022**, for the **first time a single country, India, is on track to receive more than USD 100 billion in yearly remittances.**
  - The World Migration Report notes that India, China, Mexico, the Philippines and Egypt are (in descending order) **among the top five remittance recipient countries.**

### **What is the Significance of the Indian Diaspora?**

- **Enhancing India's Soft Power:** Indian diaspora is one of the richest minorities in many developed countries. Their advantage is evident in "**diaspora diplomacy**", whereby **they act as "bridge-builders" between their home and adopted countries.**
  - The Indian diaspora is not just a part of India's soft power, **but a fully transferable political vote bank as well.**
  - Also, many people of Indian origin hold **top political positions in many countries**, which enhances India's political clout at multilateral institutions like the United Nations.
- **Economic Contribution:** Remittances sent by the Indian diaspora have positive systemic **effects on the Balance of Payments (BOP)**, which help to bridge a wider trade deficit.
  - The migration of less-skilled labor (especially to West Asia) has **helped in bringing down disguised unemployment in India.**
  - Further, the **migrant workers facilitated the flow of tacit information**, commercial and business ideas, and technologies into India.

## **India-US Trade Policy Forum**

### **Why in News?**

Recently, the Union Minister of Commerce and Industry of India and the US Trade Representative Ambassador co-chaired the **13<sup>th</sup> Ministerial-level meeting of India – US Trade Policy Forum (TPF)** in Washington D.C.

### **What is the India-US TPF?**

- **About:**
  - The India-US TPF aims to activate its working groups in the fields of **agriculture, non-agriculture goods,**

**services, investment, and intellectual property** to meet frequently and address issues of mutual concern in a mutually beneficial manner.

- The idea is to **deliver tangible benefits to both countries by resolving outstanding market access issues.**
- **Highlights of the Meeting:**
  - While the two sides appreciated the **rise in bilateral trade in goods and services** (which reached **~160 billion USD in 2021**), they also recognised that for economies of their size, **significant potential still remains unfulfilled.**
  - The US welcomed India's participation in the **Indo-Pacific Economic Framework for Prosperity (IPEF).**
    - Both the countries have **like-minded views about the efficiency of IPEF for continued growth, peace, and prosperity in the Indo-Pacific region.**
  - The Ministers welcomed the finalization of the **Turtle Excluder Device (TED)** design with the technical support of the National Oceanic and Atmospheric Administration (NOAA).
    - The TED will help in minimizing the **impact of fishing on sea-turtle populations.**
  - A **new TPF Working Group on Resilient Trade** was **launched** to help the officials deepen bilateral dialogue on a range of issues. Till the next TPF Ministerial meeting, it will focus on:
    - **Trade facilitation**
    - Promotion of **labour rights and workforce development**
    - **Circular economy**; role of trade in environment protection

### **How are India's Trade Ties with the US?**

- India-US bilateral partnership today encompasses a whole host of issues including the response to **Covid-19**, economic recovery post-pandemic, the **climate crisis** and **sustainable development**, critical and emerging technologies, **supply chain resilience**, education, the **diaspora**, and **defence and security.**
- The **US is India's largest trading partner** and most important export market. It is **one of the few countries with which India has a trade surplus.** In 2021-22, India had a **trade surplus of USD 32.8 billion** with the US.
- Although India and the US have quite contradictory responses towards the **Russia-Ukraine crisis**, the two have underscored their commitment to continue to build on the momentum of recent years and **not lose sight of the larger strategic picture.**

Note:



# Social Issues

## Highlights

- Kala-azar Disease
- NCW's Concerns over Sexual Assault
- Reports on Child Mortality and Stillbirths
- Human Rights Watch's World Report 2023

## Kala-azar Disease

### Why in News?

**Kala-azar** cases in India declined by 98.7% between 2007 and 2022, from 44,533 to 834 and 632 endemic blocks (99.8%) spread across Bihar, Uttar Pradesh, Jharkhand, and West Bengal have received elimination status (less than one case per 10,000).

- The only block that is still in the endemic category is Litterpara in the Pakur district of Jharkhand (1.23 cases per 10,000 population).

### What is Kala-azar Disease?

#### ➤ About:

- It is also known as **Visceral Leishmaniasis or Black Fever or Dumdum Fever**.
  - There are three types of Leishmaniasis:
    - **Visceral Leishmaniasis**, which affects multiple organs and is the most serious form of the disease.
    - **Cutaneous Leishmaniasis**, which causes skin sores and is the most common form.
    - **Mucocutaneous Leishmaniasis**, which causes skin and mucosal lesions.
  - It is a **deadly parasitic disease** caused by the protozoa parasite **Leishmania** and mainly affects the people living in **Africa, Asia and Latin America**.
  - The disease **can cause death**, if left untreated.

#### ➤ Global and National Status:

- According to the **World Health Organization (WHO)**, Kala-azar is the **second deadliest parasitic disease in the world**, and as of November, 2022, about **89% of global cases** are reported from eight countries: **Brazil, Eritrea, Ethiopia, India, Kenya, Somalia, South Sudan, and Sudan**.

- **India contributes about 11.5% of total cases** of Kala-azar reported globally.

- **Over 90% of kala-azar cases in India are reported from Bihar and Jharkhand**, while **Uttar Pradesh and West Bengal have achieved their elimination targets** at the block level.

#### ➤ Transmission:

- It is transmitted to humans by the **bite of an infected female phlebotomine sandfly**.

#### ➤ Signs and Symptoms:

- **Fever, weight loss, anemia, and enlargement of the liver and spleen**.

#### ➤ Prevention:

- Prevention of kala-azar involves measures to **reduce the breeding sites of sandflies and to protect people from sandfly bites**.
  - This can be achieved through the **use of insecticides, bed nets, and repellents, as well as the improvement of housing conditions and access to clean water and sanitation**.
  - The **WHO also recommends Mass Drug Administration (MDA)** in areas where the disease is endemic.

#### ➤ Treatment:

- The treatment of kala-azar involves the **use of drugs, such as sodium stibogluconate and meglumine antimoniate**.
  - The WHO recommends a **combination of two or more drugs for the treatment of kala-azar**, as monotherapy has a higher risk of treatment failure and drug resistance.

#### ➤ Related Initiatives:

- **Global:**
  - **WHO's New Roadmap for 2021–2030:** To prevent, control, eliminate and eradicate a set of 20 diseases, termed neglected tropical diseases, by 2030.

Note:

- The WHO has also established the **Global Programme to Eliminate Lymphatic Filariasis (GPELF)**, which aims to eliminate lymphatic filariasis, onchocerciasis, and Kala-azar by MDA.
  - **The target set by GPELF in 2000 to eliminate these diseases globally by 2020 was not achieved.** Despite setbacks due to **Covid-19**, WHO will **accelerate work to achieve this target by 2030.**
- **Indian:**
  - The central government has taken several steps to achieve its goal of eliminating kala-azar from India by 2023, including building pucca houses through the **PM-AWAS yojana**, rural electrification, testing, treatment, periodic high-level review, and award distribution.
    - The Centre is also supporting the states in active case detection, surveillance, treatment, and supply of diagnostic kits, medicines, and sprays.
  - **National Kala-azar Elimination Programme**
    - The **National Health Policy-2002** set the goal of Kala-azar elimination in India by the year 2010 which was revised to 2015.
    - India signed a **Tripartite Memorandum of Understanding (MoU) with Bangladesh and Nepal to achieve Kala-azar elimination** from the South-East Asia Region (SEAR).
    - Presently, all programmatic activities are being implemented through the **National Vector Borne Disease Control Programme (NVBDCP)** which is an umbrella programme and is subsumed under **National Health Mission (NHM).**

## NCW's Concerns over Sexual Assault

### **Why in News?**

The **National Commission for Women (NCW)** has asked all States to ensure strict implementation of the sexual harassment at workplace law.

### **What are the Concerns of NCW?**

- The NCW has expressing concern over incidents of sexual harassment at coaching centres and educational

institutes and asked to ensure strict implementation of the **Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013** and guidelines established thereunder.

- In recent years, sexual harassment at workplace is becoming one of the most pressing issues affecting women across the globe.
- Nearly 31,000 complaints of crimes committed against women were received by the NCW in 2022, the highest since 2014.
  - About 54.5 % of the complaints were received from **Uttar Pradesh**. Delhi recorded 3,004 complaints, followed by Maharashtra (1,381), Bihar (1,368) and Haryana (1,362).
- Crimes that women were subjected to: **Domestic violence, Harassment of married women or dowry harassment, Sexual harassment at workplace, Rape and attempt to rape, Cyber crimes.**

### **What is Protection of Women Against Sexual Harassment Act, 2013**

- **Background:** The Supreme Court in a landmark judgement in the **Vishakha and others v State of Rajasthan 1997** case gave 'Vishakha guidelines'.
  - These guidelines formed the basis for the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013 ("Sexual Harassment Act").
- **Mechanism:** The Act defines sexual harassment at the workplace and creates a mechanism for redressal of complaints.
  - Every employer is required to constitute an **Internal Complaints Committee at each office** or branch with 10 or more employees.
  - The Complaints Committees have the powers of civil courts for gathering evidence.
  - The Complaints Committees are required to provide for conciliation before initiating an inquiry if requested by the complainant.
- **Penal Provisions:** Penalties have been prescribed for employers. Non-compliance with the provisions of the Act shall be punishable with a fine.
  - Repeated violations may lead to **higher penalties and cancellation of license or registration to conduct business.**
- **Responsibility of Administration:** The State Government will notify the District Officer in every district, who

Note:

will constitute a Local Complaints Committee (LCC) so as to enable women in the unorganised sector or small establishments to work in an environment free of sexual harassment.

### What is the Background & Mandate of NCW?

#### ➤ About:

- Under the National Commission for Women Act, 1990, the NCW was set up as a **statutory body in January 1992**.
- The First Commission was **constituted on 31st January 1992 with Mrs. Jayanti Patnaik as the Chairperson**.
  - The commission consists of a chairperson, a member secretary and five other members. The chairperson of the NCW is nominated by the Central Government.

#### ➤ Mandate and Functions:

- Its mission is to **strive towards enabling women to achieve equality and equal participation in all spheres of life** by securing her due rights and entitlements through suitable policy formulation, legislative measures, etc.
- Its functions are to:
  - Review the **constitutional and legal safeguards for women**.
  - Recommend remedial legislative measures.
  - Facilitate redressal of grievances.
  - Advise the Government on all policy matters affecting women.
- It has received a **large number of complaints and acted suo-moto in several cases to provide speedy justice**.
- It took up the issue of **child marriage**, sponsored legal awareness programmes, Parivarik Mahila Lok Adalats and reviewed laws such as:
  - **Dowry Prohibition Act, 1961**,
  - **Pre-Conception and Pre-Natal Diagnostic Techniques Act 1994**,
  - Indian Penal Code 1860.

#### What are the major Legal Frameworks for Welfare of Women?

##### ➤ Constitutional Safeguards:

- **Fundamental Rights:**

- It guarantees all Indians the right to equality (Article 14), no discrimination by the State on the basis of gender (Article 15(1)) and special provisions to be made by the State in favour of women (Article 15(3)).

##### ○ **Fundamental Duties:**

- It ensures that practices derogatory to the dignity of women are prohibited under Article 51 (A).

#### ➤ Legislative Framework:

- **Protection of Women from Domestic Violence Act, 2005**
- **The Dowry Prohibition Act, 1961**
- **The Sexual Harassment of Women at Workplace (Prevention, Prohibition, and Redressal) Act, 2013**
- **The Protection of Children from Sexual Offences (POCSO), 2012**

#### ➤ Women Empowerment Schemes:

- **Beti Bachao Beti Padhao Scheme**
- **One Stop Centre Scheme**
- UJJAWALA: A Comprehensive Scheme for Prevention of trafficking and Rescue, Rehabilitation and Re-integration of Victims of Trafficking and Commercial Sexual Exploitation
- **SWADHAR Greh**
- **NARI SHAKTI PURASKAR**
- **Mahila police Volunteers**
- **Mahila Shakti Kendras (MSK)**
- **NIRBHAYA Fund.**

## Reports on Child Mortality and Stillbirths

### Why in News?

Recently, two **global reports on child mortality (Levels and Trends in Child Mortality) and stillbirths (Never Forgotten)** were released by United Nations Inter-agency Group for Child Mortality Estimation (UN IGME).

### What are the Findings of the Report?

#### ➤ Levels and Trends in Child Mortality:

##### ○ Data Related to Mortality:

- Globally, **5 million children died before their fifth birthday (under-five mortality) in 2021**.

Note:

- Over half of these (2.7 million) occurred among children aged 1-59 months, while the remainder (2.3 million) occurred in just the first month of life (neonatal deaths).
- India's share in these **child mortalities was estimated around 7 lakhs** under-five deaths; 5.8 lakhs infant deaths (death before first birthday); and 4.4 lakhs neonatal deaths.
- **Decline in Mortality Rate:**
  - The **global under-5 mortality rate fell by 50%** since the start of the century, while mortality rates in older children and youth dropped by 36%, and the stillbirth rate decreased by 35%.
  - This can be attributed to more investments in strengthening primary health systems to benefit women, children and young people.
  - However, gains have reduced significantly since 2010, and 54 countries will fall short of meeting the **Sustainable Development Goals** target for under-5 mortality.
- **Region Wise Analysis:**
  - **Sub-Saharan Africa and southern Asia continue to have the highest rates of child mortality**, with children born in sub-Saharan Africa having the lowest chances of surviving.
- **Access to Quality Health:**
  - **Access to and availability of quality health care continues to be a matter of life or death** for children globally.
  - Most child deaths occur in the first five years, of which half are within the first month of life.
  - For these youngest babies, premature birth and complications during labour are the leading causes of death.
- **Rising Infectious Disease:**
  - For children that survive past their first 28 days, **infectious diseases like pneumonia, diarrhoea and malaria pose the biggest threat, the global health agency found.**
- **Report on Stillbirth:**
  - Globally, an **estimated 1.9 million stillbirths happened in 2021.**
  - In 2021, the **absolute estimated number of stillbirths in India (2,86,482)** was greater than the death amongst children in 1-59 months of age (2,67,565).

### What is the Root of Many Child Deaths?

- **Preterm Births (Children born before 37 weeks of pregnancy are completed):**
  - This is a **challenge because these 'preterm babies' are two to four times at higher risk of death** after birth in comparison to those born after 37 weeks of gestation.
  - Globally, **one in every 10 births is preterm**; in India, **one in every six to seven births is preterm.**
  - India has a **high burden of preterm births**, which means newborns in the country are at greater risk of complications and mortality.
- **Stillbirths:**
  - The **rates and number of both preterm births and stillbirths are unacceptably high** and drive the neonatal, infant and child mortalities upwards in India. Thus, they demand urgent interventions.
    - **A baby who dies any time after 22 weeks of pregnancy, but before or during the birth, is classified as a stillborn.**
  - One of the reasons preterm births and stillbirths do not get due attention is **lack of granular and reliable data.**

### What are the Related Initiatives of India?

- **POSHAN Abhiyaan:** The government of India has launched the **National Nutrition Mission (NNM)** or POSHAN Abhiyaan to ensure a "Malnutrition Free India" by 2022.
- **Anemia Mukh Bharat Abhiyan:** Launched in 2018, the mission aims at accelerating the annual rate of decline of anaemia from one to three percentage points.
- **The National Food Security Act (NFSA), 2013:** It aims to ensure food and nutrition security for the most vulnerables through its associated schemes and programmes, making access to food a legal right.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY):** Rs.6,000 is transferred directly to the bank accounts of pregnant women for availing better facilities for their delivery.
- **Integrated Child Development Services (ICDS) Scheme:** It was launched in 1975 and the scheme aims at providing food, preschool education, primary healthcare, immunisation, health check-up and referral services to children under 6 years of age and their mothers.

Note:

- **Eat Right India and Fit India Movement** are some other initiatives to promote healthy eating and healthy lifestyle.

#### What is UN IGME?

- UN IGME was formed in **2004 to share data on child mortality**, improve methods for child mortality estimation, report on progress towards child survival goals and enhance country capacity to produce timely and properly assessed estimates of child mortality.
- UN IGME is led by **United Nations Children's Fund (UNICEF)** and includes the **World Health Organization**, the **World Bank Group** and the United Nations Department of Economic and Social Affairs, Population Division.

#### What can be done to Prevent Stillbirths and Preterm Births?

- **Scaling up Known and Proven Interventions:**
  - For reducing both stillbirths and preterm births, **the focus must be on:**
    - Increasing access to family planning services;
    - Improving antepartum services such as health and nutrition, including the intake of iron folic acid by pregnant mothers;
    - Providing counselling on the importance of a healthy diet, and optimal nutrition;
    - Identification and management of risk factors.
- **Effective Implementation of Guidelines:**
  - The interventions **can be best delivered if data on preterm births and stillbirths are better recorded and reported.**
  - The maternal and perinatal deaths surveillance guidelines **need to be effectively implemented and the International Classification of Diseases' definition for perinatal mortality must be adopted.**
    - The use of this classification will **help standardise the causes of stillbirth reporting.**
  - Alongside, **India needs to identify the hot spot clusters of stillbirths** and preterm births for local and targeted interventions.
- **Allocate more Funding:**
  - In the **National Health Policy of 2017**, the government had committed to investing **2.5% of the GDP on health by 2025.**

- Six years since then, the government's allocation for health has increased only marginally.
- The two recent reports are reminders that **it is time for the government to allocate more funds for health**, starting with the upcoming **Budget.**

## Human Rights Watch's World Report 2023

### Why in News?

Recently, the **Human Rights Watch** in its **World Report 2023** (33rd edition) said that Indian authorities had **"intensified and broadened" their crackdown on activist groups** and the media throughout year 2022.

- It also claimed that the current Central ruling party used **abusive and discriminatory policies to repress minorities.**

### What are Human Rights?

- **Human Rights** are rights inherent to all human beings, regardless of race, sex, nationality, ethnicity, language, religion, or any other status.
  - These include the right to life and liberty, freedom from slavery and torture, freedom of opinion and expression, the right to work and education, and many more.
- The **National Human Right Commission (NHRC)** of India defines Human Rights as rights relating to life, liberty, **equality** and dignity of the individual **guaranteed by the Constitution** or **embodied in the International Covenants** and **enforceable by courts in India.**

### What is the Human Rights Watch?

- **Human Rights Watch (HRW)** is an **international non-governmental organisation** founded in 1978 as **"Helsinki Watch,"** initially aimed at investigating rights abuses in countries that signed the **Helsinki Accords.**
  - Currently, its ambit has expanded to **about 100 countries worldwide.**
  - It is headquartered in New York City.
- **Helsinki Accords (1975)** was a major diplomatic agreement signed in Helsinki, Finland, at the conclusion of the **first Conference on Security and Co-operation in Europe** (now **Organization for Security and Co-operation in Europe**).

Note:

- Primarily an effort to **reduce tension between the Soviet and Western blocs**, they were signed by all the countries of Europe, the US and Canada.
- The agreement made the **35 signatory nations pledge to respect human rights** and fundamental freedoms.

### **What are the World**

#### **Report 2023's Findings about India?**

- **Violation of Human Rights by Government:**
  - The report found the **Central govt. promoting Hindu majoritarian ideology**, provoking authorities and supporters to engage in discriminatory and at times violent actions against religious minorities.
  - It highlighted the **government's discriminatory stance toward minority communities** in cases of violence against women (**release of Bilkis Bano rape convicts**).
  - Even after 3 years of **removal of Article 370** and subsequent **creation of two UTs (J&K and Ladakh)**, "the government continued to restrict free expression and peaceful assembly" in the two UTs.
    - Authorities also invoked the **J&K Public Safety Act** and **Unlawful Activities Prevention Act (UAPA), 1967** to "arbitrarily" detain journalists and activists.
    - It also referred to suspected **militant attacks on minority Hindu and Sikh communities** in the Kashmir Valley.
- **Welcoming of Various SC Rulings:**
  - HRW appreciated the **increasingly liberal steps taken by the Supreme Court** of India such as the ruling to **halt all use of the colonial-era Sedition law**.
  - It also referred to the **SC's ruling on extending abortion rights to all women** regardless of marital status and widening the definition of a family to include same-sex couples, single parents, and other households.

- It also took note of the **SC's banning of the two-finger tests** in a step to protect survivors of sexual assault.
  - However, the **SC did not reach a verdict on the rights of Muslim female students of wearing a hijab** in educational institutions.

#### **What are India's Initiatives for Human Rights?**

##### ➤ **Provisions in the Constitution:**

- **Fundamental Rights: Articles 14 to 32**
- **Directive Principles of State Policy:** Including the right to social security, right to work, to free choice of employment, and protection against unemployment, right to equal pay for equal work, right to existence worthy of human dignity, right to free & compulsory education, equal justice & free legal aid etc.

##### ➤ **Statutory Support:**

- **Protection of Human Rights Act (PHRA), 1993** (amended in 2019). **NHRC was established under this Act.**

##### ➤ **Role in International Convention:**

- India took an active part in drafting of the **Universal Declaration of Human Rights (UDHR)**.
- India has also ratified the **International Covenant on Economic, Social and Cultural Rights (ICESCR)** and **International Covenant on Civil and Political Rights (ICCPR)**

#### **What are Other Similar Reports?**

- **Human Rights Report on India 2021** (by US State Department).
- **Freedom in the World 2021 Report** (by US based Freedom House).
- **Democracy Report 2022** (by V-Dem Institute at University of Gothenburg, Sweden).



Note:

# Science & Technology

## Highlights

- Age Determination Techniques
- Virovore
- Stem Cell-derived Mitochondrial Transplant
- The Future of Metaverse and AI
- Local Bubbles

## Age Determination Techniques

### Why in News?

In November 2022, over four years after the gang rape and murder of an eight-year-old girl in Kathua, the **Supreme Court** held that one of the accused persons, who claimed to be a juvenile at the time of the commission of the offence, be tried as an adult.

### What are the Different Age Determination Techniques?

- **Ossification Test:**
  - The most popular test for **determining age is the ossification test.**
  - The **extent of ossification (i.e., calcification) and the union of epiphysis (rounded end of a long bone) in bones**, particularly long bones such as radius and ulna, humerus, tibia and fibula, and femur, are helpful in estimating age.
  - Though the **variations in climatic, dietetic, hereditary and other factors affect the extent of ossification** in different regions, a fairly close estimate within a margin of two years (for example, 16-18 years), allowing a margin of error of six months on either side (15.5 years or 18.5 years) may be made from puberty to the consolidation of the skeleton.
- **Wisdom Teeth:**
  - The **presence, absence, and eruption of wisdom teeth** can be used as a method of estimating the age of an individual.
    - Wisdom teeth, also known as third molars, are the last teeth to emerge in the mouth and

they usually appear in the late teenage years or early adulthood.

- This method is **based on the fact that the eruption of wisdom teeth follows a predictable pattern** and can be used to determine the age of an individual within a range of a few years.
- However, it is **important to note that this method is not completely accurate and should not be used as the sole basis** for determining age.
  - Factors such as genetics, oral hygiene, and overall health can all influence the eruption of wisdom teeth and may cause variations in the expected pattern.
- **Epigenetic Clock Technique:**
  - It measures **DNA methylation levels to estimate the chronological age of the subject.**
    - DNA methylation is a **process by which methyl groups are added to the DNA molecule**, typically to the promoter region of a gene, resulting in the repression of gene transcription.
    - This primarily occurs on **cytosine that precedes a guanine nucleotide (CpG sites)**.
      - Cytosine is a **chemical compound that is used to make one of the building blocks of DNA and RNA.**
  - However, the use of this technique is yet to be explored by Indian forensic scientists.
- **Radiographic Techniques:**
  - X-ray and CT scans can be used to assess the maturity of bones, as well as to look for signs of degeneration or disease.

### What is the Status of Birth Registration in India?

- **About:**

Note:



- According to the **United Nations Children's Fund** report (2016), **only 72% of births of children below five years were registered in India.**
- And **out of 26 million children born every year, around 10 million went unregistered.**
  - Under **Sustainable Development Goal 16**, providing legal identity for all, including birth registration, is a specific target.
- According to the **National Family Health Survey (NFHS)**, the share of India's institutional deliveries has increased to 88.6% in 2019-21 (NFHS-5) from 40.8% in 2005-06 (NFHS-3).
  - It is surprising that even with the increase in institutional deliveries, proving age remains a contested issue in criminal trials.
- **Punishment due to Non-Compliance:**
  - Non-registration of birth by the **'head of the house' or hospital is punishable with a fine of up to Rs.50** under the **Registration of Births and Deaths Act, 1969.**
  - The draft amendment to this Act inter alia proposes to **increase the fine up to Rs. 250 and Rs. 1,000 for an individual and institution, respectively.**
    - The objective is to obviously to persuade people to register births and deaths, and not severely punish those who do not do so.

### Conclusion

- Though the introduction of better medical techniques to estimate age is welcome, it would be better if every birth is registered on the basis of hospital or any other proof so that its credibility is maintained in the court of law.
- Ultimately, a statement of fact (about the date of birth) has more evidentiary value than the estimated age based on medical opinion, which may falter at times.

## Virovore

### Why in News?

- Researchers have found the first known **"Virovore," or organism that eats viruses.**
- The new findings may change our **understanding of the role viruses play in the food chain** at a microscopic level.

### What is Virovore?

- It has been identified as an **actual species of protist that feasts on viruses.**
- These virus-eating species of protists — which are their own kingdom on the tree of life and are not an animal, plant, or fungi — are now classified as **Virovores.**
- It is a species of **Halteria - microscopic ciliates** that populate freshwater worldwide.
  - The microbe Halteria is a common genus of protist known to flit about as its hair-like cilia propel it through the water.
- They're made up of nucleic acids, nitrogen, and phosphorus. It can eat **huge numbers of infectious chloroviruses that share their aquatic habitat.**
  - Chloroviruses are known to infect microscopic green algae.
- These organisms can sustain themselves **with viruses, consuming many and growing in size.**
- A virus-only diet, termed "virovory," is enough to fuel **the physiological growth and even population growth of an organism.**

## Stem Cell-derived Mitochondrial Transplant

### Why in News?

Recently, **six children with rare disorders** caused by deletion in the genomes of their **mitochondria** were **successfully treated for the first time by Stem-cell derived Mitochondria Transplantation.**

- The process involved the **mitochondrial transplant from donor mothers into children's haematopoietic stem cells**, which give rise to all types of blood cells.

### What is the Stem Cell-derived Mitochondria Transplantation?

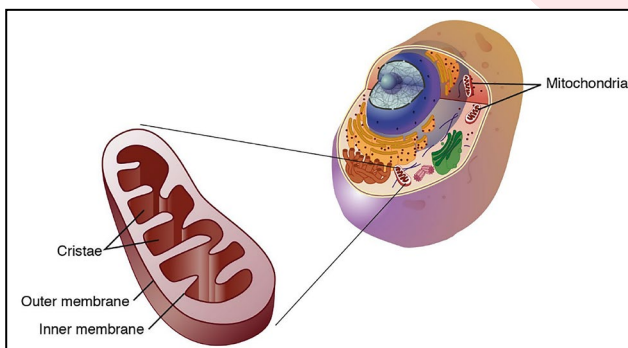
- It involves the **spontaneous mitochondrial transfer of the stem cell to rescue the injured cells** or the injection of stem cell isolated mitochondria into the injured area to repair the damage.
  - Stem cells are the **most primitive cells at the top of the origin of cell lines**, and they have a **high capacity for differentiation and self-renewal.**

Note:

- In addition, stem cells can differentiate into various tissues, organs, or functional cells of the human body; therefore, stem cells hold great promise for therapeutic tissue engineering and regenerative medicine.

#### What are Mitochondria?

- Mitochondria are membrane-bound semi-autonomous cell organelles and are often referred to as the powerhouses of the cell.
  - They generate most of the chemical energy needed to power the cell's biochemical reactions.
    - Chemical energy produced by the mitochondria is stored in the form of Adenosine Triphosphate (ATP).
- Mitochondria contain their own Deoxyribonucleic Acid (DNA). Generally, mitochondria, and therefore mitochondrial DNA, are inherited only from the mother in almost all multicellular organisms.
  - Mitochondria in mammalian sperm are usually destroyed by the egg cell after fertilization.
    - The mitochondria are present at the base of the sperm's tail, which is used for propelling the sperm cells; sometimes the tail is lost during fertilization.



## The Future of Metaverse and AI

### Why in News?

The year 2022 was not the best for tech firms, yet we may innovative technologies emerge in future related to **Metaverse** and **AI (Artificial Intelligence)**, which may raise concerns and present Opportunities.

- The year 2022 saw a lot of the shift in demand during and post the Covid-induced lockdowns.

- The year 2022 ended with near **mayhem across most Silicon Valley companies**, especially those in the Internet business.

### What will be the Future

#### Challenges and Opportunities of Meta-AI?

##### ➤ More Pervasive AI:

- **ChatGPT** has shown the world that **conversational artificial intelligence is an idea whose time has come**.
- The ChatGPT can answer “follow-up questions”, and can also “admit its mistakes, challenge incorrect premises, and reject inappropriate requests.” but most such AI elements are now in standalone products, which is more play than work.
- In 2023, this intelligence will be seen coming into **more products that we use every day** —for instance Gmail that will not just auto-suggest but also write next mail to the boss.

##### ➤ Beyond Social Media:

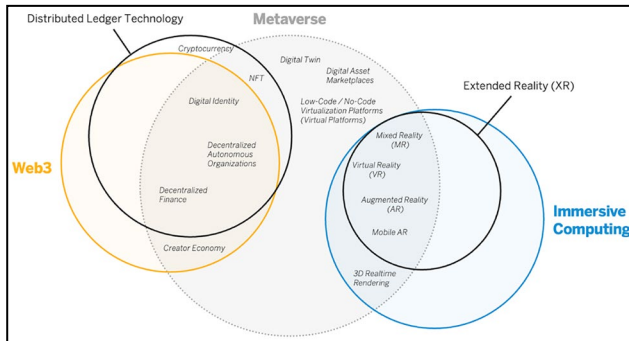
- Twitter and **Facebook are struggling to remain relevant amid** an increasingly younger and digital native audience. Their concepts of social engagement are very **different, often sans text and notice-board behaviors**.
- Meta, for instance, knows that it will have to **think beyond its present social media platforms** and wants to be the social link when users move to the Metaverse, if at all.
- But that might not be something that will shift soon. Till then, there seems to be a vacuum emerging in the social media space, **for now plugged by users sticking to short videos**. But that fad too shall pass and not all platforms are good in that segment.

##### ➤ More Regional, Darker Social Bubbles:

- As the Internet spreads to new users, especially in countries like India, it is also becoming more localized and multilingual.
- Across the world, the English language internet seems to have plateaued, making platforms like **Google focus more on opportunities to serve smaller, regional languages**.
- This is a tech challenge in more ways than one, but also **presents an opportunity to test out new technologies that can convert the content of the internet for these new users** without much human intervention.

Note:

### ➤ Future of Metaverse:



- As hybrid workforces become the norm and with travel still not as easy as earlier, **extended reality (XR)** could become the answer to collaborate and communicate virtually.
  - XR is an emerging umbrella term for all the **immersive technologies, including augmented reality (AR), virtual reality (VR), and mixed reality (MR)** plus those that are still to be created.
  - All immersive technologies extend the reality we experience by either blending the virtual and “real” worlds or by creating a fully immersive experience.
- Since the headsets and other paraphernalia to facilitate these virtual interactions are still very expensive, it **might be up to companies to make these available to their employees for regular XR meetings**. The first experience of this could end up looking like an upgraded version of video conferencing, but with the ability to interact with objects in the virtual space.
- A few more commercial versions of the Metaverse is expected to be accessible to regular users during the year. However, the **challenge will be with the hardware that lets people access these virtual worlds without making people bankrupt in the real world**. The big disruptor could be an affordable device that logs users into the Metaverse easily — maybe it will just be a smartphone.

### What are the Ethical Concerns related to AI?

- The legal and ethical issues that confront society due to AI include **privacy and surveillance**, bias or discrimination, and potentially the philosophical challenge is the role of human judgment. Concerns about newer digital technologies becoming a new source of inaccuracy and data breaches have arisen as a result of its use.

- The other side of this technological revolution is a growing apprehension on the **socio-political and economic implications of AI**, specifically, the concerns about co-existence of these emerging technologies and core principles of modern democracies.
- Consequently, **AI ethics and the safe and responsible application of AI** are becoming front and centre of the technology revolution.
- **Constitutional morality was envisioned as the cornerstone for AI ethics’ principles in India**, thus, propelling our constitutional rights and ethos to the paramount consideration for deploying AI in a responsible manner.

### What are the Principles of a Responsible AI?

- **Safety and Reliability:** AI systems must ensure **reliability regarding their intended functions** and must have **built-in safeguards** to ensure the **safety of stakeholders**.
- **Equality:** AI systems must be built keeping in mind that **similar people in similar circumstances are treated equally**.
- **Inclusivity and Non-Discrimination:** AI systems must be developed to be inclusive of all stakeholders, and must not discriminate through bias between stakeholders on **religion, race, caste, sex, descent, place of birth or residence in matters of education, employment, access to public spaces etc.**
- **Privacy and Security:** AI systems must ensure that the **personal data of data subjects must be safe** and secure, such that **only authorised persons must access personal data** for specified and necessary purposes, within a framework of sufficient safeguards to ensure this process.
- **Principle of Transparency:** The design and training of AI systems is key for its functioning. The **system must be audited and be capable of external scrutiny** to ensure that the **deployment of the AI system is impartial, accountable and free from bias or inaccuracies**.
- **Principle of Accountability:** Since there are various actors in the process of developing, deploying and operationalizing an AI system, the **accountability structures for any effects, harms or damages** by the AI system **must be clearly set out in a publicly accessible and understandable manner**.
- **Protection and Reinforcement of Positive Human Values:** This principle focuses on the **possible**

Note:

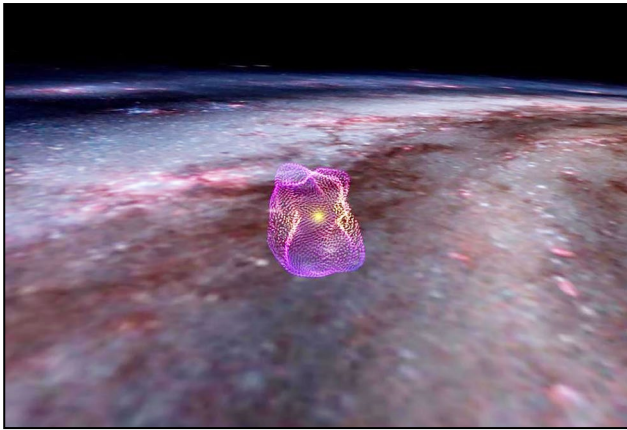
**deleterious effects of AI systems** through collection of personal data for profiling, the **use of AI systems in manners contrary to fundamental rights** guaranteed by the Constitution of India.

## Local Bubbles

### Why in News?

Recently, new research on a **giant cosmic cavity** that surrounds the **solar system** could reveal the **universe's secrets**, including questions about the **origins of stars**.

- Researchers from the **Center for Astrophysics (CfA) | Harvard & Smithsonian** have generated a **3D magnetic map** of the cavity called **Local Bubble**.



### What are Local Bubbles?

- The **Local Bubble** is a **1,000-light-year-wide cavity** or a **superbubble**. Other **superbubbles** also exist in the **Milky Way**.
- The **Local Bubble** is a **large, low-density region** in the **interstellar medium (ISM)** of our galaxy, the **Milky Way**.
  - The interstellar medium is the material which fills the space between the stars.
- It's a cavity that is thought to have been created by a series of **supernovae explosions** that occurred about **30 to 50 million years ago**.

### What is a Supernova?

- A **supernova** is a **powerful and luminous explosion** that occurs at the end of the life of a massive star.

- It is caused by the **collapse of the core of the star**, which can trigger a **massive release of energy**.
- **Supernovae** are also important for the **enrichment of the interstellar medium** with heavy elements and for the propagation of **cosmic rays**.
- There are **two main types of supernovae**:
  - **Type I:**
    - It is a supernova caused by the thermonuclear explosion of a **white dwarf star** that is part of a binary system.
    - The white dwarf accretes material from its companion star, and when its mass exceeds a certain limit, it becomes unstable and detonates.
  - **Type II:**
    - It is caused by the **gravitational collapse** of the **core of a massive star**.
    - When a star has exhausted the **nuclear fuel** in its core, its outer layers collapse inward, and the core becomes incredibly hot and dense.
    - This causes a **huge release of energy**, which causes the star to explode.
    - The explosion is so powerful that it can **outshine an entire galaxy for a brief period of time**, and the explosion debris can cause the formation of **nebulae, dust** and **heavy elements**.

### How 3D Map of a

### Gigantic Cavity of Local Bubbles Observed?

- They used **Gaia** and **Planck** space based observatories launched by the **European Space Agency (ESA)**.
- **Gaia** was used to **identify the location and local concentration** of **cosmic dust**.
  - This helped them trace the boundaries of the **Local Bubble**.
- **Planck** provided information on the **magnetic alignment** of **cosmic dust**.
- This alignment can indicate the **orientation of the magnetic field** acting on the dust particles, allowing the researchers to **generate a 3D magnetic field orientation** on the surface of the **Local Bubble**.



Note:

# Environment & Ecology

## Highlights

- Forest (Conservation) Rules 2022
- Water Crisis Due to Dam Sedimentation
- State of Indian Dams
- Global Risks Report 2023
- Recovery of Ozone Layer
- Global Glacier Change in the 21st Century
- Air Pollution in India & NCAP
- Joshimath Land Subsidence
- Asian Waterbird Census
- Bird Species Count in Deepor Beel
- Wayanad Wildlife Sanctuary
- Increase in Blackbuck Population
- National Parks
- Indian Skimmers
- White Tufted Royal Butterfly

## Forest (Conservation) Rules 2022

### Why in News?

Recently, the **National Commission for Scheduled Tribes (NCST)** Chairperson said that the ST body's position on the **Forest (Conservation) Rules 2022** being **violative of the Forest Rights Act, 2006** "will be the same" even as the Environment Ministry has dismissed these concerns.

### What is the Issue?

- **Consent Clause for Diversion of Forest Land:**
  - In September 2022, flagging concerns over the **provision in the new rules that proposes to do away with the consent clause** for diversion of forest land for other purposes, the Commission had **recommended that these rules should be put on hold immediately.**
  - In response, the ministry has insisted that the **rules were framed under the Forest (Conservation) Act, 1980** and that the NCST's apprehension of these rules being in violation of the **Forest Rights Act (FRA), 2006** was "not legally tenable".
  - The Minister added that the two statutory processes were parallel and not dependent on each other.
- **Consent of Gram Sabhas:**
  - The NCST had **pointed out that the FCR 2022 has done away with the provisions to mandatorily seek consent of Gram Sabhas** before the Stage

1 clearance, leaving this process to be done later and even after Stage 2 clearance.

- According to the government, **FCR 2022 already provides for diversion of forest land "only after fulfilment** and compliance of all provisions, including settlement of rights under the **Forest Rights Act"** and also **does not bar or infringe upon the operation of other laws** mandating consent of **Gram Sabhas.**

### What are the Provisions of Forest (Conservation) Rules, 2022?

- **Formation of Committees:**
  - It constituted an **Advisory Committee, a regional empowered committee** at each of the integrated regional offices and a screening committee at State/ Union Territory (UT) government-level.
- **Compensatory Afforestation:**
  - The applicants for **diverting forest land in a hilly or mountainous state with green cover** covering more than two-thirds of its geographical area, or in a state/UT with forest cover covering more than one-third of its geographical area, will be able to take up compensatory afforestation in other states/ UTs where the cover is less than 20%.
- **Allows Private Plantations:**
  - The rules **make a provision for private parties to cultivate plantations** and sell them as land to companies who need to meet compensatory afforestation targets.

Note:



- Prior to the updated rules, state bodies would forward documents to the FAC that would also include information on the status of whether the forest rights of locals in the area were settled.
- **No consent of Gram Sabha needed:**
  - The new rules state that a project, once approved by the FAC, will then be passed on to the State authorities who will collect the compensatory fund and land, and process it for final approval.
  - Previously consent of gram sabha, or the governing body in villages in the area, was required to give written consent to the diversion of the forest.
- **Allows building in Forests:**
  - Right to construct structures for bonafide purposes including forest protection measures and residential units (up to an area of 250 sq meters as one-time relaxation).

### What is the State of Forest in India?

- **About:**
  - According to **India State of Forest Report, 2021**, the Total Forest and Tree cover is now 7,13,789 square kilometres, 21.71% of the country's geographical area, an increase from 21.67% in 2019.
  - Forest Cover (Area-wise): Madhya Pradesh > Arunachal Pradesh > Chhattisgarh > Odisha > Maharashtra.
- **Category:**
  - **Reserved Forests:**
    - Reserve forests are the **most restricted forests and are constituted by the State Government** on any forest land or wasteland which is the property of the Government.
    - In reserved forests, **local people are prohibited**, unless specifically allowed by a Forest Officer in the course of the settlement.
  - **Protected Forests:**
    - The **State Government is empowered to constitute any land other than reserved forests as protected forests** over which the Government has proprietary rights and the power to issue rules regarding the use of such forests.
    - This power has been used to establish State control over trees, whose timber, fruit or other non-wood products have revenue-raising potential.

- **Village forest:**
  - Village forests are the one in which the **State Government may assign to 'any village community the rights of Government to or over any land** which has been constituted a reserved forest'.
- **Degree of Protection:**
  - Reserved forests > Protected forests > Village forests.
- **Constitutional Provisions:**
  - Through the **42<sup>nd</sup> Amendment Act, 1976 Forests and Protection of Wild Animals and Birds** were transferred from State to Concurrent List along with Education, Weights & Measures and Administration of Justice.
  - **Article 48 A in the Directive Principles of State policy**, mandates that the State shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country.
  - **Article 51 A (g)** of the Constitution states that it shall be the **Fundamental Duty** of every citizen to protect and improve the natural environment including forests and Wildlife.

### What are the Related Initiatives?

- **Indian Forest Policy, 1952:**
  - It was a simple extension of colonial forest policy. However, it became conscious about the need to increase the forest cover to one-third of the total land area.
- **Forest Conservation Act, 1980:**
  - It stipulated that the central permission is necessary to practice sustainable **agro-forestry** in forest areas. Violation or lack of permit was treated as a **criminal offence**.
- **National Forest Policy, 1988:**
  - The ultimate objective of the **National Forest policy was to maintain environmental stability** and ecological balance through conservation of forests as a natural heritage.
- **National Afforestation Programme :**
  - It has been implemented by the Ministry of Environment, Forest and Climate Change since 2000 for the afforestation of degraded forest lands.

Note:

#### ➤ Other Related Acts:

- The **Wildlife Protection Act of 1972**, The **Environment Protection Act of 1986**, and The **Biodiversity Diversity Act of 2002**.
- **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006**:
  - It has been enacted to recognize and vest the forest rights and occupation of forest land in forest-dwelling Scheduled Tribes and other traditional forest dwellers, who have been residing in such forests for generations.

## Water Crisis Due to Dam Sedimentation

### Why in News?

The **United Nations Institute for Water, Environment and Health** showed in its report that about **50,000 large dams** across the world will lose **24-28% water storage capacity** by **2050** due to sediment trapped in them.

- These **water reservoirs** have already lost about **13-19%** capacity to sedimentation.
- The **United Kingdom, Panama, Ireland, Japan and Seychelles** will experience the highest water storage losses by **2050** from **35-50%** of their original capacities.

### What is Sedimentation with Respect to Dams?

- **Sedimentation** in dams refers to the **accumulation of sediments**, such as **sand, gravel, and silt**, at the **bottom of a reservoir** created by a dam.
- This sediment can build up over time, **reducing the overall storage capacity of the reservoir**.
- To maintain the **capacity of the reservoir**, the sediment may need to be removed through a process called **dredging**.

### What is Dredging?

- Dredging is the **process of removing sediments**, such as **sand, gravel, and silt**, that has accumulated at the **bottom of a reservoir**.
- It can be done using various methods, such as **mechanical dredging** with a **dredge machine** or **hydraulic dredging** with a **high-pressure water jet**.
- The sediment removed during dredging is typically disposed of in a designated area away from the dam.

### What are the Causes of Sedimentation?

- **Erosion Upstream of the Dam**: When soil and rock is washed away from the area upstream of the dam, it can be carried downstream and deposited in the reservoir.
- **Runoff from Urban and Agricultural Areas**: The increased use of land for human activities, such as **urbanization** and agriculture, can lead to increased runoff of sediment into the reservoir.
- **Natural Processes**: Sedimentation can also occur naturally through processes such as weathering and erosion.
- **Climate Change**: **Climate change** causes more intense and frequent rainfall events and also causes **snowmelt** earlier which can lead to increased erosion and sediment runoff into the reservoir.
- **Deforestation**: Trees help to hold the soil together and prevent **erosion**, so when forests are removed or degraded, there is a greater risk of sediment runoff into the reservoir.
- **Poor Dam Maintenance**: Lack of maintenance and repairs can also lead to sedimentation, as the dam's structure can become damaged, allowing sediment to enter the reservoir.

### What are the Consequences of Dam Sedimentation?

- **Environmental**:
  - **Reduced water storage capacity** in the reservoir, which can lead to **water shortages for downstream users** and the loss of habitat for aquatic species.
  - Increased risk of **dam failure** as the sediment can cause the **dam to become unstable**.
- **Economic**:
  - Increased cost of maintenance and **dredging** to remove the sediment.
  - Loss of **hydroelectric power generation** due to **reduced water flow** through the dam.
  - **Reduced irrigation** and **water supply** for agriculture and industry.
  - **Loss of revenue** from recreational activities such as fishing and boating if the reservoir is no longer able to support them.
- **Damage to Dam Structure and Turbines**:
  - The accumulation of sediment at the bottom of the reservoir can cause **scouring, or erosion**, of the

Note:



dam's foundation, which can weaken its **structural integrity** and increase the **risk of failure**.

- Sediment can also **clog the turbine intake**, which can **reduce the efficiency of hydroelectric power generation** and require costly maintenance to remove the sediment.
- The sediment can also cause **abrasion on the turbine blades** which can lead to damage and reduce their efficiency.
- While sediment helps maintain the **aquatic ecosystem**, **poor management** can lead to **nutritional imbalances** causing **eutrophication** and other disruptions in the water pool of the dam, as well as damages in habitations downstream.

## State of Indian Dams

### Why in News?

According to a new study by the **United Nations**, around **3,700 dams in India will lose 26% of their total storage by 2050** due to accumulation of sediments which can undermine water security, irrigation and power generation in future.

- The study was conducted by the **United Nations University Institute on Water, Environment and Health (UNU-INWEH)**, also known as the UN's think tank on water.

### What are the Other Highlights of the Study?

- Trapped sediment has already robbed **roughly 50,000 large dams worldwide** of an estimated 13 to 19% of their combined original storage capacity.
- It shows that **6,316 billion cubic metre of initial global storage in 47,403 large dams in 150 countries will decline to 4,665 billion cubic metre**, causing 26% storage loss by 2050.
  - The loss of 1,650 billion cubic metre storage capacity is roughly equal to the annual water use of India, China, Indonesia, France and Canada combined.
- In 2022, the **Asia-Pacific region, the world's most heavily dammed region, is estimated to have lost 13% of its initial dam storage capacity**.
  - It will have lost nearly a quarter (23%) of initial storage capacity by mid-century.

- The region is **home to 60% of the world's population** and water storage is crucial for sustaining water and food security.
- China, meanwhile, the world's most heavily dammed nation, **has lost about 10% of its storage and will lose a further 10% by 2050**.

### What is the State of Indian Dams?

#### ➤ About:

- India is **ranked third in the world in terms of building large dams**.
- Of the over 5,200 large dams built so far, about 1,100 large dams have already reached 50 years of age and some are older than 120 years.
  - The number of **such dams will increase to 4,400 by 2050 i.e., 80% of the nation's large dams face the prospect of becoming obsolete as they will be 50 years** to over 150 years old.
  - The situation with hundreds of thousands of medium and minor dams is even more dangerous as their shelf life is even lower than that of large dams.
- **Examples:** Krishna Raja Sagar dam was built in 1931 and is now 90 years old. Similarly, Mettur dam was constructed in 1934 and is now 87 years old. Both these reservoirs are located in the water scarce **Cauvery river basin**.
- **Significance:**
  - Dams provide **multiple benefits including fresh water supply, water storage for irrigation, hydroelectric power generation**, flood control, and improved navigation for transportation.

### What are the Issues with Indian Dams?

#### ➤ Built according to the Rainfall Pattern:

- Indian dams are very old and built according to the rainfall pattern of the past decades. Erratic rainfall in recent years has left them vulnerable.
- But the government is equipping the dams with information systems like rainfall alerts, flood alerts, and preparing emergency action plans to avoid all sorts of mishaps.

#### ➤ Decreasing Storage Capacity:

- As dams age, soil replaces the water in the reservoirs. Therefore, the storage capacity cannot be claimed to be the same as it was in the 1900s and 1950s.

Note:





- The storage space in Indian reservoirs is receding at a rate faster than anticipated.
- **Climate change:**
  - **Climate change** has led to **increased variability in the water availability and uncertainty in future water availability.**

### **What are the Impacts of Dam Construction?**

- **Environmental Impacts:**
  - Dams can disrupt the flow of rivers and change the downstream ecology, which can have a negative impact on plants and animals that rely on the natural flow of the river. Additionally, dams can cause soil erosion, sedimentation and flooding downstream.
- **Displacement of Communities:**
  - The **construction of dams often leads to the displacement of local communities.**
  - This can result in the **loss of homes, lands, and livelihoods**, which can be particularly devastating for marginalized communities such as indigenous people, farmers and fisherfolk. **Example:**
    - Around 1,500 people were displaced and affected by the **backwaters of Sardar Sarovar Dam.**
- **Socio-Economic Impacts:**
  - The construction of dams can also have a **negative impact on the socioeconomic status of local communities.** For example, it can disrupt local fishing and farming activities and lead to a loss of income for many people.
- **Cost:**
  - Building dams is a **costly process and can put a strain on the budget of both state and central Government.**
- **Transparency:**
  - **Lack of transparency in the decision-making process can lead to a lack of public trust** in dams and the organizations that operate them.

#### **What are the Related Steps taken?**

- Under the **7<sup>th</sup> Schedule** of the Constitution of India, **water and water storage is a state subject.**
  - Therefore, legislating dam safety is the responsibility of state governments.
  - However, the Central Government can enact legislation governing dams in certain scenarios.

- At the national level, the **Central Water Commission (CWC)** provides technical expertise and guidance on all matters related to dams.
  - It is tasked with research into dam safety, developing standards for dam design and operations, and it is involved in the process of granting environmental clearance to dam construction projects.
- **Dam Safety Act 2021** aims at surveillance, inspection, operation and maintenance of all specified dams across the country.
  - The Act applies to all **specified dams in the country** i.e., those dams having a height of over 15m and between 10m and 15m with certain design and structural conditions.

## **Global Risks Report 2023**

### **Why in News?**

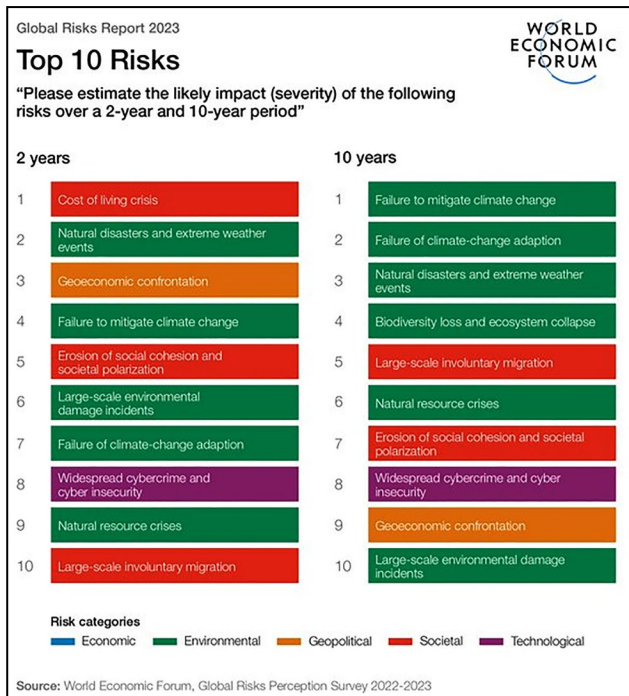
Recently, the **World Economic Forum (WEF)** has released the **18<sup>th</sup> Edition of Global Risks Report 2023** which seeks that the world be prepared for 'Natural disasters and extreme weather events' in the next two years.

- The WEF report has been released ahead of its flagship Davos 2023 Meeting, which is titled as **Cooperation in a Fragmented World.**

### **What are the Findings of the Report?**

- **Most Severe Risks:**
  - 'Failure to Mitigate Climate Change' and 'Failure of Climate Change Adaptation' are the two **most severe risks facing the world** in the next decade, followed by 'natural disasters and extreme weather events' and 'Biodiversity loss and ecosystem collapse'.
  - Today, atmospheric levels of carbon dioxide, methane and nitrous oxide have all **reached record highs.**
  - Emission trajectories make it **very unlikely that global ambitions to limit warming to 1.5°C** will be achieved.

Note:



### ➤ Climate Action and Biodiversity Loss:

- The world has struggled to make the required progress on climate change despite **30 years of global climate advocacy and diplomacy**.
- Failure on climate action to address climate change' **has continued to figure among the top risks in the report since 2011**.
- Biodiversity within and between ecosystems is already declining **faster than at any other point during human history**.
- But unlike other climate-related risks, 'Biodiversity loss and ecosystem collapse' has **not been perceived to be of concern over the short term**.
  - It has been **ranked as the 4<sup>th</sup> most severe risk** in the long term or over the next ten years (by 2033).

### ➤ Reversal of Climate Mitigation Progress:

- Growing demands on public- and private-sector resources from the socio-economic short-term crises **attributed to geopolitical tensions**, will likely reduce the speed and scale of mitigation efforts over the next two years.
- These have, in some cases, also **reversed progress on climate change mitigation**, at least over the short term.
  - For example, the European Union spent at least 50 billion euros on new and expanded fossil-fuel infrastructure and supplies.

- Some countries including Austria, Italy, the Netherlands and France **restarted coal power stations**.

### ➤ Apprehensions and Threats:

- Over the next 10 years or by 2033, the interconnections between biodiversity loss, pollution, natural resource consumption, climate change and socioeconomic **drivers will make for a dangerous mix**.
- In the meantime, the current **global pandemic and war in Europe has been held responsible for the energy, inflation and food crises**. In fact, 'cost of living' ranks as the top most serious global risk in the short term (over the next two years).
- Failure to mitigate climate change is also a significant global risk that the world is least prepared for.
  - 70% of the respondents in the WEF report said existing measures to prevent or prepare for climate change have been **"ineffective" or "highly ineffective"**.

## Recovery of Ozone Layer

### Why in News?

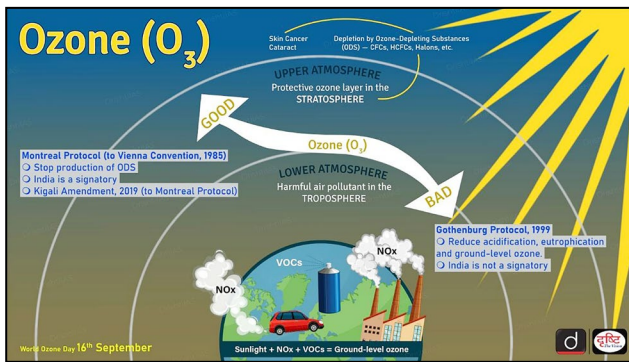
According to a new U.N. report, **earth's protective ozone layer is slowly but noticeably healing at a pace** that would fully mend the hole over Antarctica in about 43 years.

### What are the Findings of the Report?

- While this is an achievement, the **scientists warned of the detrimental effects of geoenvironmental technologies** such as stratospheric aerosol injection on the ozone layer.
- Aerosol sprays, like other commonly used substances such as dry-cleaning solvents, refrigerants and fumigants, contain **Ozone-Depleting Substances (ODS)** including **chlorofluorocarbons (CFCs)**, hydrochlorofluorocarbons (HCFCs), halons, methyl bromide, carbon tetrachloride, and methyl chloroform.
- For the first time, the **Scientific Assessment Panel examined the potential effects on ozone of the intentional addition of aerosols** into the stratosphere, known as Stratospheric Aerosol Injection (SAI).
  - SAI can **increase sunlight reflection, thereby lowering the amount of heat that enters the**

Note:

troposphere. But this method “could also affect stratospheric temperatures, circulation and ozone production and destruction rates and transport”.



## Global Glacier Change in the 21<sup>st</sup> Century

### Why in News?

Recently, a report titled “Global glacier change in the 21<sup>st</sup> century: Every increase in temperature matters”, which states half the Earth’s glaciers may disappear by 2100.

- The researchers used **two decades of satellite data to map the planet’s glaciers with greater precision than ever before.**
- The **United Nation’s (UN) Intergovernmental Panel on Climate Change’s sixth assessment report** released in 2022 also warned that we are running out of time to attain the 1.5°C target.

### What are the Findings?

- **Glaciers Melting at Unprecedented Rate:**
  - **Glaciers** are receding at unprecedented rates due to **climate change** and rising temperatures.
    - The amount of ice lost by glaciers between **1994 and 2017 was around 30 trillion tonnes** and they are now melting at a pace of 1.2 trillion tonnes each year.
    - The glaciers in the Alps, Iceland and Alaska are some of those that are melting at the quickest rates.
  - Half the Earth’s glaciers are destined to vanish by 2100, even if we adhere to the **Paris Climate Agreement** goal of limiting global temperature rise to 1.5 degrees Celsius above pre-industrial levels.

- A minimum of 50 % of the loss will occur **within the next 30 years**. 68% of glaciers will vanish if **global warming continues at the current rate of 2.7°C**.
- If this happens, by the end of the following century, **there would be practically no glaciers left in central Europe, western Canada and the United States.**
  - Some of these glaciers can be saved from extinction by reducing global warming, the researchers noted.
  - **Glaciers, which hold 70 % of the Earth’s freshwater, currently encompass around 10 % of the planet’s land area.**

### ➤ Increasing Risk of Disaster:

- Melting glaciers raise sea levels dramatically, jeopardizing up to **two billion people’s access to water and increasing the risk of natural disasters and extreme weather events** like floods.
- Global sea level rose by 21 % between 2000 and 2019. This was solely due to meltwater from melting glaciers and ice sheets.

### ➤ Recommendations:

- The rapidly increasing glacier mass losses as global temperature increases beyond 1.5C stresses the **urgency of establishing more ambitious climate pledges to preserve the glaciers** in these mountainous regions.

## Air Pollution in India & NCAP

### Why in News?

Under the **National Clean Air Campaign (NCAP)**, analysts found that **progress has been slow, and pollution has only incrementally reduced in most cities.**

### What is the National Clean Air Programme?

- It was **launched by the Ministry of Environment, Forests and Climate Change (MoEFCC)** in January 2019.
- It is the **first-ever effort in the country to frame a national framework for air quality management** with a time-bound reduction target.
- It **seeks to cut the concentration of coarse** (particulate matter (PM) of diameter 10 micrometer or less, or PM10) **and fine particles** (particulate matter of diameter 2.5 micrometer or less, or **PM2.5**) by at least 20% **in the next five years, with 2017 as the base year for comparison.**

Note:

- It covers **132 non-attainment cities** which were identified by the **Central Pollution Control Board (CPCB)**.
  - Non-attainment cities are those that have fallen short of the **National Ambient Air Quality Standards (NAAQS)** for over five years.
    - NAAQs are the **standards for ambient air quality with reference to various identified pollutant** notified by the CPCB under the **Air (Prevention and Control of Pollution) Act, 1981**. List of pollutants under NAAQS: PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>2</sub>, CO, NH<sub>3</sub>, Ozone, Lead, Benzene, Benzo-Pyrene, Arsenic and Nickel.

### What are the Target Levels?

- **Current Scenario:** The country's current, annual average **prescribed limits for PM<sub>2.5</sub> and PM<sub>10</sub>** are 40 micrograms/per cubic metre (ug/m<sup>3</sup>) and 60 micrograms/per cubic metre.
- **New Targets:** The NCAP initially set a target of reducing key air pollutants PM<sub>10</sub> and PM<sub>2.5</sub> by 20-30% in 2024, taking the pollution levels in 2017 as the base year to improve upon.
  - In September 2022, however, the **Centre moved the goalposts and set a new target of a 40% reduction** in particulate matter concentration, by 2026.
- **Assess Improvements:** Cities were required to quantify improvement starting from 2020-21, which requires 15% and more reduction in the annual average PM<sub>10</sub> concentration and a concurrent increase in clean air quality days to at least 200.
  - **Anything less will be considered low, and the funding will consequently be reduced.**

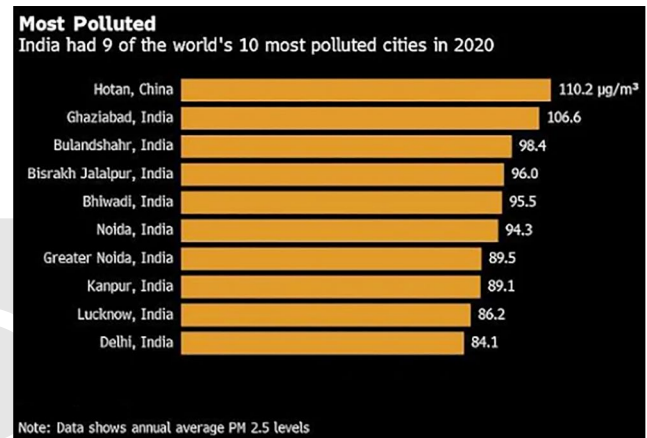
### How Effective has the NCAP Been?

- **Achieving Targets:**
  - An analysis of the four-year performance of the NCAP by the **Centre for Research on Energy and Clean Air (CREA)**, concluded that only 38 of the 131 cities that signed agreements with the Centre, Urban Local Bodies (ULBs), and State Pollution Control Boards **achieved their annual pollution reduction targets**.
- **Recommendations:**
  - The CREA noted that 37 cities have completed the **source apportionment studies** (which list and quantify the significant sources of pollution in a

city). However, **most of these reports weren't available in the public domain and no city action plan had been updated** with information from these studies.

- The CREA estimates that **India will need to install more than 300 manual air quality monitoring stations per year** to reach the NCAP goal of 1,500 monitoring stations by 2024. **Only 180 stations have been installed over the last four years.**

### Has NCAP Managed to Reduce Pollution?



- The NCAP Tracker, a joint project by two organisations active in air pollution policy has been **monitoring progress in achieving the 2024 clean air targets**.
- Among the non-attainment cities, **the national capital of Delhi ranked the most polluted in 2022**. But Delhi's PM<sub>2.5</sub> levels have **improved by over 7% compared to 2019**.
- Most cities in the top 10 most polluted list of 2022 **were from the Indo-Gangetic Plain**.
- Nine of the 10 cities, which were the most polluted in 2019, **have reduced their PM<sub>2.5</sub> and PM<sub>10</sub> concentrations in 2022**.
- There were 16 NCAP cities and 15 non-NCAP cities that **registered a significant increase in their annual PM<sub>2.5</sub> levels** — with nearly identical numbers. This suggested that non-NCAP and NCAP cities were as likely to be polluted, **with the less effectiveness of NCAP**.

### What are the Initiatives

#### Taken for Controlling Air Pollution?

- **System of Air Quality and Weather Forecasting and Research (SAFAR) Portal.**

Note:

- **Air Quality Index:** AQI has been developed for eight pollutants viz. PM2.5, PM10, Ammonia, Lead, nitrogen oxides, sulphur dioxide, ozone, and carbon monoxide.
- **Graded Response Action Plan** (for Delhi).
- For Reducing Vehicular Pollution:
  - **BS-VI Vehicles,**
  - **Push for Electric Vehicles (EVs),**
  - **Odd-Even Policy** as an emergency measure (for Delhi).
- **New Commission for Air Quality Management**
- Subsidy to farmers for buying **Turbo Happy Seeder (THS) Machine** for reducing stubble burning.
- **National Air Quality Monitoring Programme (NAMP):** Under NAMP, four air pollutants viz. SO<sub>2</sub>, NO<sub>2</sub>, PM10, and PM2.5 have been identified for regular monitoring at all locations.

## Joshimath Land Subsidence

### Why in News?

Due to land subsidence, Joshimath - a key transit point for tourists travelling to Badrinath and Hemkund Sahib - developed cracks, **causing panic and protests among the local population.**

- Joshimath has been declared a **landslide-subsidence zone** and over 60 families living in uninhabitable houses in the sinking town have been evacuated to temporary relief centres.

### Where is Joshimath Located?

- Joshimath is a hilly town located on the **Rishikesh-Badrinath National Highway (NH-7)** in Chamoli district of Uttarakhand.
- The city serves as a **tourist town as it acts as an overnight rest stop for people visiting Badrinath, Auli, Valley of Flowers, and Hemkund Sahib, among other important religious and tourist locations** in the state.
- Joshimath is also of great strategic importance to **the Indian armed forces and is home to one of the Army's most important cantonments.**
- The town (fall in **high-risk seismic Zone-V**) is traversed by running streams with a high **gradient from Vishnuprayag, a confluence of the Dhauliganga and the Alaknanda rivers.**

- It is home to one of the **four cardinal maths or monasteries established by Adi Shankara - Sringeri in Karnataka, Dwarka in Gujarat, Puri in Odisha and Joshimath near Badrinath in Uttarakhand.**

### Why is Joshimath Sinking?

#### ➤ Background:

- Cracks on walls and buildings were **first reported in 2021**, as Chamoli district of Uttarakhand experienced frequent landslides and flooding.
- As per reports, the Uttarakhand government's expert panel in 2022 found that several pockets of **Joshimath are "sinking" owing to man-made and natural factors.**
- It was found that a gradual settling or sudden sinking of the earth's surface due to **the removal or displacement of subsurface materials** — has induced structural defects and damage in almost all wards of the city.

#### ➤ Reasons:

- **Site of an Ancient landslide:** According to the **1976 Mishra Committee report, Joshimath lies on a deposit of sand and stone**, it's not on the main rock. It lies on an ancient landslide. The report added that undercutting by river currents of Alaknanda and Dhauliganga are also playing their part in bringing landslides.
  - The committee had recommended that **restrictions be placed on heavy construction work, blasting or digging to remove boulders** for road repairs and other construction, felling of trees.
- **Geography:** Scattered rocks in the area are **covered with old landslide debris comprising boulders, gneissic rocks, and loose soil, with a low bearing capacity.**
  - These gneissic rocks are highly weathered and have a low cohesive value with a tendency of high pore pressure when saturated with water, especially during monsoons.
- **Construction Activities:** Increased construction, hydroelectric projects, and the widening of the NH have made the slopes highly unstable in the last couple of decades.
- **Land Erosion:** Due to the running streams from Vishnuprayag and sliding along the natural streams are the other reasons behind the city's fate.

Note:

### ➤ Impact:

- At least **66 families have fled the town while 561 houses have reported cracks**. A government official said that over 3000 people have been affected so far.

### What can be done to save Joshimath?

- Experts recommend a **complete shutdown of development and hydroelectric projects in the region**. But the urgent need is to relocate the residents to a **safer place and then reimagine the town's planning** to accommodate the new variables and the changing geographical factors.
- Drainage planning is one of the biggest factors **that needs to be studied and redeveloped**. The city is suffering from poor drainage and sewer management as more and more waste is seeping into the soil, loosening it from within. The irrigation department has been asked by the state government to look into the

issue and create a new plan for the drainage system.

- Experts have also suggested **replantation in the region, especially at the vulnerable sites to retain soil capacity**. There is a need for a coordinated effort between the government and civil bodies with the aid of military organizations like the **Border Roads Organisation (BRO)** to save Joshimath.
- While the state already has weather forecasting technology that can warn people of local events, **its coverage needs to be improved**.
  - Weather forecasting in Uttarakhand is done through satellites and Doppler weather radars (instruments that use electromagnetic energy to find precipitation and determine its location and intensity).
- The state government also **needs to take scientific studies more seriously, which clearly spell out the reasons for the current crisis**. Only then will the state put an end to its development frenzy.

## HUMAN-WILDLIFE CONFLICT



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

### Causes of HWC

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

### Impacts of HWC

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

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

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

### Data on HWC

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

### Advisory for HWC Management (Standing Committee of the National Board of Wildlife)

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

### State - Specific Initiatives

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



### What is Land Subsidence?

- Land subsidence is a gradual settling or sudden sinking of the Earth's surface.
- Subsidence - sinking of the ground because of underground material movement—is most often **caused by the removal of water, oil, natural gas, or mineral resources out of the ground** by pumping, fracking, or mining activities.
- Subsidence can also be caused by **natural events such as earthquakes, soil compaction, glacial isostatic adjustment, erosion, sinkhole formation, and adding water to fine soils deposited by wind (a natural process known as loess deposits)**.
- Subsidence can happen over very large areas like whole states or provinces, or very small areas like the corner of your yard.

Note:

**What is Landslide?**

- A landslide is defined as the **movement of a mass of rock, debris, or earth down a slope.**
- They are a type of **mass wasting**, which denotes any downward movement of soil and rock under the direct influence of gravity.
- The term **landslide encompasses five modes of slope movement**: falls, topples, slides, spreads, and flows.

Human Wildlife Conflict

## Asian Waterbird Census

### Why in News?

A survey conducted as part of the **Asian Waterbird Census (AWC) 2023** shows the populations of some migratory waterbirds, especially duck species visiting the Alappuzha region of Kerala, are falling.

### What are the Highlights of the Survey?

- **Major Missing Species:**
  - Duck species like **Northern Shoveler, Common teal and Eurasian wigeon**, sighted in the previous surveys, were totally missing this time around.
- **Climate Change Impact:**
  - **Climate change** has affected the number of birds visiting the region. However, the precise impact of climate change on bird migration **requires more detailed studies.**

### What is the Asian Waterbird Census?

- **About:**
  - It is a **citizen-science programme** supporting conservation and management of **wetlands** and waterbirds worldwide.
    - AWC is part of the global **International Waterbird Census (IWC)** coordinated by **Wetlands International.**
  - AWC **runs in parallel with other regional programmes of the IWC** in Africa, Europe, West Asia, the Neotropics and the Caribbean.
- **AWC in India:**
  - It was **initiated in the Indian subcontinent in 1987** and since then has grown rapidly to cover major regions of Asia, from Afghanistan eastwards to Japan, Southeast Asia and Australasia.

- In India, AWC is jointly coordinated by the **Bombay Natural History Society (BNHS)** and **Wetlands International.**

### Significance:

- It **gives an idea of the birds at the wetland and the health of the wetland**; the more the waterbirds, the more suitable the wetland is.
- It helps in **better implementation of the Convention on Migratory Species (CMS)** and the **Convention on Biological Diversity's (CBD).**

## Bird Species Count in Deepor Beel

### Why in News?

Recently, Guwahati Wildlife Division of the Assam Forest Department conducted the 2<sup>nd</sup> Bird Species Count Exercise after February 2022 in **Deepor Beel Wetland**, which is the only **Ramsar Site** in Assam.

- Altogether 26,747 birds belonging to 96 species were recorded during a bird count at the **Deepor Beel wetland**. There were 10,289 individuals across 66 species in 2022.
- The bird count revealed **greater species diversity and an increase in the total number of species.**

### What is Deepor Beel?

- **About:**
  - It is one of the largest freshwater lakes in Assam and an **Important Bird Area** by Birdlife International.
  - Deepor Beel has been designated as a **Ramsar Site in November, 2002**
  - It is located towards the southwest of Guwahati city, Assam and is the erstwhile water channel of **River Brahmaputra.**
  - The lake expands up to 30 sq. km in summer and reduces to about 10 sq. km in the winter.
  - The Assam Forest Department manages the 4.1 sq km Deepor Beel Wildlife Sanctuary in the central part of the greater wetland named Deepor Beel.
- **Importance:**
  - It constitutes a **unique habitat for aquatic flora and avian fauna.**
  - It has both biological and environmental importance besides being the only major storm-water storage basin for Guwahati city.

Note:

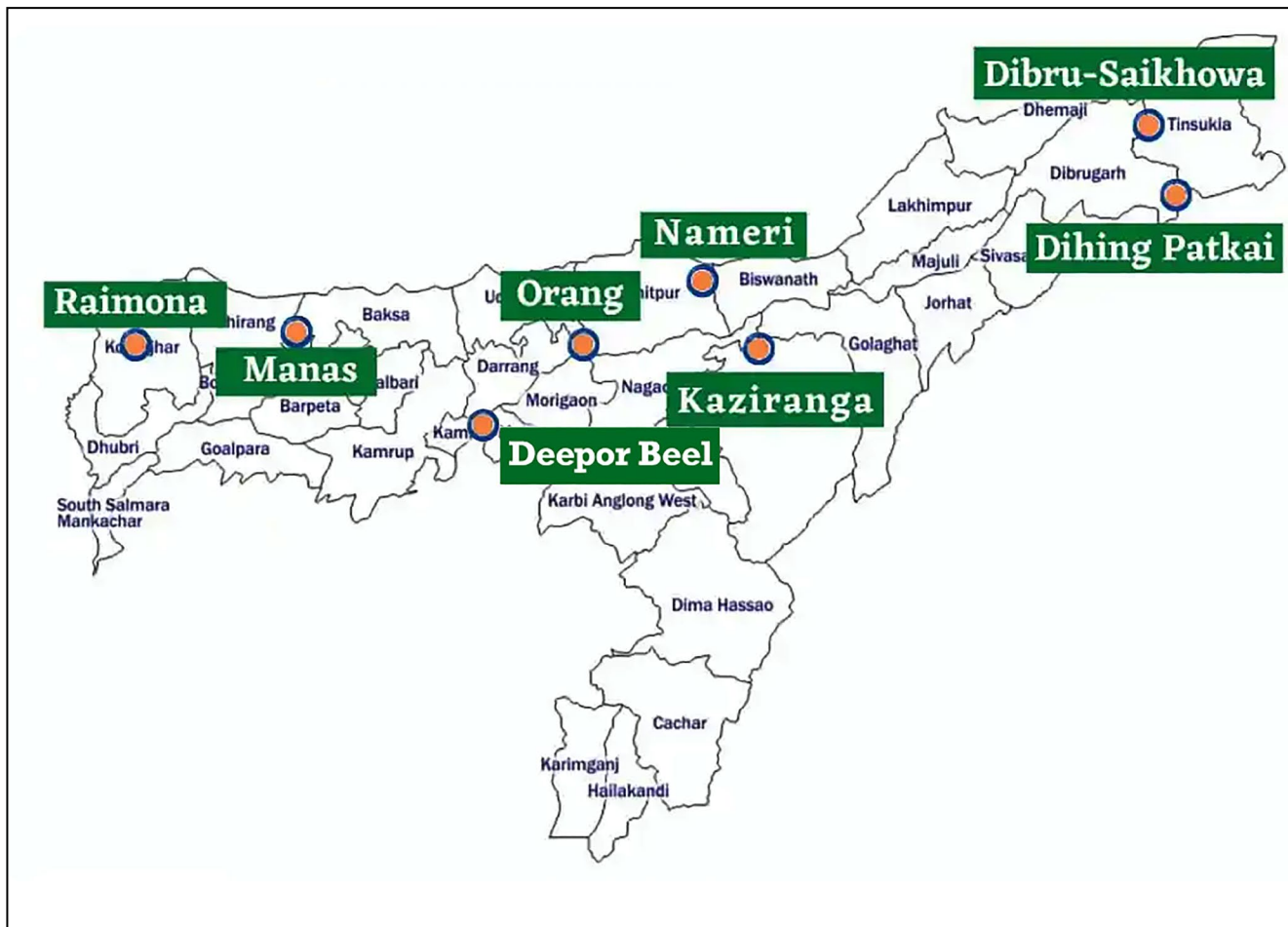
- It provides a means of livelihood for a number of local families.
  - In 2021 six young girls from the fishing community from Assam have developed a biodegradable and compostable yoga mat called '**Moorhen Yoga Mat**'.
- Deepor Beel adjoins the Rani Reserve Forest from where herds of elephants come periodically to forage in the wetland.

➤ **Concerns:**

- Deepor Beel has also suffered contamination because of a garbage dump on its edge at Paschim Boraon.
- Its water has become toxic and it has lost many of its aquatic plants that **elephants would feed on**.
- It has for decades been threatened by a railway track — set to be doubled and electrified — on its southern rim, a garbage dump, and encroachment from human habitation and commercial units.

**What are the Other Protected Areas in Assam?**

- Assam has **7 national parks** and 17 wildlife sanctuaries.



## Increase in Blackbuck Population

### Why in News?

According to a new study from the Indian Institute

of Science (IISc), **blackbucks** in India have adapted well to natural and human-induced challenges to their survival.

- In spite of immense losses in grassland habitats across India, the **data showed an increasing trend in blackbuck population numbers** as compared to the recent past.

Note:





### What are Blackbucks?

- **About:**
  - The Blackbuck (*Antelope cervicapra*), or the **Indian Antelope**, is a species of antelope native to India and Nepal.
    - It is **widespread** in Rajasthan, Gujarat, Madhya Pradesh, Tamil Nadu, Odisha, and **other areas throughout peninsular India**.
  - It is considered as the **epitome of grassland**.
  - The **blackbuck is a diurnal antelope** (active mainly during the day).
- **Recognition:**
  - It has been **declared as the State Animal of Punjab, Haryana, and Andhra Pradesh**.
- **Cultural Importance:**
  - It is a **symbol of purity for Hinduism** as its skin and horns are regarded as sacred objects. For **Buddhism**, it is a **symbol of good luck**.
- **Protection Status:**
  - **Wildlife Protection Act 1972:** Schedule I
  - **IUCN Status:** Least Concern
  - **CITES:** Appendix III
- **Threat:**
  - Habitat Fragmentation, **Deforestation, Natural Calamities**, Illegal Hunting.
- **Related Protected Areas:**
  - Velavadar Blackbuck Sanctuary - Gujarat
  - Point Calimere Wildlife Sanctuary - Tamil Nadu
  - In 2017, the Uttar Pradesh State Government approved the plan of setting up the Blackbuck **Conservation Reserve** in the trans-Yamuna belt near Prayagraj. It **would be the first conservation reserve dedicated to the blackbuck**.

- **Tal Chhapar Sanctuary**- Rajasthan

## Wayanad Wildlife Sanctuary

### Why in News?

Recently, a **Human-Animal Conflict** occurred where a local man was attacked by an **Elephant** and a herd of elephants raided a field of 500 plantains near **Wayanad Wildlife Sanctuary**, Kerala.

- Human-animal conflict has become a **serious wildlife management problem in Kerala in the last few years**. People living on the fringes of reserve forests and sanctuaries have a heightened sense of insecurity now.

### What is Human-Animal Conflict?

- **About:** It refers to struggles that arise when the presence or behavior of **wildlife poses actual or perceived direct, recurring threats to human interests or needs**, often leading to disagreements between groups of people and negative impacts on people and/or wildlife.
- **Causes:** Human population expansion, **habitat degradation and fragmentation, land use transformation and rising densities of livestock** in protected areas are considered as the major causes of Human-Wildlife conflict.

### What are the Key

#### Points of Wayanad Wildlife Sanctuary?

- Located in Kerala, Wayanad Wildlife Sanctuary (WWS) is an integral part of the **Nilgiri Biosphere Reserve**. It was established in 1973.
  - Nilgiri Biosphere Reserve was the first from India to be included in the **UNESCO designated World Network of Biosphere Reserves** (designated in 2012).
  - Other wildlife parks within the Reserve are: Mudumalai Wildlife Sanctuary, Bandipur National Park, Nagarhole National Park, Mukurthi National Park and Silent Valley.
- Spread over 344.44 sq km, Wayanad Wildlife Sanctuary is contiguous to the tiger reserves of

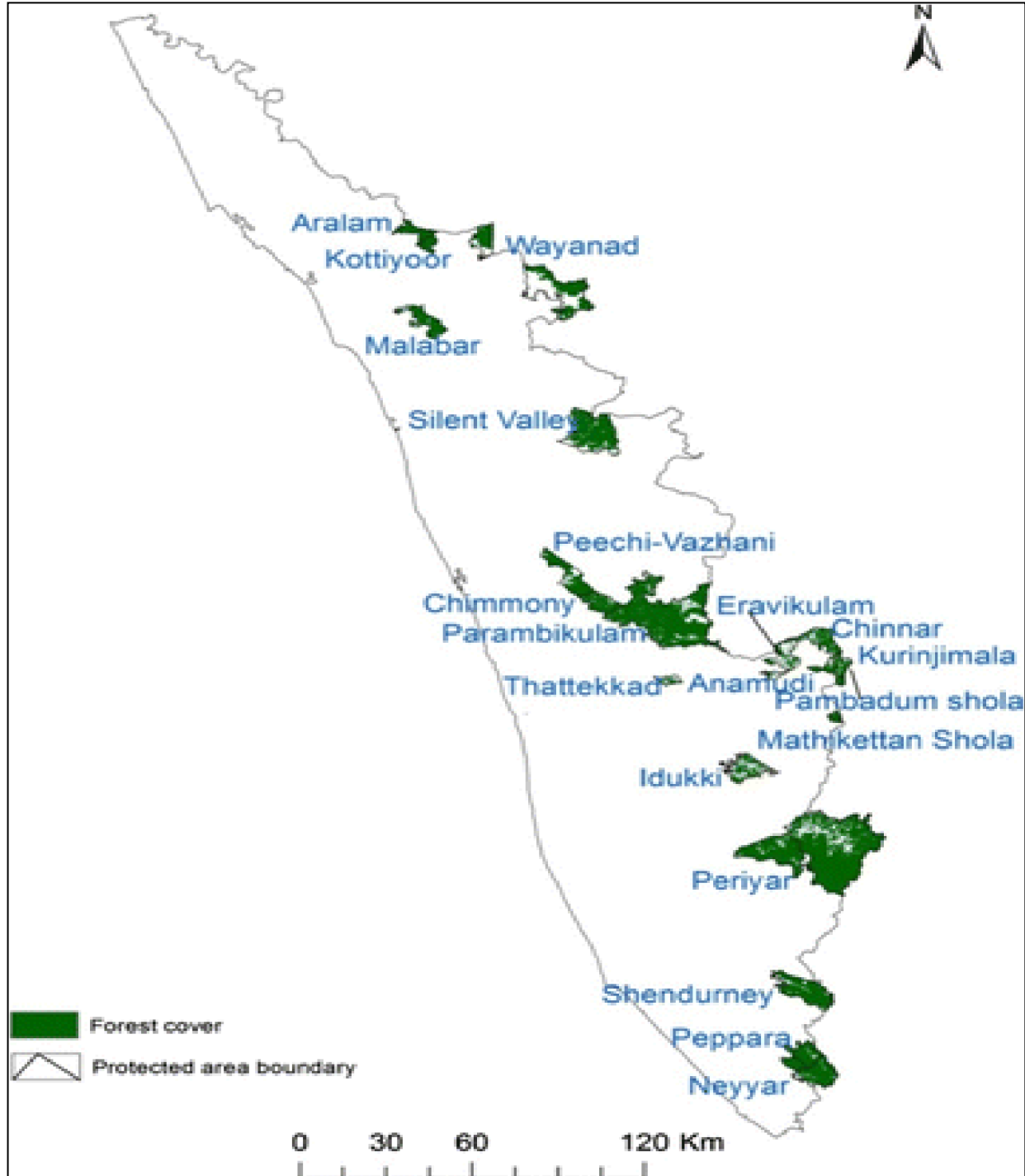
Note:

Nagerhole and **Bandipur** of Karnataka and **Mudumalai** of Tamil Nadu.

- Kabini river (a tributary of **Cauvery river**) flows through the sanctuary.
- The forest types include **South Indian Moist Deciduous forests**, West coast semi-evergreen forests and plantations of teak, eucalyptus and Grewelia.

- Elephant, Gaur, Tiger, Panther, Sambar, Spotted deer, Barking deer, Wild boar, Sloth bear, Nilgiri langur, Bonnet macaque, Common langur, Wild dog, **common otter**, **Malabar giant squirrel** etc are the major mammals.

#### *What are the Protected Areas in Kerala?*

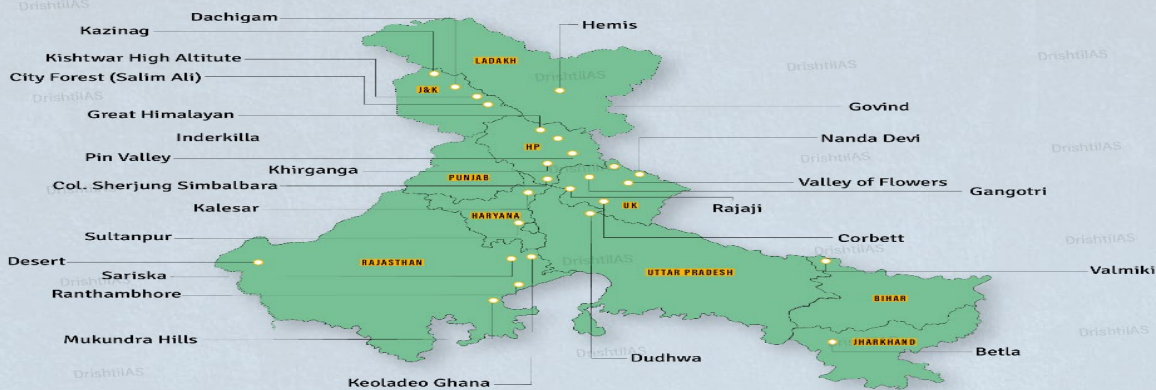


Note:

# National Parks

## National Parks-I

106 National Parks (2022)



### ABOUT

- A national park can be notified by the state government for the preservation of its ecological, faunal, floral, geomorphological, or zoological importance.
- The areas are secured under the Wildlife Protection Act (WPA), 1972.
- No human activity is permitted inside the national park except for the ones permitted by the Chief Wildlife Warden of the state under the conditions given in the WPA.

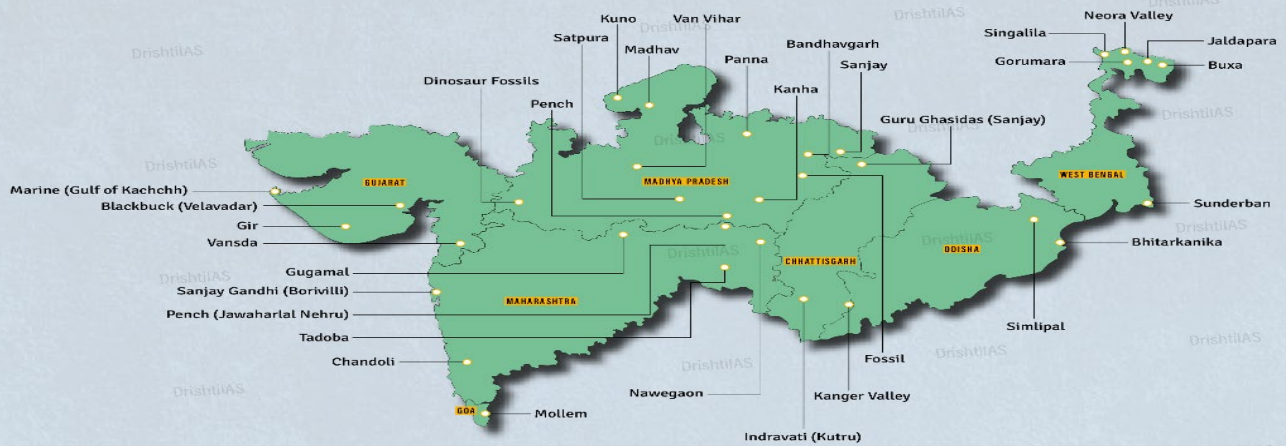
### FACTS

- Hemis National Park (Ladakh): Largest in South Asia. Also known as Snow Leopard Capital.
- Jim Corbett National Park (Uttarakhand): India's first national park. Project Tiger (1973) was started here.
- Desert National Park (Rajasthan): Second-largest national park in India.



## National Parks-II

106 National Parks (2022)



### ABOUT

- A national park can be notified by the state government for the preservation of its ecological, faunal, floral, geomorphological, or zoological importance.
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### FACTS

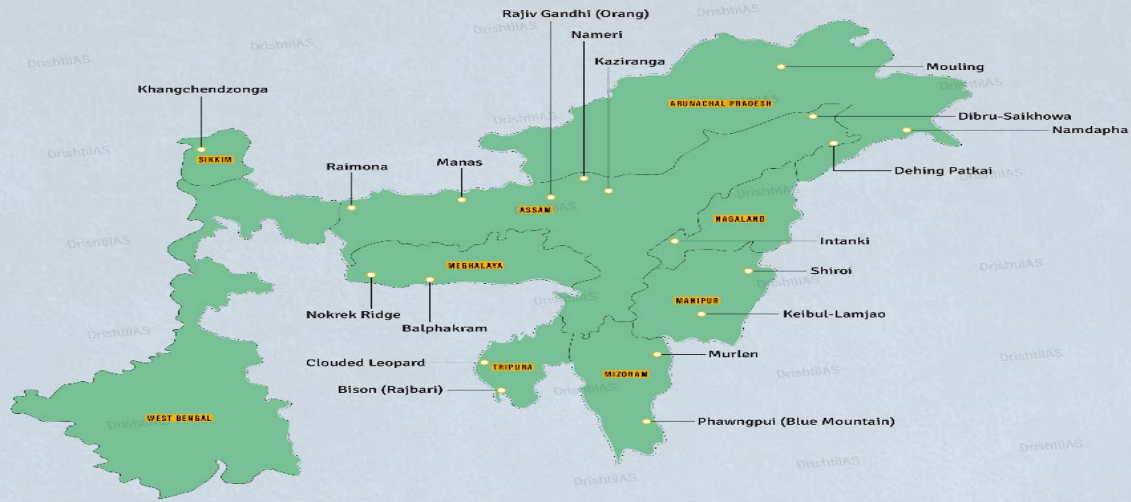
- Gir National Park (Gujarat): The only abode of the Asiatic Lion.
- Kuno National Park (Madhya Pradesh): Wild Cheetahs bought from Namibia have been introduced in KNP (under Project Cheetah - world's first inter-continental large wild carnivore translocation project).
- Sundarbans National Park (West Bengal): It is a UNESCO World Heritage Site (1987) and contains the world's largest area of mangrove forests.



Note:

# National Parks-III

106 National Parks (2022)



## ABOUT

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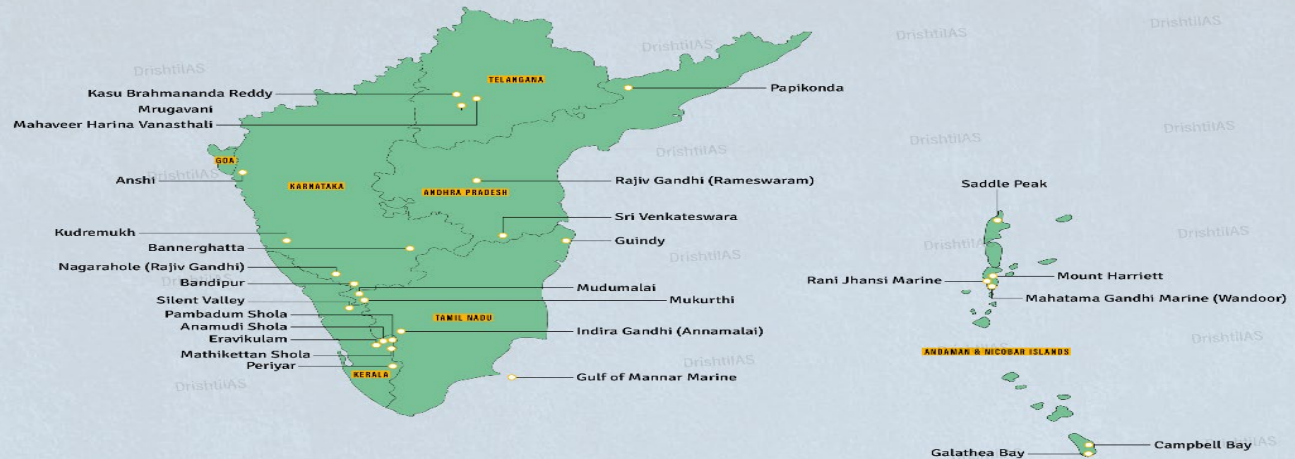
## FACTS

- Keibul-Lamjao National Park (Manipur): Only floating National Park in the world.
- Khangchendzonga National Park (Sikkim): It is India's first and only 'Mixed World Heritage Site declared by UNESCO in 2016.
- Namdapha National Park (Arunachal Pradesh): It is only park in the World to have the four Feline species of big cat namely the Tiger, Leopard, Snow Leopard and Clouded Leopard.



# National Parks-IV

106 National Parks (2022)



## ABOUT

- A national park can be notified by the state government for the preservation of its ecological, faunal, floral, geomorphological, or zoological importance.
- The areas are secured under the Wildlife Protection Act (WPA), 1972.
- No human activity is permitted inside the national park except for the ones permitted by the Chief Wildlife Warden of the state under the conditions given in the WPA.

## FACTS

- Eravikulam National Park (Kerala): Famous for the natural habitat of Nilgiri Tahr, the endangered mountain goat. This is also the land of "Neelakurinji", the flower that blooms once in twelve years.
- Mukurthi National Park, Silent Valley, Wynasaad Wildlife Sanctuary (Kerala), Bandipur National Park, Nagarhole National Park (Karnataka), and Mudumalai Wildlife Sanctuary (Tamil Nadu) are the protected areas within Nilgiri Biosphere Reserve - first biosphere reserve in India established in the year 1986.



Note:

## Indian Skimmers

### Why in News?

As per the **Asian Waterbird Census 2023** (recommended dates for the AWC are 7 – 22 January) which has been started recently, **the Godavari estuary in Andhra Pradesh has become a prime and safe habitat for the Indian Skimmer** (*Rynchops albicollis*).

- Around 250 Indian Skimmers, were sighted in **Coringa Wildlife Sanctuary**.

What are Indian Skimmers?



- **About:**
  - Another common name for Indian skimmers is **Indian scissors bill**.
  - They are **more widespread in winter**; the Indian skimmer is found in the coastal estuaries of western and eastern India.
    - The species can be sighted near the **Chambal River** in Central India, in **few parts of Odisha and in Andhra Pradesh**.
- **Major Threats:**
  - Habitat degradation, excessive and widespread increases in disturbances near the rivers.
- **Protection Status:**
  - **IUCN Red List Status:** Endangered
  - **CITES:** Not listed

### Coringa Wildlife Sanctuary:

- The Government declared a part of the Godavari mangrove system as **Coringa Wildlife Sanctuary in 1978** to rehabilitate the **salt water crocodile** and to protect the other endangered species, such as **Olive Ridley turtles** and **Indian Otter**.

- About 120 species of resident and migratory birds depend on this area for breeding and nesting.

### Asian Waterbird Census:

- **Every January**, thousands of volunteers across Asia and Australasia visit **wetlands** in their country and count waterbirds. This **citizen-science programme supports the conservation and management of wetlands** and waterbirds worldwide.
- The AWC is an integral **part of the global waterbird monitoring programme, the International Waterbird Census (IWC)**, coordinated by **Wetlands International**.
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- The AWC is an integral **part of the global waterbird monitoring programme, the International Waterbird Census (IWC)**, coordinated by **Wetlands International**.

## White Tufted Royal Butterfly

### Why in News?

Recently, a team of butterfly observers and researchers have found the **White Tufted Royal Butterfly**, a rare butterfly species in Kannur, Kerala which was **earlier spotted in Agasthyakoodam** in 2017 and **Shendurney Wildlife Sanctuary** in 2018.

- The butterfly is **protected under Schedule 2 of the Wildlife Protection Act, 1972**.



Note:

### What are the Key Facts About Butterflies?

#### ➤ About:

- Butterflies are **insects from the order Lepidoptera of phylum Arthropoda** which also includes moths.
- Adult butterflies **have large, often brightly coloured wings, and conspicuous, fluttering flight.**
- Recently, a **Himalayan butterfly known as Golden Birdwing** (*Troides aeacus*) has been **discovered as India's largest butterfly** after 88 years.

#### ➤ Significance:

- **Rich Biodiversity:** The abundance of butterflies in any area **represents rich biodiversity.**
- **Indicator Species:** The butterfly acts as an indicator species.
  - An indicator **species provides information on the overall condition of the ecosystem** and of other species in that ecosystem. They **reflect the quality and changes in environmental conditions** as well as aspects of community composition.
- **Pollinator:** It acts as a **pollinator** by helping in pollination and conserving several species of plants.



Note:

# History

## Highlights

- Savitribai Phule

## Savitribai Phule

### SAVITRIBAI PHULE

(03 January 1831 - 10 March 1897)

*A 19th century social reformer who worked in the field of women education*

#### EARLY LIFE

- ▶ Born in **Mali community (Maharashtra)**
- ▶ Aged 9 - married to 13 y/o Jyotirao Phule - an **extraordinary couple in India's social & educational history**

#### SOCIAL ENDEAVOURS

##### ▶ Individual

- Published **Kavya Phule (1854) & Bavan Kashi Subodh Ratnakar (1892)**
- Started **Mahila Seva Mandal (1852)** - raise awareness about women's rights
- Wrote poem - **Go, Get Education** for oppressed communities
- Carried forward the **Satya Shodhak Samaj** after Jyotiba's death (1890)

##### ▶ With Jyotiba

- Started a school for girls, Shudras and Ati-Shudras in Poona (1848) (India's **first school for women - started by Indians**)
- Opened **Native Female School (Pune)** and **The Society for Promoting the Education of Mahars, Mangs and Etceteras in 1850s**
- Started - **Balhatya Pratibandhak Griha** (Home for the **Prevention of Infanticide**) in their own house



Drishti IAS



Note:

# Geography

## Highlights

- Cancellation of Bauxite Lease
- Heat Dome
- Cold Wave

## Cancellation of Bauxite Lease

### Why in News?

Ahead of Odisha State Pollution Control Board's (OSPCB) hearing on **Environment Clearance of Mali Parwat Bauxite Mining Lease**, local people have started protests demanding permanent cancellation of the lease.

### What is the Issue?

#### ➤ Background:

- The opposition to the mining activities in Maliparbat dates back to 2003, when a public hearing was organized by the Odisha SPCB for environmental clearance.
- After a lease was granted to Hindalco in 2007, **villagers had alleged that their grievances and objections to the project were ignored.**
- According to activists, the company's **Environment Impact Assessment** report mentioned that **there was no water-body in Maliparvat.**
- Villagers had, however, argued that 36 perennial streams flow down from the Maliparvat, which **was the source of water for villagers for their agricultural and drinking purposes and the bauxite mining project should be cancelled.**
- Till 2011 the company **failed to carry out mining and subsequently, its environmental clearance expired.** But, in 2012-2014 it **started mining illegally without going in for renewal of environmental clearance.**
- The industry has got a **fresh lease for 50 years for which the public hearing was necessitated.**

#### ➤ Concerns:

- Tribals residing in nearby villages have alleged that mining activities in Maliparbat would affect

**around 42 villages under Sorishapodar, Dalaiguda and Pakhahola panchayats.**

- Environmentalists have also said that mining can **deplete water sources from around 32 perennial streams** and four canals in Maliparbat, adversely affecting the livelihoods of the tribals.
- The Mali and forest area are **inhabited by members of Kondha, Paraja and Gadaba tribes.**

### What is the Environment Impact Assessment?

- It can be **defined as the study for predicting the effect of a proposed activity/project on the environment.**
- It is statutory under the **Environment Protection Act, 1986** for some projects.
- **Process:**
  - Screening based upon scales of investment, type of development, and location of the development is done to see whether a project requires an environmental clearance as per the statutory notifications.
  - Scoping is a process of detailing the Terms of Reference (ToR) of EIA, that is the main issues or problems in the development of a project.
  - Impact Prediction involves mapping the environmental consequences of the significant aspects of the project and its alternatives.
- The public mandatorily needs to be informed and consulted on the proposed development after the completion of the EIA report.

### What is Bauxite?

#### ➤ About:

- Bauxite is an ore of aluminum. It is a rock **consisting mainly of hydrated aluminium oxides.**
- The deposits of Bauxite are mainly associated with laterites and occur as capping on hills and plateaus, except in **coastal areas of Gujarat and Goa.**

Note:



- Bauxite is primarily used to **produce alumina through the Bayer process.**
- Like many metals, world demand for aluminium, and therefore **bauxite, has grown substantially over the past several years in response to economic growth in emerging Asian economies.**

#### ➤ World Distribution:

- **Reserves:** As per **2015 data**, world bauxite reserves are estimated at **30 billion tonnes and are located mainly** in Guinea (25%), Australia (20%), Vietnam (12%), Brazil (9%), Jamaica (7%), Indonesia (4%) and China (3%).
- **Australia continued to be the major producer** and accounted for about 29% share in the total production, followed by China (19%), Guinea (18%), Brazil (10%) and India (7%).

#### ➤ Distribution in India:

- **Reserves:** By States, **Odisha alone accounts for 51% of country's resources of bauxite followed by** Andhra Pradesh (16%), Gujarat (9%), Jharkhand (6%), Maharashtra (5%) and Madhya Pradesh & Chhattisgarh (4% each) in 2019. Major bauxite resources are concentrated in the East Coast bauxite deposits in Odisha and Andhra Pradesh.
- **Production:** In terms of production, in 2020, **Odisha accounted for 71% of the total output** followed by Gujarat (9%) and Jharkhand (6%).

## Heat Dome

### Why in News?

Several countries in Europe recorded their hottest January weather ever in 2023 with temperatures 10 to 20 degrees Celsius above average.

- These included **Poland, Denmark, the Czech Republic, the Netherlands, Belarus, Lithuania and Latvia.**
- Experts said that the **continent is experiencing an extremely warm spell** because of the **formation of a heat dome over the region.**
- In 2021, a heat dome formed over western Canada and the US, causing deadly **heat waves.**
- **Another heat dome settled over the US in September 2022** and raised temperatures to a new high.

### What is a Heat Dome and Heat Wave?

#### ➤ Heat Dome:

- A **heat dome occurs when an area of high-pressure traps warm air over a region, just like a lid on a pot**, for an extended period of time.
- The **longer that air remains trapped, the more the sun works to heat the air**, producing warmer conditions with every passing day.
- Heat domes **generally stay for a few days but sometimes they can extend up to weeks**, which might cause deadly heat waves.
- Scientists suggest that **any region of high pressure, whether a heat dome or not, forces air to sink and once it reaches the ground**, it gets compressed and becomes even warmer.
- Moreover, **when air sinks, it gets drier and further raises the temperature of the area.**

#### ➤ Heat Domes and the Jet Stream:

- The heat dome's formation is **related to the behaviour of the jet stream.**
  - Jet streams are relatively narrow bands of strong wind in the upper levels of the atmosphere
- The **jet stream is believed to have a wave-like pattern** that keeps moving from north to south and then north again.
- **When these waves get bigger and elongated**, they move slowly and sometimes can become stationary.
- This is **when a high-pressure system gets stuck** and leads to the occurrence of a heat dome.
- **Although heat domes are likely to have always existed**, researchers say that **climate change** may be making them more intense and longer.
- They suggest with the rising temperatures, it is expected that the jet stream will become more wavy and will have larger deviations, causing more frequent extreme heat events.

### What are the

#### Causes of Formation of Heat Dome?

- **Change in Ocean Temperature:** The **phenomenon begins when there is a strong change (or gradient) in ocean temperatures.**
  - In the process known as convection, the **gradient causes more warm air, heated by the ocean surface, to rise over the ocean surface.**

Note:

- As prevailing winds move the hot air east, the northern shifts of the jet stream trap the air and move it toward land, where it sinks, resulting in heat waves.
- **Change in Atmospheric Pressure:** Heat waves begin when high pressure in the atmosphere moves in and pushes warm air toward the ground. This effect is fueled by heat rising from the ocean, creating an amplification loop.
  - The high-pressure system pressing down on the ground expands vertically, forcing other weather systems to change course.
    - It even minimizes wind and cloud cover, making the air more stifling.
    - This is also why a heat wave parks itself over an area for several days or longer.
- **Climate Change:** The rising temperatures lead to hotter weather. Heat waves have been a regular phenomenon on land.
  - However, global warming has caused them to be hotter with a longer duration and an increased frequency.
  - Scientists studying the climate tend to agree that the heat waves occurring today are more likely to be a result of climate change for which humans are responsible.

## Cold Wave

### Why in News?

Delhi and other parts of northwest India have been reeling under a Cold Wave since the beginning of 2023.

- The lowest minimum temperature recorded this month was **1.9 degrees Celsius on January 8**, the second-lowest minimum temperature in January in 15 years.
- Fog and **low cloud coverage brought severe cold day conditions to the region**, when temperatures remained below normal over parts of **Delhi, Punjab, Haryana, Chandigarh, Himachal Pradesh, Rajasthan, Uttar Pradesh and Madhya Pradesh**.

### What Factors are Responsible for this Cold Wave?

- **Large Scale Fog:**
  - One of the major factors contributing to colder than normal temperatures over north India in January

2023 is the **large-scale fog cover**, according to **India Meteorological Department (IMD)**.

- Fog has been lasting for longer durations, **preventing sunlight from reaching the surface and affecting the radiation balance**. There is no heating in the day time, and then there is the impact of the night.
- **Foggy Nights:**
  - Foggy or cloudy nights are usually **associated with warmer nights, but if the fog remains for two or three days, cooling begins even at night**.
  - Light winds and **high moisture near the land surface have been contributing to the formation of a blanket of fog** over large swathes of the **Indo-Gangetic plains** in the morning.
- **Westerly Winds:**
  - Since there has not been any significant impact of **western disturbances** over the region, cold northwesterly winds have also been contributing to low temperatures.
  - Westerly and **northwesterly winds of around 5 to 10 kmph in the afternoon have also been contributing to the dip in temperature**

### What is Cold Wave?

- **About:**
  - A cold wave is a rapid fall in temperature **within 24 hours to a level requiring substantially increased protection to agriculture, industry, commerce, and social activities**.
- **Cold Wave Conditions:**
  - For the plains, a cold wave is declared when the minimum temperature is **10 degrees Celsius or below and is 4.5 degrees Celsius (C) less than normal for two consecutive days**.
    - A "severe" cold day is when the maximum temperature is at least 6.5 notches below normal.
  - For coastal stations, the **threshold value of minimum temperature of 10 degree Celsius is rarely reached**. However, the local people feel discomfort due to the wind chill factor which reduces the minimum temperature by a few degrees depending upon the wind speed.
    - A wind chill factor is a measure of the cooling effect of the wind on the temperature of the air.
- **India's Core Cold Wave Zone:**
  - India's **'core cold wave zone'** covers Punjab, Himachal Pradesh, Uttarakhand, Delhi, Haryana,

Note:

Rajasthan, Uttar Pradesh, Gujarat, Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, West Bengal, Odisha and Telangana.

➤ **Causes of Cold Wave in India:**

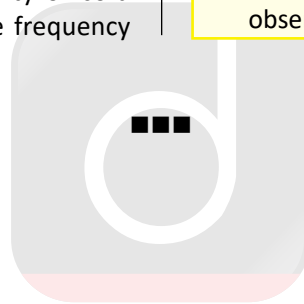
- **Absence of Cloud Cover in the Region:** Clouds trap some of the outgoing infrared radiation and radiate it back downward, warming the ground.
- Snowfall in the upper Himalayas that has blown cold winds towards the region.
- **Subsidence of Cold Air over the Region:** Subsidence is the downward movement of cold and dry air closer to the surface.
- **La Nina:** Prevailing **La Nina** conditions in the Pacific Ocean. La Nina is the abnormal cooler sea surface temperatures reported along the equatorial Pacific Ocean and it is known to favour cold waves.
  - During La Nina years, the severity of cold conditions becomes intense. The frequency

and area covered under the grip of a cold wave becomes larger.

- **Western Disturbances:** Western disturbances can cause cold waves in India. Western disturbances are weather systems that **originate in the Mediterranean Sea and move eastward**, bringing cold winds, precipitation and cloud cover to the northwest regions of India. These disturbances can lead to a drop in temperature and cause cold wave conditions. However, not all western disturbances bring cold wave conditions.

**What is the India Meteorological Department?**

- IMD was established in 1875.
- It is an agency of the Ministry of Earth Sciences of the Government of India.
- It is the principal agency responsible for meteorological observations, weather forecasting and seismology.



Note:

# Art and Culture

## Highlights

- Jain Community Protests
- Mural Art
- Vishwa Hindi Diwas

## Jain Community Protests

### Why in News?

The **Jain community** has been protesting over demands related to two holy sites — **Sammed Shikhar on Parasnath hill in Jharkhand and Shatrunjaya hill in Palitana of Gujarat.**

- In Jharkhand, the issue is about Parasnath hill being declared a tourist spot and an **eco-sensitive zone** without consulting the people from the Jain community, while in Gujarat, the row is over the vandalising of a shrine and related security concerns in Shatrunjaya Hill.

### What are the Key Facts about Parasnath Hills and Shatrunjaya Hill?

- **Parasnath Hills:**
  - **Parasnath Hills** are a range of hills located in Giridih district of Jharkhand.
  - The **highest peak is 1350 metres.** It is one of the most important pilgrimage centre for Jains. They call it Sammed Sikhar.
  - The hill is named after **Parasnath, the 23rd Tirthankara.**
  - Twenty of Jain Tirthankaras **attained salvation on this hill. For each of them there is a shrine (gumti or tuk)** on the hill.
  - Some of the temples on the hill are believed to be more than 2,000 years old.
  - The Santhals call it **Marang Buru, the hill of the deity.** They celebrate a **hunting festival on the full moon day in Baisakh (mid-April).**
  - Every year, thousands of Jains from across the world undertake the 27 km long trek of climbing the hills to reach the summit.
- **Palitana and Shatrunjaya Hill:**

- Shatrunjaya Hill is a sacred site containing hundreds of shrines in Palitana town, Bhavnagar District, Gujarat.
- The shrines were **sanctified when Rishabha, the first Tirthankara of Jainism,** gave his first sermon in the temple on the hilltop.
- It is one of the Jainism's holiest pilgrimage sites, the Shatrunjaya hill is an **incredible hill studded with temples, built over 900 years.**
- It is said that Adinath (also known as Rishabha), the founder of Jainism, **meditated beneath the rayan tree at the summit.**

### What is Jainism?

- Jainism came to prominence in the **6th century B.C.,** when **Lord Mahavira** propagated the religion.
- There were **24 great teachers,** the last of whom was **Lord Mahavira.**
- These twenty-four teachers were called **Tirthankaras**—people who had attained all knowledge (Moksha) while living and preached it to the people.
- The first Tirthankara was **Rishabhatha.**
- The word Jaina comes from the **term Jina, meaning conqueror.**
- Tirthankara is a Sanskrit word meaning 'Ford maker', i.e., one who is able to ford the river, to cross beyond the perpetual flow of earthly life.
- Jainism attaches utmost importance to ahimsa or non-violence.
- It preaches **5 mahavratas (the 5 great vows):**
  - Ahimsa (Non-violence)
  - Satya (Truth)
  - Asteya or Acharya (Non-stealing)
  - Aparigraha (Non-attachment/non-possession)
  - Brahmacharya (Celibacy/Chastity)

Note:

- Among these 5 teachings, the **Brahmacharya (Celibacy/Chastity) was added by Mahavira.**
- The **three jewels or Triratna of Jainism include:**
  - Samyak Darshana (right faith).
  - Samyak Gyana (right knowledge).
  - Samyak Charitra (right conduct).
- Jainism is a religion of **self-help.**
  - There are no gods or spiritual beings that will help human beings.
  - It does not condemn the varna system.
- In later times, **it got divided into two sects:**
  - Shvetambaras (white-clad) under Sthalabahu.
  - Digambaras (sky-clad) under the leadership of Bhadrabahu.

### What is the Pilgrimage vs Tourism Debate?

- **Pilgrimage:**
  - Pilgrimage is the purpose of traveling to the destination, which is **mostly focused on religion.** Pilgrimage shrines are **an important aspect of any religion's materiality** and sacred geography.
  - Despite using the term Pilgrimage and Tourism interchangeably, the two cannot be mixed, if a pilgrimage shrine is declared a tourist spot, even people who may not have the distinct sensibilities for the shrine **may enter the sacred place, thus affecting the sanctity and the "purity" of the place.**
  - Also, the sacred character of the place helps to protect the **entire landscape from degradation.**
    - Consider the sacred groves spread throughout India, protected by local deities of different communities and connected to people's behaviour in these places, showing us the **traditional example of ecological conservation practiced by local communities.**
  - Therefore, declaring the area open for tourism may be doing more harm than good, not only to the community and its faith **but also to nature and its fragile ecosystem.**
    - We have seen what happened in Kedarnath, especially when the cloudburst occurred in June 2013.
    - The lack of planning, clearing of forests, and absence and violation of construction codes in a fragile Himalayan ecosystem **meant that a natural calamity turned into a human-made disaster.**

### ➤ Tourism:

- Tourism attracts more people in the country and thus creates more employment opportunity, also brings in **focus the importance of sites and need to preserve them.**
- Tourism as a form of soft power, helps in promoting cultural diplomacy, people to people connect and **thereby promotes friendship and cooperation between India and other countries.**
- The growth of domestic tourism largely depends on the Pilgrimage tourism in India and restricting any sort of tourism **may affect the economic growth of the place and of the country.**

## Mural Art

### Why in News?

Recently, the Wall of Peace, a **great work of modern mural art on the 700-foot long compound wall** of Government Vocational Higher Secondary School at Cherpulassery (Kerala), was inaugurated.



### What is Special about Mural Painting?

- Indian Mural Paintings are **paintings made on the walls of caves and palaces.**
- The earliest evidence of the murals is the **beautiful frescoes painted on the caves of Ajanta and Ellora,** the Bagh caves and Sittanvasal cave.
- In the old scripts and literature, **there was much evidences of mural paintings.**
  - According to Vinaya Pitaka, **the noted courtesan of Vaishali – Amrapali employed painters to paint the kings,** traders and merchants of that time on the walls of her palace.

Note:

### What is the Technique of Indian Wall Paintings?

- The **technique and process of making Indian wall paintings has been discussed in the Vishnudharmotaram**, a Sanskrit text of the 5<sup>th</sup>/6<sup>th</sup> century CE.
- The process of these paintings **appears to have been the same in all the early examples** that have survived with an only exception in the Rajarajeshwara temple at Tanjore which is supposed to be done in a true fresco method over the surface of the rock.
- Most of the colours were locally available.
- Brushes were made up from the hair of animals, such as goat, camel, mongooses, etc.
- The ground was coated with an exceedingly thin layer of lime plaster over which paintings were drawn in water colours.
- In the **true fresco method, the paintings are done when the surface wall is still wet**, so that the pigments go deep inside the wall surface.
- The **other method of painting which was followed in most of the cases of Indian painting is known as tempora**.
  - It is a method of painting on the lime plastered surface which has been allowed to dry first and then drenched with fresh lime water.
  - On the surface, thus obtained, the artist proceeded to sketch.
  - The **principal colours in use were red ochre, vivid red (vermilion), yellow ochre**, indigo blue, lapis lazuli, lamp black (Kajjal), chalk white, terraverte and green.

#### What is a Mural?

- A mural is **any piece of artwork that is painted or applied directly on a wall**.
- More broadly, **mural art also appears on ceilings or any other large permanent surface**.
- Mural paintings **usually have the distinguishing characteristic of having the architectural elements of the space they are painted on being harmoniously incorporated into the picture**.
- There are **many techniques used for mural painting, of which the fresco is just one**.
- A mural, therefore, is a general term for a wall painting, whilst a fresco is a specific term.

## Vishwa Hindi Diwas

### Why in News?

**Vishwa Hindi Diwas (VHD) or World Hindi Day (WHD)** is celebrated every year on **10<sup>th</sup> January** to promote the Hindi language all around the world.

- Whereas Hindi Diwas is celebrated on 14<sup>th</sup> September annually, which focuses largely on recognition of the **Hindi language in India**.

### What is Vishwa Hindi Diwas?

#### ➤ About:

- It was first celebrated in 2006 **to commemorate the anniversary of the first World Hindi Conference** which was held in Nagpur on **10<sup>th</sup> January, 1975**.
- It marks the day when **Hindi was first spoken in the United Nations' General Assembly in 1949**. It is also celebrated by Indian embassies located in various parts of the world.
- The World Hindi Secretariat building was **inaugurated in Port Louis, Mauritius in 2018**.

#### ➤ Significance:

- The purpose of this day is to **create awareness about the Indian language and promote it as a global language** around the world. It is also used to create awareness about the usage of the Indian language, and about the issues persisting around the usage and promotion of the Hindi language.

#### ➤ National Hindi Day:

- The National Hindi Day is celebrated every year in India on September 14 to mark the day of adoption of Hindi as the official language **by the Constituent Assembly of India in 1949**.
  - Kaka Kalelkar, Maithili Sharan Gupta, Hazari Prasad Dwivedi, Seth Govindadas made important contributions to make Hindi the official language.
- Hindi is also an **eighth schedule language**.
- Article 351 pertains to 'Directive for development of the Hindi language'.

#### ➤ Government Initiatives to Promote Hindi:

- The Central Hindi Directorate was established in 1960 by the Government of India under the Ministry of Education.

Note:

- **Indian Council for Cultural Relations (ICCR)** has established 'Hindi Chairs' in various foreign universities/institutions abroad.
- LILA-Rajbhasha (Learn Indian Languages through Artificial Intelligence) is a multimedia based intelligent self-tutoring application for learning Hindi.
- E-Saral Hindi Vakya Kosh and E-Mahashabdkosh Mobile App, both initiatives of the Department of Official Language, aim to harness information technology for the growth of Hindi.
- Rajbhasha Gaurav Puraskar and Rajbhasha Kirti Puraskar recognise contributions to Hindi.

### Hindi Language

- Hindi got its **name from the Persian word Hind, meaning 'land of the Indus River'**. Turk invaders in the early 11th century named the language of the region Hindi, 'language of the land of the Indus River'.
- It is the official language of India, English being the other **official language**.
- Hindi is also spoken in some countries outside India, such as in Mauritius, Fiji, Suriname, Guyana, Trinidad & Tobago and Nepal.
- Hindi in its present form emerged through different stages, during which it was known by other names. The earliest form of old Hindi was Apabhramsa. In 400 AD Kalidas wrote a romantic play in Apabhramsa called Vikramorvashiyam.
- The modern **Devanagari script came into existence in the 11<sup>th</sup> century**.



Note:

# Security

## Highlights

- K9-Vajra
- Theaterisation of Armed Forces
- Unmanned Combat Systems and Concerns
- Prithvi-II Missile

## K9-Vajra

### Why in News?

The Defence Ministry has started the process for the procurement of 100 more **K9-Vajra** tracked self-propelled howitzers.

**The 100<sup>th</sup> gun was delivered to the Army in 2021.**



### What is K9-Vajra?

- The K9 Vajra is a **155 mm, 52-calibre tracked self-propelled howitzer** (a short gun for firing shells on high trajectories at low velocities) built in India by Larsen & Toubro (L&T) with **technology transferred from South Korean defence major Hanwha Defense** based on its **K9 Thunder**.
  - The K9 Thunder platform is made of **all-welded steel armour protection material**.
  - The K9 gun has been developed under the **'Buy Global' programme of the Defence Procurement Procedure (DPP)** where foreign companies are allowed to participate.
- The K9 Vajra was **mainly bought for use in deserts, but the India-China standoff prompted them to be deployed in the mountains as well.**

- To ensure that these systems performed optimally in the extreme cold weather conditions of the mountains, the **Army also procured winterisation kits** for the regiment deployed.

## Unmanned Combat Systems and Concerns

### Why in News?

India is on a drive to induct **Unmanned Combat Systems (UCS)** into the military. In August, 2022 it inducted "Swarm Drones" into its mechanized forces, reiterating the importance of autonomous systems in creating a "future-proof" Indian Navy (IN).

- Despite their growing usage in armed conflict, artificially intelligent unmanned combat systems **raise questions of law, ethics and accountability.**

### What are Unmanned Combat Systems?

- **About:**
  - Unmanned Combat Systems (UCS) are **going to be the new age weapons overturning the rules of future war** and have been the focus of research and development of military powers.
  - There are no generally accepted definitions for these so-called boasted core weapons of the 21<sup>st</sup> century.
  - UCS from the research heading, is an **integrated combat system comprising unmanned combat platforms, task payloads, command and control (C2) systems and network systems.**
  - For **field applications, they can be categorized into,**
    - Deep space unmanned systems
    - Unmanned aerial vehicle systems
    - Ground unmanned systems
    - Surface unmanned systems
    - Underwater unmanned systems

Note:



➤ **Significance:**

- Faced with the increasingly complex international situation and brutal military wars, **the lives and safety of combat soldiers are greatly threatened.**
- At this time, the **unmanned combat System is becoming increasingly important** and has **gradually become an important attack and defense force** on the information battlefield.
- The biggest feature of the ground unmanned combat platform is that it can carry certain weapons and equipment under the premise of unmanned participation, and be remotely controlled through the **configured wireless communication equipment to conduct reconnaissance, surveillance, electronic interference, and direct combat.**
- UCS has a **higher degree of automation, good remote control, strong digital** communication ability and anti-interference, excellent target detection and recognition ability, good concealment, and strong adaptability to the ground environment.

**What are the Ethical Concerns Raised by AI Warfare?**

➤ **Risk of Shared Liability:**

- AI Warfare **enhances the risk of shared liability between networked systems**, particularly when **weapon algorithms are sourced from abroad**, and when the satellite and link systems that enable combat solutions are not under the control of the user.

➤ **Confidence Undermining:**

- AI is characterized by a predisposition to certain kinds of data. Biases in the collection of data, in the set of instructions for data analysis, and in the selection of probabilistic outcomes muddle rational decision-making, undermining confidence in automated combat solutions.

➤ **Inconsistent with Laws of War:**

- AI may automate weapon systems **in ways that are inconsistent with the laws of war.**

➤ **Cannot Make Informed Decision:**

- A system of targeting human beings based on probabilistic assessments by computers that act merely on machine-learned experiences, they contend, **is problematic because the computer neither has access to all relevant data to make an informed decision nor recognises that it needs**

**more information** to come up with an optimal solution.

- If it erroneously used force in a theater of conflict, there is **no one to be held accountable, as blame can't be pinned on a machine.**

**What are Swarm Drones?**

➤ **About:**

- Swarm Drones are a **collection of small and lightweight aerial vehicles that can be controlled from the same station.**
- These drones are **equipped with advanced communication systems which enables them to be controlled** as a collective.
- Furthermore, through communication systems, **swarm drones can also communicate with each other** to create different flying formations for surveillance and attack modes.
- Such drones can also carry a variety of payloads in a single mission and organize a **collaborative attack against an enemy unit.**
- Backed by swarming algorithms and Artificial Intelligence software, **Swarm Drones can operate autonomously** with minimum human intervention
  - The AI software can also be used to **identify targets and expedite response in case of a surprise operation.**

➤ **Advantages:**

- **All Weather Operations:** Swarm Drone System can be deployed at high altitudes, rough-weather conditions
- **High Speed and Agility:** Drones are powered by advanced motors and can fly at a speed of 100 km per hour giving it high speed and agility for military operations.
- **Employed for Different Missions:** Drones can be deployed by the armed forces for different types of offensive and defensive operations as they can carry out strikes against tanks, infantry combat vehicles, ammunition holding areas, fuel dumps and terror launch pads.
- **ATR Feature:** Swarm Drones are backed by Artificial Intelligence and are equipped with the Automatic Target Recognition (ATR) feature, which can enable them to automatically recognise targets. ATR is capable of identifying tanks, guns, vehicles and humans and displaying them on the operators' screen to minimize the chances of a miss hit.

Note:

## Theaterisation of Armed Forces

# Theaterisation of Armed Forces



### What is Theaterisation?

It is a concept that **seeks to integrate the capabilities of the three services** – army, air force and navy – and **optimally utilise their resources** for wars and operations.

There will be **specific theatre commands – or units – could be geographical** – like looking at a border with a particular country – **or thematic**, like a command for all maritime threats.

The **Chief of Defence Staff (CDS)** has been given task of establishment of joint/ theatre commands.

Several nations have theatre commands, **including the US and China**.



### What are the Advantages?

- Synergy among all branches of Indian Armed Forces
- Cohesive and Compact Fighting Force
- Utilising the Logistics of all three Services
- Improved Troop Acclimatisation
- Theatre-Specific Resource Optimization
- Speedy Mobilisation and Intel Sharing



### What are the Challenges?

- Budgetary Allocations and the Distribution of Finances
- Assets becoming dispersed by multiplication of theatre commands
- Nomenclature and Jurisdiction of Commands
- Leadership of Theatre commands
- Dilution of powers of Armed Services Chiefs

### What is the Current Command Structure?

#### 17 single-service commands

- ▶ Army- 7
- ▶ Navy- 7
- ▶ Air Force- 3

**Two tri-Service Commands** (Strategic Forces Command) and the Andaman and Nicobar Command

### Shekatkar Committee Recommendation (2015)

#### Creation of 3 integrated theatre commands

- ▶ Northern - China border
- ▶ Western - Pakistan border
- ▶ Southern- Maritime Security



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## Prithvi-II Missile

### Why in News?

Recently, India carried out a **successful test launch of tactical ballistic missile Prithvi-II** from a test range off the Odisha coast.

### What are the Key

### Highlights about Prithvi-II Missile?

#### ➤ About:

- Prithvi-II is an indigenously developed **Surface-to-Surface Missile Short-Range Ballistic Missile (SRBM)**, which has a range of around 350km and can carry a one tonne payload.

Note:



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- Prithvi II class is a **single-stage liquid-fueled missile** that has warhead mounting capability of 500 kg-1000kg.
- The missile is a proven system and is capable of striking targets with a very high degree of precision.
- The state-of-the-art missile uses an advanced **inertial guidance system with manoeuvring trajectory** to hit its target.
- It was initially developed for the **Indian Air Force** as its primary user and was later inducted into the **Indian Army** as well.
- While the missile was inducted into India's Strategic Forces Command for the first time in 2003, it was the first missile developed under the IGMDP.
- **Developed by:**
  - **Defence Research and Development Organisation (DRDO)** of India under its **Integrated Guided Missile Development Programme (IGMDP)**.

### What are the Prithvi Missiles?

- The Prithvi missile system comprises various tactical **Surface-to-Surface Short-Range Ballistic Missiles (SRBM)**.
- Its development began in 1983, and it was **India's first indigenous ballistic missile**.
- It was first test-fired in 1988, from Sriharikota, SHAR Centre.
  - It has a range of from 150 to 300 km.
- The **naval variant of Prithvi I and Prithvi III class missiles** have the code-name **Dhanush**.
- The propulsion technology was likely **based on the Soviet SA-2 surface-to-air missile**.
  - **Soviet SA-2 Surface-to-Air Missile:**
    - Developed in the mid-1950s, the Soviet SA-2 surface-to-air missile was the first effective Soviet Union surface-to-air missile.
    - Developed as a missile for the battlefield, it could carry a nuclear warhead in its role as a tactical nuclear weapon.
- The Prithvi I missiles have been in service with the Indian Army since 1994.
  - Reportedly, **Prahar missiles** are replacing with Prithvi I missiles.
- Prithvi II missiles have been in service since 1996.
- Prithvi III having a more extended range of 350 km, was successfully test-fired in 2004.



Note:

# Miscellaneous

## Highlights

- Ranji Trophy

- Hockey World Cup

## Ranji Trophy

### Why in News?

Ranji Trophy 2022-23 started from 13<sup>th</sup> December, 2022 and will end on 20<sup>th</sup> February, 2023.

### What is Ranji Trophy?

- The Ranji Trophy founded by the Board of Control for Cricket in India (BCCI), was named after one of India's first test cricketer, Ranjitsinhji, who played for England and Sussex.
  - Ranjitsinhji known as 'Father of Indian cricket', never actually played for India.
- Largely regional in nature, the Ranji Trophy can be summed up as a domestic first-class cricket series played by various regional teams against one another.
- The series was announced in 1934, and the initial fixtures took place in 1934-35. Maharaja Bhupinder Singh of Patiala donated the trophy.
- The Ranji Trophy has gained vast popularity over the years, and in modern times has achieved a similar status like county cricket, which is prevalent in England.
- One of the most distinctive features of the series is that apart from regional cricket boards of various states, government teams also take part in the tournament, like the Railways team, and several other teams associated with government enterprises.
- In Ranji Trophy 2022-23, a total of 135 matches will be played and a total of 32 teams are taking part that have been split into four groups.
  - Madhya Pradesh won the 2021-22 Ranji Trophy.

### What are the Other Domestic Cricket Tournaments?

- **Duleep Trophy:**
  - Named after Kumar Shri Duleepsinhji of Nawanagar, the Duleep Trophy is a domestic first-class cricket

competition in India whose first edition was played in 1961-62.

### ➤ Vijay Hazare Trophy:

- Vijay Hazare Trophy is a limited overs domestic competition that involves different state teams from India to fight against each other for the title and is named after Prominent Indian Batsman-Vijay Hazare.

### ➤ Deodhar Trophy:

- The Deodhar Trophy is a List-A domestic fifty-over competition annually conducted in India, having first started in the 1973-74 season.

### ➤ Irani Cup:

- On completion of 25 years of the Ranji Trophy Championship, The BCCI inaugurated the Irani Trophy in the name of late Z R Irani in 1960.
- Irani Cup sees a match annually between the Ranji Trophy champions of the preceding year and rest of Indian team.

### ➤ Syed Mushtaq Ali Trophy:

- Introduced in the year 2008-09, the Syed Mushtaq Ali Trophy is a Twenty20 cricket domestic championship, organized by BCCI, among the teams from Ranji Trophy.

## Hockey World Cup

### Why in News?

Ahead of Men's Hockey World Cup 2023, Odisha Chief Minister has inaugurated Birsa Munda Hockey Stadium, one of the largest hockey stadiums in Rourkela.

- The 15<sup>th</sup> edition International Hockey Federation (FIH) Hockey World Cup 2023 will be held in Bhubaneswar and Rourkela from January 13 to 29.

Note:



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**What are the Key****Points of the Hockey World Cup?**

- Conceived jointly by **India and Pakistan as the premier standalone competition for hockey outside of the Olympics** and approved by the **International Hockey Federation in 1969**, it still took 13 long years and four editions of the event to be held in the **Indian subcontinent for the first time**.
- While the first edition in 1971 was allotted to Pakistan before being moved to **Spain** due to political and security issues, **India was supposed to host in 1975 before governance issues forced it to be moved to Malaysia**.
- While the initial editions were held every two years, since 1982 the tournament has been held every four years, bisecting the Olympic cycle.

- Pakistan was the inaugural world Cup winner, defeating Spain in 1971.
- The last world Cup hockey was played in 2018, where Belgium was the winner by defeating the Netherlands.

**What is International Hockey Federation?**

- FIH, founded in 1924, is **responsible for field hockey's major international tournaments, notably the World Cup**.
- It is headquartered in **Lausanne, Switzerland**.
- The **FIH is recognised by the International Olympic Committee** as the sole ultimate governing body for the sport of Hockey throughout the world.



Note:

# Rapid Fire Current Affairs

## Highlights

- Aymanam in Kottayam to Showcase Women's Talent
- Spear Phishing
- Bhima Koregaon Battle Anniversary
- Croatia Becomes Fully Integrated EU Member
- Purification System to Filter Out Microplastics
- Mannathu Padmanabhan
- Sari Festival VIRAASAT
- DRDO Foundation Day
- Rani Velu Nachiyar
- Asia Pacific Postal Union
- Lula Sworn in as Brazil's President
- 18th National Scout Guide Jamboree
- Japan: The World's Grayest Society
- Wildlife Conservation Bond
- World Braille Day
- First Female Indian Olympic Medalist
- Country's Largest Liquid Waste Treatment Plant
- Loss of Optimal Habitat
- Manohar International Airport, Goa
- India and U.N. Peacekeeping Mission
- Global South Summit
- World's First Palm-leaf Manuscript Museum
- Kerala to Provide Pension to MGNREGS Workers
- 'Saharsh' Scheme for Social and Emotional Learning
- First Advance Estimates of GDP
- Swami Vivekananda and National Youth Day 2023
- Uganda's Worst Ebola Outbreak Ends: WHO
- Progress in LAC Infra Development
- National Commission for Protection of Child Rights (NCPCR) Foundation Day
- Medicine for Alzheimer's Disease
- India Forex Reserves Fell by USD 70 Bn in 2022
- Young Professionals Scheme
- Kilauea Volcano Erupts Again
- DAC Approves VSHORAD Missile System
- Union Carbide Corporation and Bhopal Gas Tragedy
- Restoration Project for Paigah Tombs
- Pollution and PM 2.5
- Makar Sankranti
- India's First Centre of Excellence in Online Gaming
- Constitution Literacy Campaign in Kerala
- LHS 475 b

## Aymanam in Kottayam to Showcase Women's Talent

In line with Kerala government's plan to create a women-friendly tourism network, the State authorities have planned to turn the Aymanam village (a Responsible Tourism (RT) village) as a hub of women friendly destinations along with showcasing women's talent.

80% of the RT units in the village are already run by women. The village has also been included under the Agri Street project of the State.

Responsible Tourism requires operators, hoteliers, governments, local people and tourists to take responsibility, take action to make tourism more sustainable. It is about "making better places for people

to live in and better places for people to visit".

Read More - [India's Tourism Sector](#)

## Spear Phishing

Ahead of the G20 Summit which India will be hosting in 2023, the CERT-In (India's premier cybersecurity agency) has found that spear phishing will be the "primary vector" to target individuals and organisations associated with the G20 Summit. The suspected "cyber adversaries" are operating on behalf of North Korea, China and Russia.

Spear phishing is an attempt to trick a particular person/group into giving private information over the internet or by email, especially by sending emails that seem to be from someone they know.

Read More - [Types of Cyber Attacks](#)

Note:



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## **Bhima Koregaon Battle Anniversary**

Recently, **205<sup>th</sup> Anniversary of Bhima-Koregaon battle** was celebrated to pay tribute to the **Mahar soldiers** who fought against the Peshwa forces in the 1818 battle.

The 'Jaystambh' in **Bhima-Koregaon village** commemorates the British EIC soldiers who fell in one of the last battles of **Third Anglo Maratha War (1818)**. In the battle, the British, with just 834 infantrymen (~500 Mahars) **defeated the 28,000-strong army of Peshwa Bajirao II** (ended the Peshwa domination).

**Read More - [Bhima-Koregaon Battle](#)**

## **Croatia Becomes Fully Integrated EU Member**

On 1<sup>st</sup> January 2023, **Croatia adopted the Euro** and removed dozens of border checkpoints to become the **27th nation to join Europe's passport-free travel area (world's largest)**.

Adopting the euro will make travelling and doing business easier, **removing the hassle of currency exchange for Croats going abroad**. Croatia joined the European Union in 2013, but to adopt the Euro it had to fulfil a set of strict economic conditions (having a stable exchange rate, controlling inflation and sound public spending).

**Read More - [European Union](#)**

## **Purification System to Filter Out Microplastics**

Recently, Scientists from **South Korea have developed a new water purification system that can quickly and efficiently filter out microplastics**. In an experiment, over 99.9% of contaminants were taken out of the water in just 10 seconds.

The **polymer used is relatively inexpensive with excellent adsorption performance** and good photothermal properties.

Microplastics are **defined as plastics less than five millimeters in diameter**—smaller in diameter than the standard pearl used in jewelry. It can be harmful to our ocean and aquatic life.

**Read More: [Microplastics](#)**

## **Mannathu Padmanabhan**

The Prime Minister has paid tributes to Sri Mannathu Padmanabhan on his birth anniversary. He was **born on 2<sup>nd</sup> January 1878 in Kerala**. He was an Indian **social reformer and freedom fighter** from the southwestern state of Kerala.

He **took part in the Vaikom (1924) and Guruvayoor (1924) temple-entry Satyagrahas and the anti-untouchability agitations**. He is regarded as the reformer and **moral guide of the members of the Nair community**. He received **Padma Bhushan** in 1966. He died on 25th February 1970.

**Read More: [Mannathu Padmanabhan](#)**

## **Sari Festival VIRAASAT**

The second phase of the Sari Festival "VIRAASAT"—**Celebrating 75 handwoven Saris of India organised by the Ministry of Textiles** will held from 3<sup>rd</sup> to 17th January 2023 in New Delhi.

Saris	State
Banarasi	Uttar Pradesh
Paithani	Maharashtra
Kanjeevaram	Tamil Nadu
Kasavu	Kerala
Jamdani	West Bengal
Bandhani	Gujarat
Muga	Assam
Phulkari	Punjab
Kalamkari	Rajasthan

**Read More: [India's Textile Sector, GI Tagged Saris](#)**

## **DRDO Foundation Day**

Recently, **Defence Research and Development Organisation (DRDO)** celebrated the **65<sup>th</sup> Foundation Day on 1st January 2023**.

DRDO was **formed in 1958** from the amalgamation of the Technical Development Establishment (TDEs) of the Indian Army and the Directorate of Technical Development & Production (DTDP) with the Defence Science Organisation (DSO).

It is a **network of more than 50 laboratories that are deeply engaged in developing defence technologies**

Note:

covering various disciplines, like aeronautics, armaments, electronics, combat vehicles, engineering systems etc. **Recent Developments - Extreme Cold Weather Clothing System (ECWCS), 'Pralay', Controlled Aerial Delivery System**, etc.

Read More: [DRDO](#)

## Rani Velu Nachiyar

The Prime Minister of India has paid tributes to **Rani Velu Nachiyar** (3 Jan 1730 – 25 Dec 1796) on her birth anniversary. She was the **first queen to fight against the British colonial power** in India (and son of **Nawab of Arcot**) in 1780s.

Rani Velu Nachiyar, known by Tamils as **Veeramangai**, was the **princess of Ramnad Kingdom of Ramanathapuram (TN)**. Along with proficiency in languages like French, English and Urdu, she was **trained in martial arts like Valari, Silambam**, horse riding and archery.

Upon her husband - **Muthuvaduganathaperiya Udaiyathevar's** death, she succeeded him in 1780 as the **Queen of Sivagangai (TN)**.

Read More - [Women Heroes of India's Freedom Struggle](#)

## Asia Pacific Postal Union

India is all set to assume the leadership of **Asian Pacific Postal Union (APPU)**. **Vinaya Prakash Singh** was elected as the **Secretary General** of the APPU for a tenure of 4 years (from Jan 2023). This is the **first time an Indian is leading** an international organization in the postal sector.

APPU, headquartered in **Bangkok (Thailand)**, is an intergovernmental organization of **32-member countries of the Asian-Pacific region**. It is the **only Restricted Union of the Universal Postal Union (UPU)** (a **UN specialised agency**) in this region. APPU aims to extend, facilitate and improve postal relations between member countries and to promote cooperation in the field of postal services.

The **Asia Pacific region generates around half of the global mail volume** and has around **one-third of the global postal human resource**.

Read More - [Universal Postal Union](#)

## Lula Sworn in as Brazil's President

**Luiz Inacio Lula da Silva** has been sworn in as the new president of Brazil replacing **Jair Bolsonaro**. This is the **3<sup>rd</sup> time** he has held the country's highest office (earlier - January 2003 - January 2011).

India's relations with Brazil are about 5 centuries old, however a strategic partnership was established only in 2006. The two countries are common members to forums like **BRICS, IBSA, G4** and **G20** and have a pivotal role as leaders of the **Global South or South-South cooperation**. Recently the two countries also participated in **7th edition of IBSAMAR exercise**.



Read More - [India-Brazil Relations](#)

## 18<sup>th</sup> National Scout Guide Jamboree

The **Bharat Scouts & Guides** (voluntary organisation) are hosting the **18<sup>th</sup> National Jamboree** at **Rajasthan** from 4th January to 10th January, 2023 with the theme of **"Progress with Peace"**. The **1st National Jamboree** was hosted by **Andhra Pradesh** in 1953-54.

The **Jamboree is a national level gathering of the Scouts and Guides** conducted **once in 4 years** or to mark special occasions. The Jamboree gives the Scouts and Guides an opportunity to **interact with the youth from different states of India and from abroad**.

About 35000 Scouts, Guides and Adult Leaders of the Organization from different corners of the country and **South Asian Association for Regional Cooperation (SAARC)** countries are participating in this Mega Event.

Note:



## Japan: The World's Grayest Society

The Japanese government **plans to increase financial incentives for families who opt to move out of Tokyo** as the government attempts to reverse decades of **demographic decline**, economic migration and the lure of the world's biggest metropolis.

The government will extend to families up to **1 million yen per child**. The **figure is more than triple the ¥300,000 on offer under an existing scheme in place since 2019**. Those that take the money **must embrace the provincial life for a minimum of five years** or refund the state. The plan also has some other conditions that would need to be fulfilled strictly in order to avail and keep full benefits.

Read More: [World's Population](#)

## Wildlife Conservation Bond

In 2022, the **World Bank** has **priced the world's first wildlife bond, raising USD 150 million that will be partly used for the conservation of black rhinos in South Africa**.

The **Wildlife Conservation** Bond is a **first-of-its-kind, outcome-based, financial instrument that channels investments to achieve conservation outcomes** measured in this case by an increase in black rhino populations. The program **could be expanded to protect other wildlife species**.

There are **five rhino species globally** (white and black rhinos in Africa, and the greater one-horned, Javan, and Sumatran), **with most of the animals in South Africa and almost all of them are white rhinos** as the number of black rhinos is decreasing day by day.

Read More: [Rhinos](#)

## World Braille Day

Since 2019, World Braille Day is **observed on the 4<sup>th</sup> January every year**. The aim is to raise **awareness of the importance of Braille as a means of communication** in the full realization of **human rights** for blind and partially sighted people.

Braille (named after its inventor in 19th century France, Louis Braille) is a **tactile representation of alphabetic and numerical symbols using six dots** to represent each letter and number, and even musical,

mathematical and scientific symbols. Braille is used by blind and partially sighted people **to read the same books and periodicals as those printed in a visual font**.

Braille is essential in the context of education, freedom of expression and opinion, as well as social inclusion, as per the **Convention on the Rights of Persons with Disabilities (2006)**.

Read More: [International Day of Persons with Disabilities](#)

## First Female Indian Olympic Medalist

Sakshi Malik is an **Indian freestyle wrestler**. At the **2016 Summer Olympics**, she won the bronze medal in the 58 kg category, becoming the **first Indian female wrestler to win a medal at the Olympics** and the fourth female Olympic medalist from the country.

The **Olympic Games are an international sports festival organised by the International Olympic Committee (IOC), held every four years**.

The last Olympics game was held in Beijing, China in **2022** and the next Olympic Games will be held in Paris, France in **2024**.

Read More: [Winter Olympics](#)

## Country's Largest Liquid Waste Treatment Plant

The Municipal Corporation of Tirupati (MCT), Andhra Pradesh is **set to take a significant step in water treatment** by putting in place what is claimed to be the **country's largest liquid waste treatment plant to use phytorid technology**.

The phytorid technology is developed by the **Council of Scientific & Industrial Research's (CSIR)** National Environmental Engineering Research Institute (NEERI). It is **being used increasingly for various types of biodegradable wastewater across India**.

The technology **involves a constructed wetland** exclusively designed for the treatment of municipal, urban, agricultural and industrial wastewater. This technology works without electricity, minimum maintenance, less manpower and importantly self-sustainable.

Read More: [Waste Water Management](#)

Note:

## Loss of Optimal Habitat

Nilgiri landscape, varied in climate and vegetation, is rich in **biodiversity** and has the largest single population of the endangered Asian elephant anywhere in the world. However, according to a study **Endangered Asian elephant has lost most of its optimal habitat in the Nilgiri Biosphere Reserve** (Tamil Nadu, Karnataka and Kerala).

Human settlements and crop cultivation have hindered the movement of the elephants, **keeping them confined to the hilly areas, considered sub-optimal habitats.**

In these sub-optimal habitats, **their chances of survival are lower** due to dangerous terrain for animals of this size. Study shows that when barriers are constructed, particularly in areas with slopes, **their movement is blocked, and gene flow reduced.** This could ultimately lead to increasing the extinction risk of this **endangered species.**

Read More: [Nilgiri Biosphere Reserve](#)

## Manohar International Airport, Goa

The newly inaugurated Manohar International Airport at Mopa in North Goa has been **operationalised recently.**

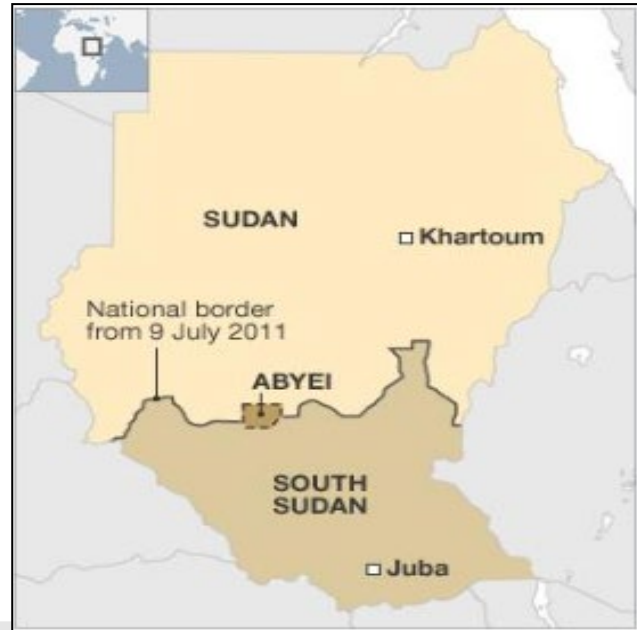
The **foundation stone of the airport was laid by the Prime Minister in November 2016.** The airport has been **built on the theme of sustainable infrastructure and comprises a solar power plant, green buildings, LED lights on the runway, rainwater harvesting, state-of-the-art sewage treatment plant with recycling facilities,** among other such facilities.

## India and U.N. Peacekeeping Mission

India will deploy an all-woman platoon of peacekeepers as part of a battalion to the United Nations Interim Security Force in Abyei (on the border between South Sudan and Sudan).

This will be **India's largest single unit of women peacekeepers in a U.N. mission** since the deployment of the **first-ever all-women's contingent in Liberia in 2007.**

India is **one of the largest troop-contributing nations to the U.N. peacekeeping missions.**



## Global South Summit

India will host a special virtual summit, the Voice of Global South summit, on January 12 and 13.

The summit under the theme 'Unity of Voice, Unity of Purpose' envisages bringing together countries of the Global South to share their perspectives and priorities on a common platform. More than 120 countries are being invited to participate in this Summit.

Global South refers to the developing and the less-developed countries of the world. India's ongoing Presidency of the G20 provides a special and strong opportunity for those countries that are not part of the G20 process to share their ideas and expectations from the G20.

Read More: [Global South](#)

## World's First Palm-leaf Manuscript Museum

Recently, Asia's first Palm leaf Manuscript Museum was inaugurated in Kerala.

The Museum is a repository of the administrative, socio-cultural and economic facets of the Travancore kingdom spanning a period of 650 years (till the end of 19th century). It has 187 manuscripts one of which accounts for the famous Battle of Colachel (1741) wherein the Travancore king defeated the Dutch East India Company at Colachel (TN).

Note:

The museum has eight galleries representing many segments: 'History of Writing', 'Land and people', 'Administration', 'War and peace', 'Education and Health', 'Economy', 'Art and culture' and 'Mathilakam Records'.

## Kerala to Provide Pension to MGNREGS Workers

In a first of its kind initiative, the Kerala govt. has launched a welfare fund board for the

workers registered for the MGNREGS and Kerala govt.'s Ayyankali Urban Employment Guarantee Scheme. They will receive a monthly pension from the board once they turn 60.

As per the norm, any worker (age 18-55) can take membership in the fund board. They have to pay a monthly premium amount (₹50 tentatively fixed) until the age of 55 and a member who has paid the contribution for at least 10 years will be eligible for pension. Apart from the workers' monthly contribution, the govt. will also make an equivalent contribution towards the fund (which may be revised triannually).

Read More - [MGNREGS](#)

## 'Saharsh' Scheme for Social and Emotional Learning

The state govt. of Tripura, in an effort to encourage social and emotional learning, introduced a special education programme - 'Saharsh'. Launched in pilot mode in Aug 2022 in 40 schools, now it will be extended to all govt. and aided schools of the state. It aimed at empowering children to learn with happiness. Tripura currently ranks in the Grade-I category in the Performance Grading Index.

Read More - [Performance Grading Index](#)

## First Advance Estimates of GDP

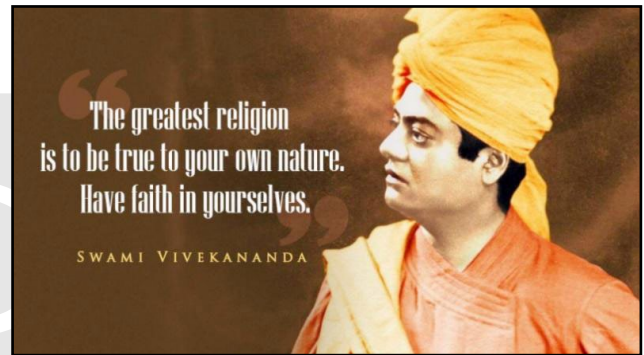
The National Statistical Office (NSO), recently released the first advance estimates (FAEs) of national income (GDP) according to which the Indian economy is expected to grow at 7% in FY 22-23 (up from 6.8% projected by MPC).

The economy grew by 9.7% in the first half of FY 22-23 which is likely to slow down to 4.5% in the second half. India will still be one of the fastest-growing economies in the world.

The FAE, first introduced in 2016-17, are the "first" official estimates of how GDP is expected to grow in that FY. FAEs provide some sense of underlying momentum in economic activities and are useful in the context of the upcoming Union Budget.

Read More - [First Advance Estimates for GDP](#)

## Swami Vivekananda and National Youth Day 2023



Every year 12<sup>th</sup> January is celebrated as National Youth Day (NYD) to mark the birth anniversary of Swami Vivekananda. NYD was declared by GoI in 1984. Theme for 2023 - 'Viksit Yuva - Viksit Bharat'.

Swami Vivekananda was a key figure in the introduction of the Hindu philosophy of Vedanta and Yoga to the Western world, and he is credited with bringing Hinduism to the status of a major world religion during the late 19th century.

He was also a strong advocate for social justice and worked to uplift the status of women and lower castes in Indian society. He was the chief disciple of the 19th-century mystic Ramakrishna Paramhansa and he established Ramakrishna Mission in 1897.

Read More - [Swami Vivekananda, National Youth Day](#)

## Uganda's Worst Ebola Outbreak Ends: WHO

After 4 months and 55 deaths, the latest Ebola epidemic in Uganda (worst in 2 decades) was declared

Note:



over by the **WHO**. The outbreak was caused by the **Sudan strain of the virus**.

**Ebola virus disease** is a hemorrhagic fever that is transmitted through body contact with sick or dead people or animals (a “**viral hemorrhagic fever**” is a condition that **damages the overall cardiovascular system**, and reduces the body’s ability to function on its own). Its symptoms include fever, fatigue and headaches, followed by vomiting, diarrhoea, and **internal and external bleeding**. Ebola virus was first discovered in 1976 near the **Ebola River in DRC**.

While there are existing Ebola vaccines (**Ervebo vaccine**), they **do not protect against the Sudan strain**.

**Read More - Ebola Virus Disease**

Swadesh Darshan Project

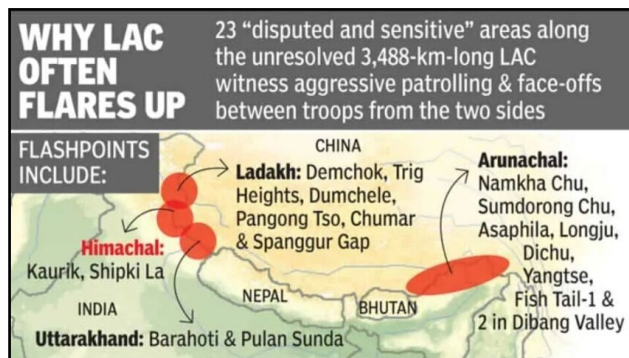
**Beypore and Kumarakom** are the (only) two tourism destinations Kerala has included in the **detailed project report (DPR)** to be submitted to the Centre for **Phase-2 of the Swadesh Darshan Project**.

**Beypore has historic importance as a port town**. It is also globally famed for its **Beypore Uru (boat)** and the beautiful seashore, which could boost its tourism sector in a big way.

Swadesh Darshan Scheme was first launched in 2014-15 by the **Ministry of Tourism and Culture** for the integrated development of theme-based tourist circuits. **Swadesh Darshan 2.0 moves away from theme-based tourist circuits** and focuses on **reviving up destination tourism**. The govt. has identified 15 States under this scheme to be promoted as part of **India’s new domestic tourism policy**.

**Read More - Swadesh Darshan 2.0, GI Tag for Beypore Uru**

## Progress in LAC Infra Development



As per the **Army Chief General of India**, there has been **significant improvement in the infrastructure near the Line of Actual Control (LAC)**.

From creating 6,000 km of border roads to improving all-weather connectivity in regions of Ladakh and Kameng, the **Army has greatly expanded the country’s infrastructure on India’s side of the LAC with China**. For example, in Ladakh, the **Zojila tunnel** and the **Z-Morh tunnel**, and in Arunachal Pradesh **Sela tunnel** are currently under construction.

The **army is being undertaken across five key domains** -- restructuring and optimisation, modernisation and technology infusion, Human Resource management like the **Agnipath scheme**, Jointness and integration, and refining and improving systems and processes.

Currently, the **Army is seeking to enlist female officers into the Regiment of Artillery**, which would mark **women in combat arms**.

**Read More: Line of Actual Control (LAC)**

## National Commission for Protection of Child Rights (NCPCR) Foundation Day

Recently, the **National Commission for Protection of Child Rights**, which was set up in 2007 under the **Commission for Protection of Child Rights Act, 2005** celebrated its **18<sup>th</sup> Foundation Day** on 12th January.

To fully dedicate this occasion to the children, a **Quiz** was launched by the **Commission on the occasion of National Youth Day** (Swami Vivekananda Jayanti) to create awareness among children about child rights. It is a platform to empower children for their rights.

**Read More: National Commission for Protection of Child Rights (NCPCR), National Youth Day**

## Medicine for Alzheimer’s Disease

The US Food and Drug Administration (USFDA) has granted fast-track approval to an **Alzheimer’s medicine - Lecanemab** (marketed as **Leqembi**). In its initial tests, it has shown **reduction in amyloid beta protein deposition** in the brain (a **classic symptom** of the disease) in **mild cases**.

Note:

Alzheimer's Disease is a **neurological disorder** which causes brain cells to degenerate and die resulting in **memory loss, speaking/writing problems, poor judgement, changes in mood and personality, confusion with time or place, etc.** it is the **most common cause of dementia among older adults.**

Read More - [Alzheimer's Disease](#)

## India Forex Reserves Fell by USD 70 Bn in 2022

After 3 consecutive years of rise, India's forex reserves declined by **\$70 bn in 2022** on account of **rising inflation and interest rates.**

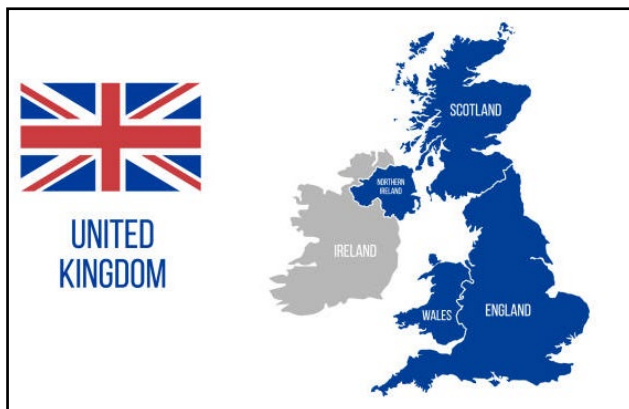
This decline can be **primarily (about 55-60% of total loss) attributed to the valuation loss** of other foreign currencies (€, £, ¥) against USD (**that India held as reserves**). **Another major cause is the FPI withdrawal.**

Due to this, the **number of months of imports** that can be covered through India's reserves have also **declined** (from 13 in 2021-22 to **9.2 in 2022-23**).

Holding forex reserves **reduces the likelihood of BoP crises** and **helps preserve economic and financial stability against disordered market conditions.** India's Forex Reserves include- Foreign Currency Assets, Gold reserves, **Special Drawing Rights**, Reserve position with the **IMF.**

Read More - [Forex Reserves](#)

## Young Professionals Scheme



On the **17<sup>th</sup> Pravasi Bharatiya Divas**, India and the **UK** have decided to launch **Young Professionals Scheme (YPS)** under which, up to 3,000 of their degree-holding citizens (age 18-30) will be permitted to live and work in each other's countries for a period of 2 years.

The YPS was conceived as part of an **India-U.K. Migration and Mobility MoU (signed in 2021).** The scheme will have an **initial running period of 3 years** and is expected to be launched by March 2023.

Read More - [India-UK Relations](#)

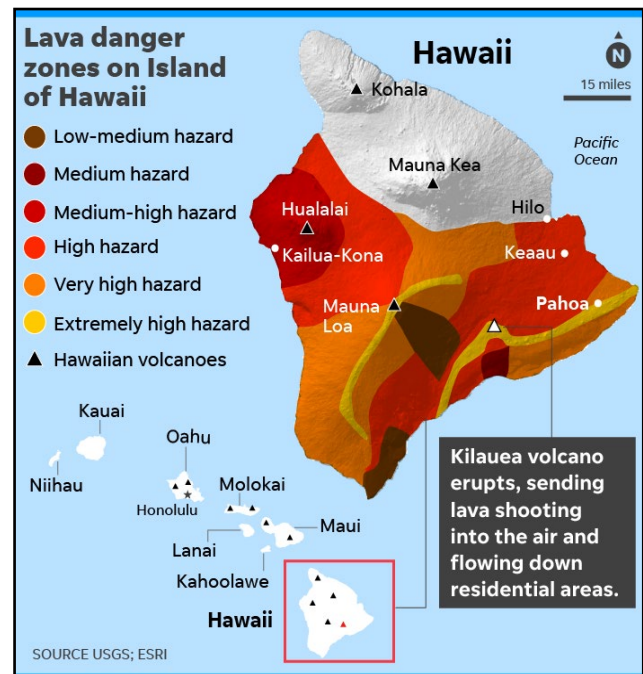
## Kilauea Volcano Erupts Again

Recently, **Hawaii's Kilauea volcano** erupted again after a brief pause. The eruption in the volcano's crater started in Jan 2022.

The US Geological Service (USGS) has warned the locals about dangerous volcanic fumes containing **sulphur dioxide, Pele's hair (tiny strands of drifting lava) (Pele is the Hawaiian goddess of fire and volcanoes)** and other volcanic particles.

**Kilauea is among the most active ones** on the planet which last erupted in Sept 2021 and continued for 16 months. The **eruption in 2018** destroyed 700 homes, sending rivers of lava across farms and into the ocean.

In Nov-Dec 2022, **Hawaii's Mauna Loa also erupted** for the **first time in 38 years.** Volcanic eruptions have significant cultural and spiritual meanings for the native Hawaiians.



Read More - [Kilauea Volcano, Mauna Loa Volcano](#)

Note:

## DAC Approves VSHORAD Missile System

The **Defence Acquisition Council** (headed by Defence Minister) provided **Acceptance of Necessity (AoN)** for the procurement of **Very Short Range Air Defence System (VSHORAD) (Infrared (IR) Homing) missile system** being designed and developed by **DRDO**.

DAC also approved the procurement of the (a) **HELINA Anti-Tank Guided Missiles**, launchers and support equipment for the **indigenous Advanced Light Helicopters (ALH)** (for Army) and (b) **Brahmos Launcher & Fire Control System** and Next Generation Missile Vessels (for Navy).

The acquisitions have been made under '**Buy (Indian-IDDMM)**' category - the **highest priority** procurement under **DAP-2020**.

These advancements in the defence system can be attributed to the **growing tensions with China at LAC**.

**Read More - VSHORAD, Helina: Anti-Tank Guided Missile, Advanced Light Helicopter (ALH)**

## Union Carbide Corporation and Bhopal Gas Tragedy

The **Union Carbide Corporation (UCC)** has said that it is not **willing to pay any more amount than what was settled** with the Central Government in 1989 following the **Bhopal Gas Tragedy** as the **Centre has sought additional funds** of over ₹7,400 crore from UCC.

On December 3, 1989, the highly dangerous and toxic gas, **methyl isocyanate (MIC)** (Chemical formula- **CH<sub>3</sub>NCO** or **C<sub>2</sub>H<sub>3</sub>NO**), leaked from the Union Carbide India Limited (UCIL) in Bhopal. The tragedy resulted in the **death of 5,295 people** and injuries to almost 5,68,292 persons besides substantial loss of livestock and property.

**Read More - Bhopal Gas Tragedy**

## Restoration Project for Paigah Tombs

The US Govt will extend **financial support of USD 250,000** (by the **US Ambassadors Fund for Cultural Preservation**) towards the **conservation and restoration of 6 of the Paigah tombs**, built in 18th-19th centuries, in Hyderabad. The **Aga Khan Trust for Culture** will implement the project.



The Paigah tombs (or **Maqbara Shams al-Umara**) is a necropolis belonging to the nobility of the Paigah family who served the Nizam of Hyderabad (Asaf Jahi dynasty). The tombs, made of lime, mortar and marble, are **one of the finest examples of Indo-Islamic architecture** (blend of Asaf Jahi and Rajputana styles).

The Paigahs were among the most influential and powerful families of Hyderabad in the 18th century. Wealthier than most rulers, they were responsible to **look after the security and defence** of the region. They claimed to be the **descendants of Hazrath Omar bin Al-Khattab**, Islam's second caliph.

**Read More - Islamic Architecture**

## Pollution and PM 2.5

As per a **CPCB** air quality data analysis by the **National Clean Air Programme**, in 2022, **Delhi was the top polluted city** with an annual **avg. PM 2.5 concentration of 99.7 ug/m<sup>3</sup>**. This is much above the **CPCB standard of 40 ug/m<sup>3</sup> of air**.

The analysis has found that most cities in the top 10 most polluted list of 2022 are from the **Indo-Gangetic Plain**; for PM 2.5 (Delhi, Faridabad, Ghaziabad, Patna, Muzaffarpur, Noida, Meerut, Gobindgarh, Gaya and Jodhpur) and for PM 10 (Ghaziabad, Faridabad, Delhi, Noida, Patna, Meerut, Muzaffarpur, Durgapur, Jodhpur and Aurangabad).

The position of the **cleanest city in India in 2022** was jointly held by **Srinagar and Kohima**.

India's current **annual average safe limits for PM 2.5 and PM 10 are 40 ug/m<sup>3</sup> and 60 ug/m<sup>3</sup>**. The NCAP initially set a target of reducing key air pollutants PM10 and PM2.5 by **20-30% by 2024 and by 40% by 2026 (base year - 2017)**.

Note:

## THE CHOKING REALITY

### MOST POLLUTED CITIES (For PM 2.5)

Delhi, Faridabad, Ghaziabad, Patna, Muzzafarpur, Noida, Meerut, Goidngarh, Gaya and Jodhpur

### MOST POLLUTED CITIES (For PM 10)

Ghaziabad, Faridabad, Delhi, Noida, Patna, Meerut, Muzzafarpur, Durgapur, Jodhpur and Aurangabad

### CLEANEST CITIES

**Srinagar** (J&K)  
Records PM 2.5 concentration of 26.33 ug/m<sup>3</sup>

**Kohima** (Nagaland)  
Records PM 10 concentration of 26.77 ug/m<sup>3</sup>

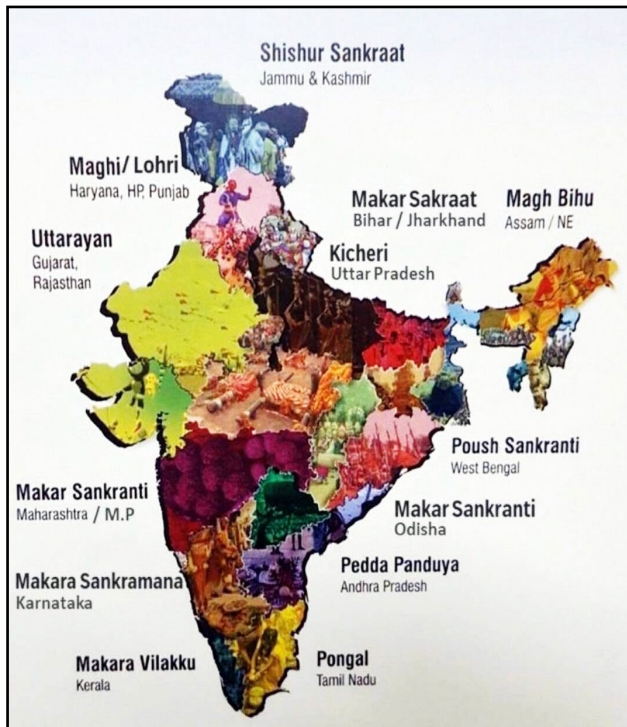
### CURRENT ANNUAL AVERAGE SAFE LIMITS

PM 2.5	PM 10
40 ug/m <sup>3</sup>	60 ug/m <sup>3</sup>

**₹6,897cr** in 4 yrs have been spent by the Centre's National Clean Air Programme, but cities are still choking

Read More - [Air Pollution \(PM 2.5 and PM 10\)](#)

## Makar Sankranti



Note:

Recently, the Prime Minister has greeted people across the nation on the occasion of harvest festivals **Makar Sankranti, Bhogi, Lohri and Pongal**. The festivals celebrate the hard work and enterprise of millions of farmers across the country.

Makar Sankranti denotes the entry of the sun into the zodiac sign of **Makara (Capricorn)** as it travels on its celestial path. The day marks the onset of summer and the six months auspicious period for Hindus known as **Uttarayan** – the northward movement of the sun.

The festivities associated with the day are known by different names in different parts of the country:

Read More: [Harvest Festivals](#)

## India's First Centre of Excellence in Online Gaming

Software Technology Parks of India (STPI, an autonomous society under MeitY) will facilitate in setting up India's first Centre of Excellence in Online Gaming at Shillong by March 2023. This will help to catalyse startups and entrepreneurs from the entire North East Region to build the Next Generation Online Gaming Ecosystem.

The Ministry of Electronics and IT (MeitY) will also set up a state-of-the-art facility under the National Institute of Electronics and IT (NIELIT) in Shillong to provide training on digital skills. The government will be re-launching Skill India through **Pradhan Mantri Kaushal Viaks Yojana (PMKVY) 4.0**, which will train around 50,000 youth in Meghalaya.

Read More: [India's Startup Ecosystem, North-East India](#)

## Constitution Literacy Campaign in Kerala

The first of its kind initiative in Kerala, a constitution literacy campaign jointly organised by the Kollam district panchayat, District Planning Committee, and the Kerala Institute of Local Administration (KILA). The aim is to declare Kollam as the first totally Constitution literate district.

As part of the campaign, the entire population of Kollam above the age of 10 will be briefed on the preamble of the Constitution and the historical



**background of the document**, its basic principles, fundamental rights of citizens, and legal remedies.

**Read More:** [Preamble](#), [Indian Constitution](#)

## **LHS 475 b**

Recently, the **James Webb Telescope confirmed the discovery of its first exoplanet**, a planet that orbits another star.

The planet, **formerly classified as LHS 475 b**, the planet is **almost exactly the same size as the Earth**, 99% of Earth's diameter. Researchers noted that **the planet completes one orbit around its star in just two days**.

Although LHS 475 b is **closer to its star than any planet in the solar system**, its red dwarf star is less than half the temperature of the Sun, so the researchers are expecting that it still **could have an atmosphere**.

**Red Dwarf Star:** A small, low-mass, dim, and cool star. Many have big flares and mass ejections on their surfaces. The habitable zone of red dwarf stars is closer to the star than stars like our sun, making it easier to observe potentially habitable planets.

Webb is an international program led by NASA with its partners, ESA (European Space Agency) and CSA (Canadian Space Agency).

**Read More:** [Solar System](#), [James Webb Telescope](#)



Note:





