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# Current Affairs (CONSOLIDATION)

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**(PART – I)**

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# Polity and Governance

## Highlights

- Tax Devolution
- The 22nd Law Commission on Section 124A of the IPC
- Governor's Role in State Legislature
- Appointment of Vice-Chancellors of State Universities
- Article 299 of the Constitution: Government Contracts
- Delimitation
- Adverse Possession
- Electronically Transmitted Postal Ballot System for NRIs
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- Unified Registration Portal for GOBARdhan Launched

## Tax Devolution

### Why in News?

Recently, the Union government has released the 3<sup>rd</sup> installment of **Tax Devolution** to state governments amounting to Rs 1,18,280 crore in June 2023, as against the normal monthly **devolution of Rs 59,140 crore**.

- It will **enable states to speed up capital spending**, finance their development/ welfare related expenditure and also to make available resources for priority projects/ schemes.
- **Uttar Pradesh received the highest** (Rs 21,218 crore) followed by Bihar (Rs 11,897 crore), Madhya Pradesh, West Bengal and Rajasthan.

### What is Tax Devolution?

- **About:**
  - Tax devolution refers to the distribution of tax revenues between the central government and the state governments. It is a constitutional mechanism **established to allocate the proceeds of certain taxes among the Union and the states** in a fair and equitable manner.
  - **Article 280(3)(a)** of the Constitution of India mandates that the **Finance Commission (FC)** has the responsibility to **make recommendations regarding the division of the net proceeds of taxes** between the Union and the states.

### ➤ Key Recommendations of 15th Finance Commission:

- **Share of States in Central Taxes (Vertical Devolution):**
  - The share of states in the central taxes for the 2021-26 period is **recommended to be 41%**, same as that for 2020-21.
    - This is less **than the 42% share recommended by the 14<sup>th</sup> Finance Commission for 2015-20 period**.
    - The adjustment of **1% is to provide for the newly formed union territories of Jammu and Kashmir**, and Ladakh from the resources of the centre.
- **Horizontal Devolution (Allocation Between the States):**
  - For horizontal devolution, it has suggested **12.5% weightage to demographic performance**, 45% to income, 15% each to population and area, 10% to forest and ecology and 2.5% to tax and fiscal efforts.
- **Revenue Deficit Grants to States:**
  - Revenue Deficit is defined as the difference between revenue or current expenditure and revenue receipts, that includes tax and non-tax.
  - It has recommended **post-devolution revenue deficit grants amounting to about Rs. 3 trillion** over the five-year period ending FY26.
- **Performance Based Incentives and Grants to States:** These grants revolve around four main themes.

Note:



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- The first is the **social sector**, where it has focused on health and education.
- Second is the **rural economy**, where it has focused on agriculture and the maintenance of rural roads.
  - The rural economy plays a significant role in the country as it encompasses two-thirds of the country's population, 70% of the total workforce and 46% of national income.
- Third, **governance and administrative** reforms under which it has recommended grants for judiciary, **statistics and aspirational districts** and blocks.
- Fourth, it has developed a **performance-based incentive system for the power sector**, which is not linked to grants but provides an important, additional borrowing window for States.
- **Grants to Local Governments:**
  - Along with grants for municipal services and local government bodies, it includes **performance-based grants for incubation of new cities** and health grants to local governments.
  - In grants for Urban local bodies, basic grants are proposed only for cities/towns having a population of less than a million. For Million-Plus cities, **100% of the grants are performance-linked through the Million-Plus Cities Challenge Fund (MCF)**.
  - MCF amount is linked to the performance of these cities in improving their air quality and meeting the service level benchmarks for urban drinking water supply, sanitation and solid waste management.

### ***What is the Role of the FC in Maintaining Fiscal Federalism?***

- **Distribution of Tax Proceeds:**
  - The Finance Commission recommends the **distribution of the net proceeds of taxes** between the Union government and the state governments.
  - This ensures a **fair and equitable sharing of tax revenues**, taking into account the fiscal capacities and needs of the states.
- **Allocation of Taxes Among States:**

- The Finance Commission determines the **principles and quantum of grants-in-aid to states** that require financial assistance.
  - It assesses the **financial needs of states and recommends measures** to allocate funds from the consolidated funds of the states.
- **Augmenting Resources of Local Governments:**
  - The Finance Commission **suggests measures to augment the consolidated fund of a state** in order to supplement the resources of **Panchayats and Municipalities** in that state.
- **Cooperative Federalism:**
  - The Finance Commission's functioning is **characterized by extensive consultations with all levels of governments**, promoting the principle of cooperative federalism.
  - It engages in consultations **with the central government, state governments, and other stakeholders** to gather inputs and ensure a participatory approach in decision-making.
- **Public Spending and Fiscal Stability:**
  - The recommendations of the Finance Commission are aimed at improving the quality of **public spending and promoting fiscal stability**.
  - By evaluating the financial position of the Union and state governments, the **Commission provides guidance on fiscal management**, resource allocation, and expenditure priorities.

### **What is the 15<sup>th</sup> Finance Commission?**

- The Finance Commission is a **constitutional body** that determines the method and **formula for distributing the tax proceeds** between the Centre and states, and among the **states as per the constitutional arrangement** and present requirements.
- Under **Article 280 of the Constitution**, the **President of India** is required to constitute a Finance Commission at an interval of five years or earlier.
- The **15th Finance Commission** was constituted by the President of India in November 2017, under the chairmanship of NK Singh.
- Its recommendations will cover a **period of five years from the year 2021-22 to 2025-26**.

Note:

## The 22nd Law Commission on Section 124A of the IPC

### Why in News?

The 22<sup>nd</sup> Law Commission report recommends retaining Section 124A of the IPC, pertaining to sedition, but proposes amendments and procedural safeguards to prevent misuse.

### What are the Recommendations of the Law Commission?

#### ➤ Background:

- The Home Ministry requested the Law Commission to examine the usage of Section 124A and propose amendments through a letter in 2016.
- The Law Commission's report highlights that the existence of laws like the Unlawful Activities (Prevention) Act (UAPA) and the National Security Act (NSA) does not cover all aspects of the offence outlined in Section 124A.

#### ➤ Recommendations:

##### ○ Retaining Section 124A:

- The Commission argues that repealing Section 124A solely based on other countries' actions would ignore the unique realities of India.
- It emphasizes that the colonial origins of a law do not automatically warrant its repeal.
- The report suggests that the Indian legal system as a whole carries colonial influences.

##### ○ Amendments and Safeguards:

- The Commission recommends adding a procedural safeguard to Section 124A, requiring a preliminary inquiry by a police officer of Inspector rank before registering an FIR for sedition.
- Permission from the Central or State Government would be necessary based on the officer's report.
- It proposes incorporating a provision similar to Section 196 (3) of the Code of Criminal Procedure, 1973, as a proviso to Section 154 of the same code for procedural safeguards against the use of Section 124A.
- The Commission suggests amending Section 124A to specify that it penalizes individuals "with a tendency to incite violence or cause public disorder."

#### ○ Enhanced Punishment:

- The report proposes an increase in the jail term for sedition to a maximum of seven years or life imprisonment.
- Currently, the offence carries a term of up to three years or life imprisonment.

### What are the

### Justifications for Retaining the Sedition Law?

- The report argues that allegations of misuse do not automatically justify the repeal of Section 124A.
- It highlights instances where various laws have been misused for personal rivalries and vested interests.
- Repealing the sedition law altogether could have serious adverse consequences for the security and integrity of the country, allowing subversive forces to exploit the situation.

### What is Sedition Law?

#### ➤ Historical Background:

- Sedition laws were enacted in 17th century England when lawmakers believed that only good opinions of the government should survive, as bad opinions were detrimental to the government and monarchy.
- The law was originally drafted in 1837 by Thomas Macaulay, the British historian-politician, but was inexplicably omitted when the Indian Penal Code (IPC) was enacted in 1860.
- Section 124A was inserted in 1870 by an amendment introduced by Sir James Stephen when it felt the need for a specific section to deal with the offence.
- Today the Sedition is a crime under Section 124A of the Indian Penal Code (IPC).

#### ➤ Section 124A IPC:

- It defines sedition as an offence committed when "any person by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the government established by law in India".
- Disaffection includes disloyalty and all feelings of enmity. However, comments without exciting or attempting to excite hatred, contempt or disaffection, will not constitute an offence under this section.

Note:

### ➤ **Punishment for the Offence of Sedition:**

- It is a **non-bailable offence**. Punishment under Section 124A ranges from imprisonment up to three years to a life term, to which a fine may be added.
- A person charged under this law is barred from a government job.
- They have to live without their passport and must appear in court at all times as and when required.

### **What are the Various**

### **Arguments Related to Sedition Law?**

#### ➤ **Arguments in Favour:**

##### ○ **Reasonable Restrictions:**

- The constitution of India prescribes reasonable restrictions (under Article 19(2)) that can always be imposed on this right (**Freedom of Speech and Expression**) in order to ensure its responsible exercise and to ensure that it is equally available to all citizens.

#### ➤ **Maintaining Unity & Integrity:**

- Sedition law helps the government in **combating anti-national, secessionist and terrorist elements**.

#### ➤ **Maintaining Stability of State:**

- It helps in protecting the elected government from attempts to overthrow the government with violence and illegal means.
- The continued existence of the government established by law is an essential condition of the stability of the State.

### **Arguments Against retaining Sedition Law**

#### ➤ **Relic of Colonial Era:**

- Colonial administrators used sedition to lock up people who criticised the British policies.
- Stalwarts of the freedom movement such as Lokmanya Tilak, Mahatma Gandhi, Jawaharlal Nehru, Bhagat Singh, etc., were convicted for their “seditious” speeches, writings and activities under British rule.
- Thus, rampant use of the sedition law recalls the colonial era.

#### ➤ **NCRB Report on Sedition Cases:**

- The latest edition of the NCRB’s Crime in India report showed that 76 sedition cases were registered across the country in 2021, a marginal increase from the 73 registered in 2020.

- The **conviction rate in cases filed under the sedition law** (IPC Section 124A), now the subject of an ongoing case in the Supreme Court, has fluctuated **between 3% and 33%** over the years, and the **pendency of such cases** in court reached a high of **95% in 2020**.

#### ➤ **Stand of Constituent Assembly:**

- The Constituent Assembly did not agree to include sedition in the Constitution. The members felt it would curtail freedom of speech and expression.
- They argued that the sedition law can be turned into a weapon to suppress people’s legitimate and constitutionally guaranteed right to protest.

#### ➤ **Disregarding Supreme Court’s Judgement:**

- Supreme Court in **Kedar Nath Singh vs State of Bihar case 1962**, limited application of **sedition to “acts involving intention or tendency to create disorder, or disturbance of law and order, or incitement to violence”**.
- Thus, invoking sedition charges against academicians, lawyers, socio-political activists and students is in disregard of the Supreme Court’s order.

#### ➤ **Repressing Democratic Values:**

- Increasingly, India is being described as an elected autocracy primarily because of the callous and calculated use of sedition law.

## **Governor’s Role in State Legislature**

### **Why in News?**

Issues have recently emerged in several Indian states regarding the interaction between **Chief Ministers and Governors concerning the passing of bills**. Chief Ministers have expressed concerns that **Governors have delayed acting on bills presented for their assent**.

- This situation raises important questions about the **functioning of a democracy** and the **potential consequences of hindering the legislative process**.

### **What are Constitutional**

### **Provisions Related to the Governor?**

- **Article 153** says that there **shall be a Governor for each State**. One person can be appointed as Governor for two or more States.

Note:



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- The **Governor is appointed by the President by warrant under his hand** and seal and holds office under the pleasure of the President (**Article 155 and 156**).
- **Article 161** states that the **governor has the power to grant pardons, reprieves, etc.**
- The **Supreme Court** stated that the **sovereign power of a Governor to pardon a prisoner is actually exercised in consensus with the State government** and not the Governor on his own.
- The advice of the government binds the Head of the State.
- **Article 163** states that **there is a council of ministers headed by the Chief Minister to aid and advise the Governor** in the exercise of his functions, except some conditions for discretion.
- Discretionary powers include:
  - Appointment of a chief minister when no party has a clear majority in the state legislative assembly
  - In times of no-confidence motions
  - **In case of failure of constitutional machinery in the State (Article 356)**
- **Article 200:**
  - Article 200 of the Indian Constitution outlines the process for a Bill passed by the Legislative Assembly of a State to be presented to the Governor for assent, who may either **assent, withhold assent or reserve the Bill for consideration** by the President.
  - The Governor may also return the Bill with a message **requesting reconsideration by the House or Houses.**
    - In the case of **Purushothaman Nambudiri v State of Kerala**, the Supreme Court ruled that a **bill pending the Governor's assent does not lapse upon the dissolution of the House.**
      - The Court inferred from the **absence of a time limit in Articles 200 and 201** that the framers did not intend for bills awaiting the **Governor's assent** to be at risk of lapsing.
  - The **second provision** of Article 200 **grants the Governor the discretion to refer a bill to the President** if they believe its passage would infringe upon the powers of the High Court. The procedure for presidential assent is outlined in **Article 201.**

- In the **Shamsher Singh case**, the Court held that the Governor's power to reserve bills for the President's consideration is an instance of discretionary authority.

#### ➤ **Article 201:**

- It states that when a **Bill is reserved for the consideration** of the President, the President may assent to or withhold assent from the Bill.
- The President may also **direct the Governor to return the Bill to the House** or Houses of the Legislature of the State for reconsideration.

#### ➤ **Article 361:**

- Under **Article 361 of the Constitution**, the **Governor (or President) has complete immunity from court proceedings** for any act done in the exercise of their powers.

#### **What are the Recent Instances of Governor Withholding Assent to Bills in India?**

- In **April 2020**, the **Chhattisgarh Governor withheld assent to a Bill passed by the State Assembly in 2019** that sought to amend **Section 8(5) of Chhattisgarh Lokayukta Act, 2001.**
- In **September 2021**, the Tamil Nadu Assembly passed a Bill seeking exemption for students from the state from the **National Eligibility cum Entrance Test (NEET)** required for undergraduate medical college admissions. The Governor reserved the Bill for the assent of the President after considerable delay.
- In **February 2023**, the Kerala Governor signed into law five bills passed by the Assembly, but **withheld assent to the remaining six bills**, including the **Kerala Lokayukta (Amendment) Bill, the Kerala University (Amendment) Bill etc.**
  - The Governor said he had reservations about the constitutionality and legality of these bills.

#### **What is the SC's Stance and Recommendations of Commissions regarding the Governor's Power to Withhold Assent to Bills?**

- **SC Stance:** The Supreme Court's judgement in **Nabam Rebia and Bamang Felix vs Dy. Speaker** clarified that the **Governor's discretion under Article 200 is limited** to deciding whether a bill should be reserved for the President's consideration.
  - The Court also underscored that **Article 163(2) must be read in conjunction with Article 163(1),**

Note:

suggesting that **only matters expressly permitting the Governor to act autonomously are beyond the purview of judicial challenge.**

- Therefore, **withholding assent to a bill indefinitely is unconstitutional**, and a Governor's action or inaction in this regard can be subject to **judicial review.**
- **Punchhi Commission (2010):** It recommended that it is **necessary to prescribe a time limit within which the Governor should take the decision whether to grant assent or to reserve it for consideration of the President.**
- **National Commission to Review the Working of the Constitution (NCRWC):** It laid down a **time-limit of four months within which the Governor should take a decision whether to grant assent or reserve it for the consideration of the President.**
- It had also suggested the removal of the power of Governor, as provided in Article 200, to withhold assent for a piece of legislation and reserve a Bill for the consideration of the President **except in cases as stipulated in the Constitution.**

## Appointment of Vice-Chancellors of State Universities

### Why in News?

A tussle between the Chief Minister of West Bengal and **Governor** came to the fore over the appointment of 10 senior professors as interim **Vice-Chancellors (VC)** of state-run universities.

- The Education Minister of West Bengal urged the professors to refuse the appointments and is seeking legal opinion.

### What is the Role of Governor and President in the Universities?

- **State Universities:**
  - In the state universities, the Governor of the state is the **ex-officio chancellor of the universities in that state.**
  - While as **Governor he functions with the aid and advice of the Council of Ministers**, as **Chancellor he acts independently** of the Council of Ministers and takes his own decisions on all University matters.

- According to the University Grants Commission (UGC) Regulations, 2018, the VC of a university, in general, is appointed by **the Visitor/Chancellor, from a panel of three to five names recommended by the duly constituted Search cum Selection Committee.**

- Where there is a conflict between the **State University Act and the UGC Regulations, 2018** to the extent State legislation is repugnant, the UGC Regulations, 2018 shall prevail.
- According to **Article 254(1)**, if any provision of a state law is repugnant to a provision in a law made by the Parliament, which the Parliament is competent to enact, or with any existing law regarding any matter in the **Concurrent List**, then the **Parliamentary law would prevail over the State law.**

### ➤ Central Universities:

- Under the **Central Universities Act, 2009**, the **President** of India shall be the Visitor of a central university.
- With their role limited to **presiding over convocations, Chancellors in central universities are titular heads**, who are appointed by the President in his capacity as Visitor.
- The Vice Chancellor is **appointed by the Visitor from panels of names picked** by search and selection committees formed by the Union government.
- A visitor is empowered to call for a set of fresh names in case of dissatisfaction with the given panel.
- The Act adds that the **President, as Visitor**, shall have the right to authorize inspections of academic and non-academic aspects of the universities and to institute inquiries.

### What is the Role of Vice-Chancellor?

- As per the constitution of the University, **the Vice-Chancellor (VC) is considered the 'Principal Academic and Executive Officer of the University'.**
- As head of the University, **he/she is expected to function as a 'bridge'** between the executive and the academic wing of the university.
- It is to **facilitate this expected role that universities are always in search of persons** with values, personality characteristics and integrity in addition to academic excellence and administrative experience.

Note:

- The reports of the **Radhakrishnan Commission (1948)**, **Kothari Commission (1964-1966)**, **Gnanam Committee (1990)** and **Ramlal Parikh Committee (1993)** have highlighted the importance of the role of VC in maintaining the quality and relevance of universities, in addition to its growth and development, keeping in view, the much-needed changes from time to time.
- He shall be the **ex-officio Chairman of the Court, Executive Council, Academic Council, Finance Committee and Selection Committees** and shall, in the absence of the Chancellor preside at any convocation of the university for conferring degrees.

### ***What are the Tussles between CMs of several Indian States and Governors over Appointment of VC?***

- Recently, the **Tamil Nadu Assembly** passed two Bills that seek to **transfer the Governor's power in appointing Vice-Chancellors (VC)** of 13 state universities to the state government.
- A bill from West Bengal seeking **to make the chief minister the chancellor of all state-run universities, replacing the governor**, was passed by the assembly in 2022 (still Pending for Assent of Governor).
- Maharashtra, Karnataka, Jharkhand and Rajasthan, state laws underline **the need for concurrence between the state and the Governor**.

## **Article 299 of the Constitution: Government Contracts**

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

The **Supreme Court (SC) of India** recently clarified the legal provisions surrounding **government contracts made under the President's name**.

- In a case involving **Glock Asia-Pacific Limited and the Centre**, the court ruled that contracts entered into in the name of the **President of India** cannot grant immunity from statutory prescriptions.
- The ruling sheds light on the interpretation of **Article 299 of the Constitution** and its implications for government contracts.

### ***What are Government Contracts?***

- **About:**

- Government contracts are **contracts undertaken by the government** for various purposes such as construction, management, maintenance, repairs, manpower supply, IT-related projects, etc.
- Government contracts involve the **central government or a state government**, or a **government body as one party** and a **private individual or entity as the other party**.
- Government contracts have to comply with certain formalities and safeguards as **prescribed by Article 299** of the Constitution of India.
- Government contracts are **subject to public scrutiny and accountability** and are governed by the **principles of fairness, transparency, competitiveness, and non-discrimination**.

### ➤ **Requirements for Government Contracts:**

- The contract must be expressed to be made by the Governor or the President.
- It must be executed in writing.
- The execution should be done by persons and in a manner directed or authorized by the **Governor or the President**.

### ***What is Article 299 of the Constitution?***

#### ➤ **About:**

- Article 299 of the Constitution deals with the **manner and form of contracts made by or on behalf of the government of India or any state government**.

#### ➤ **Origin:**

- The government had been entering into contracts even in the pre-independence era.
- The **Crown Proceedings Act of 1947** played a role in shaping Article 299.
- The Crown Proceedings Act specified that the **Crown could not be sued in court for a contract it entered**.

#### ➤ **Purpose and Object:**

- Article 299 outlines the manner in which contracts made in the exercise of the executive power of the Union or a State shall be expressed and executed.
- It aims to establish a **specific procedure to safeguard public funds and prevent unauthorized or illegitimate contracts**.

#### ➤ **Expression and Execution:**

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- According to Article 299(1), contracts must be **expressed in writing** and **executed by a person** duly authorized by the **President or the Governor** on their behalf.

➤ **Immunity of the President/Governor:**

- While Article 299(2) states that the **President or the Governor cannot be personally held liable for contracts**, it does not grant immunity to the government from the legal provisions of the contract.
- The government (Union or states) in India **can be sued for torts (civil wrongs) committed by its officials**.

**What is the SC Court's Ruling?**

➤ **Case Background:**

- Glock Asia-Pacific Limited filed an application against the Centre regarding the **appointment of an arbitrator in a tender-related dispute**.
- The government objected to the appointment of a retired Delhi High Court judge as the arbitrator, citing a tender condition that required an officer from the Law Ministry to act as the arbitrator.

➤ **Court's Interpretation:**

- The Supreme Court held that the arbitration clause, allowing a government officer to resolve the dispute as an arbitrator, conflicted with **Section 12(5) of the Arbitration and Conciliation Act, 1996**.

➤ **Relevance of Article 299:**

- The court emphasized that Article 299 only pertains to the formalities of binding the government with contractual liability, not the substantive laws governing contractual liability.

**What are the Other**

**Judgements Related to Article 299?**

➤ **State of Bihar v Majeed (1954):**

- SC ruled that a Government Contract has to comply with the **provisions of Article 299 in addition to the requirements of the Indian Contract Act**, such as offer, acceptance, and consideration.
- The contractual liability of the **Central or State Government is the same as that of any individual** under the ordinary law of contract, subject to the formalities prescribed by Article 299.

➤ **Mrs. Aliakutty Paul vs The State of Kerala and Ors (1995):**

- A tender of the contract for construction of a bridge was accepted by the Executive Engineer, but he **did not sign it in the name of the Governor**, it cannot be said that there is a valid contract in conformity with **Article 299 of the Constitution**.
- The decision explains the rationale and scope of Article 299 of the Constitution and emphasizes that its provisions are enacted for safeguarding the government against unauthorized contracts.

## Delimitation

**Why in News?**

Many politicians of the Southern States are raising voices over **Delimitation** of constituencies based on population, which they consider to be unfair.

- Southern states that followed population control policies are now facing potential disadvantages despite their success in controlling population growth.

**What is Delimitation?**

➤ **About:**

- Delimitation **means the act or process of fixing limits or boundaries** of territorial constituencies in a country or a province having a legislative body.
  - Delimitation for **LS (Lok Sabha)** and **LA (Legislative Assembly)** is different from that of **Local bodies**.
- The Delimitation Commission Act was enacted in 1952.
  - The Delimitation Commission is appointed by the **President of India and works** in collaboration with the **Election Commission of India (ECI)**.
- Delimitation Commissions have been set up four times — 1952, 1963, 1973 and 2002 under the Acts of 1952, 1962, 1972 and 2002.
- The first delimitation exercise was carried out by the **President (with the help of the Election Commission) in 1950-51**.

➤ **History:**

- The last delimitation exercise that changed the **state-wise composition of the Lok Sabha was completed in 1976** and done on the basis of the **1971 census**.
- The **Constitution of India mandates that the allocation of seats** in the Lok Sabha should be based on the population of each state so that the

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ratio of seats to population is as close as possible to being equal across all states. It is intended to ensure that each person's vote carries roughly the same weight, regardless of which state they live in.

- However, this provision meant that states that **took little interest in population control could end up** with a greater number of seats in Parliament.

- To avoid these consequences, the Constitution was amended **42nd Amendment Act of 1976** froze the allocation of seats in the Lok Sabha to the states and the division of each state into territorial constituencies till **the year 2000** at the 1971 level.
- The 84<sup>th</sup> Amendment Act of 2001 empowered the government to undertake readjustment and **rationalisation of territorial constituencies** in the states on the basis of the population figures of 1991 census.
- 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.

#### ➤ 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"**.

#### ➤ Constitutional Provisions:

- **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.

### **What are the Concerns Related to Delimitation?**

#### ➤ Regional Disparity:

- Disparity in representation between north and southern part of **India in the Lok Sabha** due to population as a deciding factor.
- The delimitation based solely on population **disregards the progress made by the southern states in population control** and may lead to disparities in the federal structure.

- Despite having only 18% of the country's population, **the southern states contribute 35% to the country's GDP**.

- The northern states, which did not prioritize population control, are expected to **benefit in the delimitation process due to their higher population growth**.

#### ➤ Inadequate Funding:

- After the **15th Finance Commission** used the 2011 **Census** as a basis for its recommendation, concerns were raised about southern **states losing funding and representation in parliament**.
- Previously, the 1971 Census was used as the base for funding and tax devolution recommendations to states.

#### ➤ Affecting the Reservations for SCs/ STs:

- The scheduled delimitation and **reallocation of seats may result in not only a loss of seats** for southern states but also **an increase in power for political parties** with their base of support in the north.
- This could potentially lead to a shift of power toward the north and away from the south.
- The exercise will also affect the division of seats **reserved for the Scheduled Castes and Scheduled Tribes (SC/ST)** in each state (**under Articles 330 and 332**).

### **What is the Delimitation Commission?**

#### ➤ Appointment:

- The Commission is appointed by the **President** of India and works in collaboration with the **Election Commission of India**.

#### ➤ Composition:

- **Retired Supreme Court judge**
- **Chief Election Commissioner**
- Respective State Election Commissioners

#### ➤ Functions:

- To determine the number and boundaries of constituencies to make the population of all constituencies nearly equal.
- To identify seats reserved for **Scheduled Castes and Scheduled Tribes**, wherever their population is relatively large.

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➤ **Powers:**

- In case of a difference of opinion among members of the Commission, the opinion of the majority prevails.
- The Delimitation Commission in India is a high-power body whose orders have the force of law and cannot be called in question before any court.

## Adverse Possession

### Why in News?

The 22<sup>nd</sup> Law Commission's recent report provides a thorough examination of **adverse possession and its implications in property law** and recommended that no changes are necessary in the existing provisions under the **Limitation Act of 1963**.

- The concept of adverse possession stems from the idea that **land must not be left vacant but instead, be put to judicious use**.

### What is Adverse Possession?

➤ **About:**

- **Adverse possession** refers to the acquisition of property through hostile, continuous, uninterrupted, and peaceful possession.
- The concept aims to prevent long-standing doubts over land ownership and to benefit society by allowing someone to make use of idle land left by the owner.
  - It also provides protection to **individuals who have regarded the occupant as the rightful owner of the property**.

➤ **Historical Development and Legal Framework:**

- **Historical Basis:** The concept of "title by adverse possession" dates back to the **Hammurabi Code in 2000 BC**.
  - Its development continued through statutes of limitation in England, with the **Property Limitation Act of 1874** being a significant milestone.
- **Introduction to India:** The law of limitation was introduced in India through the "**Act XIV of 1859**" and underwent significant changes with the enactment of the **Limitation Act in 1963**.

➤ **Major Provisions of the Limitation Act, 1963:**

- **Burden of Proof:** The 1963 Act shifted the **burden of proof of adverse possession to the claimant**, thereby strengthening the position of the true owner.
- **Acquisition of Ownership:** Under the **Limitation Act, 1963**, any person in possession of private land for **over 12 years or government land for over 30 years can become the owner of that property**.
  - To claim adverse possession, the possession must be open, continuous, and adverse to the rights of the true owner for the required statutory period.

➤ **Main Ingredients of Adverse Possession:**

- The **Supreme Court**, in the **2004 case of Karnataka Board of Wakf v Government of India**, outlined the essential elements for proving adverse possession.
  - Claimants must establish the **date of possession, the nature of possession, awareness of possession by the true owner, the continuity of possession**, and that the possession was open and undisturbed.
  - In the 1981 ruling in **Kshitish Chandra Bose vs. Commissioner of Ranchi**, the **top court delineated the requirements of openness and continuity**.

➤ **Criticism and Recommendations:**

- **Criticism of Current Law:** In the **2008 case of Hemaji Waghaji Jat v. Bhikhabhai Khengarbhaji Harijan and Others**, the Supreme Court criticised adverse possession as being unduly harsh on the true owner and benefiting dishonest trespassers.
  - The court urged the **government to reconsider and amend the law**, recognizing the necessity for a fresh perspective on adverse possession.
- **Reference to Law Commission:** In response to the court's recommendation, the **Ministry of Law and Justice referred the matter to the Law Commission in 2008** for examination and a subsequent report.

### What are the

### Arguments Against Adverse Possession?

- **Promotes False Claims:** Adverse possession **promotes false claims** and burdens the judicial system with avoidable litigation.

Note:



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- **Lack of Consent:** Adverse possession allows someone to acquire property without the consent or knowledge of the true owner.
  - This is considered unfair and unethical, as it disregards the owner's rights and denies them the opportunity to make decisions about their own property.
- **Inequitable Outcome:** Adverse possession can lead to **unjust outcomes, especially when the true owner is unaware of the adverse possessor's occupation.**
  - The true owner may suddenly discover that their property has been taken away by someone who had no rightful claim to it, resulting in a loss of property and often emotional distress.

#### What is Law Commission of India?

- The Law Commission of India is a **non-statutory body** constituted by the Government of India from time to time, with **definite terms of reference to carry out research in the field of law.**
  - It works as an **advisory body to the Ministry of Law and Justice.**
  - The **first Law Commission of independent India was established in 1955** for a three-year term.
- The **Law Commission of India has submitted 277 reports so far** on various topics ranging from civil law, criminal law, constitutional law, family law, personal law, environmental law, human rights law, etc.
- It is currently in its 22nd term and its chairman is **Justice Rituraj Awasthi** (Former Chief Justice of Karnataka HC)

## Electronically Transmitted Postal Ballot System for NRIs

### Why in News?

Recently, the **Chief Election Commissioner** emphasised the need to facilitate postal voting for **Non-Resident Indians (NRIs)**. It highlights the **Election Commission's proposal for Electronically Transmitted Postal Ballots (ETPBs)** for NRIs, which is **currently awaiting government approval.**

- The initiative aims to allow over **1.34 crore overseas Indians** to participate in elections using a technology-driven methodology.

#### What is an Electronically Transmitted Postal Ballot System?

- **About:**
  - The ETPBS is a system **designed to facilitate remote voting for individuals who are unable to cast their votes in person at a polling station.**
    - ETPBS combines the use of electronic transmission and postal services to enable voters to receive and return their ballots electronically.
- **For Service Voters:** Under this system, **postal ballots are sent electronically to registered service voters.**
  - The **service voter can then download the ETPB (along with a declaration form and covers),** register their mandate on the ballot and send it to the returning officer of the constituency via ordinary mail.
  - The post will include an **attested declaration form (after being signed by the voter in the presence of an appointed senior officer who will attest it).**
  - The **Conduct of Election Rules, 1961** was amended in 2016 to allow service voters to use the ETPBS.

#### What was the Proposal Put

##### Forward by the EC Related to ETPB for NRIs?

- The **Election Commission (EC)** had proposed an amendment in **Section 60 of the Representation of the People Act, 1951**, to extend the facility of ETPB to overseas electors in 2015.
  - Later in 2020, the **EC wrote to the law ministry that it was technically and administratively ready to implement this proposal.**
- The EC has suggested that the **ETPBS can be used for NRIs with some modifications**, such as allowing them to **download their ballot papers online and return them by post** or courier within a specified time limit.
  - The EC has also suggested that **NRIs can be allowed to appoint a proxy voter in India**, who can cast their vote on their behalf after verifying their identity and consent.
- The EC has also proposed that **NRIs can be given an option to vote at designated polling stations set up at Indian missions abroad**, where they can use electronic voting machines (EVMs) or paper ballots.

Note:



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- However, the **proposal is still pending with the law ministry** and has faced opposition related to **concerns over the security and authenticity of the postal ballots**.

### What are the Challenges Related to ETPB for NRIs?

- **Eligibility and Verification:** Determining the eligibility of NRIs to participate in remote voting can be complex.
  - Establishing accurate and reliable mechanisms to verify the **identity, residency status, and eligibility of NRIs** is crucial to maintain the integrity of the electoral process.
- **Time Constraint and Postal Delay:** The ETPBS requires the voter to send the postal ballot within a stipulated time frame after receiving it electronically.
  - However, there **may be postal delays or logistical issues in some countries that may prevent the ballot from reaching the returning officer on time**. This may result in disenfranchisement of some voters.
- **Security and Secrecy:** The ETPBS involves the transmission of sensitive electoral data through electronic means, which may pose a risk of **hacking, tampering or interception by malicious actors**.
  - Moreover, the postal ballot may not ensure the secrecy of the vote, as it may be subject to scrutiny or coercion by others.
- **Legal and Technical Challenges:** The ETPBS requires amendments to the **Representation of the People Act, 1950 and 1951, as well as the Conduct of Election Rules, 1961**, to enable overseas electors to vote through this system.
  - Moreover, the ETPBS requires robust technical infrastructure and coordination among various stakeholders, such as the **Election Commission, the Ministry of External Affairs, the postal department and the embassies**.

#### What is NRI?

- **About:**
  - **NRI** stands for **Non-Resident Indian**, which is a term used for an Indian citizen **who resides outside India for employment, education or any other purpose**.
    - According to the **Ministry of External Affairs**, there are about **1.34 crore NRIs across 208 countries** as of December 2020.
  - NRIs are also eligible to vote in Indian elections if they are **registered as overseas electors** in their respective constituencies in India.

#### Criteria for NRI:

- A person is considered NRI if:
  - **She/he is not in India for 182 days or more** during the financial year Or;
  - **If She/he is in India for less than 365 days during the 4 years** preceding that year and less than 60 days in that year.

## Deraillments in Indian Railways

### Why in News?

The tragic train accident that occurred on June 2, 2023, at **Bahanaga Bazar railway station in Odisha's Balasore district**, has highlighted the **urgent need for effective safety measures to prevent such devastating incidents**.

- The recent incident has brought attention to the **Kavach initiative**, which aims to enhance railway safety in India. However, the **Kavach system has not been implemented on the Odisha route**.
- **Comptroller and Auditor General of India (CAG)'s 2022 report on 'Deraillments in Indian Railways'** flagged multiple shortcomings on the **causes of train accidents in the country**.

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

- **About:**
  - The CAG report reveals that nearly **75% of the consequential train accidents between 2017-18 and 2020-21 were caused by derailments**.
- **Deraillments: The Leading Cause of Train Accidents**
  - Out of **217 consequential train accidents**, 163 (around **75%**) were caused by **derailments**.
  - Other causes of train accidents include **fire in trains (20 accidents)**, **accidents at unmanned level-crossings (13 accidents)**, **collisions (11 accidents)**, **accidents at manned level crossings (8 accidents)**, and **miscellaneous incidents (2 accidents)**.

#### Classification of Train Accidents:

- The Railway Board classifies train accidents into two categories: **Consequential Train Accidents and Other Train Accidents**.
- **Consequential Train Accidents** include accidents with significant repercussions, such as **loss of life, human injury, property damage, and interruption to railway traffic**.
- **Other Train Accidents** encompass all accidents that do not fall under the consequential category.

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### ➤ Factors Responsible for Derailments:

- Analysis of inquiry reports revealed **23 factors contributing to derailments in 16 Zonal Railways and 32 divisions**.
- The major factor responsible for derailments was related to **maintenance of track (167 cases)**, followed by **deviation of track parameters beyond permissible limits (149 cases)** and **bad driving/overspeeding (144 cases)**.

### ➤ Rashtriya Rail Sanraksha Kosh (RRSK):

- The CAG also analysed the performance of RRSK, established in **2017-18 to strengthen safety measures on the rail network to prevent accidents with a corpus of Rs 1 lakh crore**.
  - The audit found that while the **Gross Budgetary Support of Rs 15,000 crore had been contributed**, the Railways' internal resources fell short of the target for funding the remaining **Rs 5,000 crore per year to RRSK**.
- This shortfall of funds from internal resources undermined the primary objective of creating RRSK to enhance safety in Railways.

### ➤ Declining Allotment of Funds for Track Renewal:

- The report highlighted a **decline in the allotment of funds for track renewal works**, from **Rs 9,607 crore in 2018-19 to Rs 7,417 crore in 2019-20**.
- Furthermore, the allocated funds for track renewal works were not fully utilised.
- Out of **1,127 derailments during 2017-21**, **289 derailments (26%) were linked to track renewals**.

### ➤ Recommendations and Pending Projects:

- The CAG report recommended **strict adherence to scheduled timelines for conducting and finalising accident inquiries**.
  - Indian Railway (IR) may develop a **strong monitoring mechanism to ensure timely implementation of maintenance activities** by adopting fully mechanised methods of track maintenance and improved technologies.
- IR may prepare the **'Detailed Outcome Framework'** for each item of safety work as per the indicative outcomes to **gauge whether the benefits derived out of the RRSK funds are in the conformity with the objectives** behind the creation of the Fund

**Note:** Derailment refers to the situation when a train or any other rail vehicle goes off the tracks, resulting in a loss of stability and the inability to continue moving along its intended path. It is a critical safety incident that can lead to significant damage, injuries, and even fatalities.

### What is Kavach?

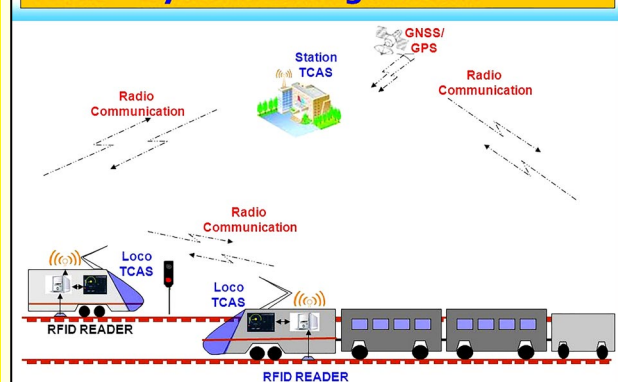
#### ➤ About:

- **Kavach** is an **indigenously developed Automatic Train Protection (ATP) system** aimed at enhancing safety in train operations across the vast network of Indian Railways.
  - Developed by the **Research Design and Standards Organisation (RDSO)** in association with three Indian vendors, it has been adopted as our **National Automatic Train Protection (ATP) System**.
- The **Indian Railways Institute of Signal Engineering & Telecommunications (IRISET)** in Secunderabad, Telangana hosts the **'Centre of Excellence' for Kavach**.
- IRISET is responsible for training in-service railway staff on Kavach through its dedicated Kavach lab.

#### ➤ Functionality:

- The system meets **Safety Integrity Level-4 (SIL-4) standards**, signifying its high reliability.
- **Prevents trains from passing red signals** and enforces speed restrictions.
- Activates the braking system automatically **if the driver fails to control the train**.
- Prevents collisions between two locomotives equipped with Kavach systems.
- Relays **SoS messages during emergency situations**.
- Offers **centralised live monitoring of train movements** through the Network Monitor System.
- Utilises **Traffic Collision Avoidance System (TCAS)** for two-way communication between the station master and loco-pilot.

### TCAS - System configuration



Note:

➤ **Implementation and Deployment of Kavach:**

- Of the total route length of **1.03 lakh kilometres**, only 1,455 kilometres have been brought under Kavach yet.
- The **South Central Railway (SCR) Zone** has been at the forefront of Kavach implementation.

### ***What is an Interlocking System in Indian Railways?***

➤ **About:**

- The Indian Railway Minister has highlighted a **change in the electronic interlocking as the primary factor leading to the accident.**
- **Interlocking System** refers to a crucial safety mechanism used to control train movements and ensure safe operations at railway stations and junctions.
  - It is a **complex network of signals, points (switches), and track circuits** that work together to prevent conflicting movements and collisions.
- **Electronic Interlocking (EI): It employs computer-based systems** and electronic equipment to control signals, points, and level-crossing gates.
  - Unlike conventional relay interlocking systems, **EI utilises software and electronic components to manage the interlocking logic.**
  - **EI ensures the synchronisation of all elements** to facilitate uninterrupted train movement.
- As of 2022, **45.5% of the Indian Railways network were equipped with an electronic interlocking system.**
- **Components of Electronic Interlocking:**
  - **Signal:** Signals use **light indicators to direct trains** to stop (red), proceed (green), or exercise caution (yellow) based on the track's status ahead.
  - **Point:** Points are **movable sections of tracks** that enable trains to change lines by guiding the wheels towards a straight or diverging path.
    - Electric point machines lock and unlock point switches in the desired position.
  - **Track Circuit:** Electrical circuits installed on tracks **detect the presence of a train between two points**, determining the safety of train movement.
  - **Additional Components:** Electronic systems, communication devices, and other equipment

control signalling components and are housed in relay rooms with dual-lock access control.

- A data logger records all system activities, serving as a record similar to an aircraft's black box.

## **First Sustainability Report of NHAI**

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

The **National Highways Authority of India (NHAI)** has recently released its **first Sustainability Report** for FY 2021-22. The report highlights NHAI's governance structure, stakeholders, environment, and social responsibility initiatives.

- The Sustainability Report is prepared as per the **Global Reporting Initiative (GRI)** guidelines and it will help attract '**Green Finance**' for Infrastructure financing.

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

- **Digitization of Highway Network:**
  - NHAI has developed '**Data Lake Tool**' for digitizing the highway network in India, enabling NHAI to manage the vast amount of data generated by its infrastructure effectively.
- **Reduced Emissions:**
  - NHAI has **reduced direct emissions and fuel consumption** by 18.44% and 9.49%, respectively, from FY 2019-20 till 2021-22.
  - **GHG emissions** from energy consumption, operations, transport, and travel saw a **decline of 9.7% in FY 2020-21 and 2% in FY 2021-22.**
- **Use of Recycled Materials:**
  - NHAI has been using **recycled materials for national highway construction**, including **fly-ash, plastic waste, recycled asphalt (RAP)**, and recycled aggregates (RA).
- **Wildlife Crossings:**
  - More than 100 **wildlife crossings** were created in three years across 20 states as a measure **for wildlife protection** and conservation to **reduce man-animal conflict.**
- **Plantation:**
  - NHAI has undertaken **plantation drives** to develop eco-friendly national highways, planting around 2.74 crore saplings till 2021-22 **to offset direct emissions** from vehicles.

Note:

- **Inclusive Workforce:**
  - **Women** employment and **employment of marginalized communities** at NHAI have increased over the last three years.
  - There has been a **steady increase in female hiring by 7.4%** and total increase of **3% in overall work force** in three financial years.

#### What is Global Reporting Initiative?

- GRI is the **independent, international organization** that **helps businesses and other organizations take responsibility for their impacts on environment**.
- It enables all companies and organisations to report their **economic, environmental, social and governance performance**.
- The GRI Secretariat is **headquartered in Amsterdam, the Netherlands**.

#### What is National Highways Authority of India?

- **About:** NHAI was set up under **NHAI Act, 1988** under the administrative control of the **Ministry of Road Transport and Highways (MoRTH)**.
- **Objective:** It has been entrusted with the **National Highways Development Project (NHDP)**, along with other minor projects for **development, maintenance and management**.
  - NHDP is a **project** to upgrade, rehabilitate and widen major **highways** in India to a higher standard. The project was started in 1998.
- **Vision:** To meet the nation's need for the provision and **maintenance of National Highways network to global standards** and to **meet user's expectations** in the most time bound and cost effective manner and **promote economic well being** and quality of life of the people.

#### What are National Highways (NH)?

- NH are the **arterial roads** of the country for inter-state movement of passengers and goods.
- They traverse the length and width of the country **connecting the National and State capitals, major ports and rail junctions and link up with border roads and foreign highways**.
- According to MoRTH, there are **599 NH in India**.
  - The **longest National Highway is NH44**, which runs **between Srinagar in Jammu and Kashmir and Kanyakumari in Tamil Nadu**, covering a distance of 3,806 km (2,365 mi).

- According to **Basic Road Statistics 2018-19**, **National Highways (Total length-1,32,499 kms)** constitutes **2.09 % of total road network in the country** and carry about **40% of the road traffic**.
  - **Maharashtra** has the **largest network of National Highways (13.4%)** followed by **Uttar Pradesh (8.9 %)** and **Rajasthan (7.8 %)**.

## Mission on Advanced and High-Impact Research

### Why in News?

Recently, the **Ministry of Power** and the **Ministry of New and Renewable Energy** have **jointly launched** a National Mission named "**Mission on Advanced and High-Impact Research (MAHIR)**".

- The Mission is planned for an initial period of five years from 2023-24 to 2027-28 and **will follow the technology life cycle approach of Idea to Product**.

### What are the Key

#### Details of the National Mission MAHIR?

- **Objectives of the Mission:**
  - To **identify emerging technologies and areas of future relevance for the global power sector** and develop them indigenously.
  - To provide a **platform for collective brainstorming** and synergetic technology development among power sector stakeholders.
  - To **support pilot projects of indigenous technologies** developed by Indian start-ups and facilitate their commercialization.
  - To leverage foreign alliances and **partnerships for research and development of advanced technologies and technology transfer**.
  - To promote **scientific and industrial R&D** in the power sector and create an innovative ecosystem.
  - To **position India among the leading countries in power system-related technologies** and applications development.
- **Funding:**
  - It will be funded **by pooling resources from the Ministry of Power, Ministry of New & Renewable Energy, and Central Public Sector Enterprises** under these ministries.

Note:



- **Additional funding**, if required, will be mobilized from the Government of India's budgetary resources.
- **Areas Identified for Research under MAHIR:**
  - **Alternatives to Lithium-Ion storage batteries**
  - Modifying **electric cookers/pans** to suit Indian cooking methods
  - **Green hydrogen** for mobility (High Efficiency Fuel Cell)
  - **Carbon capture**
  - **Geo-thermal energy**
  - Solid state refrigeration
  - **Nano technology for EV battery**
  - Indigenous CRGO technology

### ***What is the Structure of the Mission?***

- **Two-Tier Structure:**
  - It has a two-tier structure consisting of a **Technical Scoping Committee and an Apex Committee**.
- **The Apex Committee:**
  - It **deliberates on technology and product development, approves research proposals**, and looks into international collaborations.
  - The Apex committee will look also into international collaborations. The final approval of all the research proposals / projects shall be given by the Apex Committee.
  - It is **chaired by the Union Minister for Power & New and Renewable Energy**.
- **Technical Scoping Committee:**
  - It **identifies research areas, recommends potential technologies**, and monitors approved research projects.
  - It is **chaired by the Chairperson of the Central Electricity Authority**.
  - Central Power Research Institute (CPRI), Bengaluru **will provide all necessary secretarial assistance** to the Apex Committee and Technical Scoping Committee.

### ***What is the Scope of the Mission?***

- Once research areas are identified and approved, **outcome-linked funding proposals will be invited globally**.
- **Quality cum Cost-Based Selection (QCBS) basis will be used** for selecting the proposals.

- Pilot projects of technologies **developed by Indian start-ups will be funded**, and their commercialization will be facilitated.
- **International collaboration and technology transfer will be encouraged**.

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

- **Indigenous Development:**
  - By developing advanced technologies within the country, India can **reduce its dependence on imports, enhance self-reliance**, and promote domestic innovation and manufacturing capabilities.
  - It aligns with the **"Make in India"** initiative and contributes to the growth of indigenous technology-driven industries.
- **Energy Transition and Net Zero Emissions:**
  - MAHIR can support the **adoption of cleaner and greener energy sources**, energy storage solutions, and carbon capture techniques.
  - This contributes to India's commitment to combating climate change and transitioning towards a sustainable energy future.
- **Economic Growth and Manufacturing Hub:**
  - MAHIR aims to make India a manufacturing hub for advanced power technologies. By developing and deploying cutting-edge technologies, it can **attract investments, foster innovation-driven industries, and create job opportunities**.

## **India's Energy Transition Through States**

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

**India's energy transition** through states plays a crucial role in achieving national targets and fulfilling global climate commitments. The **upcoming G20 forum** presents an opportunity for the country to propose a **multiple energy pathways approach** to accommodate diverse contexts.

- India has the goal of **achieving 50% non-fossil electricity generation capacity by 2030 and attaining net-zero emissions by 2070**,
- India's energy transition hinges on **engaging states**, as they play a vital role in the **governance of energy production and usage**.

Note:



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## Why do States Matter?

### ➤ Implementing National Targets:

#### ○ Tailoring Strategies to Local Contexts:

- The **diversity of India's states** necessitates a **localized approach** to energy transition, considering their unique contexts, resources, and development trajectories.

#### ○ Decentralized Implementation:

- While the **central government sets national goals**, states have the responsibility to implement policies and action plans at the grassroots level.
  - Their active participation is vital for translating national aspirations into on-ground realities.

### ➤ Addressing Legacy Issues:

- States play a pivotal role in addressing legacy issues plaguing the **electricity sector**. This includes **reducing high distribution losses**, improving the **reliability of power supply**, and **enhancing service quality**, which are crucial for a smooth energy transition.

### ➤ Pioneering Policy Innovations:

#### ○ Laboratories of Innovation:

- States serve as **laboratories for policy experimentation** and innovation.
  - For example, early initiatives by **Gujarat and Rajasthan on solar**, and **Maharashtra and Tamil Nadu on wind energy technologies**, have contributed significantly to renewable energy uptake at the national level.
  - Similarly, **PM KUSUM** is an adoption of successful State experiments on the **solarisation of agriculture at a national scale**.

#### ○ Influencing National Policies:

- Successful State-level experiments and innovative approaches in renewable energy adoption serve as influential models for the development of national policies and frameworks.

### ➤ Harnessing State Resources:

#### ○ Leveraging Localized Resources:

- Each state in India possesses a unique mix of **renewable energy resources**, such as **abundant solar radiation**, **wind corridors**, and **biomass availability**. States can harness these resources to promote renewable energy generation and **transition away from fossil fuels**.

### ○ Promoting Distributed Generation:

- States can encourage decentralized renewable energy solutions, such as rooftop solar installations and **community-based projects**, to harness their localized resources effectively and promote community participation.

### ➤ Importance of a State-level Framework:

#### ○ Comprehensive Understanding:

- A state-level framework provides a holistic understanding of each **state's energy transition plans, actions, and governance processes**.
- It enables better **coordination, collaboration, and alignment between the central government and states**.

#### ○ Evidence-Based Policy Choices:

- The framework facilitates evidence-based decision-making, ensuring that **policies and interventions are based on robust analysis** of state-level preparedness, inter-linkages, and potential constraints. It promotes informed choices and efficient resource allocation.

#### ○ Inclusive Stakeholder Engagement:

- A state-level framework encourages the **active participation of stakeholders**, including **local communities, industry, and civil society**.
  - It promotes **transparency, accountability, and stakeholder ownership** in the energy transition process.

## What are the Challenges

### Associated with States in Energy Transition?

### ➤ Varying State Priorities:

- Balancing **state-specific objectives with national energy goals** can be challenging, as **states have diverse priorities** that may not always align with the overall transition agenda.
- **India's achievements on its 2022 target for 175 GW** renewable energy offer some insights into the complexities. While it achieved a significant portion of the target, **only Gujarat, Karnataka, and Rajasthan met their individual targets**.
- Moreover, about 80% of the current renewable energy capacity is confined to Six states in the west and south of India.

### ➤ Resource Constraints:

Note:

- Some **states face limitations** in terms of financial resources, infrastructure, and technological capabilities, which can hinder their ability to implement renewable energy projects and transition smoothly.
- **Regulatory Framework:**
  - Inconsistent or complex regulatory frameworks across states can create barriers for investors and developers, leading to delays in project implementation and slower progress in the energy transition.
- **Grid Integration:**
  - **Integrating renewable energy sources into the existing power grid** can be challenging, especially in **states with inadequate grid infrastructure**. This can result in curtailment of renewable energy generation and transmission constraints.
- **Inter-State Coordination:**
  - Coordinating efforts and sharing resources among states is critical for a **harmonized energy transition**. However, **differences in policies, priorities, and administrative processes** can create coordination challenges between states.

### ***What are the Other Initiatives Shaping India's Energy Transition?***

- **Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA).**
- **Green Energy Corridor (GEC).**
- **National Smart Grid Mission (NSGM) and Smart Meter National Programme.**
- **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME).**
- **International Solar Alliance (ISA).**

## **The Hiroshima AI Process for Global AI Governance**

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

Recently, the annual **G7 Summit** held in Hiroshima, Japan, initiated the **Hiroshima AI Process (HAP)**, which is likely to conclude by **December 2023**, signaling a significant step towards regulating **Artificial Intelligence (AI)**.

- The G7 Leaders' Communiqué recognized the **importance of inclusive AI governance and set forth a vision of trustworthy AI** aligned with shared democratic values.

### ***What is the Hiroshima AI Process?***

- **About:**
  - The HAP aims to **facilitate international discussions on inclusive AI governance** and interoperability to achieve a common vision and goal of trustworthy AI.
  - It recognizes the **growing prominence of Generative AI (GAI)** across countries and sectors and emphasizes the need to **address the opportunities and challenges** associated with it.
- **Working:**
  - The HAP will operate in cooperation with international organizations such as the **Organisation for Economic Co-operation and Development (OECD)** and the **Global Partnership on AI (GPAI)**.
- **Objectives:**
  - The HAP aims to govern AI in a way that upholds **Democratic values**, ensures fairness and accountability, promotes transparency, and prioritizes the safety of AI technologies.
  - It seeks to establish procedures that **encourage openness, inclusivity, and fairness in AI-related discussions** and decision-making processes.

### ***What are the Potential Challenges and Outcomes?***

- The HAP faces challenges due to **differing approaches among G7 countries** in regulating AI risks. However, it aims to **facilitate a common understanding on important regulatory issues** while preventing complete discord.
- By involving multiple stakeholders, the HAP strives to find a balanced approach to AI governance that considers diverse perspectives and maintains harmony among G7 countries.
- For now, **there are three ways in which the HAP can play out**,
  - It may enable the G7 countries to move towards a divergent regulation based on **shared norms, principles and guiding values**.
  - It becomes **overwhelmed by divergent views** among the G7 countries and fails to deliver any meaningful solution.

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- It delivers a **mixed outcome with some convergence on finding solutions** to some issues but is unable to find common ground on many others.

### How can the HAP

#### Resolve the issue of IPR in relation to GAI?

- Currently, there is ambiguity **regarding the relationship between AI and IPR (Intellectual Property Rights)**, leading to conflicting interpretations and legal decisions in different jurisdictions.
- The HAP can contribute by **establishing clear rules and principles regarding AI and IPR**, helping the G7 countries reach a consensus on this matter.
- One specific area that can be addressed is the application of the **"Fair Use" doctrine**, which permits certain activities such as **teaching, research, and criticism without seeking permission from the copyright owner**.
  - However, whether using copyrighted material in machine learning qualifies as **fair use is a subject of debate**.
- By developing a common guideline for G7 countries, the **HAP can provide clarity on the permissible use of copyrighted materials** in machine learning datasets as fair use, with certain conditions. Additionally, it can **distinguish between the use of copyrighted materials for machine learning specifically** and other AI-related uses.
- Such efforts can significantly impact the global discourse and practices surrounding the intersection of AI and intellectual property rights.

#### How is Global AI currently Governed?

- **India:**
  - **NITI Aayog**, has issued some guiding documents on AI Issues such as the National Strategy for Artificial Intelligence and the **Responsible AI for All report**.
  - Emphasises social and economic inclusion, innovation, and trustworthiness.
- **US:**
  - The US released a Blueprint for an **AI Bill of Rights (AIBOR)** in 2022, outlining the harms of AI to economic and civil rights and lays down five principles for mitigating these harms.

- The Blueprint, instead of a **horizontal approach like the EU**, endorses a **sectorally specific approach to AI governance**, with policy interventions for individual sectors such as health, labour, and education, leaving it to sectoral federal agencies to come out with their plans.

#### ➤ China:

- In 2022, China came out with **some of the world's first nationally binding regulations** targeting specific types of algorithms and AI.
- It enacted a law to regulate recommendation algorithms with a focus on how they disseminate information.

#### ➤ EU:

- In May 2023, the European Parliament reached a **Preliminary Agreement on a new draft of the Artificial Intelligence Act**, which aims to regulate systems like **OpenAI's ChatGPT**.
  - The legislation was drafted in 2021 with the aim of bringing transparency, trust, and accountability to AI and creating a framework to mitigate risks to the safety, health, **Fundamental Rights**, and democratic values of the EU.

## Addressing AMR in the Draft Pandemic Treaty

### Why in News?

The **Draft Pandemic treaty also known as "Zero Draft"**, is currently under negotiation by **Member States at the World Health Assembly**.

- However, there is growing concern that the provisions **addressing antimicrobial resistance (AMR) are at risk of being removed from the final text**.
- **Civil society and research organizations** provided analysis and recommendations on addressing AMR.
  - A special edition of the **Journal of Medicine, Law and Ethics** emphasized the importance of including AMR in the Treaty.

### What is the Draft Pandemic Treaty?

#### ➤ About:

- The draft pandemic treaty, is an **international agreement proposed to prevent, prepare for,**

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and respond to **pandemics and global health emergencies**.

- It is being negotiated by the **World Health Organization (WHO)** and **member states**.
- The treaty aims to **strengthen global cooperation and solidarity in addressing health threats**.
- It covers aspects such as **surveillance, detection, notification, access to health technologies, collaboration, and accountability**.
- The treaty is based on principles of **human rights, equity, and solidarity, while respecting each state's sovereign right** to determine its health policies.
- It establishes a **global health threats council, a global health threats fund, and an independent review and evaluation mechanism**.
- The draft pandemic treaty is a response to the **lessons learned from the COVID-19 pandemic**.

➤ **Principal Components of the Draft:**

- **Global Cooperation:**
  - It calls for **increased global coordination and cooperation** in the preparation for and response to pandemics and **other global health emergencies**.
- **Strengthening of Health Systems:**
  - It emphasizes the **need to strengthen health systems in all countries**, particularly in **low- and middle-income countries**, to ensure they are better prepared to respond to pandemics and other global health emergencies.
- **Investment in Research and Development:**
  - It calls for **improved access to essential health technologies**, such as **vaccines**, diagnostics, and treatments, during pandemics and other global health emergencies.
  - It calls for **increased investment in research and development** of health technologies, particularly for diseases that pose a significant threat to global health.
- **Transparency in Sharing of Information:**
  - It calls for **increased transparency and sharing of information about pandemics** and other global health emergencies, including data on the spread of diseases and the effectiveness of interventions.
- **Pathogen Access and Benefit-Sharing System (PABS):**

- The constitution of **PABS** has been constituted under the WHO, making Genomic sequences of all pathogens with the pandemic potential to **be shared on an "equal footing" in the system**.
- The PABS system is an important tool for ensuring the responsible and equitable use of pathogens and their genetic resources in the research and development of **new medicines and vaccines**, while also recognizing the rights and interests of the countries and communities that provide these resources.
- **Addressing Gender Disparities:**
  - In addressing gender disparities in the healthcare workforce, the draft aims to **"ensure meaningful representation, engagement, participation and empowerment of all health and care workers"** by stressing equal pay and addressing barriers specific to women in taking leadership roles.

**Why is AMR Crucial in the Pandemic Treaty?**

➤ **Reasons to Include:**

- AMR is the process by which infections caused by **microbes become resistant to the medicines developed to treat them**.
  - Microbes include **bacteria, fungi, viruses and parasites**.
  - **Bacterial infections alone cause one in eight deaths globally**.
- **Not all pandemics are caused by viruses**, and past pandemics have been **caused by bacterial diseases**.
- AMR is fueling the rise of **drug-resistant infections**, including **drug-resistant tuberculosis, pneumonia and drug-resistant Staph infections** (caused by bacteria called **staphylococcus**) such as **methicillin-resistant Staphylococcus aureus (MRSA)**.
- **Secondary bacterial/ fungal infections** are a serious concern during viral pandemics, requiring effective antibiotics.
  - Research from Northwestern University suggests that many of the **deaths among hospitalized COVID-19 patients** were associated with **pneumonia — a secondary bacterial infection** that must be treated with antibiotics.
  - **Black fungus** is a fungal infection caused by **Mucorales fungi**, primarily affecting **immunocompromised** individuals with conditions like **COVID-19 or diabetes**.

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### ➤ Impact of Excluding AMR Measures:

- Removal of AMR-related measures would **hinder efforts to protect people from future pandemics**.
- Measures at risk of removal include **access to safe water, infection prevention, surveillance, and antimicrobial stewardship**.
- Antimicrobial stewardship is the **effort to measure and improve** how antibiotics are prescribed by **clinicians and used by patients**. It aims to **improve clinical outcomes** and **minimize adverse events** related to antibiotic use, including the development of antibiotic resistance.
- **Weakening the language of the Treaty** could allow countries to **opt-out of preventive actions**.

### ➤ The Urgency of Addressing AMR in the Pandemic Treaty:

- AMR requires **global political action and collaboration to mitigate its impact**.
- Safeguarding **antimicrobials is crucial for pandemic response** and preparedness.
- **Failing to address AMR** in the pandemic treaty **undermines its broader goals of protecting nations and communities from future health emergencies**.

## G20 India Presidency: 3rd HWG Meeting

### Why in News?

The recent **3<sup>rd</sup> Health Working Group** meeting at Hyderabad, Telangana under the **G20 India Presidency** highlighted the **ongoing threat of pandemics** and the **urgent need for global collaboration in the health sector**.

- Several key proposals were put forth by India, emphasising the importance of **integrated surveillance systems, medical countermeasures, digital health initiatives, and vaccine research and development** at global level.

### What are India's Major Proposals for Global Collaboration in the Health sector?

- India proposed a **Global initiative on Digital Health**, a **WHO-managed network** to converge ongoing initiatives in use of technology in the global health arena.

- This initiative can **enable bridging the digital divide amongst nations** and ensure that the fruits of technology are made available to every citizen of the world.

### ➤ Building consensus for an **end-to-end Global Medical Countermeasure (MCM) ecosystem**.

- Creation of an interim platform guided by the **Intergovernmental Negotiating Body (INB) process** for the **Global Medical Countermeasure (MCM) ecosystem**.
- Advocating against **intellectual property rights** barriers that hinder access to medical countermeasures in times of crisis.

### ➤ Accelerating **vaccine research and development (R&D)** for emerging pathogens and strengthening pandemic preparedness efforts.

- Establishing a **Global Vaccine Research Collaborative** to address gaps in vaccine development, enhance coordination, and foster an enabling environment for vaccine R&D.
- Emphasising **equity in access to diagnostics, drugs, and vaccines during health emergencies**.

### ➤ Mapping and integrating global initiatives for quick decision making and planning during crises. Addressing the **challenges of zoonotic spillover** of diseases transferring from animals to humans.

### What are India's

### Priorities for G20 Presidency on Health?

#### ➤ About:

- India is recognized as the **"Pharmacy of the World,"** contributing a significant portion of the global vaccine production.
- **Genome Valley in Hyderabad** alone contributes close to 33% of the world's vaccine production. Also, **India's Ayurveda and Yoga** are significant practices that develop a holistic well-being.

#### ➤ Priorities:

- **Digital Public Infrastructure:** India aims to leverage its experience in developing digital platforms such as **Aadhaar, CoWIN, and Aarogya Setu** to **enhance access, affordability, and quality of health services for all**.
  - India also intends to share its best practices and learnings with other G20 countries and support them in building their own digital public infrastructure for health.'

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- **Health Security:** India plans to work with other G20 countries to strengthen the **global health security architecture and ensure preparedness for future pandemics**.
  - India will also support the reform of the **World Health Organization (WHO)** and other multilateral institutions to make them more responsive, transparent, and accountable.
- **Universal Health Coverage:** India will promote the **goal of achieving universal health coverage (UHC) by 2030**, as envisaged by the **Sustainable Development Goals (SDGs)**.
  - India will also showcase its achievements in expanding health coverage through schemes such as **Ayushman Bharat Yojna** and will encourage other G20 countries to adopt similar policies that can **improve health outcomes and reduce poverty**.

### What are the Challenges

#### Posing Risk to the Health Sector Globally?

- **Inadequate Infrastructure and Practitioners:** Many countries, particularly in low-income regions, lack sufficient healthcare infrastructure, including **doctors, hospitals, and diagnostic facilities**.
  - This limits their capacity to deliver timely and quality healthcare services to the population.
  - India's rural healthcare system continues to be plagued by shortfall on two critical fronts — doctors and infrastructure. There is a **shortage of 83.2% of surgeons, 74.2% of obstetricians and gynaecologists, 79.1% of physicians and 81.6% of paediatricians**, according to the Rural Health Statistics 2021-2022.
    - **Infectious Disease Outbreaks:** The emergence and reemergence of infectious diseases pose a significant risk to global health.
  - Recent examples include the **Covid-19 pandemic and Ebola outbreaks**.
- **Antimicrobial Resistance (AMR):** **Antimicrobial Resistance** is reducing the effectiveness of medicines, making infections and diseases difficult or impossible to treat.
  - WHO has declared that **AMR is one of the top 10 global public health threats facing humanity**.

**Note:** AMR occurs when microorganisms such as bacteria, viruses, parasites, and fungi evolve and develop resistance to the drugs used to treat them, rendering them resistance. This can happen naturally over time, but it is accelerated by the overuse and misuse of antimicrobial drugs.

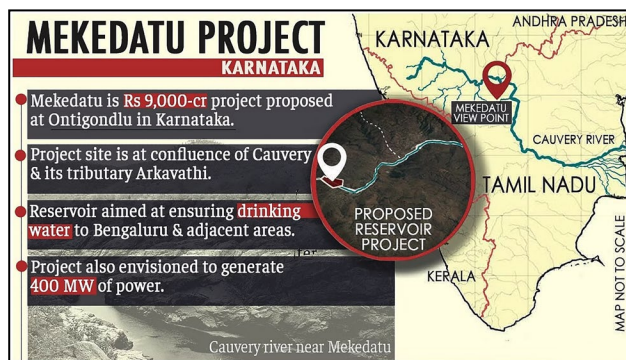
- **Climate Change Hazard:** **Climate change** threatens the essential ingredients of good health - **clean air, safe drinking water, nutritious food supply and safe shelter**.
  - Climate change exacerbates extreme weather events like **drought and floods, which increase food insecurity, malnutrition rates, and help spread infectious diseases**.
- **Rising Commercialisation:** Though commercialization of healthcare promises better infrastructure, medical facilities, and technological advancement, **but due to high charges, poor and middle-class people cannot afford it. This contradicts the very purpose of having a better healthcare system**.
  - Further, **doctors collaborate with pharmaceutical companies with a profit motive to prescribe branded medicines** that are more expensive than generic versions despite the same formula, which **hampers access to timely healthcare**.

## Mekedatu Project

### Why in News?

The Karnataka Assembly has unanimously adopted a resolution requesting clearance for the **Mekedatu drinking water and balancing reservoir project**.

- This resolution was in response to Tamil Nadu's opposition to the project.



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### What is Mekedatu Project?

#### ➤ About:

- The Mekedatu project is a multipurpose project involving the construction of a **balancing reservoir near Kanakapura in Ramanagara district, Karnataka**.
- **Mekedatu**, meaning goat's leap, is a **deep gorge** situated at the confluence of the rivers **Cauvery and its tributary Arkavathi**.
- Its primary objectives are to **provide drinking water to Bengaluru** and neighboring areas, totaling 4.75 TMC, and **generate 400 MW of power**.

#### ➤ Benefits of the Project:

- Meeting the **growing demand for drinking water in Bengaluru** and its adjoining areas facing **water scarcity and dependence on groundwater**.
- Harnessing **renewable energy** by generating 400 MW of **hydroelectric power**.
- Contributing to renewable energy production and reducing **carbon emissions**.
- Regulating the flow of water to prevent **floods and droughts**, benefiting farmers and communities.

#### ➤ Current Status:

- Karnataka **has not obtained the consent of Tamil Nadu**, which is mandatory.
- The project is still in its preliminary stage and has not obtained the necessary clearances and approvals from authorities such as the **Central Water Commission (CWC)**, the **Ministry of Environment, Forest and Climate Change (MoEFCC)**, and the **National Board for Wildlife (NBWL)**.

#### ➤ Opposition By Tamil Nadu:

- Tamil Nadu argues that the Mekedatu dam would significantly **reduce the water flow downstream**, negatively impacting the **state's agricultural activities and water supply**.
- The Cauvery River is a crucial water source for Tamil Nadu, supporting its **farming communities** and meeting the drinking water needs of its residents.
- The state claims that the project violates the final judgment of the **Cauvery Water Disputes Tribunal (CWDT)**, which allocated a **specific share of water to each riparian state, including Tamil Nadu**.

### What is the Cauvery River Dispute?

#### ➤ River Cauvery (Kaveri):

- It is known as **'Ponni'** in Tamil and it is the **fourth largest river in southern India**.
- It is a **sacred river of southern India**. It rises on **Brahmagiri Hill** of the **Western Ghats** in southwestern Karnataka state, flows in a southeasterly direction through the states of **Karnataka and Tamil Nadu**, and descends the **Eastern Ghats** in a series of great falls and **drains into Bay of Bengal** through **Pondicherry**.
- **Left Bank Tributary:** Arkavathi, Hemavathi, Shimsha, and Harangi.
- **Right Bank Tributary:** Lakshmantirtha, Suvarnavathi, Noyil, Bhavani, Kabini, and Amaravathi.



#### ➤ The Dispute:

##### ○ Historical Background:

- As the river originates in Karnataka, flows through Tamil Nadu with major tributaries coming from Kerala and drains into the Bay of Bengal through Pondicherry the **dispute therefore involves 3 states and one Union Territory**.
- The genesis of the dispute is **150 years old and dates back to the two agreements of arbitration in 1892 and 1924** between the then **Madras presidency and Mysore**.
- It **entailed the principle that the upper riparian state must obtain consent of lower riparian state** for any construction activity viz. reservoir on the river Cauvery.
- The Cauvery water dispute between Karnataka and Tamil Nadu began in 1974 when Karnataka started diverting water without Tamil Nadu's consent.
  - After several years, the **Cauvery Water Disputes Tribunal (CWDT)** was established

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in 1990 to resolve the issue. It took 17 years for the CWDT to reach a final order in 2007, which outlined the sharing of Cauvery water among the four riparian states. In distress years, water would be shared on a **pro-rata basis**.

- In 2018, the Supreme Court declared the Cauvery a national asset and largely upheld the water-sharing arrangements determined by the CWDT.
  - It also directed the Centre to notify the **Cauvery Management Scheme**. The central government notified the 'Cauvery Water Management Scheme' in June 2018, constituting the '**Cauvery Water Management Authority**' and the '**Cauvery Water Regulation Committee**'.

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

### Why in News?

The Union Cabinet has given its approval for the establishment of the "world's largest grain storage plan in the **cooperative sector**" with an outlay of around Rs 1 lakh crore.

- The initiative aims to **curb crop damages, prevent distress sales by farmers, and bolster the country's food security**.

### What are the Major

### Highlights Related to Grain Storage Plan?

- **About:**
  - The plan focuses on the creation of godowns and other agricultural infrastructure at the level of **Primary Agricultural Credit Societies (PACS)** to strengthen **food security, reduce wastage, and empower farmers**.
    - This ambitious project aims to converge **eight ongoing schemes of three ministries to address the shortage of agricultural storage infrastructure in India**.
    - Ministry of Cooperation will **implement a pilot project in at least 10 selected districts**.
- **Inter-Ministerial Committee:**
  - An **Inter-Ministerial Committee (IMC)** will be constituted under the chairmanship of the

**Minister of Cooperation**, with the participation of the **Ministers of Agriculture and Farmers Welfare, Consumer Affairs, Food and Public Distribution, and Food Processing Industries**, along with the concerned secretaries.

## 8 SCHEMES IDENTIFIED FOR CONVERGENCE

### Ministry of Agriculture and Farmers' Welfare

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

### Ministry of Food Processing Industries

- Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme
  - Pradhan Mantri Kisan Sampada Yojana (PMKSY)
- ### Ministry of Consumer Affairs, Food and Public Distribution
- Allocation of food grains under the Food Security Act
  - Procurement ops at MSP

### ➤ Rationale:

- The Ministry of Cooperation has developed the grain storage plan to leverage the **strength of cooperatives and transform them into successful business enterprises**, aligning with the vision of "**Sahakar-se-Samridhi**" (Cooperation for Prosperity).
- The plan focuses on establishing agri-infrastructure, including **warehouses, custom hiring centres, and processing units, at the PACS level**.
  - India has over **1,00,000 PACS** with a vast membership base of more than 13 crore farmers.
  - Given their significant role in the agricultural and rural landscape, the plan seeks to empower **PACS** by creating decentralised storage capacity and other necessary infrastructure.
  - This transformation will **enhance the economic viability of PACS and contribute to the growth of the Indian agricultural sector**.

### ➤ Benefits:

- **Addressing Infrastructure Shortage:** The plan aims to establish godowns at the level of PACS to **alleviate the shortage of agricultural storage infrastructure in the country**.
- **Diversification of PACS Activities:** PACS will be empowered to undertake various activities, including functioning as **procurement centres for state**

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agencies or the **Food Corporation of India (FCI)**, serving as fair price shops, and setting up custom hiring centres and common processing units.

- This diversification will enhance the incomes of farmer members.
- **Reduction of Food Grain Wastage:** By creating decentralised storage capacity at the local level, the plan aims to **reduce grain wastage, contributing to improved food security.**
- **Preventing Distress Sale:** The plan provides farmers with various options, **preventing distress sale of crops** and enabling them to realise better prices for their produce.
- **Cost Reduction:** The establishment of storage facilities at the PACS level will significantly **reduce transportation costs of food grains** to procurement centres and fair price shops.

## Jal Jeevan Mission

### Why in News?

Recently, the **World Health Organization (WHO)** in its study, it highlighted the potential impact of the **Jal Jeevan Mission (JJM)** including significant health and socio-economic benefits.

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

- **Averting Deaths from Diarrhoea:**
  - JJM has the potential to **avert close to 4 lakh deaths from Diarrhoea.** This highlights the life-saving impact of providing **pipled potable water to all households in India.**
- **Avoidance of Disability Adjusted Life Years (DALYs):**
  - JJM can help avoid approximately **14 million DALYs** associated with diarrhoea and save around USD 101 billion and 66.6 million **hours every day of time that would otherwise have been spent** — predominantly by women — collecting water.
  - A DALY **represents the loss of the equivalent of one year of full health** and are a way to account for the years of life lost due to premature mortality (YLLs) and the years lived with a disability (YLDs), due to prevalent cases of a disease or a health condition, in a population.
- **Gender Equality:**

- The availability of piped water can contribute to **gender equality by reducing the burden of water collection** on women and providing them with more opportunities for education and employment.

### What is the Jal Jeevan Mission?

#### ➤ About:

- Launched in 2019, it envisages supply of **55 litres of water per person per day** to every rural household through **Functional Household Tap Connections (FHTC)** by 2024.
- JJM looks to create a jan andolan for water, thereby making it everyone's priority.
- It comes under **Jal Shakti Ministry.**

#### ➤ Aims:

- The mission ensures **functionality of existing water supply systems** and water connections, water quality monitoring and testing as well as sustainable agriculture.
- It also ensures **conjunctive use of conserved water;** drinking water source augmentation, **drinking water supply system, grey water treatment** and its reuse.

#### ➤ Features:

- JJM focuses on integrated demand and supply-side management of water at the local level.
- Creation of local infrastructure for source sustainability measures as mandatory elements, like rainwater harvesting, **groundwater recharge and management of household wastewater for reuse**, is undertaken in convergence with other government programmes/schemes.
- The Mission is based on a community approach to water and includes extensive Information, Education and Communication as a key component of the mission.

#### ➤ Implementation:

- Paani Samitis plan, implement, manage, operate and maintain village water supply systems.
  - These consist of 10-15 members, with at least 50% women members and other members from **Self-Help Groups, Accredited Social and Health Workers, Anganwadi teachers, etc.**
- The committees prepare a one-time village action plan, merging all available village resources. The plan is approved in a **Gram Sabha** before implementation.

Note:

➤ **Funding Pattern:**

- The fund sharing pattern between the Centre and states is **90:10 for Himalayan and North-Eastern States, 50:50 for other states**, and 100% for Union Territories.

**What has JJM's Performance Been?**

- Currently about 12.3 crore (62%) rural households have piped water connections up from 3.2 crore (16.6%) from 2019.
- Five states viz; **Gujarat, Telangana, Goa, Haryana, and Punjab** and 3 Union Territories — Andaman & Nicobar Islands, Daman Diu & Dadra Nagar Haveli and Puducherry have **reported 100% coverage**.
- Himachal Pradesh at 98.87%, followed by **Bihar at 96.30%, are also poised to achieve saturation in near future**.

**What is the Jal Jeevan Mission (Urban)?**

- In the **Budget 2021-22, Jal Jeevan Mission (Urban)** was announced under the **Ministry of Housing and Urban Affairs** to provide universal coverage of water supply to all households through functional taps in all statutory towns in accordance with **Sustainable Development Goal- 6**.
- It complements the **Jal Jeevan Mission (Rural)** which envisages supply of 55 litres of water per person per day to every rural household through Functional Household Tap Connections (FHTC) by 2024.
- **Objectives of Jal Jeevan Mission (Urban):**
  - Securing tap and sewer connections.
  - Rejuvenation of water bodies.
  - Creating circular water economy.

## **PM SVANidhi Scheme**

**Why in News?**

Over 46.54 lakh small working capital loans have been disbursed to street vendors under the **Prime Minister Street Vendor's AtmaNirbhar Nidhi (PM-SVANidhi)** in the three years since it was launched on June 1, 2020.

- A total of **46,54,302 loans** had been **disbursed**. Out of those loans, **about 40% (18,50,987) have been repaid** so far.

**What are the Key Features of the PM-SVANidhi?**➤ **About:**

- It is a **Central Sector Scheme** i.e., fully funded by **Ministry of Housing and Urban Affairs** with the following objectives:
  - To facilitate working capital loan;
  - To incentivize regular repayment; and
  - To reward digital transactions
- Introduction of 3<sup>rd</sup> term loan of **up to ₹50,000 in addition to 1st & 2<sup>nd</sup> loans of ₹10,000 and ₹20,000** respectively.
- The loans would be **without collateral**.

➤ **Lending Agencies:**

- **Microfinance Institutions, Non-Banking Financial Company, Self Help Groups** have been allowed due to their ground level presence and proximity to the urban poor including the street vendors.

➤ **Eligibility:**

- **States/Union Territories (UTs):**
  - The Scheme is available for beneficiaries belonging to only those States/UTs which have notified Rules and Scheme under Street Vendors (Protection of Livelihood and Regulation of Street Vending) Act, 2014.
    - Beneficiaries from Meghalaya, which has its own State Street Vendors Act may, however, participate.

➤ **Street Vendors:**

- The Scheme is available to all street vendors engaged in vending in urban areas.
  - Earlier the Scheme was available to all street vendors engaged in vending on or before March 24, 2020.

➤ **Benefits of Early Repayment:**

- **Interest Subsidy:**
  - On timely/early repayment of the loan, an **interest subsidy of 7% per annum** will be **credited to the bank accounts** of beneficiaries through **direct benefit transfer** on a six monthly basis.
- **Credit Limits Extension:**
  - The scheme provides for the rise of the credit limit **on timely/ early repayment of loans** i.e. if a street vendor repays the installments on time or earlier, he or she can develop his or her credit score that makes him/her eligible for a higher amount of term loan.

Note:

- **No-Penalty on Early Repayment:**
  - There will be no penalty on early repayment of loan.
  - Early repayment (or resettlement) is a clearance of debt or loan before the scheduled time.
  - Many banks and lenders charge penalties for repaying loans early.
- **E-governance:**
  - **Encourage Digital Transactions:**
    - The scheme incentivises digital transactions by the street vendors through monthly cash back.
  - **Transparency:**
    - In line with the vision of leveraging technology to **ensure effective delivery and transparency**, a **digital platform with web portal/ mobile app** is being developed to administer the scheme with end-to-end solution.
    - This platform will integrate the web portal/ mobile app with **UdyamiMitra portal of SIDBI** for credit management and **PAiSA portal of MoHUA** to administer interest subsidy automatically.
- **Financial Inclusion:**
  - It will **help in integrating the vendors into the formal financial system.**
- **Focus on Capacity Building:**
  - MoHUA in collaboration with State Governments will launch a capacity building and financial literacy programme of all the stakeholders and Information, Education and Communication (IEC) activities throughout the country
- **Role of Urban Local Bodies (ULBs):**
  - ULBs will play a pivotal role in the implementation of the scheme by ensuring to target the beneficiary and reaching to them in an efficient manner.

#### Who is a Street Vendor/hawker?

- Any person engaged in vending of articles, goods, wares, food items or merchandise of
- daily use or offering services to the public in a street, footpath, pavement etc., from a
- temporary built up structure or by moving from place to place.
- The goods supplied by them include vegetables, fruits, ready-to-eat street food, tea, pakodas, breads, eggs, textile, apparel, artisan products, books/ stationary etc. and the services include barber shops, cobblers, pan shops, laundry services etc.

- Around 49.48 lakh street vendors have been identified in India.
  - Uttar Pradesh has the maximum at 8.49 lakh, followed by Madhya Pradesh at 7.04 lakh.
  - Delhi has only 72,457 street vendors.
  - No street vendor has been identified in Sikkim.

## Unified Registration Portal for GOBARdhan Launched

### Why in News?

Recently, the **Unified Registration Portal for GOBARdhan** was launched as a part of the Government of India's initiative to convert waste to wealth and promote a circular economy.

### What are the Key Features of the Portal?

- **About:**
  - The **Department of Drinking Water and Sanitation (DDWS)**, Ministry of Jal Shakti, **has developed the portal to facilitate** the setting up of **Biogas/ Compressed Biogas (CBG)** plants.
- **Objectives and Scope:**
  - The portal **acts as a one-stop repository** for assessing investment and participation in the Biogas/CBG sector at the pan India level.
  - It streamlines the process of setting up CBG/ Biogas plants
- **Enrollment:**
  - **Any government, cooperative, or private entity** intending to set up a Biogas/CBG/Bio CNG plant in India **can enroll** in the portal and obtain a registration number.
    - The registration number **enables access to various benefits and support** from the Ministries and Departments of the Government of India.
  - States are advised to prioritize the registration of their CBG/Biogas plant operators on the portal **to avail existing and upcoming support from the Union Government.**
- **Benefits:**
  - **Stakeholder Participation:**
    - The launch of the portal demonstrates **cooperative federalism**, with stakeholders

Note:



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from central Ministries, line departments of the Centre and States collaborating on its development and deployment.

- The Union Minister of Jal Shakti emphasizes the significant achievements in waste to wealth generation through more than 650 **GOBARdhan** plants and the unified registration portal.

○ **Ease of Doing Business:**

- The **portal ensures ease of doing business and attracts greater investment** from private players in the Biogas/CBG sector.

○ **Aligns with Climate Action Goals:**

- It aligns with India's **climate action goals, promotes clean energy, rural employment, improved health outcomes, and contributes to the Sustainable Development Goals (SDGs) and Govt. of India's Mission LiFE.**

➤ **Strengthen Supply Chain:**

- The Union Government **aims to strengthen** the CBG/Biogas **supply chain** through biomass aggregation, **grid pipeline connectivity, organic farming practices, research and development,** and continuous engagement with stakeholders.

### **What is GOBARdhan Initiative?**

➤ **About:**

- Galvanizing Organic Bio-Agro Resources Dhan (GOBARdhan) is a crucial umbrella initiative of **the Ministry of Jal Shakti, Government of India.**
- In 2018, the government launched this scheme as a national priority project **under the Swachh Bharat Mission Grameen-Phase II** program.

➤ **Objective:**

- To support villages safely manage **their cattle waste, agricultural waste** and in long run all organic waste.
- To support communities convert their cattle and **organic waste to wealth using decentralized systems.**
- Promote **environmental sanitation and curb vector borne diseases** through effective disposal of waste in rural areas.
- Convert organic waste, especially cattle **waste to biogas and fertilizer** for use in rural areas.

➤ **Potential Benefits:**

- Effective biodegradable waste management.
- Reduction of GHG emission.
- Reduction in import of crude oil.
- Employment opportunity for the local community.
- Boost to entrepreneurship.
- Additional income for farmers/ local village community from organic waste.
- Promotion of organic farming.

➤ **Models of Scheme:**

○ **Individual Household:**

- This model can be adopted by households **which have three (3) or more cattles.** The biogas and slurry generated from the plants are used for cooking and as manure by the households.

○ **Community:**

- The Biogas plants can be constructed **for a minimum number of households (5 to 10).** The plants can be operated and managed by GP/SHGs.
- The gas generated will be **supplied to households/ restaurants / institutions and slurry can be used by the community** as organic manure in agriculture or sold to farmers.

○ **Cluster:**

- In this model, individual Biogas plants are installed in number of households in a village/ group of villages.
- The biogas generated is used by the households and **the slurry is collected at a common place,** separated to solid and liquid parts and then fortified and sold as biofertilizers.

○ **Commercial CBG:**

- CBG plants can be set up by **Entrepreneurs / Cooperative Societies/ Gaushalas etc.**
- The raw biogas produced is compressed and **can be used as vehicular fuel and / or sold to industries.**
- The slurry generated is **converted into organic manure / bio-fertilizer** and can be sold to farmers.

■■■

Note:

# Economic Scenario

## Highlights

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- India's Transformation: Morgan Stanley's Report
- National E-Commerce Policy
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## Global Trade Momentum and Outlook for India

### Why in News?

India's **Merchandise Exports** in April 2023 contracted by 12.7% compared to the previous year, reaching a **six-month low of USD 34.66 billion**. Similarly, imports also experienced a sharp decline of 14%, amounting to USD 49.90 billion during the same period.

- These declines in both imports and exports are not exclusive to India and are **indicative of a broader trend of slowing global demand**.

### What are the Current Trends in Global Trade?

- **Weaker Economic Activities:**
  - There has been a **slowdown in economic growth globally**, which has had a negative impact on international trade.
  - Weaker economic conditions in various countries have **led to reduced consumer spending and investment**, affecting trade volumes.
- **Inflation and Tightening Monetary Policies:**
  - Many countries are facing rising **Inflation**, which has prompted **central banks to implement tighter Monetary Policies**.

- Higher interest rates and stricter lending conditions **can affect trade by reducing consumer purchasing power and increasing the cost of borrowing for businesses**.

### ➤ Disrupted Supply Chains due to the Russia-Ukraine Conflict:

- The ongoing conflict between **Russia and Ukraine** has **disrupted supply chains, particularly in Europe**.
- This conflict has **led to higher energy and commodity prices**, affecting trade flows and increasing costs for businesses.

### ➤ Financial Instability:

- The collapse of financial institutions, such as the **Crypto** exchange FTX and several banks in the US, **has created financial instability**.
- This loss of confidence in the financial sector **raises concerns about potential contagion and can negatively impact global trade**.

### How has been the Trade Situation in India, Europe and the US?

#### ➤ European Union (EU):

- The European Economic Forecast in February 2023 predicted that the **region would narrowly avoid entering a recession** that had started to develop around September 2022.

Note:



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- In terms of inflation in the Euro area, the food, alcohol, and tobacco had the **highest annual rate of price** increase in May 2022. This was followed by non-energy industrial goods, services, and energy.

#### ➤ The US:

- In the United States, according to the **Federal Reserve** in May 2023, inflation had improved compared to the middle of the previous year. However, inflation pressures remain high, and it **is expected to take a long time for inflation to decrease** to the desired target of 2%.
- The JP Morgan Global Manufacturing **Purchasing Managers' Index (PMI)**, remained at 49.6 in May for the third consecutive month, indicating a **slight decline in business conditions**. Production showed growth for four months, **but mainly due to fulfilling existing orders** rather than new ones.

#### ➤ Outlook for India:

- The **EU** is India's third-largest trading partner, following the **US and China**.
- Global demand from markets like the EU and the US is not favorable, and the **demand outlook for the next few months is not optimistic**.
- India can face a potential impact of a global slowdown, especially in the US, which is a **major trading partner for India**.
- The slowdown may affect demand for India's merchandise exports, although services **exports are expected to remain strong**.
- Import levels may stay low as commodity **prices stabilize and the value of the Indian rupee remains steady**. However, a faster recovery could **put pressure on import demand**.
- Certain non-crude and **non-jewelry segments have shown a growth of 15%** in the previous fiscal year 2022-23, surpassing the long-term average growth.
- This indicates that **domestic demand in India remains robust**.
- The decrease in imports can be **attributed to stable oil prices**, which have reduced India's import bills.

### ***How does Economic Slowdown Impact International Trade and Individual's Purchasing Power?***

- During an economic slowdown, international trade, including **both exports and imports, declines significantly** due to reduced overall demand for goods and services.
  - People tend to **avoid discretionary spending**, which particularly impacts certain imports and postponable expenses.
  - As a result, the exports of engineering goods, gems and jewelry, chemicals, readymade garments, plastics, and **petroleum products have contracted or grown at a slower pace in 2023**.
- Inflation, the uneven increase in prices, especially for essentials like food and energy, erodes **individuals' purchasing power**. However, if imported products are cheaper than domestic **alternatives, people may opt for imports**.
- The Exchange Rate between currencies also plays a role in determining the purchasing power of an individual. Additionally, **inflation affects the flow of capital to developing countries**.

## **India's Transformation: Morgan Stanley's Report**

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

A recent report by **Morgan Stanley** (global financial services firm) highlights the significant changes that have taken place in India over the past decade.

- The report challenges the skepticism surrounding India's potential and emphasizes the transformative reforms implemented in recent years.
- Morgan Stanley counters **global opinions of India's underperformance**. It emphasizes **India's growth as the second-fastest-growing economy and top-performing stock market**.

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

- **Significant Growth Drivers:**
  - **Supply-Side Policy Reforms:**
    - Bringing **corporate tax at par** with other countries.

Note:

- **Acceleration of infrastructure** investment.
- **Formalization of the Economy:**
  - Rising collection of **Goods and Services Tax (GST)**.
  - Implementation of the **Insolvency and Bankruptcy Code**.
  - Introduction of **flexible inflation targeting**.
  - Focus on **foreign direct investment (FDI)**.
  - Government support for corporate profits.
  - **Digitalizing Social Transfers**.
  - **Real Estate (Regulation and Development) Act**.
  - Multi-year high sentiment among multinational corporations (MNCs).
  - **India's 401(k) Moment**.

**Note:**➤ **India's 401(k) Moment:**

- India's 401(k) moment is the **term used by Morgan Stanley** to describe moment **refers to the increase in household savings** and investments in financial assets, **inspired by the US 401(k) retirement savings plan**.
- This shift reflects a change in **household preferences from physical assets** like gold and real estate to **financial assets like equities and bonds**.
- Key financial assets involved in India's 401(k) moment include **mutual funds, insurance, and pension schemes**.

➤ **Economic Indicators:**

- Manufacturing and capital spending as a percentage of **Gross Domestic Product (GDP)** have consistently risen.
- Export market share is projected to **double to 4.5% by 2031 (from 2021 level)**.
- **Lower volatility in inflation** and shallower interest rate cycles has impacted consumption patterns.

➤ **Future Outlook:**

- Anticipated **rise in manufacturing and capital spending in GDP**.
- Expected **broad-based gains in goods and services exports**.
- **Per capita income** is projected to increase and implications for discretionary consumption.
- It is expected to clock in at **\$5,200 within the next decade**.

- Structural transformation contributing to a narrower **current account deficit (CAD)**.
- Doubling of profits in GDP, resulting in strong earnings growth.

➤ **Implications on Stock Market:**

- There is a possibility of **higher valuations for domestic shares**, which could lead to increased investment opportunities.
- The demand for **stocks within India** is expected to remain strong, contributing to **sustained growth in the market**.
- India's reduced dependence on global capital flows may contribute to a more **stable stock market**, with **less vulnerability to international market fluctuations**.
  - The stock market **may become less influenced by changes in oil prices and the US recession**.
- **India's beta to emerging markets** falling to 0.6, which is a consequence of reduced dependence on global capital market flows.

**Note:**➤ **Beta:**

- Beta is a measure of systematic risk, also known as market risk or non-diversifiable risk. It **quantifies how sensitive a stock's returns are to changes in the broader market**.
- A **beta of 1** indicates that the stock tends to move in line with the market, while a **beta greater than 1** suggests the stock is more volatile than the market.
- A **beta less than 1** indicates the stock is less volatile than the market.

➤ **Anticipated Key Risks:**

- Global recession.
- Sharp rise in commodity prices and supply outages.
- Shortages in **skilled labor supply**.

## National E-Commerce Policy

### *Why in News?*

The Indian government is set to introduce a **national e-commerce policy** that aims to create a **favorable environment** for the development of the sector and drive exports.

Note:



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- The e-commerce policy was first proposed in 2018 and in 2019, a draft of the e-commerce policy was released.
- Department for Promotion of Industry and Internal Trade (DPIIT), the Ministry of Commerce and Industry emphasized the need for a streamlined regulatory framework, technological advancements, and efficient supply chain integration.

### What are the Key Points

#### About the Upcoming E-Commerce Policy?

- **Aim:**
  - The national e-commerce policy aims to establish a regulatory framework that facilitates ease of doing business in the sector.
- **Boosting Exports:**
  - The policy recognizes the significant export potential of India's e-commerce sector.
  - By 2030, India's e-commerce export potential is estimated to range between 200 billion USD to 300 billion USD annually.
  - With global cross-border e-commerce exports projected to reach 2 trillion USD by 2025, India aims to capitalize on this growth opportunity.
- **Regulatory Body and FDI:**
  - The possibility of establishing a regulator for the e-commerce sector is being considered, but its implementation may take time.
  - Local traders' associations have been advocating for an empowered regulatory body to enforce e-commerce rules and curb violations.
  - While 100% foreign direct investment (FDI) is allowed in the marketplace model, FDI is not permitted in the inventory-based model.
- **Addressing Trader Concerns:**
  - Traders have expressed concerns regarding the violation of e-commerce rules, such as deep discounts and preferences given to select sellers.
  - The policy intends to clarify these issues and provide greater transparency in the rules governing FDI in e-commerce.
  - The Consumer Protection (e-commerce) Rules 2020 and proposed amendments will be aligned with the e-commerce policy for consistency.
- **Comprehensive Framework:**

- The e-commerce policy will serve as an overarching framework for the sector, ensuring coherence among various governing acts.
- The sector is governed by the FDI policy, the Consumer Protection Act, of 2019, the Information Technology Act of 2000, and the Competition Act, of 2002.
  - The policy aims to streamline these regulations and create a conducive environment for the growth of the e-commerce industry.

### What are the Other Related

#### Indian Government's e-commerce Initiatives?

- **Launching the BharatNet project:**
  - Provide internet connectivity in local bodies in every Panchayat, which will increase the reach and access of e-commerce in rural areas.
- **Open Network for Digital Commerce (ONDC):**
  - A network that aims to provide equal opportunities for Micro, Small and Medium Enterprises (MSME) to thrive in digital commerce and democratize e-commerce
- **Digital India initiative:**
  - The Digital India initiative has provided solid impetus to other government-led initiatives, including Start Up India and Aatmanirbhar Bharat, which have great potential to translate into global success.

## Bima Vahak: IRDAI

### Why in News?

Recently, IRDAI (Insurance Regulatory and Development Authority of India) has issued a draft Guidelines for Bima Vahak, which is a dedicated distribution channel to reach out to rural areas with the aim to improve insurance penetration in the Hinterland.

### What is Bima Vahak?

- **About:**
  - Bima Vahak Program is one of the components of IRDAI's "Insurance for all by 2047" goal, which aims to improve the accessibility and availability of insurance products throughout India.
  - It will serve as a crucial last-mile connection for insurers by establishing a field force of both

Note:

**corporate and individual** representatives. These representatives, known as Bima Vahaks, are responsible for the **distribution and servicing of insurance products**.

- The Bima Vahak scheme is closely aligned with the Lead Insurers concept introduced by IRDAI.
  - Lead Insurers coordinate the deployment of resources to ensure maximum coverage of Gram Panchayats, which are Local Self-Governance units in India.

➤ **Objectives:**

- It focuses on onboarding **women as Bima Vahaks**, as they can gain the trust of locals and facilitate insurance penetration in various communities.
- By engaging with the local population, Bima Vahaks aim to enhance accessibility and awareness of insurance in every nook and corner of the country.

➤ **Significance:**

- The Bima Vahak initiative is expected to significantly contribute to enhancing insurance inclusion, raising awareness, and adapting **insurance offerings to meet the diverse needs and aspirations of people** in every Gram Panchayat across India.

### **What is IRDAI?**

- IRDAI, founded in 1999, is a **regulatory body created with the aim of protecting** the interests of insurance customers.
  - It is a statutory body under the IRDA Act 1999 and is under the jurisdiction of the Ministry of Finance.
- It regulates and sees to the development of the insurance industry while monitoring insurance-related activities.
- The powers and functions of the Authority are laid down in the **IRDAI Act, 1999 and Insurance Act, 1938**.

## **Disinflation in India**

### **Why in News?**

The **Reserve Bank of India (RBI)** recently stated that **India's disinflation process is expected to be gradual and prolonged**, with the **4% inflation target** likely to be achieved **only over the medium term**.

### **What is Disinflation?**

➤ **About:**

- Disinflation refers to a decrease in the rate of inflation, which means that prices are still rising but at a slower pace than before.
  - It is important to note that disinflation is **different from deflation, which refers to a sustained decrease in the overall price level**.
  - **A healthy amount of disinflation is necessary since it prevents the economy from overheating.**

➤ **Causes:**

- Disinflation can be **caused by various factors**, such as:
  - A slowdown in economic growth or demand
  - A **tight monetary policy** or higher interest rates
  - A fiscal consolidation or lower government spending
  - A stronger exchange rate.

### **What is Inflation and Deflation?**

➤ **About:**

- **Inflation refers to the rise in the prices of most goods and services of daily or common use**, such as food, clothing, housing, recreation, transport, consumer staples, etc.
  - Inflation measures the **average price change in a basket of commodities and services over time**.
  - The **opposite and rare fall in the price index of this basket of items is called 'deflation'**.
- Inflation is **indicative of the decrease in the purchasing power of a unit of a country's currency**. This is measured in percentage.

➤ **Evaluation:**

- In India, inflation is primarily measured by **WPI (Wholesale Price Index)** and **CPI (Consumer Price Index)**, which measure wholesale and retail-level price changes, respectively.
- The **Monetary Policy Committee (MPC)** uses **CPI data to control inflation**.
  - MPC, led by the RBI governor, is responsible for reducing inflation to 4% over the medium term, while maintaining it between 2% and 6% in the long run.

Note:



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### What Recent Updates has the RBI Provided Regarding Inflation?

- **Current Inflation Landscape:**
  - As of May, 2023 India's annual retail inflation stood at 4.25%, down from 4.7% in April, 2023. However, analysts forecast that inflation will remain persistent in the coming months, posing challenges to achieving the 4% target.
- **Inflation Projection for 2023-24:**
  - RBI stated that the inflation projection for FY 23-24 is estimated at 5.1%, which is lower than previous figures but still above the target. This indicates the need for continued vigilance and policy measures to curb inflationary pressures and ensure macroeconomic stability.

## Compromise Settlement for Wilful Defaulter: RBI

### Why in News?

Recently, **The Reserve Bank of India (RBI)** has introduced a circular allowing wilful defaulters and companies involved in fraud to opt for compromise settlements or technical write-offs.

- The circular provides guidelines for banks and finance companies in handling such cases.

### What are the Key Points Related to Circular?

- **About the Circular:**
  - **Compromise Settlements and Technical Write-Offs:**
    - Banks and finance companies can undertake **compromise settlements or technical write-offs** for accounts categorized as **wilful defaulters or fraud**, irrespective of ongoing criminal proceedings against the debtors.
    - The RBI's circular **enables these settlements while ensuring that criminal proceedings remain unaffected.**
  - **Cooling Period for Fresh Loans:**
    - Banks are required to impose a **minimum cooling period of 12 months** before granting fresh loans to borrowers who have undergone compromise settlements.

- The **cooling period** also applies to exposures **other than farm credit**, with regulated entities having the authority to set longer cooling periods based on their board-approved policies.

### Concerns:

- **Potential Loss of Public Money:**
  - Banks have **previously approved compromise settlements** resulting in **significant losses** due to substantial **haircuts** on outstanding payments.
  - There are concerns that allowing compromise settlements may **encourage big fraudsters and defaulters.**
  - Allowing compromise settlements **will bring low NPA artificially**, even though financial policies are unstable.
  - The Public sector banks account for a major share of the total Gross NPAs. The **NPAs of Public sector banks constitute around 72%** of the total, with the Private Sector Banks, Foreign Banks & Small Financial Institutions accounting for the rest.
    - PSBs are recapitalised by Govt. Which leads to loss of public money.

### Issues with Debt Recovery Tribunals (DRTs):

- Instances have been reported where banks entered into compromise settlements without informing **Debt Recovery Tribunals (DRTs).**
- The **DRT, Ernakulam** observed a case where a settlement was reached, but the bank failed to obtain the consent decree and concealed the settlement from the DRT for an extended period.
- It is also **diluting importance of both Asset Reconstruction Company and IBC.**

### Benefits of Compromise Settlements:

- **Reduces Cost:**
  - Compromise settlements **facilitate early recovery of dues and save costs** for banks by reducing legal expenses and other associated costs.
  - The underlying objective is to recover dues to the maximum extent possible within a shorter time frame.
- **Technical Write-Offs and NPA Reduction:**
  - Banks have utilized write-offs to reduce **non-performing assets (NPAs)** over the past decade, resulting in lower reported NPA levels.

Note:

- **Write-offs were used for accounting and tax purposes**, but concerns exist that this practice **allowed banks and corporates to “evergreen” their loan books**.
- **Compromise Settlements aims to provide vital humanitarian assistance** to financially burdened companies facing Non-Performing Assets (NPA) resulting from unforeseen market risks.

### What is a Non-Performing Asset?

#### ➤ About:

- NPA refers to a classification for loans or advances that are in **default or are in arrears on scheduled payments of principal or interest**.
  - In most cases, **debt is classified as non-performing, when the loan payments have not been made for a minimum period of 90 days**.
  - For agriculture, if principle and interest is not paid for two cropping seasons, the loan is classified as NPA.
- **Gross NPA:**
  - Gross NPAs are **the sum of all the loans that have been defaulted by the individuals**
- **Net NPA:**
  - Net NPAs are the **amount that is realised after provision amount has been deducted from the gross non-performing assets**.

#### ➤ Laws and provisions related to NPAs:

- **Bad Bank:**
  - The bad bank in India is called **National Asset Reconstruction Ltd (NARC)**.
    - This NARC will **work as an asset reconstruction company**.
    - It will buy bad loans from the banks, relieving them of the NPA. NARC will then attempt to sell the stressed loans to distressed debt buyers.
  - The government has already set up **India Debt Resolution Company Ltd (IDRCL)** to sell these stressed assets in the market. Accordingly, IDRCL will attempt to sell them in the market.
- **The Securitization and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002:**
  - The **SARFAESI Act** allows banks and financial institutions to take possession of collateral assets and sell them to recover outstanding dues without the intervention of the court.

- It provides provisions for the **enforcement of security interests** and **allows banks to issue demand notices** to defaulting borrowers.
- **The Insolvency and Bankruptcy Code (IBC), 2016:**
  - The IBC **provides a comprehensive framework** for the insolvency and bankruptcy resolution process in India.
  - It **aims to facilitate the time-bound resolution** of stressed assets and promote a creditor-friendly environment.
  - Under the IBC, **a debtor or creditor can initiate insolvency proceedings** against a defaulting borrower.
  - It establishes the National Company Law Tribunal (NCLT) and the **Insolvency and Bankruptcy Board of India (IBBI)** to oversee the process.
- **The Recovery of Debts Due to Banks and Financial Institutions (RDDBFI) Act, 1993:**
  - The RDDBFI Act **establishes Debt Recovery Tribunals (DRTs)** for the expeditious adjudication and recovery of debts due to banks and financial institutions.
  - DRTs have the power to hear and decide cases related to the recovery of defaulted loans exceeding a specified threshold.
- **The Indian Contract Act, 1872:**
  - The Indian Contract Act **governs the contractual relationship between lenders and borrowers**.
  - It establishes the **legal framework for loan agreements, terms and conditions, default, and remedies** available to lenders in case of non-payment.

## RBI's Regulation for UCBs

### Why in News?

To strengthen 1,514 **urban co-operative banks**, the **Reserve Bank India** has notified four key measures, including giving them two years more to meet the priority sector lending targets.

### What are the Key Measures taken by RBI?

#### ➤ Four Key Measures:

- Allowing **UCBs to open new branches without prior approval from RBI**, up to 10% (maximum 5 branches) of the number of branches in the previous financial year.

Note:

- Allowing UCBs to do **One-Time Settlement at par with commercial banks**.
- Extending the **timeline for UCBs to achieve Priority Sector Lending (PSL) targets by two years**, up to March 31, 2026.
  - The excess deposits, if any, after clearing the shortfall of PSL during FY 2022-23 will also be refunded to the UCB.
- Notifying a nodal officer for closer coordination and focused interaction between RBI and the cooperative sector.
- **Possible Effects:**
  - These initiatives will **further strengthen the UCBs**, which work in urban areas and were facing hardships in achieving PSL targets.
  - The Ministry of Cooperation is committed to strengthening cooperatives and treating them at par with other forms of economic entities.

### What is Cooperatives Banks in India?

- It is an institution **established on a cooperative basis to deal with the ordinary banking business**. Cooperative banks are **founded by collecting funds through shares, accepting deposits, and granting loans**.
- They are **Cooperative credit societies** where members from a community group together to extend loans to each other, at favorable terms.
- They are registered under the **Cooperative Societies Act of the State** concerned or the **Multi-State Cooperative Societies Act, 2002**.
- The Co-operative banks are governed by the,
  - **Banking Regulations Act, 1949**.
  - **Banking Laws (Co-operative Societies) Act, 1955**.
- They are broadly divided into **Urban and Rural cooperative banks**.

### What are Urban Cooperative banks (UCB)?

- The term Urban Cooperative Banks (UCBs) is not formally defined but refers to primary cooperative banks **located in urban and semi-urban areas**.
- The Urban Cooperative Banks (UCBs), the **Primary Agricultural Credit Societies (PACS)**, Regional Rural Banks (RRBs), and Local Area Banks (LABs) could be **considered as differentiated banks as they operate in localized areas**.

- Till 1996, these banks were allowed to lend money only for non-agricultural purposes. This distinction does not hold today.
- These banks were **traditionally centred on communities and local workgroups as they essentially lent to small borrowers and businesses**. Today, their scope of operations has widened considerably.

### What are Recent Developments?

- In January 2020, the RBI revised the **Supervisory action Framework (SAF)** for UCBs.
- In June 2020, the Central government approved an Ordinance to bring all urban and multi-state cooperative banks **under the direct supervision of RBI**.
- In 2022 RBI has announced 4 tier regulatory framework for categorization of UCBs
  - **Tier 1** with all unit UCBs and salary earner's UCBs (irrespective of deposit size) and all other UCBs having deposits up to Rs 100 crore.
  - **Tier 2** with UCBs of deposits between Rs 100 crore and Rs 1,000 crore,
  - **Tier 3** with UCBs of deposits between Rs 1,000 crore and Rs 10,000 crore and
  - **Tier 4** with UCBs of deposits more than Rs 10,000 crore.

## Expected Credit Loss -Based Loan Loss Provisioning Norms

### Why in News?

Recently, the **Reserve Bank of India (RBI)** said that the banks will be given ample time to implement Expected Credit Loss (ECL)-based loan loss provisioning norms.

### What is the Expected Credit Loss -Based Loan Loss Provisioning Norms?

- **Background:**
  - The RBI had previously **proposed** the adoption of the **ECL approach for credit impairment**, and banks were given a one-year period for implementation once the final guidelines are released.
  - While the **final guidelines are yet to be announced**, it is expected that they may be notified by FY2024 for implementation starting from April 1, 2025.

Note:



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- The **Indian Banks Association (IBA)** have requested the RBI to grant an additional year for lenders to prepare for the implementation of the ECL norms.
- **About:**
  - RBI has proposed a **framework for adopting an expected loss (EL)-based approach for provisioning by banks in case of loan defaults**.
  - Under this, banks will need to **classify financial assets** into one of three categories (**Stage 1, Stage 2, or Stage 3**).
- **Asset Classification:**
  - **Stage 1 Assets:**
    - These are financial assets **that have not experienced a significant increase in credit risk** since their initial recognition or have low credit risk at the reporting date.
      - For these assets, **12-month expected credit losses** are recognized, and interest revenue is calculated based on the gross carrying amount of the asset.
  - **Stage 2 Assets:**
    - These are financial instruments **that have undergone a significant increase in credit risk** since their initial recognition, although there is no objective evidence of impairment.
    - **Lifetime expected credit losses are recognized** for these assets, but interest revenue is still calculated based on the gross carrying amount of the asset.
  - **Stage 3 Assets:**
    - These are financial assets **that have objective evidence of impairment at the reporting date**.
      - For these assets, lifetime expected credit loss is recognized, and interest revenue is calculated based on the net carrying amount.
- **Benefits:**
  - The expected credit losses approach **will enhance the resilience of the banking system** in line with globally accepted standards.
  - It is expected to result in higher provisions compared to the shortfall seen under the incurred loss approach.
- **ECL vs IL Model:**
  - This new approach replaces the current **“incurred loss (IL)”** model, which delays loan loss provisioning, potentially increasing credit risk for banks.

- A key **drawback in the IL model was that usually banks made provisions with a significant delay** after the borrower may have started facing financial difficulties, thereby **increasing their credit risk**. This led to systemic issues.
- Furthermore, the delayed recognition of loan losses **resulted in an overstatement of banks’ income, combined with dividend payouts**, which further eroded their capital base.
- **Transitional Arrangement:**
  - To prevent a capital shock, the RBI has proposed a transitional arrangement for the introduction of ECL norms.
  - This phased implementation will help banks absorb any additional provisions without adversely impacting their profitability.

### **What is the Concept of Loan-Loss Provision?**

- **About:**
  - Loan-loss provision, as **defined by the RBI, refers to the allocation of funds set aside by banks to cover losses** incurred from defaulted loans.
  - In simpler terms, it is a reserve of cash that **banks keep to mitigate the impact of losses** resulting from borrowers’ failure to repay their loans.
- **Provision:**
  - This provision **acts as an expense on the bank’s income statement and can be utilized when borrowers** are deemed unlikely to repay their loans.
  - By using the loan-loss reserves, banks can cover the losses they incur instead of facing a direct reduction in their cash flows.
- **Example:**
  - Consider a scenario where a bank has issued a total of USD 100,000 in loans and has a loan loss provision of USD 10,000.
    - If a borrower defaults on a USD 1,000 loan but repays only USD 500, the bank would deduct USD 500 from the loan loss provision to cover the loss.
- **Determinants:**
  - The level of loan loss provision is determined **based on the expected level required to ensure the bank’s safety and stability**.

Note:

**What is the Current****Approach for Loan Loss Provisions?**

- Banks in India follow the **incurred loss model** for making loan loss provisions.
  - This model assumes that all loans will be repaid unless evidence suggests otherwise, such as a trigger event indicating a loss.
  - Only when such an event occurs is the **impaired loan or portfolio of loans** written down to a lower value.

**What are the Challenges?**

- The incurred loss approach **requires banks to provide for losses that have already occurred or been incurred.**
  - However, during the financial crisis of 2007-09, this delayed recognition of expected losses worsened the downturn.
  - As defaults increased across the system, **the delayed recognition of loan losses forced banks to make higher provisions**, depleting their capital reserves.
  - This, in turn, weakened the resilience of banks and posed systemic risks.
- Additionally, **the delays in recognizing loan losses led to an overstatement of banks' generated income.**
- Combined with dividend payouts, this impacted their capital base by reducing internal accruals, further compromising their resilience.

## RBI Monetary Policy Committee: Policy Rates Unchanged

**Why in News?**

Recently, the **Reserve Bank of India's Monetary Policy Committee (MPC)** has decided to keep the **policy rates unchanged**, taking into account the evolving macroeconomic situation.

- This is the **second consecutive pause** after a previous **conservative rate hike of 250 basis points** aimed at curbing inflation.
- The decision reflects a cautious approach to balance **inflation management and support economic growth.**

**What is the Monetary Policy Committee?**

- It is a **statutory and institutionalized framework** under the Reserve Bank of India Act, 1934, for maintaining price stability, while keeping in mind the objective of growth.

- The **Governor of RBI** is ex-officio Chairman of the committee.
- The MPC determines the policy interest rate (repo rate) required to achieve the inflation target.

**What are the Key Announcements?**

- **Policy Rates Unchanged:**
  - The policy **repo rate** under the **liquidity adjustment facility (LAF)** remains **unchanged at 6.50%.**
  - The **standing deposit facility (SDF)** rate remains unchanged at **6.25%.**
  - The **marginal standing facility (MSF)** rate and **Bank Rate** are maintained at **6.75%.**
- **Emphasis on Inflation Management:**
  - The MPC aims to **withdraw accommodation gradually** to align inflation with the target while supporting growth.
  - The objective is to achieve the medium-term target for consumer price index (CPI) **inflation of 4% within a band of +/- 2%.**
- **Inflation Outlook:**
  - **Food Price Dynamics:**
    - The trajectory of **headline inflation** will likely be influenced by food price dynamics.
      - **Wheat prices** may see **correction** due to increased arrivals and procurement at mandis.
      - **Milk prices** could remain under pressure due to supply shortfalls and higher fodder costs.
  - **Monsoon Impact:**
    - The forecast by **India Meteorological Department (IMD)** of a **normal southwest monsoon** is positive for **kharif crops.**
  - **Crude Oil Prices and Input Costs:**
    - **Crude oil prices** have eased, but the outlook remains uncertain.
    - Early survey results indicate expectations of firms' input costs and output prices hardening.
- **Inflation and Growth Projections:**
  - **CPI Inflation:**
    - Assuming a normal monsoon, **CPI inflation** is projected at **5.1% for 2023-24.**
  - **GDP Growth:**
    - Higher **rabi crop** production, anticipated normal monsoon, and robust services sector support private consumption and overall economic activity in the current year.

Note:



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- Government's emphasis on **capital expenditure**, **moderating commodity prices**, and **credit growth** are expected to nurture investment activity.
- Weak **external demand**, **geopolitical tensions**, and **gloeonomic fragmentation** pose risks to the growth outlook.
  - **Real GDP growth** for 2023-24 projected at 6.5%.

## Surplus Liquidity

### Why in News?

Recently, the **net liquidity in the banking system in India increased to Rs 2.59 lakh crore on June 4, 2023**. However, the surplus liquidity in the banking system is likely to decline to around Rs 1.5 lakh crore over the next few days from the current level of Rs 2.1 lakh crore.

- The net liquidity in the banking system is represented by the amount of money absorbed by the **Reserve Bank of India (RBI)** from the system.

### What is Surplus Liquidity?

- **About:**
  - Surplus liquidity occurs where **cashflows into the**

### What are the Tools

### Used by RBI to control Money Supply?

Quantitative Instruments	Basis	Qualitative Instruments
These are the instruments of monetary policy that affect overall supply of money/credit in the economy.	<b>Meaning</b>	These instruments are used to regulate the direction of credit.
Traditional methods of control	<b>Alternative Name</b>	Selective methods of control
(i) Bank rate (ii) Repo Rate (iii) Reverse Repo Rate (iv) Open market operation (v) Cash reserve ratio (vi) Statutory liquidity ratio	<b>Instruments</b>	(i) Marginal requirement (ii) Moral suasion (iii) Selective credit control

**banking system persistently exceed withdrawals of liquidity** from the market by the central bank.

- Liquidity in the banking system refers to readily available cash that banks need to meet short-term business and financial needs.

### ➤ Causes of Increased Liquidity:

- Advance tax and **goods and services tax (GST)** payments,
- The deposit of withdrawn Rs 2,000 notes,
- Redemption of government bonds,
- Higher government spending,
- The sale of dollars by the RBI to defend the rupee from depreciation.

### ➤ Impact of Increased liquidity:

- It may lead to increased levels of **inflation**.
- Interest rates in the market will remain low.

### ➤ RBI's Measures:

- The RBI takes action if liquidity levels deviate from its comfort range.
- The RBI, under its **Liquidity Adjustment Facility**, infuses liquidity in the banking system via repos and sucks it out using reverse repos after assessing liquidity conditions.
  - The RBI also uses a 14-day **variable rate repo and/or reverse repo operation**.

Note:



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Various Instruments of Monetary Policy	
<b>Repo Rate:</b>	➤ The interest rate at which the Reserve Bank <b>provides overnight liquidity</b> to banks <b>against the collateral of government and other approved securities</b> under the <b>liquidity adjustment facility (LAF)</b> .
<b>Reverse Repo Rate:</b>	➤ The interest rate at which the <b>Reserve Bank absorbs liquidity</b> , on an overnight basis, from banks against the <b>collateral of eligible government securities under the LAF</b> .
<b>Liquidity Adjustment Facility (LAF):</b>	<ul style="list-style-type: none"> <li>➤ The LAF <b>consists of overnight as well as term repo auctions</b>.</li> <li>➤ The aim of term repo is to help develop the <b>interbank term money market</b>, which in turn can set market based benchmarks for pricing of loans and deposits, and hence improve transmission of monetary policy.</li> <li>➤ The RBI also conducts variable interest rate reverse repo auctions, as necessitated under the market conditions.</li> </ul>
<b>Marginal Standing Facility (MSF):</b>	<ul style="list-style-type: none"> <li>➤ A facility under which scheduled commercial banks can borrow additional amount of overnight money from the Reserve Bank by dipping into their Statutory <b>Liquidity Ratio (SLR)</b> portfolio up to a limit at a penal rate of interest.</li> <li>➤ This provides a safety valve against unanticipated liquidity shocks to the banking system.</li> </ul>
<b>Corridor:</b>	➤ The MSF rate and reverse repo rate determine the <b>corridor for the daily movement in the weighted average call money rate</b> .
<b>Bank Rate:</b>	<ul style="list-style-type: none"> <li>➤ It is the rate at which the RBI is ready to buy or rediscount bills of exchange or other commercial papers. The Bank Rate is published under <b>Section 49 of the RBI Act, 1934</b>.</li> <li>➤ This rate has been aligned to the MSF rate and, therefore, changes automatically as and when the MSF rate changes alongside policy repo rate changes.</li> </ul>
<b>Cash Reserve Ratio (CRR):</b>	➤ The average daily balance that a bank is required to maintain with the Reserve Bank as a share of such per cent of its <b>Net demand and time liabilities (NDTL)</b> that the Reserve Bank may notify from time to time in the <b>Gazette of India</b> .
<b>Statutory Liquidity Ratio (SLR):</b>	<ul style="list-style-type: none"> <li>➤ The share of NDTL that a bank is required to maintain in safe and liquid assets, such as, <b>unencumbered government securities, cash and gold</b>.</li> <li>➤ Changes in SLR often influence the availability of resources in the banking system for lending to the private sector.</li> </ul>
<b>Open Market Operations (OMOs):</b>	➤ These include both, outright purchase and sale of government securities, for injection and absorption of durable liquidity, respectively.
<b>Market Stabilisation Scheme (MSS):</b>	<ul style="list-style-type: none"> <li>➤ This instrument for monetary management <b>was introduced in 2004</b>.</li> <li>➤ Surplus liquidity of a more enduring nature arising from large capital inflows is absorbed through sale of short-dated government securities and treasury bills.</li> <li>➤ The cash so mobilised is <b>held in a separate government account with the RBI</b>.</li> </ul>

Note:



## Evergreening of Loans

### Why in News?

The Governor of the Reserve Bank of India (RBI), recently addressed bank boards and expressed concerns about banks adopting over-aggressive growth strategies and engaging in the evergreening of loans.

- The governor emphasized the need for robust corporate governance and highlighted instances of concealing the true status of stressed loans.

### What is the Evergreening of Loans?

- **About:**
  - Evergreening loans, a form of zombie lending, is a practice of extending new or additional loans to a borrower who is unable to repay the existing loans, thereby concealing the true status of the non-performing assets (NPAs) or bad loans.
- **Approaches Utilised for Evergreening Loans:**
  - Selling and buying back loans or debt instruments between two lenders to avoid classifying them as NPAs.
  - Persuading good borrowers to enter into structured deals with stressed borrowers to hide their default.
  - Using internal or office accounts to adjust the repayment obligations of borrowers.
  - Renewing or disbursing new loans to stressed borrowers or related entities closer to the repayment date of earlier loans.
- **Impact:**
  - Evergreening loans can create a false impression of the asset quality and profitability of banks and delay the recognition and resolution of stressed assets.
  - It can also undermine the credit discipline and moral hazard among borrowers, and erode the trust and confidence of depositors, investors and regulators.

#### What is a Non-Performing Asset?

- NPA refers to a classification for loans or advances that are in default or are in arrears on scheduled payments of principal or interest.
- Banks are required to classify non-performing assets further into the following three categories based on the period for which the asset has remained non-performing and the realizability of the dues:

- **Sub-standard Assets:** A substandard asset is an asset classified as an NPA for a period less than or equal to 12 months
- **Doubtful Assets:** A doubtful asset is an asset that has been nonperforming for a period exceeding 12 months.
- **Loss Assets:** Assets that are uncollectible and where there is little, or no hope of recovery and that needs to be fully written off.

#### ➤ Loan write-off Vs. Evergreening:

- **Loan write-offs** are a process of removing bad loans from the books of banks after making adequate provisions for them. **Loan write-offs do not mean that the borrowers are relieved of their repayment obligations** or that the banks stop pursuing recovery from them. Loan write-offs are done to **clean up the balance sheet of banks and reflect their true financial position.**
  - Write-off exercise has enabled banks to reduce their non-performing assets, or defaulted loans, by Rs 10,09,510 crore (\$123.86 billion) in the last five years.
  - Evergreening of loans, on the other hand, is a practice of extending new or additional loans to a borrower who is unable to repay the existing loans, thereby concealing the true status of the non-performing assets (NPAs) or bad loans.
- **Initiatives by RBI:**
  - The RBI has cautioned banks against adopting over-aggressive growth strategies, underpricing or over-pricing of products, concentration or lack of diversification in deposit or credit profile, which can expose them to higher risks and vulnerabilities.
  - The RBI has also implemented various measures to support the banking sector, including providing liquidity support, regulatory forbearance, the establishment of an asset reconstruction company (ARC), and the resolution framework.
    - However, the RBI has highlighted that these measures alone are insufficient if banks do not improve their risk management and governance practices.
  - Several banks have faced penalties imposed by the RBI for violating various norms related to KYC (Know Your Customer), customer grievance redressal, fraud reporting, etc.

Note:



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- Supervisory action has also been initiated by the RBI against some large private sector banks for governance lapses.

**Note:** An **Asset Reconstruction Company** is a specialised financial institution that specialises in acquiring and resolving **non-performing assets (NPAs)** of banks and other financial institutions. ARCs were introduced in India in the late 1990s as a response to the **increasing problem of NPAs in the banking sector**.

### How can Evergreening of Loans be Controlled?

- **Enhanced Risk Assessment:** Financial institutions should adopt **robust risk assessment practices** to evaluate the creditworthiness of borrowers accurately.
  - This involves conducting thorough due **diligence**, **analyzing repayment capacity**, and **assessing the viability of the borrower's business model**. By accurately identifying potential risks, lenders can avoid the need for evergreening loans.
- **Transparent Reporting and Disclosure:** Transparency is crucial in preventing evergreening of loans. **Lenders should provide accurate and timely information on their loan portfolios**, including non-performing loans (NPLs) and loan restructuring.
  - Clear and transparent disclosure requirements enable regulators, investors, and other stakeholders to assess the financial health of banks and identify any potential evergreening practices.
- **Asset-liability Management:** There is a need to lay emphasis on the **importance of asset-liability management (ALM)**,
  - ALM involves **assessing and monitoring the potential risks arising from the maturity mismatch between assets and liabilities**, interest rate fluctuations, and other market risks.
  - Banks have been advised to promptly **interact with the media in order to dispel any misinformation or rumours on social media** that can trigger panic among depositors.
- **ESG (Environmental, Social, and Governance) Norms:** There is a **need for banks to comply with ESG (Environmental, Social, and Governance) norms** as they are becoming increasingly relevant for investors and stakeholders.
  - Banks should **adopt sustainable business practices**, **disclose their ESG performance**, and align their lending policies with national and international goals on climate change and social welfare.

- ESG goals are a set of standards for a company's operations that force companies to follow **better governance, ethical practices, environment-friendly measures and social responsibility**.

### ➤ Recommendations of P J Nayak Committee:

- According to the **Committee to Review Governance of Boards of Banks in India**, wherever significant **evergreening in a bank is detected by the RBI**, **penalties should be levied through cancellations of unvested stock options** and claw-back of monetary bonuses on officers concerned and on all whole-time directors, and the Chairman of the audit committee be asked to step down from the board.

## Prepaid Payment Instrument

### Why in News?

A committee reviewing customer service standards for **RBI (Reserve Bank of India)** regulated entities has recommended the extension of **Deposit Insurance and Credit Guarantee Corporation (DICGC)** to **Prepaid Payment Instrument (PPI)** to protect against fraud and unauthorized transactions.

- The committee has recommended that the RBI should examine the possibility of extending DICGC cover to PPI segment, including bank **PPIs and later non-bank PPIs**.
- The RBI should incentivize regulated entities to improve customer service and **strengthen overall customer protection efforts**.

### What are Prepaid Payment Instruments?

- **About:**
  - PPIs are instruments **that facilitate the purchase of goods and services**, conduct of financial services and **enable Remittance facilities**, among others, against the money stored in them.
  - PPIs can be issued as cards or wallets.
  - There are **two types of PPIs**,
- Small PPIs and full-KYC (know your customer) PPIs. Further, small PPIs are categorized as – PPIs up to Rs 10,000 (with cash loading facility) and PPIs up to Rs 10,000 (with no cash loading facility).
  - PPIs can be loaded/reloaded by cash, **debit to a bank account, or credit** and debit cards.
    - The cash loading of PPIs is limited to **Rs 50,000 per month subject** to the overall limit of the PPI.

Note:

➤ **Issuance:**

- PPIs can be issued by banks and non-banks **after obtaining approval from the RBI**.
  - As of November 2022, over 58 banks have been permitted to issue and operate prepaid payment instruments.
  - There are **33 non-bank PPI issuers** as of May 2023.

**What is DICGC?**➤ **About:**

- DICGC is a **wholly owned subsidiary of the RBI** and provides deposit insurance.

➤ The deposit insurance system **plays an important role in maintaining the stability** of the financial system, particularly by **assuring the small depositors of the protection** of their deposits in the event of a bank failure.

- The deposit insurance extended by DICGC covers all commercial banks including **Local Area Banks (LABs), Payments Banks (PBs), Small Finance Banks (SFBs), Regional Rural Banks (RRBs)** and **co-operative banks**, that are licensed by the RBI.

➤ **Coverage:**

- DICGC insures all deposits such as savings, fixed, current and recurring including accrued interest.
- Each depositor in a bank is **insured up to a maximum of Rs 5 lakh** for both principal and interest amount held by them as on the date of liquidation or failure of a bank.
  - The earlier insurance **cover provided by DICGC was Rs 1 lakh**. However, the limit of insurance cover for depositors in insured banks was raised to Rs 5 lakh in 2020.
- **DICGC does not cover,**
  - Deposits of foreign Governments.
  - Deposits of Central/State Governments.
  - Inter-bank deposits.
  - Deposits of the State Land Development Banks with the State co-operative banks.
  - Any amount due on account of any deposit received outside India.
  - Any amount which has been specifically exempted by the corporation with the previous approval of the RBI.

➤ **Funds:**

- The Corporation maintains the following funds:
  - **Deposit Insurance Fund**
  - **Credit Guarantee Fund**
  - **General Fund**
- The first two are funded respectively by the insurance premia and guarantee fees received and are utilised for settlement of the respective claims.
- The General Fund is utilised for meeting the establishment and administrative expenses of the Corporation.

## **RBI's Planned 'Lightweight' Payments and Settlement System**

**Why in News?**

The **Reserve Bank of India (RBI)** recently announced plans to introduce a '**Lightweight**' **Payment and Settlement System (LPSS)** for emergencies which was proposed in RBI's annual report for 2022-23.

- The lightweight system **aims to provide resilience and continuity of payment and settlement systems** while ensuring efficiency during emergencies.

**What is RBI's Planned LPSS?**➤ **About:**

- LPSS is independent of conventional technologies and wired networks that underlie existing payment systems such as **UPI, NEFT, and RTGS**.

➤ **Background:**

- As a part of the '**Utkarsh 2.0**' initiative, RBI will put in place a resilient framework for oversight of **Centralized Payment Systems — NEFT and RTGS**.
- It will also look to upgrade the RTGS system, including improvements to the existing ones and the introduction of new functionalities.

➤ **Enhancing Payment System Resilience:**

- LPSS for emergencies ensures **resilience and continuity of payment and settlement systems** during extreme and volatile situations.
- Conventional payment systems like UPI, NEFT, and RTGS are **vulnerable to disruptions** caused by **natural calamities or war** due to their dependence on complex wired networks and advanced IT infrastructure.

Note:



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- Disruptions in existing systems can **affect liquidity pipeline** and hamper essential payment services.
- Lightweight system provides a **portable and easily activated solution** that can be **operated remotely with minimal resources**.
- It serves as a **backup option for critical transactions**, maintaining stability and ensuring the availability of essential payment services.

#### ➤ Working Procedure:

- **Minimal Staff:**
  - The system will have a **bare minimum of trained staff who will handle payment** and settlement operations securely and efficiently. They will also **coordinate with government agencies, financial institutions, market participants, and service providers**.
- **Focus on Essential Transactions:**
  - The system will process only those transactions that are crucial for maintaining the stability of the economy, such as **government and market-related transactions**.
  - Retail or individual transactions that can be deferred or conducted through alternative modes **will not be handled**.
- **Simplified Authentication and Verification:**
  - The system will employ a simplified mechanism to **ensure the integrity and validity of transactions**. It will also maintain transaction records for **reconciliation and audit purposes**.

#### ➤ Benefits:

- Ensures **near-zero downtime of the payment** and settlement system during emergencies.
- Facilitates uninterrupted functioning of essential payment services, including **bulk payments, interbank payments, and provision of cash to participant institutions**.
- Enhances **public confidence in digital payments** and financial market infrastructure.
- Acts as a **deterrent against malicious attacks or sabotage attempts** on existing payment systems.

#### ➤ Challenges:

- Requires **careful planning and coordination** among stakeholders for readiness and effectiveness.
- Requires **testing and validation of functionality, security, and reliability before deployment**.

- Requires **regular training and capacity building of staff**.
- Requires **constant monitoring and evaluation of performance** and impact.

## Limits on UPI Transactions

### Why In News?

With record rise in **Unified Payments Interface (UPI)** transactions, Banks and UPI apps have decided to impose daily limits on UPI transactions on top of the limits set by the **National Payments Corporation of India (NPCI)** in 2021.

### What Limits have been Imposed on UPI Transactions?

#### ➤ Limits by NPCI:

- Currently, users can make up to **20 transactions or ₹1 lakh in a single day**, either all **at once or throughout the day**.
- Certain specific categories of transactions, such as **capital markets, collections, insurance, and forward inward remittances**, have a **higher limit of ₹2 lakh**.
- For UPI-based ASBA (Application Supported by Blocked Amount system) IPO and **retail direct schemes**, the limit for each transaction was increased to **₹5 lakh** in December 2021.
  - ASBA is a facility for investors to participate in Initial Public Offerings (IPOs) and invest in the stock market.
  - It **enables investors to apply for shares without transferring the funds upfront** to the IPO issuer or stockbroker. Instead, the investor's **application money is temporarily blocked** in their bank account until the shares are allotted.

#### ➤ Limits by Banks/Apps:

- Some banks and apps have set their **own transaction limits**.
  - For example, Punjab National Bank (PNB) and Bank of Baroda have a lower limit of ₹25,000, with PNB's daily limit being ₹50,000.

Note:



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- Google Pay users face a breach of the daily limit if they attempt to send money more than ten times in a single day across all UPI apps.

### What is the Significance of Limits?

- The imposition of limits **helps maintain the security infrastructure of UPI** and ensures its **seamless functioning**.
- Limits assist in **preventing potential fraud** and risk concerns while **balancing customer convenience**.
- **Higher limits** are set for **specific categories with higher average transaction values**, such as capital markets or credit card bill payments.

### What are the Most

#### Recent Trends Observed with respect to UPI?

- In May, 2023, the total number of transactions facilitated using UPI reached 9,415.19 million, with a **combined value of ₹14.89 lakh crore**.
- Share of **P2P (peer-to-peer) transactions** among total UPI transactions is about **43%**, while the rest are P2M (peer-to-merchant).
- In the **P2P** category, the **majority of transactions were in the below ₹500 bracket (54.2%)**, while in the **P2M** category, the share in the same amount bracket was **84.3%**.

### What is National Payments Corporation of India (NPCI)?

- It is an **umbrella organisation for operating retail payments and settlement systems** in India.
- It is an initiative of **Reserve Bank of India (RBI)** and **Indian Banks' Association (IBA)** under the provisions of the Payment and Settlement Systems Act, 2007.
- It has been incorporated as a **"Not for Profit" Company** under the provisions of Section 25 of Companies Act 1956 (now Section 8 of Companies Act 2013).
- The ten core promoter banks are **State Bank of India, Punjab National Bank, Canara Bank, Bank of Baroda, Union Bank of India, Bank of India, ICICI Bank, HDFC Bank, Citibank and HSBC**.
- In 2016 the shareholding was broad-based to 56 member banks to include more banks representing all sectors.

## Salt Cavern Based Oil Reserves: SPR

### Why in News?

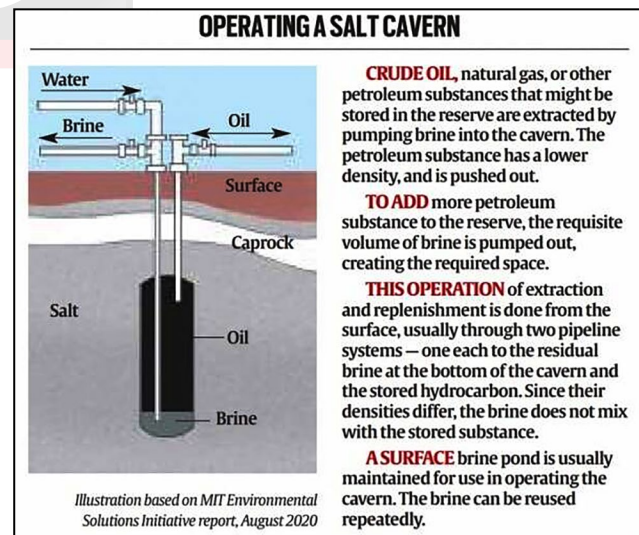
Government-owned engineering consultancy firm **Engineers India Ltd. (EIL)** is studying the prospects and feasibility of developing **Salt Cavern-Based Strategic oil Reserves** in Rajasthan.

- The study is in line with the government's objective of **increasing the country's strategic oil storage capacity**.

### What is Salt Cavern-based Reserves?

#### ➤ About:

- Salt caverns are underground spaces formed by **dissolving salt in water through a process called solution mining**.
- This method involves **pumping water into areas with large salt deposits** to dissolve the salt and create caverns. Once the brine (water with dissolved salt) is removed, these caverns can be used to store crude oil.



#### ➤ Rock Based Cavern:

- Excavated rock-based caverns for oil reserves are underground spaces created by **manually excavating and removing rock materials** to form large storage cavities.
- Excavated rock caverns are constructed by **drilling, blasting, and removing rock layers** to create the desired storage space. The rock walls and ceilings

Note:



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of these caverns serve as the natural **barriers for containing the stored oil**.

➤ **Significance of Salt Based-Cavern Over Rock Based Cavern:**

- Salt cavern **development is simpler, faster, and less expensive**. Salt cavern-based oil storage facilities are **naturally well-sealed and designed for efficient oil injection and extraction**.
- A report by MIT's Environmental Solutions Initiative suggests that storing oil in salt caverns is **more favorable than other geological formations**.
- The salt lining **the caverns has very low oil absorbency**, creating a natural impermeable barrier against liquid and gaseous hydrocarbons. This characteristic makes salt caverns suitable for oil storage.
  - The **United States' Strategic Petroleum Reserve (SPR)**, the largest emergency oil storage globally, **relies exclusively on salt cavern-based facilities**.

➤ **Potential of Salt Based Cavern:**

- Salt cavern-based storage, which is considered cheaper and less labour- and cost-intensive than rock caverns, **could add a new, much-needed chapter** to India's SPR story.
- Rajasthan, with its abundant salt formations, is considered the **most suitable location in India** for developing salt cavern-based strategic storage facilities.
- The presence of a refinery in Barmer and crude oil pipelines in Rajasthan **makes the infrastructure conducive for building strategic oil reserves**.

**What are the Challenges to Build a Salt Based Cavern for Oil Reserves?**

- Indian companies have **lacked the technical expertise required to construct salt cavern-based strategic storage facilities**.
  - However, EIL has recently partnered with Germany, a company specializing in cavern storage and solution mining technology, to bridge this knowledge gap.
- Identifying suitable sites for salt cavern-based storage facilities is crucial. While Rajasthan has abundant salt formations and favorable infrastructure such as crude pipelines and a new refinery in Barmer, **specific sites within the region need to be assessed for their geological and technical suitability**.

- Estimating the project cost is a challenge until the technology and knowledge required for building salt cavern-based storage facilities are obtained. Factors such as site preparation, construction, and operational considerations need to be taken into account, along with other associated costs.

**What is India's Strategic Petroleum Reserves Programme?**

➤ **About:**

- The construction of the Strategic Crude Oil Storage facilities in India is being managed by **Indian Strategic Petroleum Reserves Limited (ISPRL)**.
  - ISPRL is a wholly owned subsidiary of Oil Industry Development Board (OIDB) under the Ministry of Petroleum & Natural Gas.
- Strategic crude oil storages are at Mangalore (Karnataka), Visakhapatnam (Andhra Pradesh) and Padur (Karnataka) as per Phase I. They have fuel storage of **total 5.33 MMT (Million Metric Tonnes)**.

➤ **Additional Reserves under PPP:**

- The government of India is planning to set up two more such caverns at Chandikhol (Odisha) and Udupi (Karnataka) as per phase II through **Public-Private Partnership**. This will give an additional 6.5 million tons of the oil reserves.
- After the new facilities get functional, a total of 22 days (10+12) of oil consumption will be made available.

➤ **Capacity/Industrial Stock:**

- With the strategic facilities, Indian refiners also maintain crude oil storage (industrial stock) of 65 days.
- Thus, approximately a total of 87 days (22 by strategic reserves + 65 by Indian refiners) of oil consumption will be made available in India after completion of Phase II of the SPR programme.
  - This will be very close to the 90 days mandate by the IEA.
- India became an associate member of the IEA in 2017 and recently, **IEA has invited India to become a full time member**.

Note:



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## Strategic Petroleum Reserves

### SPR-I

Gol has set up 5.33 MMT of strategic crude oil storages in SPR Phase-I at following 3 locations:

Vishakhapatnam, AP

Mangalore, Karnataka

Padur, Karnataka

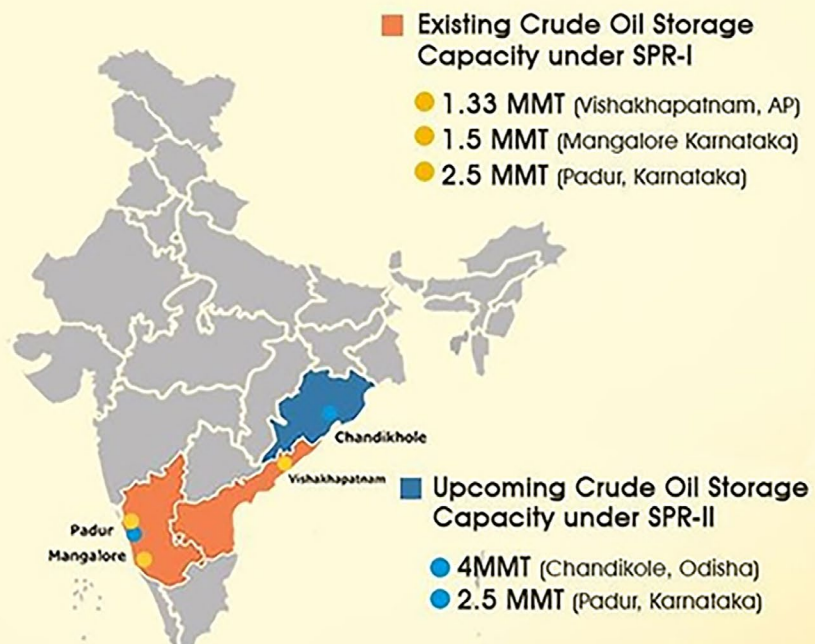
SPR-I has been commissioned and dedicated to the Nation in Feb' 2019

### SPR-II

Another 6.5 MMT of strategic crude reserves is being planned in SPR-II at:

Chandikhole, Odisha

Padur, Karnataka



#### ➤ Need for Expanding the Capacity of SPR:

- India, the world's third-largest consumer of crude, depends on imports for more than 85% of its requirement — and **SPR** can help **ensure energy security and availability during global supply shocks** and other emergencies.
- India is in the process of expanding its SPR capacity by a cumulative 6.5 million tonnes at two locations — Chandikhol in Odisha (4 million tonnes) and Padur (2.5 million tonnes).
- India currently has an **SPR capacity of 5.33 million tonnes**, or around 39 million barrels of crude, that can meet around 9.5 days of demand.

## Global Dependence on Oil and Natural Gas

### Why in News?

According to a new report from **Climate Action Tracker (CAT)**, a non-profit organisation, the world's largest fossil fuel-producing countries have neither made a commitment to end oil and gas production nor have they set a global target for renewable energy.

- The upcoming **UNFCCC COP 28** shall focus on putting an end to oil and gas production.

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

#### ➤ Lack of Global Consensus:

- New oil and gas investments should have ended by now; there exists a globally accepted consensus on phasing out coal but there's **no such agreement on oil and gas**.
- Though India called for a phasedown of all fossil fuels at **COP27 in Egypt**, a concrete decision regarding the same could not be finalized.

#### ➤ Performance of Developed Countries:

- As of now, only **Sweden, Denmark, France and Spain have set an end date** while France, Sweden, Colombia, Ireland, Portugal, New Zealand and Spain have halted new oil and gas exploration and production.
- **On the contrary, the US** - world's largest oil and gas producer, has **more than doubled oil production since 2010**.
  - Australia - world's largest **LNG** exporter, projects an **11% increase in its LNG production** between 2020 and 2030.

#### ➤ CSS as an Alternative and its Challenges:

- The UAE - world's 7<sup>th</sup> largest oil producer and 15<sup>th</sup> largest fossil gas producer has been **pushing for the use of Carbon Capture and Storage (CCS)** in the energy sector **instead of phasing out oil and gas**.

Note:



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- CCS involves capturing CO<sub>2</sub> from power plants and other industrial processes, instead of emitting them into the atmosphere.
- Currently, **CCS captures less than 0.1% of global carbon emissions** accounting to technological, economic, institutional, ecological, environmental and socio-cultural barriers.
- CCS is expensive and **could end up becoming a stranded asset; investments in CCS could rob funds from renewable energy projects.**
- Other countries already investing in CSS techniques include the US, Australia and Canada. Saudi Arabia is looking to deploy CCS to reach its net zero climate targets.

### ***What is the Scenario of Oil and Gas Production/Consumption?***

- **Global Scenario:**
  - According to the **International Energy Agency (IEA)**, global production, transportation and processing of oil and gas emitted the **equivalent of 5.1 billion tonnes of CO<sub>2</sub> in 2022** - almost **15%** of total energy-related greenhouse gas emissions.
  - Oil and gas production is **one of the largest emitters of methane**, a potent greenhouse gas and a significant contributor of air pollution emissions.
  - Under the **IEA's Net Zero by 2050 (NZE) scenario**, the emissions intensity of oil and gas activities needs to be roughly halved by the end of this decade, leading to a **60% overall reduction in total emissions from oil and gas operations.**
- **Major Producers and Consumers:**
  - The top oil-producing nations in 2022 were the **United States, Saudi Arabia, Russia, Canada, and China**, with **OPEC** remaining a powerful cartel of oil producers.
  - The US became the top petroleum liquids producer in the world accounting for 20% of the world's production in 2022.
  - The top oil consuming countries of 2022 were the **US < China < India < Russia < Japan < Saudi Arabia < Brazil < South Korea < Canada < Germany.**
- **India's Scenario:**
  - India is still highly exposed to the industrial activities related to fossil fuels - it is the **world's 3rd largest oil consumer** at around 5 million barrels a day with an **annual growth rate of oil demand at 3-4%.**

- India's import dependency in oil and natural gas has also increased - in the case of natural gas, the **net import dependency** rose from just over 30% (2012-13) to nearly **48% (2021-22).**
- Crude oil has also seen a similar increase in imports.

### ***Why are the Countries not Restricting Oil and Gas Production?***

- **Economic Considerations:** Oil and natural gas production often play a significant role in a country's economy, contributing to government revenues, employment, and overall economic growth.
- **Energy Security:** Oil and natural gas are essential for energy security; countries prioritise ensuring a steady and reliable supply of energy to increased production to meet domestic demand and reduce dependence on imports.
- **Geopolitical Considerations:** Some nations may use energy production as a tool for political leverage or to exert influence over other nations, which can impact production control efforts.
- **Domestic Political Factors:** Political considerations, including domestic pressure and competing interests, can influence production decisions. Governments may face opposition from stakeholders, including industry groups, local communities, or political factions, which can complicate efforts to control production.

### ***How can the Dependence on Oil and Gas be Reduced?***

- **Setting Concrete Targets:** Developed countries have absolutely no excuse - new oil and gas investments should have ended already. All the countries, especially richer countries, need to lead on this, and set phase-out dates for all fossil fuel production.
- **Embrace Renewable Energy Innovation:** Countries shall invest in research and development to accelerate the advancement of renewable energy technologies.
  - This includes funding for breakthrough technologies such as next-generation solar panels, advanced wind turbines, and energy storage solutions.
- **Foster International Collaboration:** Countries can collaborate on research, knowledge sharing, and joint initiatives to develop innovative solutions for reducing oil and natural gas consumption.

Note:

- Sharing best practices and lessons learned can accelerate progress globally.
- **Aid for Capacity Building:** Developed countries shall assist developing countries in building their capacity to implement sustainable energy projects through technical assistance, training programs, and knowledge sharing.
- **Green Industrialisation:** Countries shall promote the development of green industries, such as renewable energy manufacturing, to create local job opportunities, increase energy self-sufficiency, and reduce dependence on fossil fuel imports.

## Li-ion Battery Recycling Technology to Boost Circular Economy

### Why in News?

The **Ministry of Electronics and Information Technology (MeitY)** in India has taken a significant step towards promoting a **circular economy** by transferring a **cost-effective Li-ion battery recycling technology** to nine recycling industries and start-ups.

- The technology was developed under the “**Centre of Excellence on E-waste management**” at the **Centre for Materials for Electronics Technology (C-MET), Hyderabad**, in collaboration with the **Government of Telangana** and industry partner **M/s Greenko Energies Pvt. Ltd., Hyderabad**.
- This initiative is part of the **Mission Lifestyle for the Environment (LiFE)** under the “**Promote circularity campaign.**”

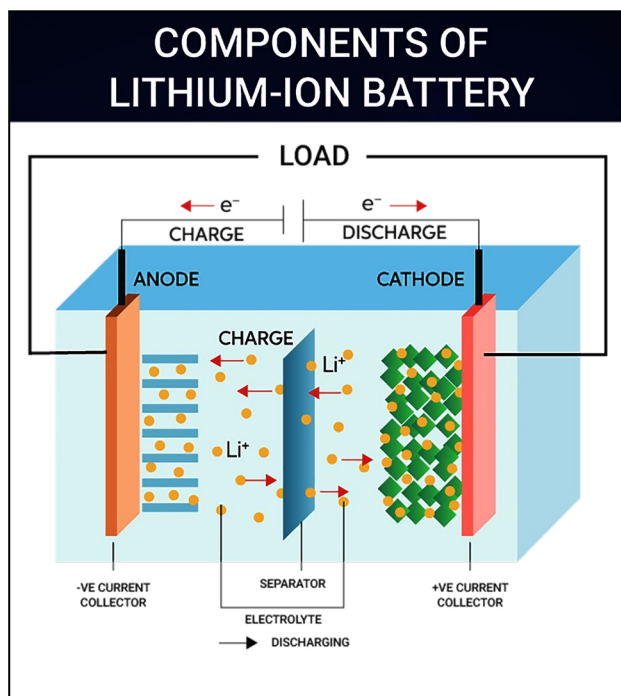
### What is the Recently Invented Recycling Technology?

- The recycling technology for Li-ion batteries is designed to efficiently process and recover valuable materials from discarded batteries.
- The process begins by **soaking the batteries in a solution** to **extract** the valuable metals.
  - The solution aids in the separation and extraction of **metals** such as **Lithium (Li)**, **Cobalt (Co)**, **Manganese (Mn)**, and **Nickel (Ni)**, enabling the recovery of over **95% of their contents in the form of corresponding oxides/carbonates** with a **purity of approximately 98%**.

- These metals are then transformed into their pure forms, **ready to be reused in making new batteries or other useful applications.**
- This technology ensures that **over 95% of these valuable metals are recovered from batteries.**
- By recycling the batteries, we can reduce the need for mining new resources and contribute to a more sustainable environment.
- The recycling technology for Li-ion batteries plays a crucial role in promoting a **circular economy.**
- What is a Li-ion Battery?

### About:

- A lithium-ion (Li-ion) battery is a type of **rechargeable battery.**
- Li-ion batteries use an intercalated (Intercalation is the reversible inclusion or insertion of a molecule into materials with layered structures) **lithium compound as one electrode material, compared to the metallic lithium used in a non-rechargeable lithium battery.**
- The battery consists of an **electrolyte, which allows for ionic movement**, and the two electrodes are the constituent components of a lithium-ion battery cell.
- **Lithium ions** move from the **negative electrode** to the **positive electrode** during **discharge** and **back** when **charging.**



Note:

➤ **Applications:**

- Electronic gadgets, Tele-communication, Aerospace, Industrial applications.
- Lithium-ion battery technology has made it the favourite power source for electric and hybrid electric vehicles.

➤ **Disadvantages of Li-ion Batteries:**

- Long charging times.
- Safety issues as instances of batteries catching fires have been there.
- Expensive to manufacture.
- While the Li-ion batteries are seen as sufficiently efficient for applications such as phones and laptops, in case of EVs, these cells still lack the range that would make them a viable alternative to internal combustion engines.

**What is Lithium?**➤ **About:**

- Lithium (Li), sometimes also referred as '**White gold**' due to its high demand for rechargeable batteries, is a soft and silvery-white metal.

➤ **Extraction:**

- Lithium can be extracted in different ways, depending on the type of the deposit — generally either through **solar evaporation of large brine pools**, or from **hard-rock extraction of the ore**.

➤ **Uses:**

- Lithium is an important component of **electrochemical cells** used in batteries of EVs, Laptops, Mobiles etc.
- It is also used in **thermonuclear reactions**.
- It is used to make alloys with aluminium and magnesium, improving their strength and making them lighter.
  - **Magnesium-lithium alloy** - for armour plating.
  - **Aluminum-lithium alloys** - in aircraft, bicycle frames and high-speed trains.

➤ **Major Global Lithium Reserves:**

- Chile > Australia > Argentina are top countries with Li reserves.
- **Lithium Triangle:** Chile, Argentina, Bolivia.

➤ **Lithium Reserves in India:**

- Preliminary survey showed estimated lithium reserves of 14,100 tonnes in a small patch of land surveyed in **Southern Karnataka's Mandya district**.

○ **Other potential sites:**

- Mica belts in **Rajasthan, Bihar, Andhra Pradesh**.
- Pegmatite belts in **Odisha** and **Chhattisgarh**.
- **Rann of Kutch** in Gujrat.

## India's Renewable Energy Growth Praised by IRENA

### Why in News?

A recent report called 'Low-cost finance for energy transition,' released by the **International Renewable Energy Agency (IRENA)**, has recognized and praised India's outstanding progress in expanding its renewable energy capacity.

- The report describes India's achievements as "unprecedented".

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

➤ **Unprecedented Growth in Renewable Energy Sector:**○ **National Targets:**

- India aims to achieve **175 GW (100 GW from solar, 60 GW from wind)** of renewable energy capacity **by 2022** and **500 GW of non-fossil fuel capacity by 2030**.

○ **Net-zero Target:**

- India aims to achieve **net-zero greenhouse gas emissions by 2070**, requiring an estimated \$10 trillion of investment.

○ **Renewable Energy Attractive Index:**

- India ranked **third on the index in 2021**, showcasing its commitment to renewable energy development.

○ **Solar and Wind Power Base:**

- India possesses the **fourth-largest solar and wind power** base globally, experiencing rapid growth.

○ **Supportive Policy Framework:**

- The Indian government's comprehensive policies have effectively supported the achievement of national targets.

➤ **Praiseworthy role played by IREDA:**○ **Financing Renewable Energy Projects:**

- IREDA (Indian Renewable Energy Development Agency) has played a crucial role in commissioning approximately 20 GW of renewable energy capacity through financing to developers.

Note:



- **Mobilizing Private Sector Capital:**
  - **Green bonds** attract private sector investment, reducing the cost of capital for green projects.
  - Overall green bond issuance in India has reached \$18.3 billion cumulatively, with a record issuance of \$7 billion in 2021.
- **Pioneering New Technologies:**
  - IREDA has promoted emerging technologies such as **battery energy storage systems, green hydrogen electrolyzers, e-mobility, and waste-to-energy** through innovative financing policies.
- **Supportive Government:**
  - **Issuance of Sovereign Bonds:**
    - The Indian government's sovereign bond issuance aims to reduce supply from non-green bonds, lowering overall bond yields.
  - **Investor Participation:**
    - Local banks and insurance companies predominantly purchased the bonds, with some foreign bank involvement.
  - **Regulatory Benefits:**
    - **Green bond investments qualify towards** the Reserve Bank of India's **statutory liquidity ratio** and are classified as infrastructure investments by insurance companies.
  - **Fully Accessible Route for Foreign Investors:**
    - Investment in sovereign green bonds is categorized as specified securities, allowing unlimited investment by foreign investors.

#### What is IRENA?

##### ➤ About:

- It is an intergovernmental organisation, it was officially founded in Bonn, Germany, in January 2009.
- Currently it has 167 members, India is the 77th Founding Member of IRENA.
- It has its headquarters in Abu Dhabi, United Arab Emirates.

##### ➤ Major Functions:

- It supports countries in their transition to a sustainable energy future, and serves as the principal platform for international cooperation, a centre of excellence, and a repository of policy, technology, resource and financial knowledge on renewable energy.

- It promotes the widespread adoption and sustainable use of all forms of renewable energy, including bioenergy, geothermal, hydropower, ocean, solar and wind energy in the pursuit of sustainable development, energy access, energy security and low-carbon economic growth and prosperity.

#### What is IREDA?

- Indian Renewable Energy Development Agency Limited (IREDA) is a Mini Ratna (Category – I) Government of India Enterprise under the administrative control of Ministry of New and Renewable Energy (MNRE).
- IREDA is a Public Limited Government Company established as a Non-Banking Financial Institution in 1987 engaged in promoting, developing and extending financial assistance for setting up projects relating to new and renewable sources of energy and energy efficiency/conservation
- The motto of the IREDA is "ENERGY FOR EVER".

## Inclusion of Urea in Nutrient-Based Subsidy Regime

### Why in News?

In its non-price policy recommendations for the **Kharif crops 2023-2024** season, the **Commission for Agricultural Costs and Prices (CACP)** has recommended that **Urea** should be brought under the **Nutrient-Based Subsidy (NBS) regime** to address the problem of **imbalanced nutrient usage in agriculture**.

- Currently, urea is excluded from the NBS scheme, which has led to disproportionate use and deteriorating soil health.

#### Commission for Agricultural Costs and Prices

- The CACP is a statutory body of the **Ministry of Agriculture and Farmers Welfare, formed in 1965**.
- Currently, the Commission comprises a Chairman, Member Secretary, one Member (Official) and two Members (Non-Official).
  - The non-official members are representatives of the farming community and usually have an active association with the farming community.

Note:



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- It is mandated to recommend Minimum Support Prices (MSPs) to incentivize the cultivators to adopt modern technology and raise productivity and overall grain production.
- CACP submits separate reports recommending prices for Kharif and Rabi seasons.

### ***What is the Need for***

#### ***Urea to be Included under NBS Regime?***

- **Inadequate Supply of Natural Gas:**
  - Due to inadequate natural gas supplies, the capacity to produce urea fertilizer in India is limited, **leading to an increase in imports**. These imported urea fertilizers have a higher subsidy burden **per tonne compared to domestic urea**.
  - Additionally, the high global prices of raw materials for complex fertilizers further complicate the **government's efforts to contain fertilizer subsidies** in the medium-term.
  - As a result, the government's efforts to control fertilizer **subsidies will face challenges in the medium-term**, and subsidy amounts are likely to increase due to rising demand.
- **Imbalanced Nutrient Usage:**
  - Over the years, the excessive use of urea in agriculture has contributed to **worsening plant nutrient imbalance**. Non-urea fertilizers like phosphorus and potassium are **covered under the NBS**, where subsidies are linked to their nutrient content.
  - However, urea **remains outside this regime**, enabling the government to retain direct control over its maximum retail price (MRP) and subsidy.
  - This **discrepancy in pricing has led farmers to overuse urea**, neglecting other essential nutrients and causing soil health degradation.
- **Impact of Pricing Policies:**
  - While the MRP of urea has remained **unchanged at Rs 5,360 per metric tonne (MT)**, the prices of other fertilizers, such as **Diammonium Phosphate (DAP)** have increased over time.
  - The freedom granted to manufacturers of non-urea fertilizers to set MRPs within reasonable limits, along with fixed per-tonne subsidies based on nutrient content, has **contributed to their rising prices**.

- Consequently, the sales of urea have been significantly higher compared to other fertilizers, **exacerbating the nutrient imbalance** in agriculture.

### ***What are the Recommendations?***

- **Bringing Urea under the NBS Regime:**
  - It will enable **subsidies to be linked to the nutrient content** of urea and promote the balanced application of fertilizers.
- **Introducing a Cap on Subsidized Fertilizer Bags:**
  - The government should set a **cap on the number of subsidised bags of fertilizers per farmer** as has been done for **subsidised LPG cylinders**, to reduce the government's subsidy burden.
- **Leveraging Technology and Identification Systems:**
  - The CACP highlights the ease of implementing the proposed cap on subsidized fertilizers by utilizing Point of Sale devices installed at retailer shops.
  - Beneficiaries can be identified through Aadhaar Card, Kisan Credit Card (KCC), Voter Identity Card, among other identification methods.

### ***What is the NBS Regime?***

- **About:**
  - Under the NBS regime – fertilizers are provided to the farmers at subsidized rates based on the **Nutrients (N, P, K & S) contained** in these fertilizers.
  - Also, the fertilizers which are fortified with secondary and micronutrients such as molybdenum (Mo) and zinc **are given additional subsidy**.
  - The subsidy on P&K fertilizers is announced by the Government on an annual basis for **each nutrient on a per kg basis** – which are determined taking into account the international and domestic prices of P&K fertilizers, **exchange rate, inventory level in the country etc.**
  - NBS policy intends **to increase the consumption of P&K fertilizers** so that optimum **balance (N:P:K= 4:2:1) of NPK fertilization** is achieved.
- **Significance:**
  - This will improve **soil health and as a result the yield from the crops** would increase, resulting in enhanced income to the farmers.
  - It will make rational use of fertilizers; this would also ease **off the burden of fertilizer subsidy**.

Note:

### What are the Challenges Related to NBS?

- **Economic and Environmental Costs:**
  - The fertilizer subsidy, including the NBS policy, imposes a significant financial burden on the economy. It ranks as the **second-largest subsidy after food subsidy**, straining fiscal health.
  - Additionally, imbalanced fertilizer usage due to the pricing disparity has adverse **environmental consequences, such as soil degradation** and nutrient runoff, impacting long-term agricultural sustainability.
- **Black Marketing and Diversion:**
  - Subsidized urea is susceptible to **black marketing and diversion**. It is sometimes illegally sold to bulk buyers, traders, or non-agricultural users like plywood and animal feed manufacturers.
  - Moreover, there are **instances of subsidized urea being smuggled to neighboring countries like Bangladesh and Nepal**, leading to the loss of subsidized fertilizers intended for domestic agricultural use.
- **Leakage and Misuse:**
  - The NBS regime relies on an efficient distribution system to ensure that subsidized fertilizers reach the intended beneficiaries, i.e., farmers.
  - However, there may be instances of leakage and misuse, where subsidized fertilizers do not reach farmers or are used for non-agricultural purposes. This undermines the **effectiveness of the subsidy and denies genuine farmers** access to affordable fertilizers.
- **Regional Disparities:**
  - Agricultural practices, soil conditions, and crop nutrient requirements vary across different regions of the country.
  - Implementing a **uniform NBS regime may not adequately address** the specific needs and regional disparities, potentially leading to suboptimal nutrient application and productivity variations.

## Primary Agricultural Credit Societies

### Why in News?

In the direction of realizing the Prime Minister's vision of "**Sahkar Se Samridhi**", the Government has taken five

new decisions to increase the income of **Primary Agricultural Credit Societies (PACS)**, as well as increase the employment opportunities in rural areas.

- Government aims to achieve overall prosperity in the country through the mantra of "**Sahkar Se Samridhi**". It was proposed to **strengthen Cooperatives by bringing transparency, modernization, and creating competitiveness**.

### What are the New Five Decisions?

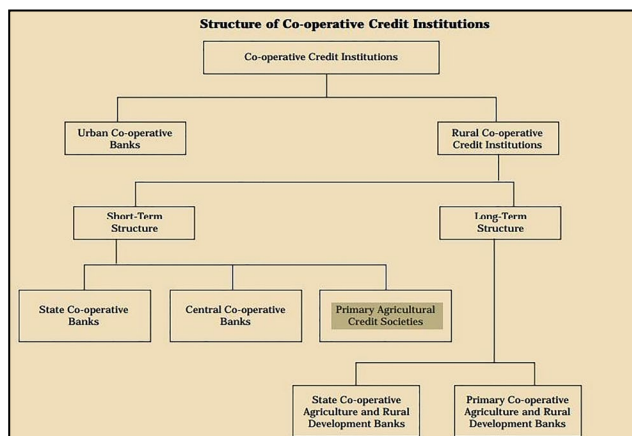
- PACS which are not functioning as **fertilizer retailers will be identified and they will be encouraged to function as retailers** on the basis of feasibility in a phased manner.
- PACS which are not currently functioning as **Pradhan Mantri Kisan Samridhi Kendras (PMKSK)** will be brought under the ambit of PMKSK.
- The Prime Minister inaugurated 600 PMKSK in 2022 under the Ministry of Chemicals & Fertilisers.
- PMKSK will cater to a wide variety of needs of the farmers and **provide agri-inputs, testing facilities** for soil, seeds, and fertilisers.
- PACS will be connected with the **marketing of organic Fertilizers, especially Fermented Organic Manure (FoM) / Liquid Fermented Organic Manure (LFOM) / Phosphate Enriched Organic Manure (PROM)**.
- Under the **Market Development Assistance (MDA) scheme** of Department of Fertilizers, fertilizer companies will act as an aggregator for small bio-organic producers to market the end product, in this supply and marketing chain of bio-organic fertilizers PACS will also be included as wholesalers/retailers.
- PACS can also be employed as **Drone** entrepreneurs for spraying fertilizers and pesticides. Drones can also be used for survey of property.

### What are Primary Agricultural Credit Societies?

- **About:**
  - PACS are village level **cooperative credit societies** that serve as the last link in a three-tier cooperative credit structure headed by the **State Cooperative Banks (SCB)** at the state level.
  - Credit from the SCBs is transferred to the **District Central Cooperative Banks (DCCBs)**, which operate at the district level. The DCCBs work with PACS, which deal directly with farmers.

Note:

- PACSs provide short-term, and medium-term agricultural loans to the **farmers for the various agricultural and farming activities**.
- The first PACS was **formed in 1904**.



#### ➤ Status:

- A report published by the Reserve Bank of India on December 27, 2022 put the number of PACS at 1.02 lakh. At the end of March 2021, only 47,297 of them were in profit.

#### ➤ Significance:

##### ○ Access to Credit:

- They provide **small farmers with access to credit**, which they can use to **purchase seeds, fertilizers, and other inputs** for their farms. This helps them to improve their production and increase their income.

##### ○ Financial Inclusion:

- PACS help to increase **financial inclusion in rural areas**, where access to formal financial services is limited. They provide **basic banking services**, such as savings and loan accounts, to farmers who may not have access to formal banking services.

##### ○ Convenient Services:

- PACS are often **located in rural areas**, which makes it convenient for **farmers to access** their services. PACS have the **capacity to extend credit** with minimal paperwork within a short time.

##### ○ Promoting Savings Culture:

- PACS encourage **farmers to save money**, which can be used to improve their livelihoods and invest in their farms.

##### ○ Enhancing Credit Discipline:

- PACS promote **credit discipline among farmers** by requiring them to repay their loans on time. This helps to **reduce the risk of default**, which can be a major challenge in the rural financial sector.

### What are the Issues with the PACS?

#### ➤ Inadequate Coverage:

- Though geographically active PACS cover **about 90% of 5.8 villages**, there are parts of the country, especially in the north-east, where this coverage is very low.
- Further, the **rural population covered as members is only 50%** of all the rural households.

#### ➤ Inadequate Resources:

- The resources of the **PACS are much too inadequate in relation to the short-and medium-term credit needs** of the rural economy.
- The bulk of even these inadequate funds come from higher financing agencies and **not through owned funds of societies** or deposit mobilization by them.

#### ➤ Overdues and NPAs:

- Large over-dues have **become a big problem** for the PACS.
  - As per the RBI report in 2022, PACS had reported lending worth Rs 1,43,044 crore and NPAs of Rs 72,550 crore. Maharashtra has 20,897 PACS of which 11,326 are in losses.
- They curb the **circulation of loanable funds**, reduce the borrowing as well as lending power of societies, and give them the bad image that the societies of defaulting debtors are willful.

## Centre Sets Minimum Support Price for Kharif Crops

### Why in News?

The Indian government has approved the **Minimum Support Price (MSP) for kharif crops for the 2023-24 season**, aiming to provide fair remuneration to farmers.

- However, concerns have been raised by farmers' organisations regarding the increase not keeping up with rising input costs.

Note:

### What is Minimum Support Price?

- **MSP** is the guaranteed amount paid to farmers when the government buys their produce.
  - Government announces **MSPs for 22 mandated crops and fair and remunerative price (FRP)** for sugarcane.
    - The mandated crops are **14 crops of the kharif season, 6 rabi crops and two other commercial crops**.
  - In addition, the **MSPs of toria and de-husked coconut are fixed on the basis of the MSPs of rapeseed/mustard and copra**, respectively.
  - MSP is based on the recommendations of the **Commission for Agricultural Costs and Prices (CACP)**, which considers various factors such as cost of production, demand and supply, market price trends, inter-crop price parity, etc.
  - **CACP is an attached office of the Ministry of Agriculture and Farmers Welfare**, Government of India. It came into existence in **January 1965**.
  - The **Cabinet Committee on Economic Affairs (CCEA)** chaired by the Prime Minister of India takes the final decision (approve) on the level of MSPs.
  - The MSP is aimed at ensuring remunerative prices to growers for their produce and encouraging **crop diversification**.

#### What are Kharif Crops?

- Kharif crops are the crops that are sown in the rainy season, **from June to September**.
  - Some of the major kharif crops are **paddy, maize, millets, pulses, oilseeds, cotton and sugarcane**.
- Kharif crops account for about **55% of the total foodgrain production in India**.

### What is the MSP for Kharif Crops for 2023-24?

- The Centre claimed that the hike in MSP for kharif crops for 2023-24 is in line with the **Union Budget 2018-19** announcement of **fixing the MSP at a level of at least 1.5 times the All-India weighted average cost of production**.
  - The **MSP has been hiked for all 14 kharif crops in the range of 5.3 to 10.35 %**. In absolute terms, it has been increased by **Rs 128 to Rs 805 per quintal**.
  - **Green gram (moong)** got the highest hike of **10.4% over 2022-23** followed by **sesamum** that saw an increase of **10.3%**.

### MINIMUM SUPPORT PRICES FOR KHARIF MARKETING SEASON (IN Rs)



Crops	2022-23	2023-24	Increase (%)
Moong	7,755	8,558	10.35
Sesamum	7,830	8,635	10.28
Cotton (Long Staple)	6,380	7,020	10.03
Groundnut	5,850	6,377	9.01
Cotton (Medium Staple)	6,080	6,620	8.88
Jowar- Maldandi	2,990	3,225	7.86
Ragi	3,578	3,846	7.49
Jowar-Hybrid	2,970	3,180	7.07
Paddy-Common	2,040	2,183	7.01
Soybean (Yellow)	4,300	4,600	6.98
Paddy-Grade A	2,060	2,203	6.94
Maize	1,962	2,090	6.52
Bajra	2,350	2,500	6.38
Nigerseed	7,287	7,734	6.13
Tur/Arhar	6,600	7,000	6.06
Sunflower Seed	6,400	6,760	5.63
Urad	6,600	6,950	5.30

### What are the Concerns of the Farmers?

- **Inadequate Cost Consideration:** They have pointed out that the **cost of production used by the CACP to calculate the MSP(A2+FL costs)** does not include all the expenses incurred by the farmers such as **rent of land, interest on loans, family labour, etc.**
  - They have demanded that the MSP should be based on the **comprehensive cost of production (C2)** as recommended by the **Swaminathan Commission**.

#### Three Kinds of Production Cost:

- **'A2':** Covers all paid-out costs directly incurred by the farmer in cash and kind on seeds, fertilisers, pesticides, hired labour, leased-in land, fuel, irrigation, etc.
- **'A2+FL':** Includes A2 plus an imputed value of unpaid family labour.
- **'C2':** It is a more comprehensive cost that factors in rentals and interest forgone on owned land and fixed capital assets, on top of A2+FL.
- **Lack of Market Reflection:** They have also argued that the **MSP does not reflect the actual market conditions and the inflationary trends**.

Note:



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- They have demanded that the **MSP should be linked to the wholesale price index (WPI)** or the consumer price index (CPI) to ensure fair returns to the farmers.
- **Doubts over Procurement Mechanism:** They have also raised doubts over the **procurement mechanism and the availability of adequate infrastructure** and storage facilities to ensure that the farmers get the MSP for their produce.
- They have alleged that the government often resorts to import or export policies to manipulate the market prices and undermine the MSP.
- **Regional Disparities and Crop-Specific Issues:** They have also highlighted the regional disparities and crop-specific issues in the implementation of the MSP.
  - They have claimed that the **MSP benefits only a few crops and a few states, while leaving out many other crops and regions.**
  - They have demanded that the **MSP should be extended to all crops and all states, and that there should be a legal guarantee for the MSP**

## Direct-Seeding Method

### Why in News?

Farmers in leading rice-growing states are adopting the **direct-seeding method** as a solution to **delayed rains and labor shortages**.

### What is Direct-Seeding Method?

- **About:**
  - Direct Seeded Rice (DSR), also known as the **'broadcasting seed technique,' is a water-saving method of sowing paddy.**
  - In this method, **seeds are directly drilled into the fields**, eliminating the need for nursery preparation and transplantation.
- **Benefits:**
  - **Reduction in Labor:**
    - With the use of drum seeders, only two laborers are required to sow seeds on one acre, compared to 25-30 laborers needed in traditional methods.
      - This significantly **reduces labor costs and eases the burden on farmers.**
  - **Time and Resource Savings:**

- By eliminating the need for nursery cultivation, farmers save **approximately 30 days in the crop cycle.**
- This allows them to start the rabi season early and avoid untimely rains during the harvesting phase.
- **Water Conservation:**
  - The direct-seeding method reduces water requirements by around 15% as water logging occurs only after a month. This is especially beneficial in areas where rainfall is delayed.
- **Increase in Yield:**
  - According to the results from research trials and farmers' field survey, after this technique the **yield is one to two quintals per acre higher than puddled transplanted rice.**
- **Challenges:**
  - **Weed Growth:**
    - Weed growth becomes a challenge as **seeds are sown directly into the fields.**
  - **Extreme climate:**
    - High temperatures and deficient rainfall can **affect seed germination and crop growth.**
  - **Operational challenges:**
    - Closed canals, erratic electricity supply, and issues with weed control and pest management.
  - **Successful Implementations:**
    - The direct-seeding method has gained traction in various regions, including **Punjab, Telangana, and Andhra Pradesh.**
  - In Andhra Pradesh alone, an NGO has implemented this method on approximately 4,000 hectares, resulting in significant cost savings.

## Food Supply Situation in India Ahead of Monsoon 2023

### Why in News?

As the monsoon season approaches, the **food supply situation in India** is being closely monitored. While there are currently no shortages, the **spatial and temporal distribution of the monsoon** rainfall plays a crucial role.

Note:



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- The **India Meteorological Department (IMD)** has forecasted just-about-normal rainfall during the **southwest monsoon season (June-September)**.
- The implications of the monsoon on food supply will have a significant impact on the **Reserve Bank of India's monetary policy**.

### ***What is the Current Status of the Food Supply?***

- **Fine Balance in Wheat:**
  - Unseasonal rain and gusty winds in March and early April in 2023 **affected standing wheat crops**.
  - However, the yield losses were not as severe as initially feared.
  - Government agencies have **procured about 26.2 million tonnes** of wheat during the current marketing season, **ensuring sufficient stocks**.
  - Although wheat stocks appear low, the combined stocks of **wheat and rice are ample to meet the requirements** of the **public distribution system** and other **welfare schemes**.
- **Relief in Milk Supply:**
  - February-March 2023 witnessed unprecedented **milk** shortages, leading to soaring prices.
    - However, the situation has improved due to a comparatively **mild summer and favorable pre-monsoon showers**.
  - Improved fodder supplies and high milk prices have triggered a supply response from farmers.
- **Tightrope Walk in Sugar:**
  - The closing stocks of sugar for the current sugar year (October-September 2023) are projected to be 5.7 million tonnes.
  - This level of stocks can meet the domestic requirement for 2.5 months, including the peak festival season demand.
  - The main concern is the **monsoon's impact on sugarcane**, which requires **significant water during the growth phase**.
  - **Sugar** production for the next year depends on a normal monsoon.
- **Edible Oil and Pulses:**
  - The supply position for edible oils seems comfortable due to viable imports covering domestic crop shortfalls.
  - **Global price crashes** have made imported **crude palm, soybean, and sunflower oil** affordable.

- Ample stocks of **chickpeas** and imports of masoor red lentils contribute to a comfortable supply of pulses.

### **What is the Global Standing of India's Agricultural Sector in 2022-23?**

- **Milk Production:**
  - India takes the lead as the **world's largest producer of milk**.
- **Wheat Production:**
  - Following China, India is the **second-largest producer** of wheat globally.
- **Rice Production:**
  - India is the **second largest producer** of rice, and at **Number One in exports**.
- **Sugar Production:**
  - India has emerged as the largest producer and consumer of sugar, while also being the **second-largest exporter**.
- **Pulses Production:**
  - India stands as the **largest producer of pulses globally**.

### ***How Does Food Supply Impact RBI's Monetary Policy?***

- **Food Supply and Inflation:**
  - Food supply impacts the **prices of food items**, which contributes to the **consumer price index (CPI)** used to **measure inflation**.
  - High food inflation directly affects **headline inflation**, which reflects overall price changes in the economy.
  - High food inflation can **reduce consumers' purchasing power**, leading to lower demand for other goods and services and affecting economic growth.
  - Industries relying on food inputs, such as beverages, **may face increased production costs** during high food inflation.
  - High food inflation can cause **social and political unrest**, particularly among the **poor** who spend a significant portion of their income on food.
- **Food Supply and Monetary Policy:**
  - Monetary policy involves **regulating money and credit supply** to achieve **price stability, growth, and financial stability**.

Note:



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- The **repo rate**, set by the central bank, influences interest rates, including lending rates, deposit rates, bond yields, and exchange rates.
- Changes in the repo rate impact aggregate demand and supply, which influence inflation and growth.
- The central bank considers various factors, such as **inflation, growth, fiscal policy, global conditions, and financial stability**, when adjusting the repo rate.
- Food supply is closely monitored by the central bank due to its implications for inflation and growth outcomes.
- The central bank assesses the impact of food supply shocks on both **headline inflation and core inflation** (excluding volatile items like food and fuel).
- Persistence and pass-through of food inflation to other sectors of the economy are also taken into account.
- Government policies affecting food supply, such as **minimum support prices (MSPs), procurement,**

**buffer stocks**, and the **public distribution system (PDS)**, are considered by the central bank.

- Based on its assessment, the central bank may adjust the repo rate to achieve its **inflation target of 4% with a tolerance band of +/- 2%.**

### ***What are Government Initiatives Related to Food Security?***

- **National Food Security Mission.**
- **National Food Security Act (NFSA) 2013.**
- **Rashtriya Krishi Vikas Yojana (RKVY).**
- **Integrated Schemes on Oilseeds, Pulses, Palm oil and Maize (ISOPOM).**
- **eNAM Portal.**
- **Minimum Support Prices (MSP) for Agricultural products.**
- **Pradhan Mantri Fasal Bima Yojana (PMFBY).**
- **National Horticulture Mission.**

■■■

Note:

# International Relations

## Highlights

- India-US Relations
- Indo-US Cooperation in Agriculture
- India New Zealand Round Table Meeting
- Strengthening India-Nepal Cooperation
- India's Commitment to UN Peacekeeping
- Global DPI Summit
- Call for a New Treaty for Outer Space
- Third Employment Working Group Meet
- Atlantic Declaration
- Indonesia's Peace Plan to End Russia-Ukraine Conflict
- Kosovo-Serbia Conflict

## India-US Relations

### Why in News?

India and the United States have agreed to initiate negotiations for a 'Security of Supply' (SoS) arrangement and a 'Reciprocal Defence Procurement' (RDP) agreement, aiming to promote long-term supply chain stability and enhance security and defense cooperation between both countries.

- A SoS agreement is a **bilateral or multilateral agreement between countries** aimed at ensuring the availability

and stability of critical supplies, particularly in the field of defense and security.

- An RDP agreement is a bilateral agreement between countries in the field of defense procurement. It is designed to **facilitate reciprocal procurement of defense items and promote cooperation** in research, development, and production of defense equipment.

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

- **Assembling Electric Jets in India:**
  - Both sides discussed the deal for assembling **General Electric GE-414 jets** in India, which is yet to be finalized.
- **Defence Industrial Cooperation:**
  - The roadmap for 'Defence Industrial Cooperation' has been concluded between India and the US, guiding their **policy direction for the next few years**.
  - Both countries will identify opportunities for co-development of new technologies and co-production of existing and new systems, promoting collaboration between defense start-up ecosystems.
- **Capacity Building and Infrastructure Development:**
  - Capacity building, including **Maritime Domain Awareness (MDA)** and strategic infrastructure development.
  - Increase sourcing by US companies from India, particularly Boeing under the mega-civil aircraft deal with Air India.
    - The establishment of Maintenance, Repair and Overhaul (MRO) facilities by US companies in India to cater to the equipment used by the Indian armed forces and the region.



Note:

- **US-India Defence Acceleration Ecosystem (INDUS-X):**
  - The US-India Business Council will launch the INDUS-X initiative to advance **cutting-edge technology cooperation between US and Indian companies**, investors, start-up accelerators, and academic research institutions.

### ***How have been India's Relations with the US?***

- **About:**
  - The U.S.-India strategic partnership is founded on **shared values including a commitment to democracy and upholding** the rules-based international system.
  - Both have shared interests in promoting global security, stability, and economic prosperity through trade, investment, and connectivity.
- **Economic Relations:**
  - The **U.S. has emerged as India's biggest trading partner in 2022-23** on account of **increasing economic ties** between the two countries.
  - The bilateral trade between India and the U.S. has increased by **7.65% to USD 128.55 in 2022-23** as against **USD 119.5 billion in 2021-22**.
    - Exports to the U.S. rose by 2.81% to USD 78.31 billion in 2022-23 as against USD 76.18 billion in 2021-22, while imports grew by about 16% to USD 50.24 billion.
- **International Cooperations:**
  - India and the United States cooperate closely at multilateral organizations, including the **United Nations, G-20, Association of Southeast Asian Nations (ASEAN)** Regional Forum, **International Monetary Fund, World Bank, and World Trade Organization**.
  - The United States welcomed India joining the UN Security Council in 2021 for **a two-year term** and supports a reformed UN Security Council that includes India as a permanent member.
  - Together with Australia and Japan, the United States and **India convene as the Quad** to promote a free and open Indo-Pacific and provide tangible benefits to the region.
  - India is also one of twelve countries partnering with the United States on the **Indo-Pacific Economic Framework for Prosperity (IPEF)**.

- India is a member of the **Indian Ocean Rim Association (IORA)**, at which the United States is a dialogue partner.
- In 2021, the United States joined the International Solar Alliance headquartered in India, and in 2022 the **United States Agency for International Development (USAID)**.

## **Indo-US Cooperation in Agriculture**

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

Examining the historical involvement of the **United States** in the agricultural progress of independent India holds significance within the framework of Prime Minister of India's imminent visit to the US.

- Like, **Soviet Union's** role in independent India's early industrialization through supply of capital equipment and technology, the United States (the institutions like of **Rockefeller and Ford Foundation**) played in India's agricultural development through the establishment of agricultural universities and the **Green Revolution**.

### ***What is Role of US in the Agricultural Development of India?***

- **Development of Universities:**
  - Govind Ballabh Pant established the **first agricultural university in Pantnagar, Uttarakhand, based on the US land-grant model**.
  - This university integrated teaching, research, and extension services, aiming to **provide an ideal environment for learning, problem-solving research, and knowledge dissemination to farmers**.
    - The university, later named G.B. Pant University of Agriculture & Technology, was inaugurated by Prime Minister Jawaharlal Nehru on November 17, 1960.
  - Hannah's blueprint published by **Indian Council of Agricultural Research (ICAR)** led to the **establishment of eight agricultural universities in India**.
  - The US Agency for International Development supported these universities with faculty training, equipment, and books. Each university had research farms, regional stations, sub-stations, and seed production facilities.

Note:



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### STATE AGRICULTURAL UNIVERSITIES AND THEIR MENTORING US INSTITUTIONS

Name of University	Date of Establishment	US Partner
Uttar Pradesh Agricultural University, Pantnagar	Nov 17, 1960	University of Illinois
Rajasthan Agricultural University, Udaipur	Jul 12, 1962	Ohio State University
Orissa University of Agriculture and Technology, Bhubaneswar	Aug 24, 1962	University of Missouri
Punjab Agricultural University, Ludhiana	Jul 8, 1963	Ohio State University
Andhra Pradesh Agricultural University, Hyderabad	Jun 12, 1964	Kansas State University
Mysore University of Agricultural Sciences, Bangalore	Aug 21, 1964	University of Tennessee
Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (MP)	Oct 2, 1964	University of Illinois
Maharashtra Agricultural University, Rahuri	Mar 29, 1968	Pennsylvania State University

#### ➤ Green Revolution's Seeds:

- The **Green Revolution (started by Norman Borlough of US)** entailed breeding semi-dwarf varieties with strong stems that didn't lodge. These could "tolerate" high fertilizer application. The more the inputs (nutrients and water), the more the output (grain) produced.
- '**Norin-10**', a short (grew to only 2-2.5 feet, as against the 4.5-5 feet height of traditional tall varieties) wheat variety, gave 25% higher grain yields. Norman Borlaug crossed these with the spring wheats grown in Mexico.
- Traditional **wheat and rice varieties were tall and slender**. They grew vertically on application of fertilizers and water, while "lodging" (bending over or even falling) when their ear-heads were heavy with well-filled grains.
- M.S. Swaminathan, (scientist at the **Indian Agricultural Research Institute (IARI)** in New Delhi, got in touch with Borlaug who came to India only in March 1963.
- Borlaug **sent the seeds of four Mexican wheat varieties** bred by him, which **were first sown in the trial fields of IARI** and the new agricultural universities at Pantnagar and Ludhiana.
- By 1966-67, **farmers were planting these in large scale and India**, from being an importer, turned self-sufficient in wheat.
  - Much of its wheat imports earlier, ironically, came from the US under its **Public Law 480 food aid programme**.

## India New Zealand Round Table Meeting

### Why in News?

Recently, the **first Round Table Joint Meeting** between India and New Zealand with the industry and industry associations of both the countries took place in New Delhi.

- The meeting was co-chaired by the **Additional Secretary, Department of Commerce** and **High Commissioner** of New Zealand.



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

- Both the countries acknowledged the **huge potential in India and New Zealand partnership** and the need for **bringing in synergy for enhanced economic relations** in areas of mutual interest.
  - There was an acknowledged need to work beyond any free trade agreement and explore other areas where both can complement each other.
- The discussions focused on taking forward the objectives of the **Joint Trade Committee (JTC)**, formed under the **Bilateral Trade Agreement of 1986**.
- New Zealand emphasised on facilitating trade and association with private sectors with some of the key areas being the **promotion of Unified Payment Interface (UPI) system**, **carbon credit co-operation**

Note:



and working on issues like the requests on **non-tariff measures for bilateral gains** to the businesses of both the sides.

- The need for **increasing the air connectivity links** between the two countries was also emphasised.

#### What are the Key Points about New Zealand?

- **Official Name:** New Zealand/Aotearoa (Maori)
- **Form of Government:** Parliamentary democracy
- **Capital:** Wellington
- **Official Languages:** English, Maori
- **Currency:** New Zealand dollar
- **Major Mountain Ranges:** Southern Alps, Kaikoura Ranges
- **Highest Mountain Peak:** Mount Cook (3,754 meters) - called "**Cloud Piercer**" by Maori people
- **Major Rivers:** Waikato, Clurtha, Rangitaiki, Wanganui, Manawatu, Buller, Rakaia, Waitaki and Waiau
- **2 Main Islands:** North and South Islands - separated by the **Cook Strait**

#### How are India's Relations with New Zealand?

- **Historical Relations:** India and New Zealand have a longstanding, friendly and growing relationship with ties going back to the 1800s, when Indians settled in Christchurch around the 1850s.
  - Larger numbers of immigrants from Punjab and Gujarat came to New Zealand in the 1890s. Indian troops fought alongside the **Anzacs in Gallipoli in 1915**.
- **Political Relations:** India and New Zealand have cordial and friendly relations **rooted in the linkages of the Commonwealth**, parliamentary democracy, and the English language.
  - Both countries became independent in the same year and **diplomatic representation of India was established in 1950**.
  - Other common interests of the two countries include their commitment to disarmament, **North-South Dialogue**, human rights, ecological preservation and combating international terrorism.
  - New Zealand identified **India as a priority country in its "Opening Doors to India" policy** notified in October 2011, which was reiterated in 2015.
    - **Cooperation during Covid-19 Pandemic:** Both countries cooperated extensively both bilaterally

in fighting against the pandemic by **ensuring the continuity of supply chains of essential commodities, medicines, and vaccines**.

- India and New Zealand also facilitated the repatriation of each other's nationals stranded in the wake of **Covid-19**.
- **Trade Relations:** India is New Zealand's **11<sup>th</sup> largest two-way trading partner** with total two-way trade valued at USD 1.80 billion during the year ending September 2020.
  - **Education and tourism are New Zealand's growth sectors** with India.
  - Indian students (~15000 in number pre-pandemic) are the 2nd largest source of international students for New Zealand.
  - India primarily **imports logs and forestry products, wood pulp, wool and edible fruit & nuts** from New Zealand and exports mostly pharmaceuticals/medications, precious metals and gems, textiles and motor vehicles and non-knitted apparel and accessories to New Zealand.
  - India shares **Free Trade Agreements (FTAs)** with New Zealand.
- **Business Alliances:** India -New Zealand Business Council (INZBC) and India New Zealand Trade Alliance (INZTA) are the two prominent organizations working to promote India-NZ trade and investment relations.
- **Cultural Relations:** All Indian festivals including Diwali, Holi, Rakshabandhan, Baisakhi, Guruparv, Onam, Pongal, etc. are celebrated with much enthusiasm all over New Zealand.
  - New Zealand has approximately 2,50,000 persons of Indian origin & NRIs, a vast majority of which has made New Zealand their permanent home.
    - **Civil Aviation Cooperation:** Given the large Indian diaspora in New Zealand and increasing two-way tourism flow, there is a strong case for a direct air connection between the two countries which might prove to be a game-change for all aspects of bilateral relations.
  - The direct flights operated between the two countries under the **Vande Bharat Mission** have strengthened the prospects of a direct weekly flight as and when the possibility becomes commercially feasible for airlines.

Note:



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## Strengthening India-Nepal Cooperation

### Why in News?

**India and Nepal** have recently unveiled **several initiatives and agreements** during the 4-day visit of the Prime Minister of Nepal to India to boost their bilateral cooperation in the fields of energy and transport development, **aiming to strengthen ties and facilitate regional connectivity**.

### What are the Major Highlights of Recent Agreement?

#### ➤ Power Sector Cooperation:

- **Long-Term Power Trade Agreement:** India and Nepal signed a long-term Power Trade Agreement, targeting the import of **10,000 MW of electricity from Nepal in the coming years**.
- **Hydropower Projects:** Memoranda of Understanding (MoUs) were signed between **National Hydroelectric Power Corporation (NHPC), India and Vidyut Utpadan Company Ltd, Nepal** for the development of the **Phukot Karnali Hydroelectric Project** and the **Lower Arun Hydroelectric Project**.
- **Also**, the two Prime Ministers expressed their commitment to achieving tangible and time-bound progress on the **Pancheshwar multipurpose project**, which aims to enhance **cooperation in harnessing the shared water resources of the Mahakali River**.

**Note:** Phukot Karnali Hydro Electric Project aims to generate **480 MW of power using the flow from the Karnali River**, with an average annual generation of about 2448 GWh. It includes a high **RCC (Reinforced Concrete Cement) dam** and an **underground power house**.

#### ➤ Transport Development:

- **Transmission Line and Rail Link:** The groundbreaking ceremony for the **Gorakhpur-Bhutwal Transmission Line** and the inauguration of the **Indian Railway cargo train from Bathnaha to Nepal Customs Yard** highlighted the focus on enhancing connectivity between the two countries.
- **Integrated Checkposts (ICPs):** ICPs were inaugurated at **Nepalgunj (Nepal) and Rupaidiha (India)**, promoting smoother cross-border trade and facilitating the movement of goods and people.

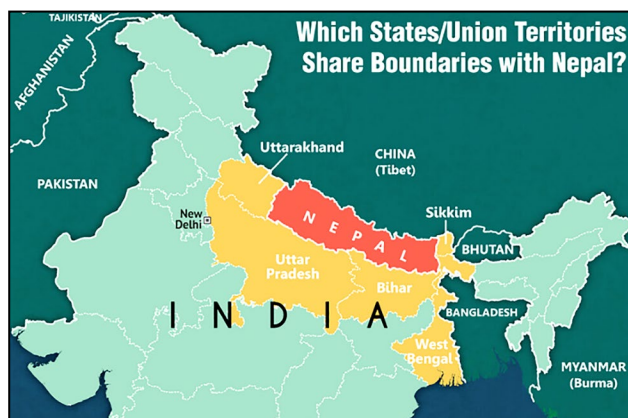
#### ➤ Other Initiatives:

- A plan to **extend South Asia's first cross-border petroleum pipeline from Motihari in India to Amlekhgunj in Nepal** by another 69 km up to Chitwan in Nepal.
  - Also, a second cross-border petroleum pipeline from **Siliguri in India to Jhapa in eastern Nepal**.
- A **revised Treaty of Transit signed on June 1, 2023**, that will give **Nepal access to India's inland waterways**.
  - This will **enable Nepal to use Indian ports such as Haldia, Kolkata, Paradip and Visakhapatnam** for its third-country trade.
  - It will also reduce transportation costs and time for Nepalese exporters and importers.
- India is also cooperating with Nepal to set up a **fertiliser plant**, emphasising the **importance of collaboration in the agricultural sector**.

### What are the Other Areas of Cooperation Between India and Nepal?

#### ➤ About:

- As close neighbours, **India and Nepal share unique ties of friendship and cooperation** characterised by an **open border and deep-rooted people-to-people contacts of kinship and culture**.
  - The **India-Nepal Treaty of Peace and Friendship of 1950** forms the bedrock of the special relations that exist between India and Nepal.
- Nepal shares a border of over **1850 km with five Indian states – Sikkim, West Bengal, Bihar, Uttar Pradesh and Uttarakhand**.
  - There has been a long tradition of free movement of people across the border.



Note:

- **Defence Cooperation:**
  - India has been assisting the **Nepal Army (NA)** in its modernisation by supplying equipment and providing training.
  - The 'Indo-Nepal Battalion-level **Joint Military Exercise Surya Kiran**' is conducted alternately in India and in Nepal.
    - Also, Currently, about **32,000 Gorkha Soldiers** from Nepal are serving in the Indian Army.
- **Economic Cooperation:**
  - India is the **largest trading partner of Nepal**. Nepal is also India's 11th largest export destination.
    - In 2022-23, India exported goods worth **USD 8 billion to Nepal while its imports were at USD 840 million**.
  - Indian firms are among the largest investors in Nepal, accounting for **more than 30% of the total approved foreign direct investments**.
- **Cultural Cooperation:**
  - India and Nepal share similar ties in terms of Hinduism and **Buddhism** with **Buddha's birthplace Lumbini** located in present day Nepal.
  - The **Swami Vivekananda Centre for Indian Culture** was set up in Kathmandu in August 2007 to showcase the best of Indian culture.
  - The **Nepal-Bharat Library** was founded in 1951 in Kathmandu. It is regarded as the first foreign library in Nepal.
- **Humanitarian Assistance:**
  - India has provided **1.54 billion Nepalese Rupees (INR nearly 96 crore)** to Nepal as part of its commitment towards assistance and rehabilitation after the **2015 earthquake**.

### **What are Recent Major Issues Related to India-Nepal Relations?**

- **Boundary Dispute:** The boundary dispute is one of the contentious issues that has strained India-Nepal relations in recent years. The dispute mainly involves two segments:
  - **Kalapani-Limpiyadhura-Lipulekh trijunction area** in western Nepal and Susta area in southern Nepal.
    - Both countries claim these areas as part of their territory based on different historical maps and treaties.

- The dispute flared up in 2020 when India inaugurated a road linking Dharchula in Uttarakhand with Lipulekh pass near the China border, which Nepal objected to as a violation of its sovereignty.
- Nepal then issued a new political map that shows Kalapani-Limpiyadhura-Lipulekh as part of its territory. India rejected this map as "artificial enlargement" of Nepalese claims.
- **China's Rising Footprints:**
  - The rise of **China's influence in Nepal** has raised concerns in India about its strategic interests in the region. China has increased its economic engagement with Nepal through projects under its **Belt and Road Initiative (BRI)** such as railways, highways, hydropower plants etc.
    - Rising Nepal and China cooperation can undermine **Nepal's distinction of a buffer state between India and China**.

## **India's Commitment to UN Peacekeeping**

### **Why in News?**

Recently, the **Indian Army** commemorated the **75<sup>th</sup> International Day of United Nations (UN) Peacekeepers** on 29<sup>th</sup> May (which was designated by the UN General Assembly) at the **National War Memorial** in New Delhi.

- **Theme 2023: 'Peace begins with me'.**
- This day holds significance as it marks the anniversary of the first **UN peacekeeping (UNPK) mission in 1948**.
- Additionally, India unveiled plans to conduct two initiatives later in 2023, specifically designed to train **women personnel from South East Asia**, as part of their collaboration with ASEAN in the defence sector.

### **What is India-ASEAN**

#### **Initiative for Women in UNPK operations?**

- The 'India-ASEAN Initiative for women in UNPK operations' refers to a collaborative effort between **India and the Association of Southeast Asian Nations (ASEAN)** to promote the **participation of women in UNPK operations**.
- This initiative focuses on **providing training and support to women personnel** from ASEAN member-states who are interested in serving as peacekeepers.

Note:



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- Under this initiative, India has announced two specific initiatives:
  - **Specialized courses at the Centre for United Nations Peacekeeping (CUNPK)** in New Delhi. These courses will offer targeted training in peacekeeping operations to women peacekeepers from ASEAN countries.
    - The aim is to **equip them with the necessary skills and knowledge** to effectively contribute to UNPK missions.
  - **Table Top Exercise for women officers from ASEAN.** This exercise will **simulate various scenarios and challenges faced by UN peacekeepers**, allowing participants to enhance their understanding and preparedness for UNPK operations.

### What is UN Peacekeeping?

- **About:**
  - UN Peacekeeping is a vital tool employed by the **United Nations** to help **countries navigate the path from conflict to peace**.
  - It involves the **deployment of military, police, and civilian personnel** to regions affected by conflicts or political instability.
  - The primary objective of UN Peacekeeping is to **facilitate peace and security, protect civilians, and support the restoration of stable governance structures**.
  - It brings together **the UN General Assembly, the UN Security Council, the Secretariat, troop and police contributors** and the host governments in a combined effort to maintain international peace and security.
- **First Mission:**
  - The first UN peacekeeping mission was established in May 1948, when the **UN Security Council** authorized the deployment of **UN military observers to the Middle East** to form the United Nations Truce Supervision Organization (UNTSO) to monitor the **Armistice Agreement between Israel and its Arab neighbours**.
- **Mandates:**
  - The mandates **vary from operation to operation**, but they generally include some or all of the following elements:
    - Monitoring ceasefires, peace agreements, and security arrangements.

- Protecting civilians, especially those at risk of physical harm.
- Facilitating political dialogue, reconciliation, and supporting elections.
- Building rule of law, security institutions, and promoting human rights.
- Delivering humanitarian aid, supporting refugee reintegration, and promoting environmental sustainability.

### ➤ Principles:

#### ○ **Consent of the Parties:**

- Peacekeeping operations require the **consent of the main parties involved in the conflict**.
  - Without consent, a peacekeeping operation risks becoming a **party to the conflict** and deviating from its peacekeeping role.

#### ○ **Impartiality:**

- Peacekeepers should maintain **impartiality in their dealings** with the parties to the conflict.
- **Impartiality does not mean neutrality**; peacekeepers should **actively execute their mandate** and **uphold international norms**.

#### ○ **Non-use of Force except in self-defence and defence of the mandate:**

- Peacekeeping operations should refrain from using force, except when necessary for **self-defence** and **protection of their mandate**.
- “Robust” peacekeeping allows the use of force with Security Council authorization and consent from the host nation and parties involved.

### ➤ Achievements:

- Since its inception in 1948, UN Peacekeeping has played a crucial role in ending conflicts and promoting reconciliation in numerous countries.
  - Successful peacekeeping missions have been carried out in places like **Cambodia, El Salvador, Mozambique, and Namibia**.
  - These operations have **made a positive impact on restoring stability**, enabling the **transition to democratic governance**, and fostering economic development.

### What are India's

### Contributions in UN Peacekeeping?

#### ➤ **Troop Contribution:**

- India has a rich legacy of contributing to UN Peacekeeping operations. It is one of the **largest**

Note:



**troop-contributing countries**, with a history of deploying soldiers, medical personnel, and engineers to various peacekeeping missions worldwide.

- India has contributed approximately 2,75,000 troops to peacekeeping missions so far.

➤ **Casualties:**

- Indian Army soldiers have made significant sacrifices while serving in UN Peacekeeping Missions, with 179 soldiers losing their lives in the line of duty.

➤ **Training and infrastructure:**

- The Indian Army has established the **Centre for United Nations Peacekeeping (CUNPK)** in New Delhi.
  - This center provides specialized training for more than 12,000 troops every year in peacekeeping operations, hosting national and international courses for potential peacekeepers and trainers.
  - CUNPK plays a crucial role in sharing best practices and enhancing the capacity of peacekeepers.

➤ **Women in Peacekeeping:**

- India has taken proactive measures to promote gender equality in peacekeeping operations.
  - India has deployed **Female Engagement Teams** in **United Nations Organization Stabilization Mission** in the **Democratic Republic of the Congo** and **United Nations Interim Security Force for Abyei**, which is the **second largest women contingent after Liberia**.
  - India has also deployed **Women Military Police** in **United Nations Disengagement Observer Force** and women staff officers and military observers in various missions.

## Global DPI Summit

### Why in News?

The third meeting of the **G20 Digital Economy Working Group (DEWG)** commenced in Pune, Maharashtra with the inauguration of the **Global DPI (Digital Public Infrastructure) Summit** and Exhibition.

- The session explored **common principles and design aspects of DPI**, including open standards, partnerships, interoperability, and affordability.
- India has also introduced the idea to form an alliance of countries, called **One Future Alliance**, which would allow like-minded nations to **use technology to improve people's lives**.

**NOTE:** The DEWG, originally called DETF, was formed in 2017 as part of the German G20 presidency with the aim of promoting the implementation of a **secure, interconnected, and inclusive digital economy**.

- With the global digital economy estimated to be worth USD 11 trillion and expected to reach USD 23 trillion by 2025, **the DEWG plays a critical role in shaping global policy** discourse in the digital space.

### What are the Highlights of the Summit?

➤ **Setting the Stage for DPI Advancements:**

- India's role as a test case for successful DPI implementation and digital transformation was underscored.
- India **signed MoUs with Armenia, Sierra Leone, and Suriname** to share its successful digital solutions implemented at scale through the **India Stack**.

➤ **Digital Identities for Empowering People:**

- The session focused **on the role of digital identity** as the foundation for national priorities and social cohesion.
- Different models of implementation, such as centralized, federated, and **decentralized**, were discussed.
- India's Aadhaar and the Philippine's PhilSys were highlighted as notable examples.

➤ **Digital Payments and Financial Inclusion:**

- The session explored the **role of DPI in facilitating fast and inclusive digital payments**.
- Discussions included **settlement types, risk management, user onboarding costs**, and bridging the financial divide through DPI.

➤ **DPI for Judicial Systems and Regulations:**

- The session discussed the implementation of **DPI in judicial systems**.
- Topics covered included **e-court systems, e-filing, paperless courts**, live streaming, and the need for appropriate institutions and regulations to instill trust in DPI-powered judiciary systems.

➤ **Draft PKI Mutual Recognition Framework:**

- Draft **Public Key Infrastructure (PKI)** Mutual Recognition Framework has been released by Ministry of Electronics & IT, Government of India with an **aim to take the lead on the subject of implementation** and adoption of India's DPI beyond the country's borders.

Note:



### What is One Future Alliance?

- It is an alliance of countries to be formed to leverage technology for the **betterment of people's lives**. It aims to enable **like-minded nations to collaborate and use technology** to drive **Social, Economic, and Sustainable Development**.
- The alliance seeks to build upon the **open-source customizable stacks** that are already available and encourage countries to innovate and customize these solutions for their specific needs.
- The alliance acknowledges the evolving nature of technology, including the power of artificial intelligence and multilingual capabilities, and aims to implement and advance **Digital Public Infrastructure (DPI)** while fostering cooperation in areas such as cybersecurity and digital skilling.

#### What is Digital Public Infrastructure?

- DPI refers to **blocks or platforms such as digital identification**, payment infrastructure and data exchange solutions that help countries deliver essential services to their people, empowering citizens and improving lives by enabling digital inclusion.
- DPIs mediate the **flow of people, money and information**. First, the flow of people through **a digital ID System**. Second, the flow of money through **a real-time fast payment system**. And third, the flow of personal information through **a consent-based data sharing system** to actualize the benefits of DPIs and to empower the citizen with a real ability to control data.
  - These three sets become the foundation for developing an effective DPI ecosystem.
- Each DPI layer fills a clear need and generates considerable value across sectors.
- India, through India Stack, became the first country to develop all three foundational DPIs, **Digital identity (Aadhar), Real-time fast payment (UPI) and Account Aggregator built on the Data Empowerment Protection Architecture (DEPA)**.
  - DEPA creates a digital framework that allows users to share their data on their own terms through a third-party entity, who are known as Consent Mangers.

## Call for a New Treaty for Outer Space

### Why in News?

The **United Nations (UN)** has recently released a policy brief titled **"For All Humanity — The Future of Outer Space Governance,"** recommending the development of a new treaty to ensure **peace, security, and the prevention of an arms race** in outer space.

- The recommendations come ahead of the upcoming **UN Summit of the Future, scheduled for September 2024, in New York**. The summit aims to facilitate multilateral solutions and strengthen global governance to address future challenges.

### What are the Key Highlights?

- **Increasing Satellite Launches:**
  - There has been an exponential increase in **satellite launches over the past decade**, driven by both government and private sector participation.
    - In 2013, there were **210 new launches, which increased to 600 in 2019 and 1,200 in 2020 and 2,470 in 2022**.
  - Countries like the United States, China, India, and Japan are **leading the way in space activities**, including manned missions, lunar exploration, and resource exploitation.
    - **National Aeronautics and Space Administration (NASA)**, through its **Artemis** mission, **plans to land the first woman and the next man on the Moon**.
    - Minerals on the Moon (has rich deposits of helium 3, which is rare on Earth), asteroids (abundant deposits of valuable metals, including platinum, nickel and cobalt) and planets can be attractive for countries.
- **Lack of International Framework:**
  - There is an absence of an agreed international framework on space resource exploration, exploitation, and utilization.
  - The brief underscores the importance of establishing mechanisms **to support the implementation of space resource activities** while addressing issues of jurisdiction, control, liability, and responsibility for environmental pollution.

Note:

- **Coordination and Space Traffic Management:**
  - The current coordination of space traffic is fragmented, with different national and regional entities **employing varying standards and practices**.
  - The lack of coordination poses **challenges for countries with limited space capacity**.
- **Space Debris and Environmental Concerns:**
  - The proliferation of space debris is identified as a significant issue, with thousands of **objects posing threats to operational spacecraft**.
  - The UN calls for **legal considerations related to jurisdiction**, control, liability, and responsibility for environmental pollution caused by space debris. Technology to remove space junk is being developed, but the legal aspects require attention.

### What are the Recommendations?

- **New Treaty for Peace and Security:**
  - The UN recommends the **negotiation and development of a new treaty** to ensure peace, security, and the prevention of an arms race in outer space.
  - This treaty would **establish international norms, rules, and principles to address emerging threats** and promote responsible space activities.
- **Coordinated Space Situational Awareness:**
  - Member states are **urged to establish an effective framework for coordinating space situational awareness**, space object maneuvers, and space events. This coordination will enhance the safety and security of space operations.
- **Space Debris Removal Framework:**
  - The UN calls for the **development of norms and principles for Space Debris removal**, considering both legal and scientific aspects.
  - An effective framework for sustainable exploration, exploitation, and utilization of space resources, particularly on the Moon and other celestial bodies, is recommended.

### What is Outer Space?

- **About:**
  - Outer space, also known as space or celestial space, refers to the **vast expanse beyond Earth's atmosphere** and between celestial bodies. It is a vacuum that exists beyond the Earth's atmosphere and **extends indefinitely throughout the universe**.

Outer space is characterized by extremely low density and pressure, as well as the absence of air and other atmospheric elements.

### ➤ UN Treaties:

- The treaties commonly referred to as the **"five United Nations treaties on outer space"** are:
  - **The Outer Space Treaty 1967:** Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.
  - **Rescue Agreement 1968:** Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space.
  - **Liability Convention 1972:** Convention on International Liability for Damage Caused by Space Objects.
  - **The Registration Convention 1976:** Convention on Registration of Objects Launched into Outer Space.
  - **The Moon Agreement 1979:** Agreement Governing the Activities of States on the Moon and Other Celestial Bodies.
- India is a signatory to **all five of these treaties but has ratified only four. India did not ratify the Moon agreement**.

## Third Employment Working Group Meet

### Why in News?

The **Indian G20 Presidency** is organising the **third Employment Working Group (EWG)** meeting at the **International Labour Organization (ILO)** headquarters in **Geneva, Switzerland**.

- This meeting, which aligns with the ILO's annual **International Labour Conference**, brings together delegates from **G20 member countries**, guest countries, and international organizations including **International Labour Organization (ILO)**, **Organisation for Economic Cooperation and Development (OECD)**, **International Social Security Association (ISSA)**, **World Bank (WB)**.

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### What are the Major Highlights of the Meet?

#### ➤ Priority Areas:

- The Indian Presidency has identified three priority areas for the EWG in 2023:
  - **Addressing Global Skill Gaps:** This area focuses on developing strategies to bridge the **skill gaps prevalent in the global workforce** and enhance employability.
  - **Gig and Platform Economy and Social Protection:** Discussions centre around ensuring **social protection for workers in the gig** and platform economy, considering the evolving nature of work.
    - The **gig and platform economy** refers to a **modern work arrangement** where individuals perform **short-term, freelance, or on-demand tasks or services through digital platforms or apps**.
  - It is characterised by the **temporary and flexible nature of work, facilitated by online platforms that connect service providers (often referred to as gig workers) with customers or clients**.
  - **Sustainable Financing of Social Protection:** This area emphasises the importance of **sustainable financing models to support social protection initiatives** and provide safety nets for workers.

#### ➤ Phases of the Meet:

- The EWG meeting is organised in four different phases in different cities in India.
  - The first phase was held in **Jodhpur, Rajasthan, in February 2023**.
  - The second phase was held in **Guwahati, Assam, in April 2023**.
  - The third phase is being held in **Geneva from 31<sup>st</sup> May to 2nd June 2023**.
  - The fourth and final phase will be held in **Indore, Madhya Pradesh in July 2023**.

### What is an Employment Working Group?

#### ➤ About:

- The **Employment Working Group (EWG)** is a **forum established within the G20 framework** to address issues related to **employment, labour markets, and social policies**.
- It serves as a platform for G20 member countries and relevant international organisations to engage

in discussions, share experiences, and develop policy recommendations on employment-related matters.

#### ➤ Purpose:

- The main purpose of the EWG is to **promote inclusive and sustainable economic growth by fostering job creation, improving labour market outcomes, and ensuring social protection for workers**.

### What is the International Labour Organization?

#### ➤ About:

- The **ILO is one of the international knowledge partners of the Ministry of Labour and Employment** that provides technical expertise to the EWG.
- The ILO is a **United Nations** agency whose mandate is to **advance social and economic justice by setting international labour standards**.
- Founded in **October 1919 (Treaty of Versailles)** under the League of Nations, it is the **first and oldest specialised agency of the UN**.

#### ➤ Members:

- The ILO has a **tripartite structure** that brings together representatives of governments, employers and workers from its **187 member states**.
  - India is a **founder member of the International Labour Organization**.

#### ➤ International Labour Conference:

- The ILO also hosts an annual **International Labour Conference in Geneva** that sets the International labour standards and the broad policies of the ILO.
  - It is often referred to as an **International Parliament of Labour**.

#### ➤ Means of Action:

- The principal means of action in the ILO is the setting up of the **International Labour Standards in the form of Conventions and Recommendations**.
  - Conventions are international treaties and are instruments, **which create legally binding obligations** on the countries that ratify them.
  - Recommendations are **non-binding and set out guidelines orienting national policies and actions**.

#### ➤ Achievements:

- Received the **Nobel Peace Prize in 1969**.
  - For improving peace among classes
  - Pursuing decent work and justice for workers

Note:



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- Providing technical assistance to other developing nation

➤ **Major Reports Released by ILO:**

- **World Employment and Social Outlook**
- **World Social Protection Report**
- **Global Wage Report**

## Atlantic Declaration

### Why in News?

The **United States and the United Kingdom** have announced the **Atlantic Declaration** for a **Twenty-First Century U.S.-UK Economic Partnership**.

- This declaration aims to **adapt, reinforce, and reimagine the longstanding alliance between the two nations** to effectively address the challenges of the current era.
- With this new declaration, both nations seek to strengthen their collaboration in **defence, security, science, technology, and economic domains**.



### What are the Major Highlights of the Atlantic Declaration?

- **About:**
  - The Atlantic Declaration is focused on **building a resilient, diversified, and secure supply chain**, reducing strategic dependencies.
  - The partnership aims to leverage the energy transition and technological breakthroughs to drive shared growth, create employment opportunities, and uplift communities.
- **Atlantic Declaration Action Plan (ADAPT):**
  - The ADAPT sets forth a comprehensive strategy to enhance **economic growth, competitiveness, and**

**resilience while prioritising workers, businesses, climate, and national security.**

- The plan encompasses five key pillars and involves regular high-level meetings to drive progress and increase ambition over time.
- **Five Pillars:**
  - **Leadership in Critical and Emerging Technologies:** Sharing best practices in areas such as **artificial intelligence, quantum computing, biotechnology, and advanced manufacturing**.
  - **Cooperation on Economic Security and Technology Protection:** This will include sharing information and best practices on **cybersecurity**, supply chain resilience, and technology governance.
  - **Partnering on an Inclusive and Responsible Digital Transformation:** Collaborating on digital skills training and workforce development to ensure the readiness of individuals for the digital economy.
  - **Building the Clean Energy Economy of the Future.**
  - **Strengthening Alliance across Defense, Health Security, and Space.**

### What are the Major Pillars of UK-US Partnership?

- **Historical Significance of the U.S.-UK Partnership:** The partnership between the US and the UK has played a pivotal role in leading on global issues.
  - The **signing of the Atlantic Charter in 1941** laid the foundation for a rules-based international order.
  - The **New Atlantic Charter signed in 2021** reaffirmed the commitment to shared values and refreshed the vision of the partnership.
- **Political Affairs:** The two countries are also close allies in **NATO** and other multilateral organisations such as the **UN, the G7 and the G20**.
- **Economic Ties:** The **United States is the largest source of direct investment in the United Kingdom**, and the United Kingdom is also the single largest investor in the United States.
- **Security and Defense Cooperation:** The United States and the United Kingdom have a long history of joint military operations and intelligence sharing, **dating back to World War I and World War II**.
  - The two countries are part of the **Five Eyes intelligence alliance**, along with Australia, Canada, and New Zealand.

Note:



- Significant steps have been taken to implement **AUKUS**, including supporting **Australia's acquisition of conventionally armed, nuclear-powered submarines**.
- The U.S.-UK Indo-Pacific Dialogue promotes closer coordination to support a free and open region.
- Collaboration with **ASEAN, Pacific Islands, and trilateral joint exercises** contributes to regional peace, stability, and technological advancement.

## Indonesia's Peace Plan to End Russia-Ukraine Conflict

### Why in News?

**Indonesia's** Defence Minister presented a peace plan on June 3rd during the **Shangri-La Dialogue defence summit in Singapore**, aimed at resolving the ongoing conflict between **Russia and Ukraine**.

### What are the Major Highlights of Shangri-La Dialogue Defence Summit?

- **Indonesia's Peace Proposal:**
  - **Immediate Cessation of Hostilities:** Calling upon both **Russia and Ukraine to halt the ongoing hostilities**, recognizing the severe economic and food supply impact the conflict has had on Asian nations.
  - **Ceasefire at Present Positions:** The plan suggests a **ceasefire at the current frontlines**, aiming to bring an end to the fighting and minimise further casualties.
  - **Establishment of Demilitarized Zones:** Proposed the creation of **demilitarised zones**, which would be observed and guaranteed by international observers and **United Nations peacekeeping forces**.
  - **UN-Organized Referendum:** The plan suggests conducting a **referendum in the disputed areas**, organised and overseen by the United Nations, to determine the aspirations of the affected population.
- **Other Highlights:**
  - **Chinese Peace Plan:** China's Ministry of Foreign Affairs released a 12-point peace plan proposed by China to end the hostilities between Russia and Ukraine.

- The plan includes calling for a ceasefire, considering Russia's security concerns, providing humanitarian assistance to Ukraine, facilitating prisoner exchanges, and lifting unilateral sanctions, among other measures.
- **Western Allies' Aid to Ukraine:** In contrast to China, the United States and Western allies have provided significant military assistance and aid to Ukraine since Russia's invasion.

### What is the Shangri La Dialogue?

- The **Shangri La Dialogue (SLD)** is an **annual inter-governmental security conference** held in Singapore by an independent think tank, the **International Institute for Strategic Studies (IISS)**.
- The dialogue is attended by Defence ministers, permanent heads of ministries and military chiefs of mostly Asia-Pacific states, as well as legislators, academic experts, journalists and business delegates.
- The dialogue is named after the **Shangri-La Hotel in Singapore, where it has been held since 2002**.
- The forum aims to cultivate a sense of community among the most important policymakers in the defence and security community in the region, and to foster practical security cooperation.

### What is the Issue Between Russia and Ukraine?

- **Historical Background:**
  - As part of the **Soviet Union**, **Ukraine was the second-most powerful Soviet republic after Russia**, and was crucial strategically, economically and culturally.
  - Ever since **Ukraine split from the Soviet Union**, both **Russia and the West have vied for greater influence in the country** in order to keep the balance of power in the region in their favour.
- **Beginning of the Conflict:**
  - The conflict began in **February 2014 when Russia covertly invaded and annexed Crimea**, a Ukrainian autonomous republic with a large ethnic Russian population and a strategic naval base.
  - Russia also supported pro-Russian separatists who took up arms against the Ukrainian government in the eastern regions of **Donetsk and Luhansk, collectively known as the Donbas**.

Note:



- The conflict has also involved **naval incidents, cyberattacks, propaganda campaigns, and political assassinations.**
- It has strained relations between Russia and the West as well, which have imposed sanctions on each other and accused each other of interference and aggression.
- **Russia-Ukraine War 2022:**
  - In **2022**, Russia launched a **full-scale invasion of Ukraine**, targeting cities across the country with missile strikes and advancing its troops and proxies on multiple fronts. The invasion **triggered a global crisis and a humanitarian catastrophe.**
  - The main causes of the conflict are **historical, geopolitical, and ideological.**
    - **Russia sees Ukraine as part of its sphere of influence and resents its pro-Western orientation and aspirations to join NATO and the EU.**
    - **Ukraine sees Russia as an aggressor and a threat to its sovereignty and territorial integrity.**
  - The main goals of the conflict are disputed. **Russia claims to protect the rights and interests of ethnic Russians and Russian speakers in Ukraine, to restore historical justice, and to counter Western encroachment.**
    - **Ukraine claims to defend its independence, democracy, and European integration.**
- **Implications:**
  - The main implications of the conflict are profound and far-reaching. They affect the **security, stability, and prosperity of the globe**, the balance of power and order in the world, the norms and values of international law and human rights, the prospects for democracy and development in the region, and the lives and futures of millions of people.

## Kosovo-Serbia Conflict

### Why in News?

Serbian protesters and **NATO (North Atlantic Treaty Organization)** peacekeepers recently clashed in Kosovo, leading to more than 60 injuries. It is the most serious violence seen in the region in over a decade.

### What is the Cause for Current Tension?

- Northern Kosovo experiences frequent tensions stemming from the larger ethnic and political divide between **ethnic Serbs and Albanians.**
- Ethnic Serbs, who form a majority in northern Kosovo, attempted to block **Albanian mayors from taking charge in local councils.**
- Serbs boycotted local elections in April 2023, resulting in a low voter turnout of less than 3.5%. The election results were **rejected by Serbs as illegitimate.**

### What is the Kosovo-Serbia Conflict About?

- **Geography:**
  - **Serbia:** Serbia is a landlocked country in **eastern Europe that shares borders** with Hungary, Romania, and Bulgaria.
  - **Kosovo:** Kosovo is a small landlocked region that **lies to Serbia's southwest**, sharing borders with North Macedonia, Albania, and Montenegro. Many Serbs consider **Kosovo the birthplace of their nation.**
  - Kosovo declared **independence from Serbia in 2008**, but Serbia does not recognize Kosovo's statehood.



### Ethnic Background:

- Kosovo is a region where Serbs and Albanians, representing different ethnicities and religious backgrounds, have been living for centuries.
  - 1.8 million people living in **Kosovo, 92% are Albanian and only 6% Serbian.** The rest are Bosniaks, Gorans, Turks and Roma.

Note:

- Serbs are primarily **Eastern Orthodox Christians**, while Albanians in Kosovo are predominantly Muslim. Other minority groups **include Bosnians and Turks**. Serbs form the majority in Serbia, while Albanians are the majority in Kosovo.
- **Battle Of Kosovo:**
  - Serbian nationalists view the 1389 Battle of Kosovo **between the Serbian prince Lazar Hrebeljanovic and the Ottoman Sultan Murad Hudavendigar** as a defining moment in their national struggle.
  - On the other hand, Kosovo's majority ethnic Albanians view Kosovo as belonging to them and accuse Serbia of occupation and repression.
- **Disintegration of Yugoslavia:**
  - From 1945 after the end of **World War II** to 1992, the area in the Balkans comprising present-day **Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia, was one country, officially known as the Socialist Federal Republic of Yugoslavia (SFRY)** with Belgrade as its capital.
- Serbia included autonomous provinces of Kosovo and Vojvodina. Following the collapse of the **Soviet Union, Yugoslavia disintegrated**, with each republic becoming an independent country.
- Slovenia was the first to **secede in 1991**.
  - The late 1980s and early 1990s saw the weakening of the central government in Yugoslavia, **accompanied by resurgent nationalism**.
- Political leaders exploited nationalist rhetoric, eroding the common Yugoslav identity and fueling fear and mistrust among ethnic groups.
  - In 1998, ethnic Albanian rebels formed the **Kosovo Liberation Army (KLA)** to challenge Serbian rule.
- **Intervention of NATO:**

- NATO intervened in 1999 after **Serbia's brutal response**, leading to a 78-day air campaign against Kosovo and Serbia.
- Serbia agreed to withdraw its forces from Kosovo, **resulting in the return of Albanian refugees** and the displacement of many Serbs who feared reprisals.
- In June 1999, Kosovo came under international administration, with its final status **remaining unresolved**. Several Serbian leaders, including President Milošević, were indicted for war crimes by the UN's tribunal.

### ***What is the Current Status of Kosovo?***

- While Kosovo declared independence in 2008, Serbia still considers it to be an integral part of Serbian territory.
- Countries such as **India, China, and Russia** do not recognise Kosovo as a separate country, while the **US, the majority of EU countries, Japan and Australia** do so.
  - A total of 99 out of 193 **United Nations (UN)** countries **now recognize Kosovo's independence**.

### ***What was India's Stand on the Status of Kosovo?***

- India claims that **Kosovo does not fulfill the three principles required for recognition**: a defined territory, a duly constituted government accepted by the people, and effective control over an area of governance.
- India has **opposed Kosovo's membership in international bodies such as UNESCO, Apostille Convention, Convention for the Pacific Settlement of International Disputes, and Egmont Group of Financial Intelligence Units**.
- India's non-recognition of Kosovo is **based on its support for the sovereignty and territorial integrity of Serbia**, with whom it has a long-standing relationship.

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Note:

# Social Issues

## Highlights

- Tobacco Cultivation and Food Insecurity
- World Food Safety Day
- Hunger Hotspots: FAO-WFP
- National Commission for Scheduled Castes
- UNDP's 2023 Gender Social Norms Index
- Manual Scavenging in India
- Denied Property Rights to ST Women Under Hindu Succession Act
- Rethinking India's Anaemia Policy
- 76<sup>th</sup> Annual World Health Assembly
- Global Slavery Index 2023

## Tobacco Cultivation and Food Insecurity

### Why in News?

The **World Health Organization (WHO)** has released a new report highlighting the **urgent need to prioritise food production over tobacco cultivation**.

- The report emphasises that approximately **349 million people worldwide are currently facing acute food insecurity**, while **valuable fertile land is being occupied by tobacco farming**. The tobacco industry's interference in efforts to substitute its crops exacerbates the **global food crisis**.
- Also, **World No Tobacco Day**, observed annually on **May 31** serves as a reminder of the ongoing battle against global tobacco **epidemic**. The theme of 2023 is **"Grow food, not tobacco"**.

**Note:** Food insecurity refers to a situation where individuals or communities do not have reliable **availability, accessibility, affordability, to sufficient, safe, and nutritious food** that meets their dietary needs and preferences for an active and healthy life.

### How is the Global

### Food Crisis Related to Tobacco Farming?

- **Land Use Competition:** Both **food production and tobacco farming require land resources**.
  - Tobacco farming is prevalent in over 124 countries, occupying significant agricultural land that could be utilised for food production.

- **This competition for arable land can limit food production** and exacerbate the global food crisis, especially in areas where food security is already a challenge.
- The **United Nations Food and Agriculture Organization (FAO)** also warns of increasing acute food insecurity in various regions worldwide.
- **Resource Diversion:** Tobacco farming requires significant amounts of resources, including **water, fertilisers, and labour**.
- The diversion of these resources to tobacco production can result in limited availability for food crops, contributing to **decreased agricultural productivity and food shortages**.
- **Financial Impact:** Tobacco farming can be **financially lucrative for farmers**, leading them to prioritise tobacco cultivation over food crops.
  - This preference for cash crops like tobacco may **reduce the incentive to grow staple food crops**, which are essential for addressing hunger and food security concerns.
- **Environmental Impact:** Tobacco farming practices can have adverse environmental effects.
  - **Deforestation, soil degradation, and water pollution** are often associated with tobacco cultivation. These environmental impacts can further strain the availability of natural resources needed for sustainable food production.
- **Health Consequences:** Tobacco use is a major public health concern, leading to numerous diseases and premature deaths worldwide. **Tobacco farming poses serious health risks to farmers**, including **exposure to pesticides** and the **absorption of nicotine through the skin**.

Note:

- The health consequences of tobacco-related illnesses can indirectly impact food security by **reducing the productive workforce and placing additional burdens on healthcare systems, diverting resources away from food-related initiatives.**
- According to the **WHO**, tobacco use kills more than **8 million people every year** and exposes millions more to second-hand smoke.

**Note:** Nicotine is a chemical compound found in the leaves of the tobacco plant (*Nicotiana tabacum*) and some other plants in the nightshade family. It is an alkaloid that is both a sedative and a stimulant.

### **What is the Status of Tobacco Consumption in India?**

#### ➤ **Status:**

- Tobacco use is known to be a major risk factor for several **non-communicable diseases** such as cancer, cardiovascular disease, **diabetes**, and chronic lung diseases. Nearly **27% of all cancers in India are due to tobacco usage.**
  - India is also the **second largest consumer and producer of tobacco after China.**
- Nearly **267 million adults (15 years and above) in India (29% of all adults)** are users of tobacco, according to the **Global Adult Tobacco Survey India, 2016-17.**

#### ➤ **Indian Initiatives to Curb Tobacco Consumption:**

- The **Promulgation of the Prohibition of Electronic Cigarettes Ordinance, 2019** prohibits **Production, Manufacture, Import, Export, Transport, Sale, Distribution, Storage and Advertisement of e-Cigarettes.**
- The **Government of India** launched the **National Tobacco Quitline Services (NTQLS)** which have the sole objective to provide telephone-based information, advice, support, and referrals for tobacco cessation.
- The Union Finance Minister of India announced a **16% increase in National Calamity Contingent Duty (NCCD)** on cigarettes in the **Budget 2023-24.**
- The **Union Health Ministry of India** has announced **new regulations requiring Over-The-Top (OTT) platforms to display tobacco-related health warnings during streamed content.**

- OTT platforms must attach anti-tobacco health spots at the beginning and middle of programs that display tobacco products or their use.
  - Health spots and tobacco-related warnings are already mandatory for television and films in India.

### **What are WHO's**

#### **Actions to Address Tobacco Farming?**

- The WHO emphasises the significance of the **Framework Convention on Tobacco Control (WHO-FCTC)**, the **first international agreement aimed at reducing tobacco consumption** and its adverse health effects.
- WHO has partnered with the **UN's Food and Agriculture Organization (FAO)** and the **World Food Programme (WFP)** to launch the Tobacco Free Farms initiative, which aims to assist farmers in countries such as Kenya and Zambia by providing microcredit lending, knowledge, training, and support for cultivating alternative crops.

## **World Food Safety Day**

### **Why in News?**

The **Food Safety and Standards Authority of India (FSSAI)** organised a session on June 7<sup>th</sup>, 2023, to celebrate **World Food Safety Day.**

- The **5<sup>th</sup> State Food Safety Index (SFSI)** was also unveiled at the event.

#### **What is World Food Safety Day?**

- **World Food Safety Day** is a global campaign that aims to draw attention and inspire action to help **prevent, detect and manage foodborne risks.**
  - It is celebrated on 7 June every year since 2019, following a resolution by the **United Nations General Assembly.**
- The campaign is led by the **World Health Organization (WHO)** and the **Food and Agriculture Organization of the United Nations (FAO)**, in collaboration with Member States and other relevant organisations.
- **Theme for 2023: Food standards save lives.**

### **What is State Food Safety Index?**

- **About:** FSSAI has developed the **State Food Safety Index (first launched in 2018-19)** to measure the performance of states on various parameters of Food Safety.

Note:



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- **Parameters:** This index is based on performance of State/ UT on five significant parameters, namely, **Human Resources and Institutional Data, Compliance, Food Testing – Infrastructure and Surveillance, Training & Capacity Building and Consumer Empowerment.**
  - The Index is a dynamic quantitative and qualitative benchmarking model that provides an objective framework for evaluating food safety across all States/UTs.
- **Recognition of Top Performers:** Kerala secured the top rank among larger states, followed by Punjab and Tamil Nadu.
  - Goa emerged as the leader among smaller states, with **Manipur and Sikkim following suit.**
  - **Jammu and Kashmir, Delhi, and Chandigarh** secured the top three ranks among union territories.

### ***What are the Other Major Highlights of the Event?***

- **Eat Right Challenge for Districts - Phase II:** Winners of the **Eat Right Challenge** for Districts were honoured for their outstanding efforts in improving the food environment and raising awareness about food safety.
- Remarkable achievements were observed in districts from **Tamil Nadu, Madhya Pradesh, West Bengal, Uttar Pradesh, and Maharashtra.**

**Note:** FSSAI has initiated the **Eat Right India movement.** The movement is based on three key themes:

- if it's not safe, it's not food' (safe food),
- food should not only serve the palate but is also meant for body and mind (healthy diets)
- food has to be good both for people and the planet' (sustainable diets).
- The **Eat Right Challenge** is envisioned as a competition among districts and cities to recognize their efforts in adopting and scaling up various initiatives under Eat Right India.
- **Eat Right Millets Melas:** To commemorate India's 75th Independence anniversary and the **International Year of Millets**, the FSSAI envisioned organising Eat Right Millets Melas nationwide.
  - These **melas showcase the diversity of cuisines and millet recipes in the country.**
- **Training Food Business Operators:** FSSAI aims to train **25 lakh food business operators** in the next three years to ensure food quality standards are met across the country.

- **Food Streets: Establishment of 100 Food Streets** across the country that meet quality benchmarks for food safety, hygiene, and nutrition, was announced as the part of the event.
- **Rapid Food Testing Kit (RAFT) Portal:** The **RAFT portal** was unveiled as part of FSSAI's digitization efforts.
  - The portal streamlines the **operations of the RAFT Scheme**, ensuring transparency and accountability.
  - **Rapid Analytical Food Testing (RAFT) Kit/ Equipment/Method facilitates spot field testing by Food Safety Officers (FSOs)** or Mobile Testing Labs or to improve speed and reduce testing costs in food laboratories.
- **Manuals for Enhanced Food Safety Practices:** The Union Health Minister released three manuals aimed at enhancing food safety practices nationwide.
  - Manuals include the analysis methods for **Fish & Fish Products, Cereal and Cereal Products (2nd edition), and Beverages: Tea, Coffee & Chicory.**

### ***Why is Food Safety Important?***

- Food safety is a shared **responsibility between governments, producers and consumers.**
- According to **WHO**, an **estimated 600 million people – almost 1 in 10 people in the world – fall ill after eating contaminated food and 420 000 die every year.**
  - **Children under 5 years of age carry 40% of the foodborne disease burden**, with 1,25,000 deaths every year.
  - Foodborne diseases can also have long-term consequences, such as **malnutrition, stunting, cancer and chronic diseases.**
- Food safety is also essential for achieving several of the **UN Sustainable Development Goals**, such as ending hunger, improving health, reducing poverty and protecting the environment.

### ***What are the Major Challenges Related to Food Safety in India?***

- **Lack of Infrastructure and Resources:** Insufficient infrastructure and resources pose significant challenges in ensuring food safety across the country.
  - **Limited laboratory facilities and testing capabilities** result in inadequate monitoring and detection of contaminants. Inadequate storage and transportation facilities can lead to improper handling of food, increasing the risk of contamination.

Note:

➤ **Contamination and Adulteration:**

- Contamination of food with **pathogens, chemicals, and toxins** remains a major concern in India. **Adulteration of food products** with **substandard ingredients** or harmful substances is prevalent, compromising food safety and public health.
  - **Unregulated use of pesticides and chemical additives** in agriculture and food production contribute to the contamination of food.

➤ **Poor Hygiene and Sanitation Practices:**

- Lack of proper handwashing, sanitation facilities, and clean water sources in food handling and processing establishments increase the **risk of microbial contamination**.
  - Unhygienic conditions in food markets, street food vendors, and restaurants contribute to the spread of foodborne illnesses.

➤ **Weak Regulatory Framework and Enforcement:** Inconsistencies in standards and regulations across different states and regions create challenges in maintaining uniform food safety practices.

- **Limited resources and manpower for inspection** and enforcement result in inadequate monitoring and control of food safety standards.

➤ **Rapid Urbanization and Changing Food Habits:** Rapid **urbanisation** and changing food habits present challenges in ensuring food safety.

- Increased demand for **processed and ready-to-eat foods**, as well as street foods, requires robust monitoring and regulation to address safety concerns.

## Hunger Hotspots: FAO-WFP

### Why in News?

According to a recent Report by **Food and Agriculture Organization (FAO)** and **World Food Program (WFP)** **Hunger Hotspots – FAO-WFP early warnings on acute food insecurity**, India's neighbors, Pakistan, Afghanistan and Myanmar, are among the hunger hotspots in the world.

### What are the Highlights of the Report?

➤ **Hot Spots with Very High Concern:**

- There are **18 areas in 22 countries** where **acute Food Insecurity** may increase in magnitude and severity.

- Pakistan, the Central African Republic, Ethiopia, Kenya, the Democratic Republic of the Congo and the Syrian Arab Republic are **hotspots with very high concern**.

- All these hotspots have a **high number of people facing critical acute food insecurity**, coupled with **worsening drivers that are expected to further intensify life-threatening conditions** in the coming months.

➤ **Countries at Highest Concern Level:**

- Afghanistan, Nigeria, Somalia, South Sudan and Yemen remain at the highest concern level.
  - Haiti, the Sahel (Burkina Faso and Mali) and the Sudan have been elevated to the highest concern levels; this is due to **severe movement restrictions of people and goods** in Haiti, as well as in Burkina Faso and Mali, and the recent eruption of **Conflict in Sudan**.

➤ **Expected to Face Starvation:**

- All the hotspots at the **highest level have populations** facing or projected to face starvation, or are at **risk of deterioration towards catastrophic conditions**, given they already have critical food insecurity and are facing severe aggravating factors.

➤ **New Emerging Conflicts:**

- New emerging conflicts, in particular the eruption of conflict in the Sudan, will likely **drive global conflict trends** and impact several neighbouring countries.
- The use of explosive ordnance and siege tactics in several hunger hotspots continues to push **people into catastrophic levels of acute food insecurity**.

➤ **Weather Extremes:**

- **Weather extremes**, such as heavy rains, tropical storms, **Cyclones, Flooding, Drought** and increased climate variability, remain significant drivers in some countries and regions.
- The May 2023 forecast suggests an 82 % likelihood of **El Niño** conditions starting in the May–July 2023 period, with significant implications for several hunger hotspots.

➤ **Economic Shocks:**

- Deepening economic **shocks continue to drive low- and middle-income nations** deeper into crisis.

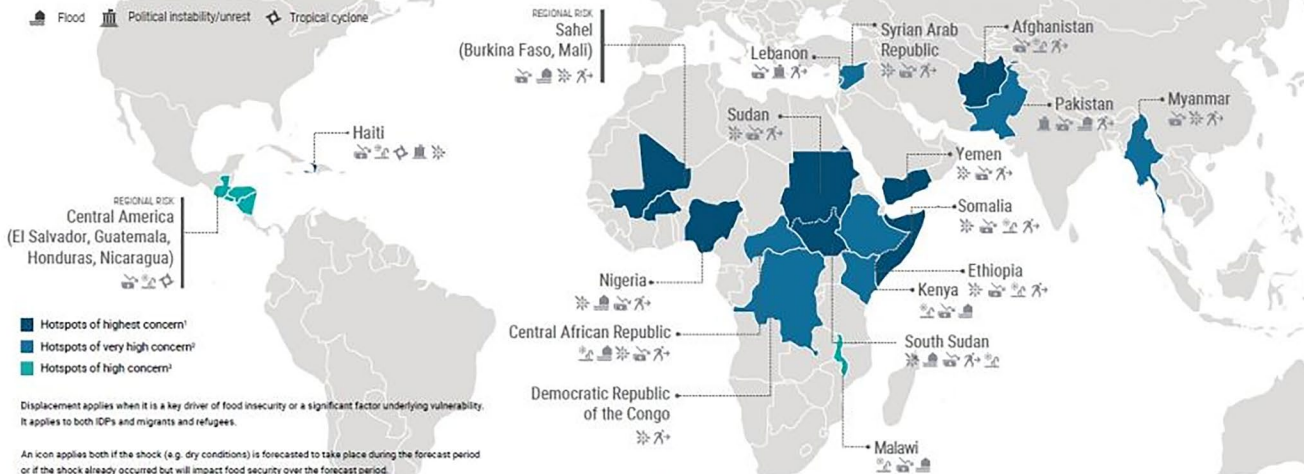
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## Early warning hunger hotspots June to November 2023

Key drivers and aggravating factors



Source of data: FAO and WFP, 2023. Hunger Hotspots analysis (June to November 2023). Rome. Source of map: United Nations, 2020. Map of the World. Cited 20 September 2022. [www.un.org/geospatial/content/map-world](http://www.un.org/geospatial/content/map-world)

The boundaries and names shown and the designations used on these map(s) in this information product do not imply the expression of any opinion whatsoever on the part of FAO and WFP concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers and boundaries. Dashed lines on maps represent approximate border lines for which there may not yet be full agreement. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties. Final boundary between the Sudan and South Sudan has not yet been determined. Final status of the Abyei area is not yet determined.

### What are the Recommendations?

- Urgent humanitarian action is needed to **save lives and livelihoods and prevent starvation and death** in hotspots where acute hunger is at a high risk of worsening from June to November 2023.
- Continuous monitoring of forecasts and their impact on production remains critical.
- Urgent and scaled-up **assistance is required in all 18 hunger hotspots** to protect livelihoods and increase access to food.
- This is essential to **avert a further deterioration of acute food insecurity** and malnutrition. In the hotspots of highest concerns, humanitarian actions are critical in preventing further starvation and death.

#### What is the Food and Agriculture Organization?

##### ➤ About:

- FAO is a specialised agency of the **United Nations** that leads international efforts to defeat hunger.
- **World Food Day** is celebrated every year around the world on 16th October. The day is celebrated to mark the anniversary of the founding of the FAO in 1945.

- It is one of the UN food aid organisations based in Rome (Italy). Its sister bodies are the **World Food Programme** and the International Fund for Agricultural Development (IFAD).

##### ➤ Initiatives Taken:

- **Globally Important Agricultural Heritage Systems (GIAHS)**.
- Monitors the **Desert Locust** situation throughout the world.
- The **Codex Alimentarius Commission or CAC** is the body responsible for all matters regarding the implementation of the Joint FAO/WHO Food Standards Programme.
- The **International Treaty on Plant Genetic Resources for Food and Agriculture** was adopted by the Thirty-First Session of the Conference of the FAO in 2001.

##### ➤ Flagship Publications:

- The State of World Fisheries and Aquaculture (SOFIA).
- The State of the World's Forests (SOFO).

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- **The State of Food Security and Nutrition in the World (SOFI).**
- The State of Food and Agriculture (SOFA).
- The State of Agricultural Commodity Markets (SOCO).

### **What is the World Food Programme?**

- The WFP is the **leading humanitarian organization** saving lives and changing lives, delivering food assistance in emergencies and working with communities to improve nutrition and build resilience.
- It was founded in 1961 by the **FAO and United Nations General Assembly (UNGA)** with its headquarters in Rome, Italy.
- It is also a member of the United Nations Sustainable Development Group (UNSDG), a coalition of UN agencies and organizations aimed at fulfilling the **Sustainable Development Goals (SDGs).**
- The international community has committed to end hunger, achieve food security and improve nutrition by 2030.
- WFP works in over 120 countries and territories to bring life-saving food to people displaced by conflict and made destitute by disasters.

## **National Commission for Scheduled Castes**

### **Why in News?**

The **National Commission for Scheduled Castes (NCSC)** has recently issued a notice to **Zomato**, regarding an advertisement that was deemed “inhuman” and casteist.

### **What is the National Commission for Scheduled Castes?**

- **About:**
  - The **NCSC is a constitutional body** established with a view to provide safeguards against the exploitation of Scheduled Castes and to promote and protect their **social, educational, economic and cultural interests.**
- **History:**
  - **Special Officer:**
    - Initially, the **constitution provided for the appointment of a Special Officer under Article**

**338.** The special officer was designated as the Commissioner for Scheduled Castes and Scheduled Tribes.

#### ➤ **65<sup>th</sup> Amendment Act, 1990:**

- It amended **Article 338 of the Constitution** and replaced the one-member system with a multi-member **National Commission for Scheduled Castes (SC) and Scheduled Tribes(ST).**

#### ➤ **89<sup>th</sup> Amendment Act, 2003:**

- **Article 338 was amended**, and the erstwhile National Commission for SC and ST was replaced by two separate Commissions from the year 2004 which were:
- **National Commission for Scheduled Castes (NCSC) and**
- **National Commission for Scheduled Tribes (NCST)**

#### ➤ **Composition:**

- The NCSC comprises a **Chairperson, a Vice-Chairperson, and three additional Members.**
- These positions are **filled through the President's appointment, indicated by a warrant under his hand and seal.**
  - Their **conditions of service and tenure** of office are also determined by the President.

#### ➤ **Functions:**

- To **investigate and monitor all matters relating to the constitutional and other legal safeguards for the SCs** and to evaluate their working;
- To inquire into **specific complaints with respect to the deprivation of rights and safeguards of the SCs;**
- To **participate and advise on the planning process of socioeconomic development of the SCs** and to evaluate the progress of their development under the Union or a state;
- To present to the President, annually and at such other times as it may deem fit, reports upon the working of those safeguards;
- To make **recommendations as to the measures that should be taken by the Union or a state for the effective implementation of those safeguards** and other measures for the protection, welfare and socio-economic development of the SCs
- Till **2018**, the commission was also required to discharge similar functions with regard to the **other backward classes (OBCs).** It was relieved from this responsibility by the **102<sup>nd</sup> Amendment Act, 2018.**

Note:



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### What are the Other Constitutional Provisions for Upliftment of the Schedule Caste?

- **Article 15:** This article specifically addresses the issue of **discrimination based on caste**, emphasizing the protection and upliftment of Scheduled Castes (SCs)
- **Article 17:** This article abolishes **untouchability** and prohibits its practice in any form. It seeks to eliminate **social discrimination and promote the equality and dignity of all individuals**.
- **Article 46: Promotion of Educational and Economic Interests:** This article directs the **State to promote the educational and economic interests of Scheduled Castes and other weaker sections of society** and protect them from social injustice and all forms of exploitation.
- **Article 243D(4):** This provision mandates the **reservation of seats for SCs in Panchayats (local self-government institutions)** in proportion to their population in the area.
- **Article 243T(4):** This provision ensures the **reservation of seats for SCs in Municipalities (urban local bodies)** in proportion to their population in the area.
- **Article 330 and Article 332** provide for reservation of seats in favour of the Scheduled Castes and the Scheduled Tribes in the **Lok Sabha and in the legislative assemblies of the States** (respectively).

## UNDP's 2023 Gender Social Norms Index

### Why in News?

Biased gender social norms continue to impede progress towards achieving gender equality and violate human rights, according to the **United Nations Development Programme (UNDP)**.

- Despite global efforts and campaigns advocating for women's rights, a significant percentage of people still hold biased beliefs against women.
- The **UNDP's 2023 Gender Social Norms Index (GSNI)** provides insights into the persistence of these biases and their impact on various aspects of women's lives.

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

- **About:**

- UNDP tracked people's attitudes towards women in four dimensions: **political, educational, economic and physical integrity**. UNDP reports that nearly **90% of people still hold at least one bias against women**.
- **Findings:**
  - **Political Participation and Representation:** Biases in gender social norms contribute to a **lack of equality in political participation**. Approximately **half of the world's population believes men make better political leaders**, while **two in five believe men make better business executives**.
    - **Countries with greater bias exhibit lower representation of women in parliament.**
      - On average, the **share of heads of state or government who are women has remained around 10% worldwide since 1995**, and women hold just over a quarter of parliament seats globally.
    - Women are **grossly underrepresented in leadership in conflict-affected countries**, mainly at the negotiation tables in the recent conflicts in **Ukraine (0%)**, **Yemen (4%)**, and **Afghanistan (10%)**.
    - **Indigenous women, migrant women, and women with disabilities** face even more significant challenges in attaining political representation.
  - **Economic Empowerment:** Despite progress in **education**, **gender gaps in economic empowerment persist**.
    - The increase in women's education has not translated into better economic outcomes.
    - In **59 countries where adult women are more educated than men**, the **average income gap is 39%**.
  - **Domestic Chores and Care Work:** Countries with **higher bias in gender social norms witness a significant disparity in domestic chores and care work**.
    - Women spend **nearly six times more time on these tasks than men**, limiting their opportunities for personal and professional growth.
    - Also, **Alarmingly, 25% of people believe it is justified for a man to beat his wife**, revealing deep-rooted biases.
  - **Hopeful Signs and Breakthroughs:** While overall progress has been limited, an increase in the share of people with no bias in any indicator is observed in **27 out of 38 surveyed countries**.

Note:



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- The **largest improvements were seen in Germany, Uruguay, New Zealand, Singapore, and Japan**, with progress greater among men than women.
- Breakthroughs in gender social norms have been achieved through policies, regulations, and scientific advancements.
- **The Urgent Need for Change:** Biased gender social norms not only impede women's rights but also hinder societal development and well-being.
  - The **lack of progress in gender social norms coincides with a decline in the Human Development Index (HDI)**.
  - Achieving freedom and agency for women benefits society as a whole.

### **What are the Major Challenges Related to Gender Equality in India?**

- **Cultural and Societal Norms:** India has deep-rooted cultural and societal norms that perpetuate gender bias. **Traditional beliefs regarding gender roles and expectations limit women's freedom and opportunities.**
  - For instance, the **preference for male children, leading to a significant gender imbalance and instances of female infanticide.**
- **Violence against Women:** Incidents of violence against women, such as **domestic violence, sexual harassment, and rape, continue to be prevalent in India.**
  - Although laws have been enacted and awareness campaigns launched, these incidents persist, demonstrating the challenge of changing deep-seated attitudes and behaviours.
  - Recent cases, such as the **Hathras gang rape case in 2020**, highlighted the gaps in the system and sparked outrage regarding the handling of such cases.
- **Economic Disparities:** Economic disparities between men and women contribute to gender bias. Women in India often face **unequal pay, limited job opportunities, and lack of representation in decision-making roles.**
  - The **gender wage gap** remains a persistent issue, with women earning less than men for similar work.
- **Limited Access to Education and Healthcare:** Gender bias is perpetuated by limited access to education and healthcare for women in certain parts of India.
  - Despite progress in **increasing female literacy rates**, particularly in urban areas, rural areas still face significant challenges.

- Moreover, inadequate access to healthcare, including reproductive health services, poses additional obstacles for women's well-being and development.
- **Differentiation in the Socialisation Process:** In many parts of India, especially in rural regions, there are **still different socialisation norms for men and women.**
  - Women are expected to be **soft-spoken, calm, and quiet**. They should walk, talk, sit and behave in a certain manner. **Whereas men ought to be confident, loud, and could display any behaviour as per their wish.**

**The gender score** | India ranked 135 in gender parity out of 146 countries, according to the Global Gender Gap Report 2022 released by the World Economic Forum. A look at India's ranking in the four sub-indexes based on which the overall ranking was determined

India	Rank 2022*
<b>Global gender gap index</b>	<b>135</b>
Economic participation and opportunity	143
Educational attainment	107
Health and survival	146
Political empowerment	48

\*out of 146 countries



### **What are the Recent Government Schemes Related to Women Empowerment?**

- **Sukanya Samriddhi Yojna**
- **Beti Bachao Beti Padhao Scheme**
- **Pradhan Mantri Matru Vandana Yojana**
- **Pradhan Mantri Mahila Shakti Kendra Scheme**
- **One Stop Centre**

## **Manual Scavenging in India**

### **Why in News?**

Recent revelations by the **Union Ministry of Social Justice and Empowerment** highlight that **only 508 out of 766 districts have declared themselves manual-scavenging free.**

- This discrepancy raises concerns about the **true extent of manual scavenging and the effectiveness of government efforts.**

Note:

### **What is Manual Scavenging?**

- **Manual scavenging** refers to the practice of manually **cleaning, handling, and disposing of human excreta** and other waste materials from dry latrines, open drains, and sewers.
  - In India, manual scavenging has been a long-standing issue, although it has been **officially banned since 1993**.

### **What are the Constitutional Safeguards and Legal Provisions for Manual Scavengers?**

- **Constitutional Safeguards:** The **Constitution of India** guarantees several rights and protections for manual scavengers such as:
  - **Article 14:** Equality before the law and equal protection of the laws.
  - **Article 17:** Abolition of untouchability and prohibition of its practice in any form.
  - **Article 21:** Protection of life and personal liberty.
  - **Article 23:** Prohibition of traffic in human beings and forced labour.
- **Legal Provisions:** The **Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013** is the main legislation that aims to prohibit and eliminate manual scavenging in India. It prohibits the employment or engagement of anyone as a manual scavenger and also prohibits anyone from constructing or maintaining insanitary latrines.

### **What are the Reasons for the Continued Prevalence of Manual Scavenging in India?**

- **Inefficient Sewage Management System:** In India, **most municipalities do not have the latest machines for cleaning the sewage systems** and thus sewage workers are required to enter the underground sewerage lines through manholes.
  - The **unskilled labourers**, meanwhile, are much cheaper to hire and contractors illegally employ them at a daily wage.
- **Caste-based social hierarchy:** Manual scavenging has **historically been associated with the caste system in India**, where certain castes have been marginalised and forced into occupations considered “unclean” or “polluting.”

- The **perpetuation of caste-based discrimination and social stigma contributes to the continuation of manual scavenging** as a means of employment for these marginalised communities.
- **Lack of Alternative Livelihood Opportunities:** Manual scavenging often persists **due to limited alternative employment opportunities** available to the affected communities.
  - Many manual scavengers are trapped in a cycle of **poverty and exclusion**, lacking access to education and skill development programs that could provide them with alternative livelihood options.
  - This **lack of economic alternatives forces them to continue engaging in manual scavenging for survival**.

### **What are the Effects of Manual Scavenging?**

- **Health Hazards:** Manual scavengers face significant health risks due to direct exposure to human waste and hazardous substances.
  - They are at high risk of contracting diseases such as **cholera, typhoid, hepatitis, and various respiratory infections**.
  - The **absence of protective gear and poor sanitation conditions further exacerbate the health hazards**, leading to a higher incidence of illnesses and premature deaths among manual scavengers.
- **Dignity and Human Rights Violations:** Manual scavenging is a clear violation of the **dignity and human rights** of the individuals involved.
  - They are subjected to degrading and inhumane conditions, handling human waste with their bare hands and lacking access to basic sanitation facilities.
  - This occupation perpetuates **social stigma, discrimination, and the marginalisation of affected communities** reinforcing caste-based oppression.
- **Psychological and Emotional Trauma:** Engaging in manual scavenging can have severe psychological and emotional effects on the individuals involved.
  - The constant **exposure to filth, the indignity of the work, and the discrimination they face take a toll on their mental well-being**. Manual scavengers often experience feelings of shame, low self-esteem, and depression, leading to long-term psychological trauma.

Note:

## What are the Government Initiatives and Supreme Court Directions to Curb Manual Scavenging?

- **Supreme Court Directions:**
  - In 2014, a Supreme Court order made it mandatory for the government to identify all those who died in sewage work since 1993 and **provide Rs. 10 lakh each as compensation to their families.**
- **Rehabilitation Effort:**
  - **Payout and Subsidies:**
    - Approximately **58,000 manual scavengers have been identified and given a one-time cash payout of ₹40,000 each.**
    - Around **22,000 manual scavengers have been connected to skills training programs.**
    - Subsidies and loans are available to support those interested in starting their own businesses. The objective is to eliminate manual scavenging deaths entirely.
  - **Merger with NAMASTE Scheme:**
    - The scheme for the rehabilitation of manual scavengers has been merged with the **NAMASTE scheme for 100% mechanisation of sewer work.**
    - The **FY 2023-24 Union Budget** lacks specific allocation for the rehabilitation scheme but **allocates ₹100 crore to the NAMASTE scheme.**
    - The NAMASTE scheme necessitates the **identification and profiling of all septic tank/ sewer workers, provision of occupational training and safety equipment, and enrollment in health insurance under the Ayushman Bharat scheme.**
- **Other Related Initiatives:**
  - **Safaimitra Suraksha Challenge**
  - **Swachhta Abhiyan App**
  - **Rashtriya Garima Abhiyan**
  - **National Commission for Safai Karamchari**

## Denied Property Rights to ST Women Under Hindu Succession Act

### Why in News?

The Union government is examining whether to issue notification under the **Hindu Succession Act** to apply beneficial provisions to **Scheduled Tribe (ST)** women, who

profess Hinduism, to enable them to **inherit equal share over properties** of father/ Hindu Undivided Family (HUF)

### What are the Issues

#### Highlighted Around Inheritance Rights?

- **Exclusion from the Act:**
  - Scheduled Tribe women who profess Hinduism have been excluded from the beneficial provisions of the **Hindu Succession Act, 1956.**
  - This exclusion denies them equal rights to inherit ancestral property compared to women from other Hindu communities.
- **Denial of Equal Inheritance Rights:**
  - Due to the exclusion, **ST women are not entitled to an equal share of their father's or Hindu Undivided Family's (HUF) property.**
  - This **inequality in inheritance rights perpetuates gender disparities** and hampers the financial empowerment of ST women.
- **Discrimination Based on Tribal Identity:**
  - The denial of equal inheritance rights to ST women who profess Hinduism is a form of discrimination based on their tribal identity.
  - It **contradicts the principles of equality and non-discrimination** enshrined in the Indian Constitution.
- **Supreme Court Directive:**
  - The Supreme Court, in the case of **Kamla Neti Vs Special Land acquisition Officer and Ors.**, directed the Central government to examine whether amendments are necessary to withdraw exemptions provided under the Hindu Succession Act concerning the applicability of its provisions to Scheduled Tribes.

### What is Hindu Succession Act, 1956?

- **About:**
  - The **Mitakshara school** of Hindu law codified as the Hindu Succession Act, 1956 governed succession and inheritance of property but **only recognised males as legal heirs.**
- **Applicability:**
  - It **applies to everyone who is not a Muslim, Christian, Parsi or Jew** by religion.
  - Buddhists, Sikhs, Jains and followers of Arya Samaj, Brahmo Samaj, are also considered Hindus for this law.

Note:



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- Traditionally, only male descendants of a common ancestor along with their mothers, wives and unmarried daughters are considered a joint Hindu family. The **legal heirs hold the family property jointly**.
- **Hindu Succession (Amendment) Act, 2005:**
  - The 1956 Act was amended in September 2005 and women were **recognised as coparceners** for property partitions arising from 2005.
  - Section 6 of the Act was amended to make a daughter of a coparcener also a coparcener by birth "in her own right in the same manner as the son".
  - It also gave the daughter the same rights and liabilities "in the coparcenary property as she would have had if she had been a son".
  - The law applies to ancestral property and to intestate succession in personal property, where succession happens as per law and not through a will.
- **Class I Heirs:**
  - The Act categorizes relatives into different classes of heirs. **Class I heirs include** the deceased's children, grandchildren, and their respective mothers.
  - In the absence of Class I heirs, the property goes to **Class II heirs which includes** Father, Son's daughter's son, brother, sister, Father's widow; brother's widow etc.
- **Testamentary Succession:**
  - The Act also recognizes testamentary succession, where a person can dispose of his/her property through a valid will.
  - The individual has the freedom to distribute the property according to his/her wishes, subject to certain restrictions and legal requirements.
- **Rights of Widows:**
  - The **Act recognizes the rights of widows to inherit property** from their deceased husbands.
  - A **widow** has a **share in the property** left by her husband, **along with other legal heirs**.

### What Do Schools of Hindu Laws Say about Property Inheritance?

Schools of Hindu Laws	
Mitakshara Law School	Dayabhaga Law School
The term Mitakshara is derived from the name of a commentary written by Vigneshwaran, on the Yajnavalkya Smriti.	The term Dayabhaga is derived from a similarly named text written by Jimutavahana.
It is observed in all parts of India and subdivided into the Benares, the Mithila, the Maharashtra and the Dravida schools.	It is observed in Bengal Assam.
A son, by birth acquires an interest in the ancestral property of the joint family.	A son has no automatic ownership right by birth but acquires it on death of his father.
A coparcener's share is not defined and cannot be disposed of.	The share of each coparcener is defined and can be disposed of.
A wife cannot demand partition but has the right to a share in any partition between her husband and her sons.	Here, the same right does not exist for the women because the sons cannot demand partition as the father is the absolute owner.
All the members enjoy coparcenary rights during the father's lifetime.	Sons do not enjoy coparcenary rights when the father is alive.

## Rethinking India's Anaemia Policy

### Why in News?

India is reconsidering its anaemia policy and shifting the estimation of anaemia prevalence from the **National**

**Family Health Survey (NFHS)** to the **Diet and Biomarkers Survey (DABS-I)**.

- The decision comes after concerns were raised regarding the accuracy of haemoglobin level estimation in NFHS, considering the growing burden of anaemia in the country.

Note:



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### What are the Key Points Related to Anaemia?

#### ➤ Anaemic Condition:

- It is a condition in which the number of red blood cells or their oxygen-carrying capacity is insufficient to meet physiologic needs, which vary by age, sex, altitude, smoking, and pregnancy status.

#### ➤ Causes:

- Iron deficiency is the most common cause of anaemia, although other conditions, such as folate, vitamin B12 and vitamin A deficiencies, chronic inflammation, parasitic infections, and inherited disorders can all cause anaemia.
  - In its severe form, it is associated with fatigue, weakness, dizziness and drowsiness. Pregnant women and children are particularly vulnerable.

#### ➤ Anaemia Burden in India:

- **NFHS-5** (2019-21) revealed a significant increase in the anaemia burden in India, with **57% of women (15-49 age group)** and **67% of children (6-59 months)** being anaemic.

#### ➤ Reasons for the Change:

- Researchers have cautioned against **over-diagnosis of anaemia in India**, as the **WHO** cut-offs for haemoglobin may not be suitable.
- Because the cut-off point for haemoglobin depends on the age, gender, physiological status, altitude and other factors.
- Differences in blood sampling methods between NFHS and the recommended venous blood sampling were identified, potentially leading to falsely lower values.

#### ➤ Diet and Biomarkers Survey (DABS-I):

- **DABS-I is a comprehensive national-level dietary survey** aimed at determining food and nutrient adequacy across different age groups and regions.
- The survey **collects individual dietary intake data** and provides nutrient composition information on cooked and uncooked foods.
- **DABS-I is expected to offer better estimates of anaemia prevalence** and aid in developing targeted interventions.

#### ➤ Importance of Anaemia Data:

- Anaemia data serves as a crucial indicator of public health, particularly for vulnerable populations such as pregnant women and children under five.

- Prevalence studies on anaemia help monitor reproductive health progress and understand the impact on work capacity and national development.

### What are Government Initiatives?

- **Anaemia Mukh Bharat (AMB):** It was launched in 2018 as part of the **Intensified National Iron Plus Initiative (NIPI) Program** for accelerating the annual rate of decline of anaemia from one to three percentage points.

- The **target groups for AMB are Children 6-59 months, 5-9 years, Adolescent Girls & Boys of 10-19 years, Women of Reproductive Age (15-49 years), Pregnant Women and Lactating Mothers.**

#### ➤ Weekly Iron and Folic Acid Supplementation (WIFS):

- This Programme is being implemented to meet the challenge of high prevalence and incidence of anaemia amongst adolescent girls and boys.
- The intervention under WIFS includes supervised weekly ingestion of Iron Folic Acid (IFA) tablet.

#### ➤ Operationalization of **Blood Bank**:

- In District Hospitals and Blood Storage Unit in subdistrict facilities such as Sub-Divisional Hospital/Community Health Centers is being taken to tackle complications due to severe anaemia.

#### ➤ **Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA):**

- It has been launched to focus on conducting special ANC check up on 9th of every month with the help of medical officers/ OBGYN to detect and treat cases of anaemia.

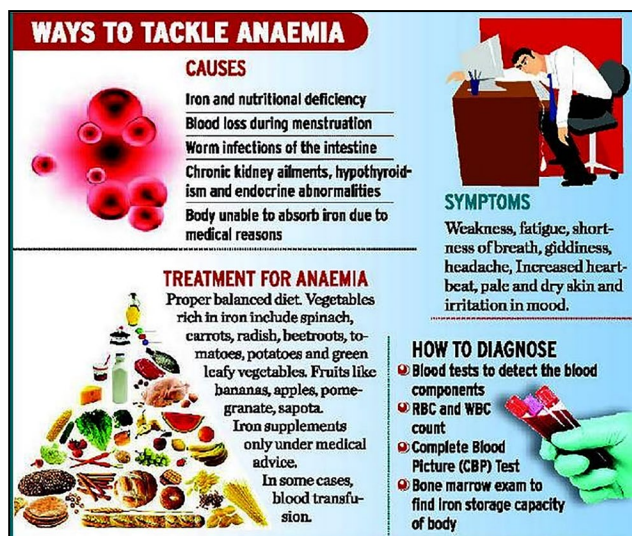
#### ➤ Other steps Taken:

- To control **worm infestation biannual deworming with Albendazole** is provided.
- **Health management information system & Mother Child tracking system** is being implemented for reporting and tracking the cases of anaemic and severely anaemic pregnant women.
- **Universal screening of pregnant women for anaemia** is a part of ante-natal care and all pregnant women are provided iron and folic acid tablets during their ante-natal visits through the existing network of sub-centres and primary health centres and other health facilities as well as through outreach activities at Village Health & Nutrition Days (VHNDs).

Note:



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## 76<sup>th</sup> Annual World Health Assembly

### Why in News?

Recently, the 76<sup>th</sup> annual **World Health Assembly** was held at **World Health Organization (WHO)** Headquarters(HQ), Geneva, Switzerland, from 21st to 30th May 2023.

- The theme for 2023 is “**WHO at 75: Saving lives, driving health for all.**”
- The participation of Prime Minister Narendra Modi and Union Health Minister in the 76th World Health Assembly highlighted **India's commitment to global health.**
- **Taiwan was excluded from the WHO assembly** due to **opposition from China and Pakistan.**

### What is the World Health Assembly?

- **About:**
  - **The World Health Assembly (WHA)** is WHO's decision-making body attended by delegations from all of WHO's member states.
  - It is held yearly at the HQ of WHO, i.e., **Geneva, Switzerland.**
- **Functions of WHA:**
  - Deciding on Organization's policies.
  - Appointment of the Director-General of WHO.
  - Administration of financial policies.

- Review and approval of the proposed programme budget.

### What are the Key Highlights?

- **Global Plan for Indigenous Health:**
  - **Draft resolution accepted for developing a Global Plan of Action for the Health of Indigenous People.**
  - The plan will be considered at the **79th World Health Assembly in 2026.**
  - Consultation with indigenous peoples and their free, prior, and informed consent emphasized.
  - Addressing challenges such as **poverty, violence, discrimination, and limited access to healthcare.**
  - Focus on **reproductive, maternal, and adolescent health, vulnerable situations.**
  - Members were urged to collect ethical data to identify specific requirements of indigenous people.
  - Aimed at **improving the health and well-being of indigenous populations.**
- **Global Alliance for Drowning Prevention:**
  - **Global Alliance for Drowning Prevention** was established during the 76th WHA meeting.
  - Aims to **address global public health concerns related to drowning** by 2029.
  - WHO to coordinate **action and prepare a global status report on drowning.**
  - Drowning has a significant impact on the world's poorest populations.
  - Over **90% of drowning deaths occur in low- and middle-income countries.**
  - Official global estimate of drowning deaths may be significantly underestimated as they exclude **drownings attributable to flood related climatic events and water transport incidents.**
- **Draft Resolution on Chemicals, Waste, and Pollution:**
  - **Draft resolution on chemicals, waste, and pollution impact accepted** during 76th World Health Assembly.
  - WHO urged to **update Endocrine Disrupting Chemicals report** with **United Nations Environment Programme.**
  - **Limited data on chemical exposures and health concerns highlighted.**
  - Resolution encourages **regulatory frameworks, biomonitoring, and risk identification** for chemicals of concern such as cadmium, lead, mercury etc.

Note:

- Concern over poor chemical waste management and long-term health effects are raised.
- Request for WHO report on human health implications and data gaps.
- Importance of **data organization by sex, age, disability, and harmful substances**.
- **WHO Program Budget:**
  - WHO member states agreed on a budget of 6.83 billion USD for 2024-2025, including a **20% increase in assessed contributions**.
  - Over the past few years, assessed contributions had declined, accounting for **less than one-quarter of WHO's financing**.
  - Top contributors include **Germany, Bill and Melinda Gates Foundation, US, UK, and European Commission**.
  - WHO's reliance on voluntary contributions **raises governance concerns** and affects sustained technical cooperation and goal achievement.
  - Highlighted contributions that hinder the WHO's ability to provide effective technical cooperation and achieve the **Triple Billion targets** for improving health of all by 2023.

**Note:**

**Triple billion Targets:** The goals of the Triple Billions are simple and straightforward. By 2023, WHO proposes to achieve:

- 1 billion more people benefitting from universal health coverage
- 1 billion more people better protected from health emergencies
- 1 billion more people enjoying better health and well-being.

- **Replenishment Mechanism:**
  - Member states welcomed a **new replenishment mechanism to provide flexible funding options for the WHO**.
  - Currently, the **majority of WHO's funds** come from **specific voluntary contributions**, leaving little flexibility for shifting funds as needed.
  - The replenishment mechanism aims to **raise voluntary contributions to cover the unfunded portion of WHO's base segment** and ensure financial sustainability.

**WHO Funding:**➤ **Assessed contributions:**

- Calculated as a percentage of a country's gross domestic product.
- **Account for less than 20% of the total budget of WHO**
- Approved every two years at the World Health Assembly.

➤ **Voluntary contributions:**

- Account for more than **three quarters** of the Organization's financing.
- Come from **Member States and other partners**.
- Further categorized based on flexibility:

➤ **Core voluntary contributions (CVC):**

- Fully **unconditional** and flexible, representing **4.1% of all voluntary contributions**.

○ **Thematic and strategic engagement funds:**

- **Partially flexible**, representing 7.9% of all voluntary contributions in 2020-2021.

○ **Specified voluntary contributions:**

- Tightly **earmarked to specific programmatic areas** and/or geographical locations, representing 88% of all voluntary contributions.

➤ **Pandemic Response Funding:**

- WHO receives additional funding from various sources in response to global health emergencies, including pandemics.
- The **Covid-19 Solidarity Response Fund** was established during the COVID-19 pandemic to receive contributions from governments, organizations, and individuals.

➤ **India's Participation:**

- Emphasized the importance of collaboration and resilient global health systems.
- Highlighted India's contribution of **300 million COVID-19 vaccine doses to over 100 countries**.
- Stressed the significance of traditional systems like **Yoga** and **Ayurveda**.
- Mentioned the establishment of **WHO's Global Centre for Traditional Medicine in India**.
- Supported the **G20** theme of 'One Earth, One Family, One Future'.
- Shared India's achievements in healthcare and the **Ayushman Bharat scheme**.

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- Expressed willingness to support WHO in low and middle-income countries.
- Highlighted India's contributions in Medical Value Travel and commitment to **Tuberculosis elimination**.
- Emphasized the 'Heal by India' initiative, promoting **AYUSH treatments globally**.
- Stressed the importance of **inclusive growth and healthcare for all**.

## Global Slavery Index 2023

### Why in News?

A new report, 'The Global Slavery Index 2023', by the **Walk Free Foundation**, highlights the **increasing prevalence of modern slavery worldwide**, with the number of people living in such conditions reaching **50 million**—an alarming **25% rise in the past five years**.

- The report emphasises the significant role played by **G20 nations** in **exacerbating this crisis** through their trade operations and global supply chains.
- **India, China, Russia, Indonesia, Turkey, and the U.S.** are among the top G20 countries with the highest number of **forced labourers**.

### What is Modern Slavery?

- Modern slavery encompasses various forms of exploitation, including **forced labour, forced marriage, debt bondage, commercial sexual exploitation, human trafficking**, slavery-like practices, and the sale and exploitation of children.
- Modern slavery has devastating consequences for **individuals, communities, and societies**.
  - It violates **human rights**, **undermines human dignity** and **erodes social cohesion**.
  - It also **hampers economic development, perpetuates inequality, and fuels corruption**. It poses a threat to global security and stability by fuelling **conflict, terrorism, and organised crime**.

### What are the Major Takeaways of Global Slavery Index 2023?

- **Key Highlights:**
  - According to the **Global Slavery Index 2023**, an estimated **50 million people were living in modern slavery on any given day in 2021**, an increase of 10 million people since 2016.
  - This means that one in every 160 people in the world is a victim of modern slavery.
  - It ranks **160 countries based on their estimated prevalence of modern slavery per 1,000 people**.

#### Most prevalent

The countries estimated to have the highest prevalence of modern slavery tend to be conflict-affected, have state-imposed forced labour, and have weak governance.

	Rank	Prevalence Rate*	# of People
North Korea	1	104.6	2,696,000
Eritrea	2	90.3	320,000
Mauritania	3	32.0	149,000
Saudi Arabia	4	21.3	740,000
Türkiye	5	15.6	1,320,000
Tajikistan	6	14.0	133,000
United Arab Emirates	7	13.4	132,000
Russia	8	13.0	1,899,000
Afghanistan	9	13.0	505,000
Kuwait	10	13.0	55,000

\*Estimated number of people in modern slavery per 1,000 population

#### Least prevalent

The countries with the lowest prevalence of modern slavery are those with strong governance and strong government responses to modern slavery.

	Rank	Prevalence Rate*	# of People
Switzerland	160	0.5	4,000
Norway	159	0.5	3,000
Germany	158	0.6	47,000
Netherlands	157	0.6	10,000
Sweden	156	0.6	6,000
Denmark	155	0.6	4,000
Belgium	154	1.0	11,000
Ireland	153	1.1	5,000
Japan	152	1.1	144,000
Finland	151	1.4	8,000

\*Estimated number of people in modern slavery per 1,000 population

Note:

- The countries with the highest prevalence are **North Korea (104.6)**, **Eritrea (90.3)**, and **Mauritania (32.0)**, where modern slavery is widespread and often state-sponsored.
- The countries with the lowest prevalence are **Switzerland (0.5)**, **Norway (0.5)**, and **Germany (0.6)**, where strong governance and effective responses to modern slavery are evident.
- **Asia and the Pacific** has the largest number of people in modern slavery. **(29.3 million)**
  - **India has the prevalence of 8.** (Estimated proportion of population living in modern slavery per thousand people).
- **Contributing Factors:**
  - The report identifies **climate change**, **armed conflict**, **weak governance**, and **health emergencies** like the **Covid-19 pandemic** as key factors that have contributed to the **rise in modern slavery**.
  - G20 nations account for **more than half of all people living in modern slavery**, primarily due to the importation of products worth **USD 468 billion from countries with weak worker protection**, thereby worsening forced labour conditions.
- **Role of Global Supply Chains:**
  - Complex and opaque global supply chains, which involve the **sourcing of raw materials, manufacturing, packaging, and transportation**, are deeply entangled with forced labour.
  - The report highlights the importation of high-risk products, such as **electronics, textiles, palm oil, and solar panels**, and their association with forced labor, human trafficking, and child labour.
  - It reveals that **G20 countries collectively import billions of dollars worth of textiles and apparel goods at risk of being produced by forced labour every year.**
- **Assessment Methodology:**
  - Factors such as **political instability**, **inequality**, **lack of basic needs**, **criminal justice mechanisms**, **internal conflicts**, and displacement defined a **nation's vulnerability to modern slavery**.
  - The index uses data released by the **International Labour Organisation (ILO)**, **Walk Free**, and the **International Organisation for Migration (IOM)** in 2022 to illustrate how **"modern slavery is hidden in plain sight"**
- **Case Study: Textiles Industry:**
  - The **report highlights the textiles industry as a significant contributor to forced labour**. It describes conditions of forced and unpaid work, health and safety risks, poor wages, lack of benefits, and debt bondage.
  - The **Sumangali scheme in Tamil Nadu** is cited as an example of exploitative conditions trapping women and girls in spinning mills.
- **International Efforts and Challenges:**
  - Despite the **adoption of a goal to end modern slavery, forced labour, and human trafficking by 2030**, the report highlights the significant increase in the number of people living in modern slavery and the lack of progress in government action.
    - The report attributes the **increase of 10 million people to compounding crises**, including armed conflicts, environmental degradation, assaults on democracy, global rollback of women's rights, and the economic and social impacts of the COVID-19 pandemic.
- **Recommendations:**
  - The Global Slavery Index recommends implementing stronger measures and legislations to **prevent governments and businesses from sourcing goods and services linked to modern slavery**.
  - The report also suggests **embedding anti-slavery measures in climate change sustainability plans, providing education to children, tightening regulations around child marriage**, and ensuring transparency in value chains.

### ***What is India's Stance Related to Modern Slavery?***

- **Legislative Framework:**
  - India has taken **legislative measures** to combat modern slavery, including the **Bonded Labour Abolition Act of 1976** (the Act was amended in 1985 to include contract and migrant workers) and the **Central scheme for Rehabilitation of Bonded Labour**.
  - The Supreme Court has also ruled that **non-payment of minimum wages amounts to "forced labour" under Article 23 of the Constitution**.
- **Challenges:**
  - Challenges remain in **implementation of the Acts, corruption, legal loopholes, and lack of politics**

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that hinders effective eradication of modern slavery in the country.

- For instance, Growing evidence shows indigenous communities and those engaged in fishing and agriculture in **States like Odisha and West Bengal** have become **victims of debt bondage, human trafficking and mass displacement.**

➤ **Need of the Hour:**

○ **Multi Pronged Approach:**

- Government needs to **enact and enforce laws that criminalise all forms of modern slavery and protect the rights of victims.**
- **Businesses need to ensure that their operations and supply chains are free from forced labour and human trafficking.**

- Civil society needs to raise **awareness, advocate for change, and provide support to survivors.**
- Individuals need to **educate themselves about the issue**, demand transparency from companies they buy from or invest in, and report any suspected cases of modern slavery they encounter

○ **Survey on Bonded Labour:**

- There is also a need to properly identify and enumerate people stuck in modern slavery conditions. **India's last national survey of bonded labour was done in the mid-90s.**

**Note:** Walk Free is an international human rights group focussed on the eradication of modern slavery, in all its forms, in our lifetime.



Note:

# Science & Technology

## Highlights

- Detection of Pre-Diabetes
- AI-Driven Discovery of Abaucin: A Powerful Antibiotic
- First Indigenously Developed Animal-Derived Biomedical Device
- Dealing with Deepfakes
- India's First Dimethyl Ether Fuelled Tractor
- Alkaline Seawater Electrolyzer for Hydrogen Generation
- Fermi Energy in Quantum Physics
- X-raying a Single Atom
- Helicopter Navigation Demo with GAGAN Satellite Tech
- Foucault Pendulum

## Detection of Pre-Diabetes

### Why in News?

According to a study, funded by **ICMR (Indian Council of Medical Research)**, one in five healthy individuals has the glucose metabolism of a **Prediabetic**.

- The researchers used **Continuous Glucose Monitors (CGMs) to detect Pre-Diabetes**. Continuous glucose monitoring automatically tracks blood glucose levels throughout the day and night, which can help make more informed decisions on how to balance food, physical activity, and medicines.

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

- **Prevalence:**
  - 101 million (11.4%) people in India have **diabetes** and **136 million (15.3%) people have prediabetes**.
  - There is almost no rural and urban divide when it comes to the prevalence of prediabetes.
  - Prediabetes levels were found to be **higher in states where the current prevalence of diabetes was low**.
- **Conversion Rate:**
  - Conversion to diabetes from Prediabetes is very fast in India; more than 60% of people with prediabetes can **end up converting to diabetes in the next five years**.
  - Moreover, almost 70 % of India's population lives in villages. So, if the prevalence of diabetes **increases by even 0.5 to 1%**, the absolute numbers will be huge.

### What are the Recommendations?

- **Tracking Prediabetes:**
  - In India, identifying individuals at risk of prediabetes **has traditionally relied on the oral glucose tolerance test**. However, the study suggests the **existence of a stage before** prediabetes, labeled impaired glucose homeostasis.
- **The Oral Glucose Tolerance Test (OGTT):**
  - The OGTT is a test that **measures how the body handles glucose after a meal**. It can detect abnormalities in blood sugar levels before fasting levels return to normal.
  - The test helps diagnose diabetes and prediabetes.
    - If the **fasting value is above 126 mg/dl** and the **two-hour value post-fasting is above 200 mg/l** in the oral glucose tolerance test, then it is defined as **diabetes**.
    - If the fasting values are **between 100-125** and **two-hour values are in the range of 140-199**, then the patient is classified to be in the **pre-diabetic stage**.
    - Fasting values **below 100** and two-hour values **of less than 140** are labelled as **normal**.

### What is the Importance of Early Detection?

- Early detection of diabetes is crucial, as it allows for **timely intervention and reduces the risk** of complications. However, the cost of CGMs poses a challenge in India, where many pre diabetics may face economic constraints.
- While CGMs can improve nutrition and sugar levels, their affordability remains a concern.

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- As per the **World Health Organization (WHO)**, more than 50% of individuals with diabetes are unaware of their condition, highlighting the need for accessible and cost-effective screening methods.

### What is Diabetes?

#### ➤ About:

- Diabetes is a **Non-Communicable Disease (NCD)** that occurs either when the pancreas does not produce enough insulin (a hormone that regulates blood sugar, or glucose), or when the body cannot effectively use the insulin it produces.

#### ➤ Types of Diabetes:

##### ○ Type 1 Diabetes:

- It is also known as **juvenile diabetes** (as it mostly affects children of age 14-16 years), this type occurs **when the pancreas makes little or no insulin**.

- Insulin is a hormone the body uses to allow sugar (glucose) to enter cells to produce energy.

- It is predominantly diagnosed in children and adolescents. Although the prevalence is less, it is much more severe than type 2.

##### ○ Type 2 Diabetes:

- It affects the way the **body uses insulin**. While the body still makes insulin.
- Type 2 diabetes **can occur at any age, even during childhood**. However, this type of diabetes occurs most often in middle-aged and older people.

##### ○ Gestational Diabetes:

- This type occurs in women during pregnancy **when the body sometimes becomes less sensitive** to insulin. Gestational diabetes does not occur in all women and usually resolves after giving birth.

#### ➤ Impacts of Diabetes:

- It affects the five major organs namely, Kidney, Heart, Blood vessels, Nervous System, and Eyes (retina).

#### ➤ Factors Responsible:

- Factors that lead to increase in diabetes are an unhealthy diet, lack of physical activity, harmful use of alcohol, overweight/obesity, tobacco use, etc.

#### ➤ Initiatives to Tackle Diabetes:

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

## AI-Driven Discovery of Abaucin: A Powerful Antibiotic

### Why in News?

Recently, Scientists from the United States and Canada have achieved a remarkable feat in the field of medicine by using **Artificial Intelligence (AI)** to discover a powerful **antibiotic** called **Abaucin** capable of fighting **Acinetobacter baumannii** superbug.

- This breakthrough holds immense promise in the fight against **drug-resistant bacteria**.

### What is Acinetobacter Baumannii?

- Acinetobacter baumannii is a **dangerous bacterium resistant to antibiotics**, as identified by the **World Health Organization (WHO)**.
- It can cause severe infections like **pneumonia, meningitis, and wound infections**, leading to fatalities.
- Typically found in hospitals, Acinetobacter baumannii can **survive on surfaces for long periods, making it difficult to eradicate**.
- Due to its remarkable capacity to develop resistance to all currently available antibiotics, it was recognised as a **"red alert" human pathogen**.

### How does Antibiotic Resistance Occur?

- **Antibiotic resistance** occurs when bacteria adapt and become resistant to the effects of antibiotics, rendering treatments ineffective.
  - Antibiotics are medicines **used to prevent and treat bacterial infections**.
- **Overuse and misuse of antibiotics** have fueled the rise of drug-resistant bacteria, posing a global health concern.
- The WHO lists infections such as pneumonia, **tuberculosis**, and **foodborne diseases** as becoming harder to treat with existing medication **due to increasing anti-bacterial resistance**.

Note:

**Note:**

- Superbugs are bacteria that are **resistant to several types of antibiotics**.
- WHO's list of superbugs highlighted bacteria that have built-in abilities to find new ways to **resist treatment and can pass along genetic material that allows other bacteria to become drug resistant** as well. They **can also be fungi**.

**What is Abaucin?**

- **About:**
  - Abaucin is a compound that shows useful activity as a **narrow-spectrum antibiotic**.
  - It is effective against *Acinetobacter baumannii*.
- **Discovery:**
  - Abaucin was discovered with the assistance of **AI using a machine-learning model approach**.
  - Network was trained with a dataset of ~7,500 molecules screened for inhibiting *Acinetobacter baumannii* growth.
  - The network predicted structurally different molecules with activity against *A. baumannii*, including abaucin.
  - Abaucin was experimentally validated and found to have potent antibacterial activity.
- **Mechanism of Action:**
  - Abaucin disrupts the **normal function of the CCR2 protein in bacteria**.
  - This disruption **hinders the movement of certain molecules** inside the bacteria, preventing them from **reaching the outer membrane**.
- As a result, the **growth of *Acinetobacter baumannii* is inhibited, reducing its ability to cause infections**.

## First Indigenously Developed Animal-Derived Biomedical Device

**Why in News?**

Recently, Indian Drugs Controller approved the first indigenously developed animal-derived **Class D Biomedical Device, Cholederm**, that can rapidly heal skin wounds at low-cost with minimum scarring.

- As per the **Medical Devices Rules, 2017**, medical devices are classified into four classes based on the risk level: Class A (low risk), Class B (low moderate risk), Class C (moderate high risk); Class D (high risk).

**What are the Key Details of the Development?**

- **About:**
  - The **Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCTIMST)**, an **autonomous institution under the Department of Science and Technology (DST)**, developed the tissue engineering scaffold.
  - It is the first institution in India to develop Class D medical devices that meet the requirements of the **Central Drugs Standard Control Organisation (CDSCO)**.
  - It is an **innovative technology for preparing tissue engineering scaffolds** from mammalian organs.
  - The **concept of using animal-derived materials** as advanced wound care products **is not new**.
    - However, indigenous technology was so far not available for fabricating quality products that satisfy the requirements of the Drugs Controller General
- **Healing Capabilities:**
  - The tissue **engineering scaffold, called Cholederm**, demonstrated **the ability to heal various types of skin wounds**, including **burn and diabetic wounds**, in rat, rabbit, or dog models faster than existing products in the market, while minimizing scarring.
  - It **showed that graft-assisted healing** was regulated by **anti-inflammatory M2 type of macrophages**, which helped modulate or mitigate scarring reactions in different tissues.
- **Cost Reduction and Market Potential:**
  - The introduction of Cholederm to the Indian market **is expected to reduce treatment costs from Rs 10,000/- to Rs 2,000/-**, making it more affordable.
  - Additionally, the technology **provides a competitive advantage in the international market and creates an income-generating opportunity**.
- **Future Developments:**
  - The research team is **currently developing injectable gel formulations** of the scaffold **for easier application in treating cardiac injuries**, aiming to revolutionize the management of patients suffering from myocardial infarction.

Note:



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**Note:**

- Medical devices are **regulated as drugs under the Drugs and Cosmetics Act, 1940.**
- **CDSCO** is the national regulating authority for **medical devices and pharmaceuticals** while NPPA is empowered by the Drugs (Price Control) Order, 2013, to control the prices of drugs and medical devices.

**What is CDSCO?**

- The CDSCO is the Central Drug Authority for discharging functions assigned to the Central Government **under the Drugs and Cosmetics Act, 1940.**
- The CDSCO under Directorate General of Health Services, Ministry of Health & Family Welfare, Government of India is the **National Regulatory Authority (NRA)** of India.
- Its headquarter is in New Delhi
- Major Functions:
  - Regulatory control over the import of drugs, approval of new drugs and clinical trials.
  - Approval of certain licences as Central Licence Approving Authority.

**What is the National Pharmaceuticals Pricing Authority (NPPA)?**

- NPPA is an organization **under Department of Pharmaceuticals, Ministry of Chemicals and Fertilizers which was set up in 1997** to revise the prices of controlled bulk drugs and formulations and to enforce prices and availability of medicines in the country, under the Drugs (Prices Control) Order (DPCO), 1995.
- The prices are now fixed/revised under Drugs (Prices Control) Order (DPCO), 2013.
- It also monitors the prices of decontrolled drugs in order to keep them at reasonable levels.

## Dealing with Deepfakes

**Why in News?**

Recently, various news sources have focused on the **growing concern over deepfakes**, which are **fabricated media created using deep learning technology.**

- While deepfakes have the potential to distort reality and manipulate public perception, they also **hold promise in various fields.** The challenge lies in responsibly wielding this technology and addressing its impact on society.

**What is Deepfake Technology?****About:**

- **Deepfake technology** is a method for manipulating **videos, images, and audio** utilizing powerful computers and **deep learning.** Deep learning is a part of **Deep synthesis.**
  - **Deep synthesis** is defined as the use of technologies, including **deep learning** and **augmented reality, to generate text, images, audio and video to create virtual scenes.**
- It is used to generate **fake news** and **commit financial fraud** among other wrongdoings.
- It overlays a digital composite over an already-existing video, picture, or audio; **cybercriminals** use **Artificial Intelligence technology.**
- Deepfakes **surpass traditional photo editing techniques** by leveraging **machine learning algorithms.**
- Deepfakes have been used to create **manipulated content**, such as **fake videos of political figures and false disaster images.**

**Redeeming Applications of Deep Learning:**

- Deep learning technology has enabled positive advancements, such as **restoring lost voices and recreating historical figures.**
- The ALS Association's voice cloning initiative and recreations of artists and celebrities showcase the potential benefits of deep learning.
- Deep learning techniques have been applied in **comedy, cinema, music, and gaming to enhance artistic expression.**

**Unsettling Consequences and Ethical Concerns:**

- Deepfakes have been employed for **malicious purposes, including revenge porn and hacking facial recognition systems.**
- They **undermine trust in the media** and **blur the lines between fact and fiction.**
- Misinformation propagated by deepfakes can be mistaken as true, leading to potential social unrest.

Note:

### What is India's Stand on Dealing with Deepfakes?

- India **does not have specific laws or regulations that ban or regulate the use of deepfake technology.**
- Existing laws such as **Sections 67 and 67A of the Information Technology Act (2000)** have provisions that may be applied to certain aspects of **deepfakes, such as defamation and publishing explicit material.**
- **Section 500 of the Indian Penal Code (1860)** provides punishment for defamation.
- The **Personal Data Protection Bill (2022)**, if passed, could provide some protection against the misuse of personal data, but it does not explicitly address deepfakes.
- India **needs to develop a comprehensive legal framework** specifically targeting deepfakes, considering the potential implications for privacy, social stability, national security, and democracy. What are Other Countries doing to Combat Deepfakes?
- **European Union:**
  - In 2022, the **European Union** has updated **Code of Practice on Disinformation** that was introduced in 2018 to stop the spread of disinformation through deepfakes.
- **United States:**
  - The **U.S.** introduced the **bipartisan Deepfake Task Force Act** to assist the Department of Homeland Security (DHS) to **counter deepfake technology.**
- **China:**
  - China introduces **comprehensive regulation on deep synthesis**, effective from January 2023. Aimed at curbing disinformation, the regulation requires **clear labeling and traceability** of deep synthesis content. **Consent from individuals and adherence to laws and public morals** are mandated. Service providers must establish review mechanisms and cooperate with authorities.

## India's First Dimethyl Ether Fuelled Tractor

### Why in News?

Recently, India's **first 100% Dimethyl Ether (DME)** fuelled tractor/ vehicle for on- and off-road applications has been developed by IIT Kanpur that exhibited higher thermal efficiency and lower emissions than the baseline diesel engine.

- The research received support from the **Science and Engineering Research Board (SERB)**, a part of the Department of Science and Technology (DST).
- The project aligned with the **'Methanol Economy' program of NITI Ayog**, aiming to reduce India's oil import bill and greenhouse gas emissions.

### What are the Key Points Related to DME Fuel?

- **About:**
  - DME is a synthetically produced alternative fuel that can be directly used in specially designed compression ignition diesel engines for various purposes.
  - DME is a **renewable alternative to crude oil.**
  - Several countries, including **Japan, USA, China, Sweden, Denmark, and Korea**, are already using DME to power their vehicles.
- **Properties:**
  - Under normal atmospheric conditions, DME is a **colourless gas.**
  - DME exhibits **comparable calorific value** and similarity of its thermal efficiency to traditional fuels; It is a **clean-burning fuel with low emission** and low particulate matter.
- **Uses:**
  - It is used extensively in the chemical industry and as solvent, fuel, and refrigerant.
  - It has already been used as **an ozone-friendly aerosol propellant to replace ozone-destroying chlorofluorocarbons (CFCs).**
  - It is an essential intermediate for producing valuable chemicals such as lower olefins, dimethyl sulfate, and methyl acetate.
- **Significance:**
  - **Environmental Benefits:**
    - The DME-fuelled engine exhibited remarkably **low particulate and soot emissions, almost eliminating smoke generation.**
    - This was achieved without the need for expensive exhaust gas after-treatment devices or advanced engine technologies.
    - The DME technology offers a viable and **eco-friendly alternative** for conventional diesel engines in agriculture and transport sectors.
  - **DME as a Renewable Alternative:**
    - India heavily relies on crude oil imports to meet its energy demands across various sectors.

Note:



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- DME presents a renewable alternative fuel option that can be produced domestically.
  - **Reinforcing Methanol Economy Programe:**
    - Converting domestic **coal reserves, low-value agricultural biomass waste, and municipal solid waste into methanol** and DME can contribute to achieving these goals.

## Alkaline Seawater Electrolyzer for Hydrogen Generation

### Why in News?

Recently, Researchers from IIT-Madras have developed **Alkaline Seawater Electrolyzer to Generate Hydrogen**, addressing the challenges related with the existing **Water Electrolyzer Technology**.

- Alkaline water electrolyzer technology is energy-intensive, **requires an expensive oxide-polymer separator**, and uses fresh water for electrolysis. This invention has addressed each of these challenges by **developing simple, scalable and cost-effective alternatives** that are highly efficient in splitting seawater and generating hydrogen.

### Green hydrogen production

Critical components have been developed for a highly efficient, cost-effective way to generate hydrogen by electrolysis seawater using solar energy

■ The electrolyser uses alkaline seawater, and a carbon-based support material developed by the IIT Madras team is used for the anode and the cathode to prevent corrosion

■ A transition metal-based catalyst developed by the team is used for coating the support material of the electrodes

■ The catalyst enhances the production of hydrogen and oxygen even when impurities and chemical deposition



Hydrogen is produced at a rate of one litre per hour when a large electrolyser is used

takes place on the electrodes

■ A cellulose-based separator developed in-house is very economical and allows hydroxide ions to pass through but prevents oxygen and hydrogen from crossing-over

■ Two prototypes of different dimensions have been built to assess the viability of the catalyst

■ All the cells have shown a shelf-life of more than six months, and the study is continuing

### What are the Key Features of the Invention?

- **Carbon Based Support Catalyst:**
  - In an Alkaline Water electrolyzer, **two reactions occur at the anode and cathode**. At the cathode, water splits into  $H^+$  and hydroxide ions. The  $H^+$  ions become hydrogen, while the hydroxide ions pass through a separator and form oxygen at the anode.

- However, when seawater is used, **there are challenges**. The anode forms **hypochlorite, which corrodes the electrode support material** and competes with oxygen production. The cathode gets impurities that slow down hydrogen production.
- To solve these issues, the **electrodes have a special support material coated** with a catalyst. Instead of using metals that corrode seawater, a **carbon-based material is used**.
- This support material, found in both the anode and cathode, **is coated with the catalyst**. The catalyst enables improved production of hydrogen and oxygen simultaneously.
- **Cellulose-Based Separator:**
  - Usually, an expensive **zirconium oxide-based material** is used to separate the anode and cathode in alkaline electrolysis.
  - However, the researchers have used a **Cellulose-Based Separator**. This separator allows **hydroxide ions to pass from the cathode to the anode** while **minimizing the crossover of hydrogen** and oxygen.
    - This separator is **highly resistant to degradation** when exposed to seawater. This is an **important quality for long-term performance** and durability.

### What is the Significance of this Invention?

- This invention **addresses the limitations of current technologies** and paves the way for **scalable and sustainable hydrogen production**, contributing to a greener and more sustainable future.

### What are the Reasons to Develop Green Hydrogen?

- **Reducing Greenhouse Gas Emissions:**
  - The main goal of green hydrogen is to **reduce harmful greenhouse gas emissions**, which are a major cause of climate change.
  - Unlike traditional fuels, green hydrogen produced from renewable sources emits no greenhouse gases, making it an eco-friendly and sustainable energy option.
- **Energy Security and Independence:**
  - By shifting towards renewable energy sources like **green hydrogen, countries can become more self-reliant** and less vulnerable to price fluctuations and supply disruptions associated with finite fossil fuels. This enhances energy security and independence.

Note:

- **Decarbonizing Difficult-to-Decarbonize Sectors:**
  - Green hydrogen has great **potential to replace fossil fuels in sectors that are challenging to decarbonize**, such as heavy industry and aviation. These sectors contribute significantly to global emissions, and adopting green hydrogen can help reduce their carbon footprint.
- **Technological Advancements:**
  - The advancement of green hydrogen technology **drives innovation in various fields**. Developing the infrastructure for production, storage, and distribution of green hydrogen requires new technologies, materials, and systems. This stimulates progress and breakthroughs in related industries.

## Fermi Energy in Quantum Physics

### Why in News?

Recently, **Fermi energy** has gained significant attention due to its wide range of **daily practical applications** in various fields, driven by the principles of quantum physics.

### What is Quantum Physics?

- Quantum physics is the branch of physics that deals with the **behavior and properties** of the smallest particles of matter and energy, such as **atoms, electrons, photons, and quarks**.
- Quantum physics reveals that these particles can **behave in strange and surprising ways**, such as being in **two places at once (superimposition)**, **tunneling through barriers**, or **entanglement with each other over long distances**.
- Quantum physics also explains how atoms and molecules form the basis of all matter and **how light and other electromagnetic waves** are produced and interact with matter.
- Quantum physics impacts daily life through **electronics, computing, lasers, and optics**. It enables technologies like **MRI for medical imaging** and improves **renewable energy systems**.
  - **Quantum cryptography** ensures **secure communication**, while materials science and nanotechnology benefit from quantum principles.

### What is Fermi Energy?

#### ➤ About:

- Fermi energy is the energy of the highest occupied state of electrons in a material at **absolute zero temperature (-273° C or 0K)**.
  - Fermi energy determines **electron velocity in conduction**, as only electrons with energies close to the Fermi energy can participate in the conduction process.
- Metals, such as **copper, aluminum, and silver**, **exhibit high Fermi energies**, even at extremely low temperatures.
- The Fermi energy and fermionic behavior of electrons, governed by quantum mechanics, are responsible for various properties of metals, including their **reflectivity, electrical conductivity, and thermal conductivity**.
- Fermi energy is measured by **Fermi level**.
- Understanding Fermi energy is essential for comprehending the **fundamental behaviors** and applications of metals in our daily lives.

#### ➤ Importance for Quantum Physics:

- Fermi energy reveals the **wave nature and discrete energy levels of electrons in matter**.
- Fermi energy determines various physical properties of materials, including **electrical and thermal conductivity, heat capacity, magnetism, and superconductivity**.
- Fermi energy is relevant in natural phenomena and technological applications like **stars, nuclear reactions, lasers, transistors, and solar cells**.

## X-raying a Single Atom

### Why in News?

Recently, scientists achieved a remarkable milestone by **identifying an element through X-ray imaging of a single atom**.

- X-rays, discovered by **Wilhelm Conrad Rontgen in 1895**, have become an integral part of various fields, including medicine and security.
- Previously, the **smallest amount of sample that can be X-rayed is an attogram**, (which is about **10,000 atoms or more**). Scientists have long wanted to be able to X-ray just one atom, which has now been made possible.

Note:



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### What is the new technique for X-raying a single atom?

#### ➤ Technique:

- Scientists have used a technique called **synchrotron X-ray scanning tunneling microscopy (SX-STM)** to detect the **X-ray signature of a single atom for the first time**.
- SX-STM combines **synchrotron X-rays**, which are **high-energy X-rays** produced by accelerating electrons in a circular track, with **scanning tunneling microscopy**, which uses a **sharp metal tip to interact with the electrons of a sample at very close distances**.
- The synchrotron X-rays excite the sample, and the metal tip collects the photoelectrons emitted by the atom, **revealing its identity and chemical state**.

#### ➤ Materials Science:

- Materials science, the study of the **properties of solid materials** and how those properties are determined by a material's composition and structure.

#### ➤ Importance for Material Science:

- It provides insights into the **atomic-scale properties and interactions of materials**.
- Enables **precise understanding of molecular structures** and behaviors.
- Facilitates the design and development of novel materials and devices.
- Enhances **knowledge of catalytic activity, biomolecular interactions, and quantum phenomena**.

### What is X-ray?

- It is a form of **electromagnetic radiation** with **higher energy, high frequency, and shorter wavelength than visible light**.
- It can pass through most objects, including the body, and **produce internal structure images**.
- Produced by **accelerating or decelerating charged particles** or exciting atoms.
- Widely used in science, medicine, industry, and security applications.
- Used for **detecting bone fractures, diagnosing diseases, identifying materials, and scanning luggage**.

## Helicopter Navigation Demo with GAGAN Satellite Tech

### Why in News?

India achieved a significant milestone in the **aviation sector** by conducting **Asia's first demonstration of performance-based navigation for helicopters**.

- The demonstration, which utilised the **state-of-the-art GAGAN satellite technology**, was conducted for a flight from **Juhu in Mumbai to Pune**.

### What is Performance-Based Navigation?

- Performance-based navigation (PBN) is a **modern concept of air navigation that allows aircraft to fly accurately along a predefined route** using advanced onboard navigation systems and satellite signals.
- PBN improves the **safety, efficiency and capacity of air traffic management** by reducing the reliance on ground-based navigation aids and allowing more flexible flight paths.

### What is GAGAN Satellite Technology?

#### ➤ About:

- GAGAN, which stands for **GPS Aided GEO Augmented Navigation**, is a **space-based augmentation system** jointly developed by the **Indian Space Research Organisation (ISRO)** and the **Airports Authority of India (AAI)**.

#### ➤ Features:

- The system adds greater accuracy to the output of GPS navigation by providing **local geographical positioning**, thereby improving the precision of aircraft location for more efficient traffic management.
  - It enhances the **accuracy and integrity of the GPS signals by correcting the errors caused by atmospheric disturbances, clock drifts and orbital deviations**.
- This satellite technology also helps aircraft/helicopters with **guided landing at airports that do not have instrument landing systems** for low-visibility operations.

#### ➤ Benefits:

- **Enhanced safety:** By providing accurate and reliable navigation information, **GAGAN reduces the risk**

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of human errors, collisions, terrain strikes and controlled flight into terrain (CFIT) accidents.

- It also improves situational awareness and emergency response capabilities for pilots and air traffic controllers.
- **Improved efficiency:** By allowing optimal flight paths and reduced separation standards, **GAGAN enables more efficient use of airspace and fuel**, resulting in lower emissions and operational costs.
- **Increased capacity:** By increasing the number of flights that can be accommodated in a given airspace, GAGAN enhances the capacity and connectivity of the aviation network.
- It also **enables access to remote and underserved areas** that lack conventional navigation infrastructure or have challenging terrain.
  - In addition, GAGAN will provide **benefits beyond aviation** to all modes of transportation, including maritime, highways, and railroads.

## Foucault Pendulum

### Why in News?

**India's newly inaugurated Parliament** building showcases a remarkable piece of scientific artistry suspended from its ceiling - **a Foucault pendulum**.

- Foucault's pendulum in the New Parliament building also represents the **spirit of scientific inquiry and scientific temper** which is enshrined in the **Article 51A of the Indian Constitution**.



### What is a Foucault Pendulum?

- A **Foucault pendulum**, named after the **19th century French physicist Leon Foucault**, is a simple experiment to demonstrate the **Earth's rotation**.

- It consists of a **heavy object hung from a long wire, free to swing in any direction**. When set in to-and-fro motion, the **pendulum appears to change its orientation slowly over time**, due to the relative motion between the pendulum and the rotating Earth.

- Foucault first performed this experiment publicly in **1851 at the Pantheon in Paris**, where he suspended a **28-kg iron ball from a 67-m wire**. It was the first direct visual evidence of the Earth's rotation.
  - The experiment concluded that **"pendulum does not change its plane of motion, but the ground beneath it does."**
  - When **aligned along the Earth's axis at the north and south poles**, the pendulum's back-and-forth motion comes **back to its original plane in exactly 24 hours**.
    - At other latitudes, it takes **longer for the pendulum to return to its original orientation of swinging**. That is because **the pendulum is not aligned with the axis of rotation of the earth**.
- The rate and direction of the pendulum's apparent rotation depend on its latitude.
  - At the North Pole, it would **complete one clockwise rotation in 24 hours**.
  - At the equator, it would **not rotate at all**.
  - At other latitudes, it would rotate at **intermediate rates and directions**.

### What is Special about the Pendulum in the New Parliament Building?

- The pendulum in the new Parliament building was created by the **National Council of Science Museum (NCSM) in Kolkata**.
  - It is **said to be the largest such piece in India**, with a height of 22m and a weight of 36 kg.
- The pendulum hangs from a skylight at the top of the Constitution Hall, and signifies the **"integration of the idea of India with the idea of the cosmos"**.
- At the **latitude** of Parliament, New Delhi (28.6° N), it takes about **49 hours and 59 minutes** for the pendulum to **complete one clockwise rotation**.

Note:



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# Environment & Ecology

## Highlights

- Intergovernmental Negotiating Committee: UNEP
- Arctic Sea Ice Melting
- Heatwave Conditions
- Climate Resilient Agriculture
- Tracking SDG7: The Energy Progress Report 2023
- Ground Level Ozone Pollution in Delhi: CSE
- Sustainable Aviation Fuel
- Converting Plastic Waste into Fuel
- India's E-cooking Transition on World Environment Day
- Great Indian Bustards and Asiatic Lions
- Spotted Pond Turtles
- Himalayan Brown Bear

## Intergovernmental Negotiating Committee: UNEP

### Why in News?

Recently, the **United Nations Environment Programme (UNEP)** has gathered in Paris, France, for the second meeting of the Intergovernmental Negotiating Committee (INC-2).

- The first session of the Intergovernmental Negotiating Committee (INC-1) concluded in Uruguay in 2022.
- INC-2 aimed **to set the stage** for negotiations on the substance of a global deal to **end plastic pollution** to edge closer to protecting ecosystems, species and humanity from the grave impacts of the linear plastics economy.

### What are the Key Highlights of INC-2 Meeting?

- The **primary agenda of INC-2** was to **adopt the rules of procedure**. The rules govern various aspects such as the negotiation process, decision-making procedures (consensus or voting), and the entities authorized to make decisions.
- During the previous INC-1 meeting, a part of **Rule 37**, stating "each member shall have one vote," was kept in brackets, **indicating unresolved disagreement**.
  - The bracketed part now includes **provisions from the Minamata Convention**, allowing **regional economic integration organizations (such as**

**the European Union)** to vote on behalf of their **member states**. However, the member states must be present during voting or as part of the committee.

- **India has consistently insisted on bracketing Rule 38**, which states, "The Committee shall make every effort to reach agreement on all matters of substance by consensus.
  - **If all efforts to reach consensus have been exhausted** and no agreement has been reached, the decision shall, as a last resort, **be taken by a two-thirds majority of the representatives of Members** who are present and voting."
- The formation of the OEWG (Open-Ended Working Group) has delayed the start of discussions in the contact groups on substantive matters.
  - In UNEA resolution 5/14, the assembly mandated **an ad hoc open-ended working group (OEWG)** to lay the groundwork for negotiations.

### What is the Intergovernmental Negotiation Committee (INC)?

- **About:**
  - The INC was established in February 2022, at the 5<sup>th</sup> session of the **United Nations Environment Assembly (UNEA-5.2)**.
  - A historic resolution (5/14) was adopted **to develop an international legally binding instrument** on plastic pollution, including in the marine environment with the ambition to complete the negotiations by the end of 2024.

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➤ **Need:**

- The rapidly increasing levels of plastic pollution represent a serious global environmental issue that **negatively impacts the environmental, social, economic and health** dimensions of sustainable development.
- In the absence of necessary interventions, the amount of plastic waste entering **aquatic ecosystems could nearly triple** from some 9–14 million tonnes per year in 2016 to a projected **23–37 million tons per year by 2040**.

➤ **Objective:**

- Under the legally binding agreement, **countries will be expected to develop, implement and update national action plans** reflecting country-driven approaches to contribute to the objectives of the instrument.
- They will be **expected to promote national action plans** to work towards the **prevention, reduction and elimination of plastic pollution** and to support regional and international cooperation.

### ***What is the United Nations Environment Assembly?***

- It is the governing body of the **UN Environment Programme**.
- It is the world's highest-level decision-making body on the environment.
- The Assembly is made up of the **193 UN Member States** and convenes every two years to advance global environmental governance.
- It was created in **June 2012**, during the United Nations Conference on Sustainable Development, also referred to as RIO+20.

#### **What are the Initiatives to tackle Plastic Pollution?**

➤ **Indian:**

- **Plastic Waste Management (Amendment) Rules, 2022**
- **Extended Producer Responsibility (EPR)**
- **National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management**
- **India Plastics Pact**
- **Project REPLAN**

➤ **Global:**

- **European Union' Directive on Single-Use Plastics**
- **Closing the loop.**
- **The Global Tourism Plastics initiative**

## **Arctic Sea Ice Melting**

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

A recent study in the Nature journal suggests that the melting of Arctic Sea ice in summer is inevitable in the coming decades.

- The **loss of Arctic Sea ice due to global warming (arctic amplification)** has raised concerns about its impact on global climate and the environment.

### ***What are the New Findings on Arctic Sea Ice?***

➤ **Sea Ice Decline:**

- **Intergovernmental Panel on Climate Change (IPCC)** reports **confirm the decline** of Arctic Sea ice.
  - The first “sea-ice free summer” is **projected to occur before 2050**, due to global emissions driving temperatures beyond 4.5°C.
  - Satellite records indicate a yearly rate of **Arctic ice loss at nearly 13%**.

➤ **Insufficient Emission Reductions:**

- The Nature study indicates that **no emission scenario can prevent the loss of Arctic Sea ice** in summer.
  - If significant **emission reductions are not undertaken**, an **ice-free summer** could occur as early as the **2030s**.

➤ **Underestimated Melting Rate:**

- **Human-induced factors contribute to approximately 90%** of ice melting, while natural variability accounts for the rest.
- **Climate models**, including those used by the IPCC, **underestimated the speed of melting**.
- Correcting for this underestimation reveals the possibility of **ice-free Augusts and Octobers by 2080**.

### ***What is the Importance of Arctic Sea Ice?***

➤ **Climate Influence:**

- Arctic sea ice **plays a crucial role in influencing global climate patterns**.
- It **reflects sunlight**, helping to **maintain the earth's energy balance** and **cool polar regions**.
- Sea ice **acts as a barrier**, keeping the **air cool by separating cold air above from warmer water below**.

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- **Biodiversity and Indigenous Communities:**
  - Changes in sea ice **impact biodiversity**, particularly **mammals like polar bears and walruses**.
  - **Indigenous Arctic populations** **reliant on sea ice for hunting, breeding, and migration** are affected.
- **Economic Opportunities and Competition:**
  - Reduced ice cover **opens shipping lanes and facilitates access** to **natural resources** in the Arctic.
  - This **leads to increased competition among countries for influence** and resource exploitation in the region.

### **What is Arctic Amplification?**

- **About:**
  - **Arctic amplification** refers to the phenomenon where changes in surface air temperature and net radiation balance produce larger effects at the poles, specifically in the Arctic region.
- **Causes:**
  - It is a **result of global warming caused by anthropogenic forces** or human activities since pre-industrial times, **leading to a 1.1-degree Celsius increase** in the Earth's average temperature.
  - The **primary causes** of Arctic amplification include **ice-albedo feedback, lapse rate feedback, water vapor feedback, and ocean heat transport**.
  - **Diminishing sea ice in the Arctic** due to global warming **plays a significant role** in amplifying the warming effect.
    - **Sea ice and snow have high albedo**, reflecting most solar radiation, **while water and land absorb more radiation**, leading to **increased warming**.
  - The **reduction of sea ice allows the Arctic Ocean to absorb more solar radiation**, further amplifying the warming effect.
  - The **lapse rate, which is the rate at which temperature decreases with elevation**, decreases with warming, contributing to Arctic amplification.
  - **Studies suggest that the ice-albedo feedback and lapse rate feedback account for 40% and 15% of polar amplification, respectively.**
- **Consequences:**
  - **Weakening of Polar Jet Streams:**

- **Diminished sea ice weakens polar jet streams**, resulting in **rising temperatures and heatwaves in Europe**.
- **Unseasonal showers in northwest India** have also been linked to this weakening.

- **Melting of Ice:**
  - The Greenland ice sheet's melting contributes to rising sea levels, with a complete melt potentially causing a seven-meter rise.
- **Changes in Composition of Sea Water:**
  - Warming of the Arctic Ocean and seas, along with changes in salinity and acidification, affects biodiversity, including marine and dependent species.

### ➤ **Affects Fauna:**

- Increased rainfall due to Arctic amplification affects the availability and accessibility of lichens, leading to starvation and death among Arctic fauna.
- **Gaseous Emission:**
  - Thawing **permafrost releases carbon and methane, greenhouse gases** responsible for global warming.
  - It may also **release long-dormant bacteria and viruses**, potentially leading to disease outbreaks.

### **What is Impact on India?**

- **Extreme Rainfall Events:**
  - Studies found that the reduced sea ice in the Barents-Kara Sea region can lead to extreme rainfall events in the latter half of the monsoons — in September and October in India.
- **Warming of Arabian Sea:**
  - The changes in the atmospheric circulation due to diminishing sea ice combined with the warm temperatures in the Arabian Sea contribute to enhanced moisture and drive extreme rainfall events.
    - In 2014, **India deployed IndARC**, India's first moored-underwater observatory in the **Kongsfjorden fjord, Svalbard**, to monitor the impact of the changes in the Arctic Ocean.
- **Rise in Sea Level along Indian Coast:**
  - According to the 'State of Global Climate in 2021' report, sea level along the Indian coast is rising faster than the global average rate.

Note:



## Heatwave Conditions

### Why in News?

Odisha is currently facing an intense heatwave since April 2023, with temperatures exceeding 40°C in most monitoring centers across the state.

- Delayed monsoon could be a contributing factor for this heat wave. In 2023, the **monsoon arrived over the Kerala coast on June 8**, which is a delay compared to its normal onset date of June 1.

### What are Heat Waves?

- **About:**
  - Heatwaves are **prolonged periods of excessively hot weather that can cause adverse impacts on human health, the environment, and the economy.**
  - India, being a tropical country, is **particularly vulnerable to heatwaves**, which have become more frequent and intense in recent years.
- **IMD Criteria for Declaring Heat Wave in India:**
  - Heat Wave **need not be considered till maximum temperature** of a station **reaches at least 40°C for Plains and at least 30°C for Hilly regions.**
  - If the **normal maximum temperature** of a station is less than or equal to 40°C, then **an increase of 5°C to 6°C from the normal temperature** is considered to be **heat wave condition.**

- Further, **an increase of 7°C or more** from the normal temperature is considered a **severe heat wave condition.**
- If the **normal maximum temperature** of a station is **more than 40°C**, then an **increase of 4°C to 5°C from the normal temperature** is considered to be heat wave condition. Further, **an increase of 6°C or more** is considered a **severe heat wave condition.**
- Additionally, if the **actual maximum temperature remains 45°C or more** irrespective of normal maximum temperature, a heat wave is declared.

Heat wave Scenario	40°C	30°C
Maximum Temperature	Plains	Hills
Heat wave conditions prevail when...	Severe heat wave conditions prevail when....	
Normal maximum temperature	Above 40°C	Above 40°C
Deviation from normal	4-5°C or more	6°C or more
At or below 40°C	5-6°C or more	7°C or more

### What are the Causes of Heat Waves?

- **Global Warming:**
  - One of the **primary causes of heatwaves in India is global warming**, which refers to the long-term increase in **Earth's average temperature due to human activities** such as **burning fossil fuels, deforestation, and industrial activities.**
  - Global warming can result in higher temperatures and changes in weather patterns, leading to heatwaves.
- **Urbanisation:**
  - Rapid urbanisation and the growth of **concrete jungles in cities** can lead to the phenomenon known as the **"urban heat island effect."**
  - Urban areas with **high population density, buildings, and concrete surfaces absorb and retain more heat**, leading to higher temperatures, particularly during heatwaves.
- **Sparse Pre-Monsoon Season Showers:**
  - Less moisture in many areas, leaving large parts of India arid and dry.
  - The **sudden end of pre-monsoon rain showers**, an uncommon trend in India, has contributed to the heat waves.

Note:



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➤ **El Nino Effect:**

- El Nino often **increases temperatures in Asia**, combined with the weather pattern to create record high temperatures.
- Trade winds coming from South America normally blow westward towards Asia during the Southwest Monsoon and **warming of the Pacific Ocean results in weakening of these winds**.
  - Therefore, moisture and heat content get limited and results in reduction and uneven distribution of rainfall across the Indian sub-continent.

**What are Its Impacts?**➤ **Impact on Health:**

- Rapid rises in heat gain **can compromise the body's ability to regulate** temperature and can result in a cascade of illnesses, including heat cramps, heat exhaustion, heatstroke, and hyperthermia.
- **Deaths and hospitalizations from heat** can occur extremely rapidly or have a lagged effect.

➤ **Impact on Water Resources:**

- Heatwaves can exacerbate **water scarcity issues in India**; drying up of water bodies, **reduced water availability for agriculture and domestic use**, and increased competition for water resources.
  - This **can lead to conflicts over water**, affect **irrigation practices**, and impact water-dependent industries.

➤ **Impact on Energy:**

- Heatwaves **can increase electricity demand for cooling purposes**, leading to strain on power grids and potential blackouts.
- This **can disrupt economic activities, affect productivity**, and impact vulnerable populations who may not have access to reliable electricity for cooling during heatwaves.

## Climote Resilient Agriculture

**Why in News?**

Research conducted in the **drought-prone Jalna district of Maharashtra** sheds light on the effectiveness of **different interventions in enhancing the climate resilience of farming systems**.

**What are the Major Findings of the Research?**➤ **About:**

- The research, published in the **International Journal of Water Resources Development**, explores the **impact of various agricultural development interventions over a 15-year period in two semi-arid villages, Babai and Deulgaon Tad of Maharashtra**.
- The villages were selected as two farming systems:
- One where interventions were aimed at improving **agricultural productivity and irrigation infrastructure (Babai)**
- Another where interventions targeted the building of **adaptive capacities besides improving agricultural productivity (Deulgaon Tad)**.

➤ **Findings:**

- **Watershed development interventions resulted in intensified agriculture** and altered cropping patterns.
  - However, over time, **these approaches led to declining groundwater** tables and deteriorating soil health.
- **Conventional agricultural development pathways** showed limited success in semi-arid regions.
- **Climate resilience indicators improved when productivity-enhancing interventions were combined with water management**, soil health, livelihood diversification, and food and nutrition security.
  - Monitoring, evaluation, learning, and adaptive decision-making were key components for enhancing resilience.
- **Babai had better water resources**, resulting in higher resilience compared to Deulgaon Tad in 2007. Babai's resilience was attributed to **access to adequate water throughout the year and better soil quality**.
  - However, there has been **no substantial change in the overall resilience of Babai over the years**, according to the research.
- Deulgaon Tad, with lower resilience in 2007, **witnessed improvements across all resilience attributes due to interventions focusing on adaptive capacities and natural resource management**.

Note:

### **What are the Major Impacts of Climate Change on Indian Agriculture?**

- **Changes in Rainfall Patterns:** Climate change has led to altered rainfall patterns, including changes in **timing, intensity, and distribution of rainfall**.
  - This can result in **droughts, floods, and erratic rainfall, affecting agricultural productivity**.
  - For instance, in **2019, India experienced delayed and deficient monsoon rains**, leading to reduced crop yields in many regions.
- **Increased Temperature:** Rising temperatures can have adverse effects on crop growth and development.
  - **High temperatures during the growing season can decrease crop yields and reduce the nutritional value of crops.** Heat stress can also impact livestock health and productivity.
  - In recent years, **heatwaves in India have affected crop yields**, particularly for heat-sensitive crops like wheat and rice.
- **Shifting Pest and Disease Patterns:** Climate change influences the distribution and abundance of pests and diseases, posing challenges to agricultural pest management.
  - Changes in temperature and rainfall patterns can favour the spread of certain pests and diseases, impacting crop health.
  - For instance, the increased incidence of pests like the **pink bollworm has affected cotton production in India and Locust swarms from Somalia region due to erratic rain**.
- **Water scarcity:** Climate change affects water availability, particularly in regions dependent on rainfall or snowmelt for irrigation.
  - **Changes in precipitation patterns and melting glaciers** can lead to water scarcity, especially during critical crop growth stages. This can result in reduced agricultural productivity and increased competition for water resources.
- **Changes in Cropping Patterns:** Climate change can influence the suitability of different crops in certain regions. **As temperature and rainfall patterns shift, farmers may need to adapt their cropping patterns to ensure productivity.**
  - Some crops may become less viable, while others may become more suitable.: **On all-India basis, climate change is projected to increase coconut production.**

- **Increased Extreme Weather Events:** Climate change has been linked to an increase in extreme weather events, such as **cyclones, storms, and hailstorms**. These events can cause significant damage to crops, livestock, and infrastructure, leading to yield losses and economic hardships for farmers.
  - For example, **the recent Cyclone Biporjoy**.

## **Tracking SDG7: The Energy Progress Report 2023**

### **Why in News?**

A recent report, titled “**Tracking SDG7: The Energy Progress Report 2023**,” was released through collaboration between the **International Energy Agency (IEA)**, **International Renewable Energy Agency**, **United Nations Statistics Division**, **World Bank**, and the **WHO**.

- The report highlights **various challenges that hinder progress towards achieving United Nations’ Sustainable Development Goal 7 (SDG 7)**.

### **What are the Major Highlights of the Report?**

- **Factors Hindering Achievement of SDG-7:**
  - Factors such as **high inflation, uncertain macroeconomic outlook, debt distress, and limited financial flows** have contributed to the world falling off-track in achieving SDG 7.
  - The report identifies several major economic factors that hinder the realisation of SDG 7 worldwide:
    - Uncertain macroeconomic outlook and high levels of inflation
    - Currency fluctuations and debt distress in many countries
    - Lack of financing and supply chain bottlenecks
    - Tighter fiscal circumstances and soaring prices for materials
- **Progress Towards Specific Targets:**
  - **Access to Electricity and Clean Cooking:** Global access to **electricity** increased from **84% to 91% between 2010 and 2021**, but annual growth has slowed.
    - The number of people without electricity decreased from **1.1 billion in 2010 to 675 million in 2021**.

Note:



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- The goal of universal access to electricity by 2030 remains elusive.
- **Access to Clean Cooking:** It improved from 2.9 billion people in 2010 to 2.3 billion in 2021, but 1.9 billion people may still lack access by 2030.
  - The report indicates that approximately 100 million people who recently transitioned to **clean cooking** may revert to traditional biomass usage.
  - **Sub-Saharan Africa** is expected to have the highest number of people without access to clean cooking in 2030 (6 out of 10 people).
- **Renewable Energy (Target 7.2):** **Renewable energy** uptake has grown since 2010 but needs substantial scaling up.
  - The share of renewable energy in total final energy consumption remains low at 19.1% (or 12.5% excluding traditional biomass).
  - Meeting international climate and energy goals requires substantial investments of **USD 1.4-1.7 trillion annually in renewable electricity generation and related infrastructure through 2030.**
- **Energy Efficiency (Target 7.3):** The current rate of improvement in **energy efficiency** is not on track to double by 2030.
  - The average annual growth of 1.8% falls short of the targeted increase of 2.6% per year between 2010 and 2030.
- **International Public Financial Flows (Target 7.a):** Financial flows supporting **clean energy** in developing countries have declined since 2020.
  - Financial resources are more than a third lower than the average of the previous decade (2010-2019).
  - The decreasing trend in financial flows is concentrated in a small number of countries, posing challenges for achieving SDG 7, particularly for least-developed countries, landlocked developing countries, and small island developing states.

### What is Sustainable Development Goal 7?

#### ➤ About:

- In 2015, all **United Nations Member States** came together to adopt the **2030 Agenda for Sustainable Development**, aiming to create a harmonious and prosperous future for both humanity and the planet.

- Central to this agenda are the **17 Sustainable Development Goals (SDGs)**, which serve as a pressing call for action to be embraced by all nations, regardless of their development status.
- **Background of SDGs:**
  - In **June 1992**, at the **Earth Summit in Rio de Janeiro, Brazil**, more than **178 countries** adopted **Agenda 21**, a comprehensive plan of action to build a global partnership for sustainable development to improve human lives and protect the environment.
  - Member States unanimously adopted the **Millennium Declaration at the Millennium Summit in September 2000** at UN Headquarters in New York.
  - The Summit led to the **elaboration of eight Millennium Development Goals (MDGs)** to reduce extreme poverty by 2015.
  - 2015 was a landmark year for multilateralism and international policy shaping, with the adoption of several major agreements:
    - **Sendai Framework for Disaster Risk Reduction (March 2015)**
    - **Addis Ababa Action Agenda on Financing for Development (July 2015)**
    - **Paris Agreement on Climate Change (December 2015)**
- **Current Status:**
  - Now, the annual High-level Political Forum on Sustainable Development serves as the central UN platform for the follow-up and review of the SDGs.
  - The **Division for Sustainable Development Goals (DSDG) in the United Nations Department of Economic and Social Affairs (UNDESA)** provides substantive support and capacity-building for the SDGs and their related thematic issues.
- **SDG 7:**
  - Sustainable Development Goal 7 (SDG7) **calls for “affordable, reliable, sustainable and modern energy for all” by 2030.** Its three core targets are the foundation for our work: By 2030:
    - **Target 7.1:** ensure universal access to affordable, reliable and modern energy services
    - **Target 7.2:** increase substantially the share of renewable energy in the global energy mix
    - **Target 7.3:** double the **global rate of improvement in energy efficiency**

Note:

- **Target 7.a:** enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
- **Target 7.b:** expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries.

## Ground Level Ozone Pollution in Delhi: CSE

### Why in News?

According to a new analysis by the **Centre for Science and Environment (CSE)**, parts of the Delhi-NCR region witnessed ground-level ozone exceeding the national standards on **87 out of 92 days** between March and May in 2023.

- The analysis, based on data from the **Central Pollution Control Board (CPCB)**, highlights the duration and

geographical spread of **Ozone Pollution**, its impact during different seasons, and the underlying causes.

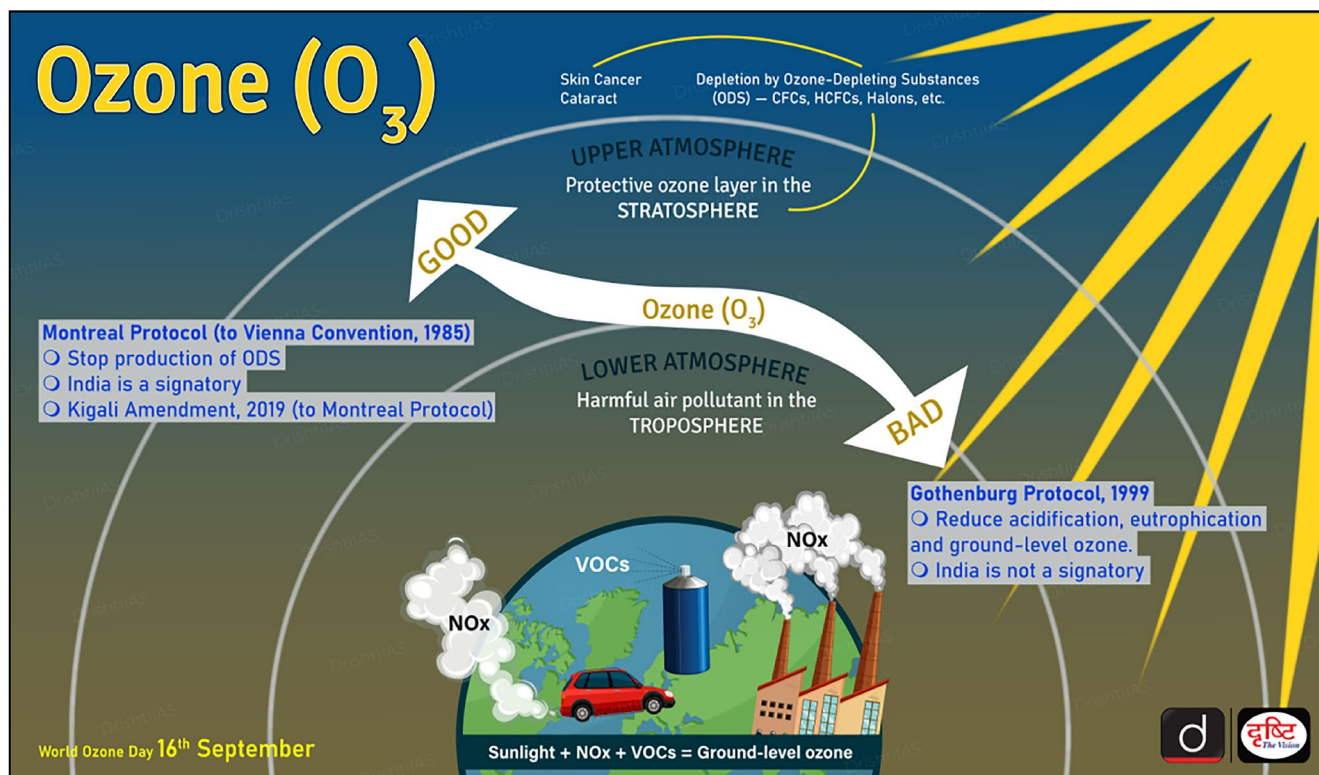
**Note:** CSE is a **public interest research and advocacy organisation** based in New Delhi.

It researches into, lobbies for and communicates the urgency of development that is both sustainable and equitable.

### What are the Findings?

#### ➤ Duration of Exceedance:

- While ground-level ozone pollution in Delhi-NCR was **lower in 2023 compared to the past five years**, the duration of its **exceedance has increased**.
- This phenomenon is of concern as **elevated ozone levels persist even hours after sunset**, contrary to expectations.
- This summer, at the stations which reported exceedance the rolling 8-hr average stayed above standard for 4.9 hours on average, which is up from 4.6 hours observed last summer.
- The WHO Air Quality Guidelines for ambient (outdoor) ozone is **100 µg/m<sup>3</sup> (~50 ppb)** measured as **8-hr maximum** moving average within a day.



Note:



➤ **Not Specific to Seasons:**

- Ozone pollution is not limited to specific seasons. Even during **winter months, when cold and foggy conditions inhibit** ground level ozone formation, Delhi-NCR experienced **excess ozone levels** on multiple days in January 2023.
  - Ozone levels exceeded the standard **at multiple stations on 26 days** in January 2023.

➤ **Impact on Specific Areas:**

- New Delhi and South Delhi areas were the **most affected by ground-level ozone pollution**.

### **What is Ground-Level Ozone?**

➤ **About:**

- Ground-level ozone, also known as Tropospheric ozone, is a **colorless and highly irritating gas** that forms near the Earth's surface, typically within two miles above the ground.
- Ground-level ozone is not directly emitted from any specific source. It is formed through complex interactions between **Nitrogen Oxides (NOx)**, **Volatile Organic Compounds (VOCs)**, and carbon monoxide emitted from vehicles, power plants, factories, and other combustion sources. These compounds undergo cyclic reactions in the presence of sunlight to generate ground-level ozone.

➤ **Impact:**

- When NOx and VOCs interact in the presence of sunlight, they undergo complex chemical reactions that lead to the **formation of ground-level ozone**. Ground-level ozone is a significant air pollutant and can have harmful effects on human health, vegetation, and ecosystems.

➤ **Initiatives:**

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

## **Sustainable Aviation Fuel**

### **Why in News?**

Recently, India has expressed its reservations regarding the global mandates for **Sustainable Aviation Fuel (SAF)** with a **target year of 2050**, asserting that it is "too early."

- The 41<sup>st</sup> **ICAO (International Civil Aviation Organisation)** Assembly in South Korea adopted a **Long-Term Global Aspirational Goal (LTAG)** for international aviation of net-zero carbon emissions by 2050 in support of the **UNFCCC Paris Agreement**.

### **What is India's Stance on SAF Mandates?**

- India believes that each country should be allowed to **develop its strategy according to its national plans**.
- India has sought support from the **ICAO** in achieving its carbon net-zero goals, while also addressing other priorities in the aviation sector, **such as meeting the growing aspirations of passengers**.
- It is important to ensure **SAF production, certification, and availability before imposing volumetric mandates**, to align with the ideology of LTAG.
  - India intends to participate in **ICAO's Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)** and the LTAG from 2027.

### **What is Sustainable Aviation Fuel?**

➤ **About:**

- SAF, also referred to as **Bio-Jet Fuel**, is created using **domestically developed methods** using cooking oil and **oil-rich seeds from plants**.
- The SAF samples produced by the institutes are undergoing strict testing at the US Federal Aviation Administration Clearinghouse to meet the standards required for the **ASTM (American Society for Testing and Materials) D4054 certification** from ASTM International.
  - ASTM certification is a process by which a **product or material is tested and evaluated against** relevant ASTM standards. ASTM International develops **technical standards for products and processes**.
  - ASTM standards are used by industry, governments, and other organizations to ensure **quality, safety and reliability** in products and processes.

Note:



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### ➤ Sources of Production:

- The **CSIR (Council of Scientific and Industrial Research)-IIP (Indian Institute of Petroleum)** has created **fuel using different materials**, such as **non-edible and edible oils**, as well as used cooking oil.
- They used various sources, including palm **stearin**, **sapium oil**, **palm fatty acid** distillates, algae oil, karanja, and jatropa.

### ➤ Significance of SAF Scaling in India:

- Scaling up the production and use of SAF in India can **bring several benefits, including reducing GHG emissions**, improving air quality, enhancing energy security, creating jobs in the renewable energy sector, and **promoting sustainable development**.
- It can also help the **aviation industry** meet its environmental targets and contribute to global efforts to combat climate change.
- **Biofuel for aviation** can be mixed with regular jet fuel and used together. Compared to traditional fuel, it has **lower sulfur content**, which can decrease air pollution and support India's goal of achieving **Net Zero emissions**.

### What are the Challenges Pertaining to SAF?

#### ➤ High Cost:

- The production processes for SAF, such as the conversion of biomass or waste oils into fuel, **are currently more expensive**. This cost differential makes it economically **challenging for airlines to invest in SAF production** and use, particularly given the margin-sensitive nature of the aviation industry.

#### ➤ Limited Resource Availability:

- The aviation industry requires **a robust supply chain to ensure an adequate and reliable supply of SAF**. However, the current infrastructure is **not** well-developed, which hinders the scaling up of SAF production and its availability in the market.

#### ➤ Feedstock Availability:

- SAF production **heavily relies on the availability of sustainable feedstocks**, such as agricultural residues, algae, and waste oils.
- However, there is **limited availability of these feedstocks**, and there is competition for resources with **other industries like food and agriculture**. **Balancing the demand for sustainable feedstocks** while ensuring food security and other essential needs poses a significant challenge.

### ➤ Certification Process:

- The certification process for SAF involves **stringent quality and sustainability criteria**, which can be complex and time-consuming.
- The lack of globally **recognized standards further complicates** the certification process.

### What are India's Climate Commitments and Global Efforts?

#### ➤ India's Commitments Net-Zero:

- India has pledged to achieve net-zero emissions by 2070 and reduce the carbon intensity of its **economy by less than 45% by 2030**.
- Additionally, India has urged developed countries **to provide climate finance of USD 1 trillion at the earliest**, since India needs support and resources from developed nations to achieve these ambitious targets.
  - In April 2023, the European Union reached an agreement to set binding targets for airlines within Europe, requiring **increased usage of SAF**.
    - The deal mandates that 2% of fuel supplies at EU airports be SAF by 2025, reaching 6% in 2030, 20% in 2035, and 70% in 2050.

#### ➤ Indian Initiatives:

- **Biodiesel**
- **Ethanol blending in conventional fuel**
- **Hydrogen Fuel Cell**

#### ➤ Global Efforts:

- **Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**
- **Clean Skies for Tomorrow Initiative**
- Sustainable Skies Act and SAF Production Incentives

### What is International Civil Aviation Organisation?

- ICAO is a **United Nations (UN) specialized agency**, established in 1944, which laid the foundation for the standards and procedures for peaceful global air navigation.
- The Convention on International Civil Aviation was signed on 7<sup>th</sup> December 1944 in Chicago commonly as the **'Chicago Convention'**.
- It established the core principles permitting international transport by air, and also led to the creation of the ICAO.

Note:

- Its one of the objectives is to foster the planning and development of international air transport so as to ensure the safe and orderly growth of international civil aviation throughout the world.
- **India is among its 193 members.**
- It is headquartered in **Montreal, Canada.**

## Converting Plastic Waste into Fuel

### Why in News?

As the world observes the **50<sup>th</sup> anniversary of World Environment Day on June 5**, this year's campaign, **#BeatPlasticPollution**, highlights the urgent need for **global solutions to combat the pervasive issue of plastic pollution.**

- The **Department of Science and Technology (DST)** is supporting a range of technologies aimed at addressing the global issue of plastic pollution. By focusing on reducing, reusing, and recycling plastic waste, they developed a **Pilot scale mobile plant that converts plastic waste into fuel.**

### What is Plastic?

- **About:**
  - The word plastic is derived from the Greek word **plastikos**, meaning “capable of being shaped or moulded.”
    - It refers to a wide range of **Synthetic or semi-synthetic materials derived from polymers**, characterized by their **plasticity and ability to undergo deformation.**
  - Modern plastics primarily originate from **fossil fuel-based chemicals** like natural gas or petroleum but can also be produced from **renewable materials** such as corn or cotton derivatives.
  - Around 70% of global plastic production is concentrated in six major polymer types – referred to collectively as **commodity plastics.**
- These include
  - **Polyethylene terephthalate or PET,**
  - **High-density polyethylene or HDPE,**
  - **Polyvinyl chloride or PVC,**
  - **Low-density polyethylene or LDPE,**















- **Polypropylene or PP,**
- **Polystyrene or PS,**
- **Other Plastics.**

- Each of these has different properties and can be identified by their **resin identification code (RIC)** denoted by symbols found on plastic products.

### What is Resin Identification Code?

RIC was developed in 1988 by the **Society of the Plastics Industry (SPI).**

- Created to facilitate **efficient sorting and recycling of plastics.**
- Each **RIC corresponds to a specific type of resin used** in a plastic product.
- Proper recycling according to RIC preserves the value of the product.
- The **American Society for Testing and Materials (ASTM)** an international organization took over the administration of RIC after 20 years.
- RIC specifically applies to plastic, not glass, paper, or other recyclable materials.

Polymer Type	Applications		Resin Identification Code
Polyethylene Terephthalate (PET) & (rPET)	PET plastic bottles, clear plastic bottles, salad trays.		 PETE
High-Density Polyethylene (HDPE) & (rHDPE)	Milk bottles, bleach, jerry cans, cleaners, general industrial use and shampoo bottles.		 HDPE
Polyvinyl Chloride (PVC)	Pipes, window and door frames, thermal insulation, automotive parts.		 PVC
Low-Density Polyethylene (LDPE)	Bin liners, carrier bags and packaging films.		 LDPE
Polypropylene (PP)	Packing tape, plastic straws, microwavable meal trays and tubs and pails.		 PP
Polystyrene (PS)	Yoghurt pots, foam fast food boxes, plastic cutlery, protective packaging for electronics and toys.		 PS
Unallocated References	Other plastics that do not fall into the above.		 OTHER

- **Microplastics:**
  - **Microplastics** are plastic particles measuring **less than five millimeters in diameter.**
  - **Primary microplastics** are tiny particles designed for commercial use, such as in cosmetics or textiles, while **secondary microplastics** result from the breakdown of larger plastic items.

Note:

- Microplastics persist in the environment, contaminating the food chain, water sources, and air, and posing health risks due to toxic chemicals they contain.

➤ **Decomposition Rate and Impact:**

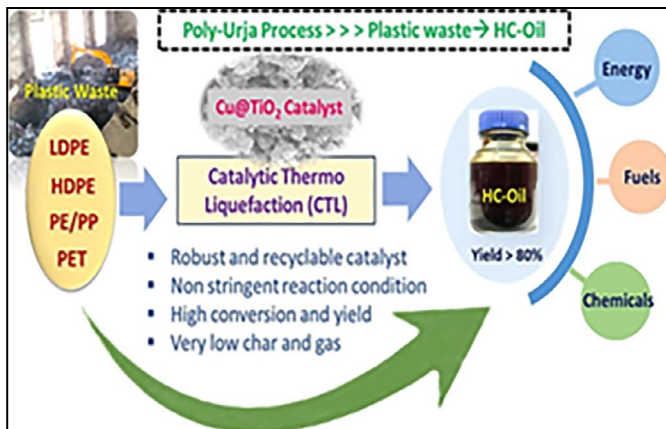
- Plastics have a **slow decomposition rate**, leading to their **accumulation in natural ecosystems**.
- Instead of breaking down into harmless substances, **plastics fragment into smaller particles, contributing to the presence of microplastics**.
- According to the most recent global estimates, an **average human consumes at least 50,000 microplastic particles annually** due to contamination of the food chain, potable water, and air.
- Microplastics contain toxic chemicals, with the biggest health risk being associated with **BPA (Bisphenol A)**.
- BPA, used to **harden plastic**, contaminates food and drinks, leading to **liver function alterations, insulin resistance, adverse effects on foetal development, reproductive system issues, and impacts on brain function**.

**Note:**

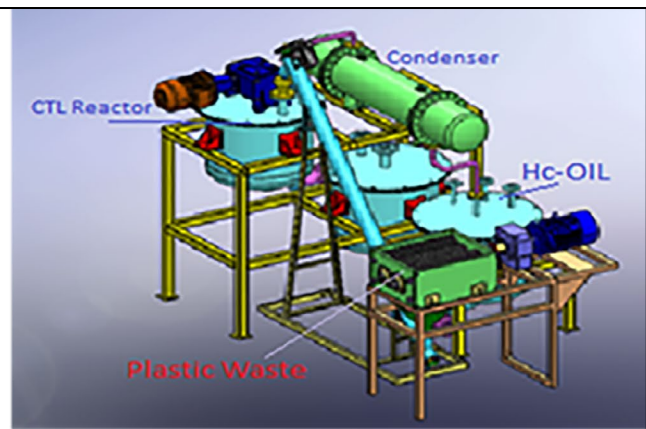
The **Great Pacific Garbage Patch (GPGP)** also known as the **trash vortex**, located in the North Pacific Ocean between California and Japan, is the **largest accumulation of plastic waste, formed by converging ocean currents**.

**How Plastic is Converted into Fuel?**

➤ **Pilot Scale Mobile Plant:**



- An indigenously designed process has led to the development of a vehicle-mounted mobile plant.
- The plant **converts various types of plastic waste into carbon-densified HC-Oil (Hydrocarbon Oil)** through a low-stringent process named **ICT-Poly Urja**.
- ICT Poly Urja is developed by the **Institute of Chemical Technology (ICT)** Mumbai.
- The presence of a selective, recyclable, reusable, and inexpensive catalyst enables low-cost conversion of plastic waste into fuel.
- **ICT-Poly Urja Process:**
  - Different types of plastic waste, like bottles or packaging materials, are collected and sorted.
  - A special substance called **Cu@TiO<sub>2</sub> catalyst** is added to the plastic waste. This catalyst helps break down the **plastic into smaller molecules**.
  - The mixture of plastic waste and catalyst is **heated up** under moderate conditions. This means it doesn't require extremely high temperatures.
  - As the plastic waste is heated, it undergoes a **chemical transformation called Catalytic Thermo Liquefaction (CTL)**. This process converts the plastic waste into a substance called **Hydrocarbon Oil (HC-Oil)**.
  - The resulting HC-Oil is a type of fuel that can be used for various purposes. It has a high energy content and can be burned to generate heat, steam, or even electricity.



➤ **Efficient and Mobile:**

- The CTL process requires **less energy compared to traditional methods like pyrolysis and**

**gasification.**

- Moderate operating conditions contribute to energy efficiency.

Note:



- The mobile plant mounted on a vehicle offers operational benefits.

### ***How is India Addressing the concerns regarding Plastic-Waste?***

- **National Dashboard on Elimination of Single Use Plastic and Plastic Waste Management.**
- **Plastic Waste Management Amendment Rules, 2022.**
- **India Plastics Pact.**
- **Project REPLAN.**

## **India's E-cooking Transition on World Environment Day**

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

**World Environment Day**, observed annually on June 5<sup>th</sup>, serves as a platform to raise awareness about environmental protection and sustainability.

- On the 50<sup>th</sup> anniversary of this significant day, the **Bureau of Energy Efficiency (BEE)** and the **Collaborative Labeling and Appliance Standards Program (CLASP)**, an international non-governmental organization organized a “**Conference on Consumer-Centric Approaches for E-cooking Transition**” in New Delhi.
- The conference aimed to accelerate the deployment of **energy-efficient, clean, and affordable e-cooking solutions in India.**

### ***What are the Key Highlights About World Environment Day 2023?***

- **About:**
  - The **United Nations Assembly** established **World Environment Day on 5th June 1972**, which was the first day of the **Stockholm Conference on the human environment.**
  - It is hosted by a different country each year.
  - **India in 2018 hosted the 45th celebration of World Environment Day** under the theme ‘**Beat Plastic Pollution**’.
  - The year 2023 World Environment Day is hosted by **Côte d’Ivoire** in partnership with the Netherlands.
  - This year marks the **50<sup>th</sup> anniversary of World Environment Day.**

### ***Theme for 2023:***

- The theme will focus on solutions to **plastic pollution under the campaign #BeatPlasticPollution.**

### ***Objective:***

- Raise awareness, mobilize communities, and encourage collaborative efforts to **address plastic pollution and promote a healthier and more sustainable environment.**

### ***What is E-Cooking?***

#### ***About:***

- E-cooking involves the use of **electric cooking appliances as a clean and energy-efficient** alternative to traditional cooking methods.
- It encompasses the adoption of **electric stoves, induction cooktops, and other electric cooking devices in households.**

#### ***Transition to E-cooking:***

- India’s achievement of **24/7 electricity** access has been a significant driver for the transition to e-cooking.
- The **Saubhagya Scheme** has played a pivotal role in **providing electricity connections** to millions of households, **eliminating power cuts**, and creating an environment conducive to the adoption of electric cooking.

#### ***The Role of LiFE:***

- E-cooking plays a vital role in the **Mission Lifestyle for Environment(LiFE)** initiative.
- Launched by **Prime Minister Narendra Modi** at the **26<sup>th</sup> UN Climate Change Conference of the Parties (COP26)** in 2021.
- Mission LiFE aims to **transform individuals into pro-planet advocates and promote sustainable lifestyles.**
- Access to **clean cooking energy** is an essential aspect of India’s energy transition journey, **aligning with the goals of Mission LiFE.**

#### ***E-Cooking as the Future of the Indian Kitchen:***

- With reliable electricity access, e-cooking is poised to become the future of Indian kitchens.
- The scalability and affordability of electric cooking technology make it a viable option for both urban and rural areas.

Note:

- **Affordable E-Cooking Business Models:**
  - Developing affordable business models is crucial to promote widespread adoption of e-cooking solutions.
  - Utilizing **renewable energy sources**, such as **solar and thermal power**, can help reduce costs and make e-cooking more accessible.
  - Implementing aggregation models and price reduction strategies can further enhance affordability, enabling e-cooking to reach a larger population.
- **Minimal Technology Barriers:**
  - E-cooking faces minimal technology barriers, as concerns regarding **appliance faults and compatibility with various dishes have been addressed**.
  - Replicating successful e-cooking models at scale and gradually replacing traditional cookers with electric ones can build consumer confidence and facilitate a smooth transition.
- **Benefits for the Power Sector and Consumers:**
  - E-cooking presents a win-win situation for both the power sector and consumers.
  - It aligns with **Sustainable Development Goal 7.1**, ensuring universal access to clean cooking and improving indoor air quality.
  - **E-cooking can reduce energy consumption** in reheating and contribute to a cleaner, greener lifestyle.

### What are the Other

#### Initiatives Shaping India's Energy Transition?

- **Pradhan Mantri Sahaj Bijli Har Ghar Yojana (SAUBHAGYA)**
- **Green Energy Corridor (GEC)**
- **National Smart Grid Mission (NSGM) and Smart Meter National Programme**
- **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME)**
- **International Solar Alliance (ISA)**

#### What is Bureau of Energy Efficiency?

- The Government of India set up the Bureau of Energy Efficiency in March 2002 under the provisions of the **Energy Conservation Act, 2001**.

- It assists in developing policies and strategies with the primary objective of reducing energy intensity of the Indian economy.
- **Major Programmes:** **State Energy Efficiency Index, Perform Achieve and Trade (PAT) scheme**, The Standards & Labeling Programme, Energy Conservation Building Code.

## Great Indian Bustards and Asiatic Lions

### Why in News?

As Cyclone Biporjoy approaches the port of Jakhau in Kutch, Gujarat, there are concerns about the impact on the **Great Indian Bustards (GIB)** in Naliya region and the **Asiatic Lions in the Gir forest**.

### What are the Concerns?

- **Asiatic Lions:**
  - The Gir forest is home to nearly **700 Asiatic lions**, which are found only in this region and are a vital species for conservation.
  - Conservationists have raised concerns about the **vulnerability of having the entire lion population concentrated** in one area. Epidemics and natural disasters like the 2018 outbreak of **Babesiosis** and **Cyclone Tauktae in 2019** pose significant risks to the survival of the lions.
    - In 2013, the **Supreme Court** issued a directive for the transfer of Asiatic lions from Gujarat's Gir forest to Madhya Pradesh's **KNP (Kuno National Park)**.
    - The Gujarat government's plea to **prevent the translocation of lions was rejected by the court**, despite their assertion that these animals were a source of pride for the state.
- **Great Indian Bustard:**
  - There are only **four remaining females in the grasslands of Naliya**, Gujarat. As birds, they have better mobility and may be able to sense danger and fly away from the cyclone's path.
  - However, the impact on their habitat due to **flooding caused by heavy rainfall remains** a concern.
    - Efforts are being made to ensure the safety of wildlife during the cyclone. The authorities

Note:

have cancelled leaves, deployed rescue teams, and equipped hospitals to provide medical assistance to injured animals.

### What are the Key Points Related to Asiatic Lions?

#### ➤ About:

- The **Asiatic Lion** (also known as the **Persian Lion or Indian Lion**) is a member of the ***Panthera Leo Leo*** subspecies that is restricted to India.
- Its previous habitats consisted of **West Asia and the Middle East** before it became extinct in these regions.
  - Asiatic lions are slightly smaller than African lions.

#### ➤ Distribution:

- Asiatic lions were once distributed to the state of West Bengal in the **east** and **Rewa in Madhya Pradesh**, in central India.
- At present **Gir National Park and Wildlife Sanctuary is the only abode of the Asiatic lion.**

#### ➤ Protection Status:

- **IUCN Red List:** Endangered
- **CITES:** Appendix I
- **Wildlife (Protection) Act 1972:** Schedule-I

#### ➤ Gir National Park

- Gir National Park and **Wildlife Sanctuary is located in the Junagadh district** of Gujarat.
  - It was declared as a sanctuary in 1965 and a national park in 1975.
- The Gir Forests is the largest compact track of dry deciduous forests in the semi-arid western part of India.
- Gir is often linked with "**Maldharis**" (a **traditional pastoral people**) who have survived through the ages by having a symbiotic relationship with the lion.

### What is the Great Indian Bustard?

#### ➤ About:

- The **Great Indian Bustard (*Ardeotis nigriceps*)**, the State bird of Rajasthan, is considered **India's most critically endangered bird.**
- It is considered the **flagship grassland species**, representing the health of the grassland ecology.



- Its population is confined mostly to Rajasthan and Gujarat. Small populations occur in Maharashtra, Karnataka and Andhra Pradesh.
- **Vulnerability:**
  - The bird is under constant threats due to collision/electrocution with power transmission lines, hunting (still prevalent in Pakistan), habitat loss and alteration as a result of widespread agricultural expansion, etc.
- **Protection Status:**
  - **IUCN red List:** Critically Endangered
  - **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES):** Appendix I
  - **Convention on Migratory Species (CMS):** Appendix I
  - **Wildlife (Protection) Act, 1972:** Schedule I

### What are the Measures to Protect GIB?

#### ➤ Species Recovery Programme:

- It is kept under the species recovery programme under the **Integrated development of Wildlife Habitats** of the Ministry of Environment, Forests and Climate Change (MoEFCC).

#### ➤ National Bustard Recovery Plans:

- It is currently being implemented by conservation agencies.

#### ➤ Conservation Breeding Facility:

- MoEF&CC, Rajasthan government and **Wildlife Institute of India (WII)** have also established a conservation breeding facility in Desert National Park at Jaisalmer in June 2019.

#### ➤ Project Great Indian Bustard:

- It has been launched by the Rajasthan government with an aim of constructing breeding enclosures for the species and **developing infrastructure to reduce human pressure** on its habitats.

#### ➤ Eco-Friendly Measures:

- Task Force for suggesting eco-friendly measures **to mitigate impacts of power transmission lines** and other power transmission infrastructures on wildlife including the Great Indian Bustard.

## Spotted Pond Turtles

### Why in News?

Three persons engaged as mahouts (keepers and drivers of an elephant) in the **Kaziranga National Park**

Note:



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and Tiger Reserve, Assam, have been arrested for capturing and consuming **spotted pond turtles**, a rare species of a **freshwater turtle**.

- The incident has raised concerns about the illegal consumption of protected species by park employees, leading to investigations and arrests.

### What are Spotted Pond Turtles?

- **About:** Spotted pond turtles (*Geoclemys hamiltonii*) are named for the yellow or white spots on their black heads, legs and tails. They have large heads and short snouts, and their webbed feet help them swim.
  - They are also known as **Black Pond Turtle, Black Spotted Turtle, Hamilton's Terrapin**.
  - They bask in the sun to regulate their body temperature. Their need for warm water and an intense basking area is important.
  - When they retreat into their shells, spotted pond turtles make a **soft croak**.
- **Range and Habitat:** They are found in large, deep rivers in India, Assam, Pakistan and Bangladesh.
  - In India, the species is distributed across the **north, northeast and a few parts of central India**
- **Diet Requirements:** These turtles are primarily **carnivorous** and eat aquatic invertebrates.
- **Sleep Habits:** Spotted pond turtles are **crepuscular**, meaning they are most active at twilight (dusk and dawn).
- **Conservation Status:**
  - **International Union for Conservation of Nature (IUCN) : Endangered**
  - **CITES : Appendix I**



### What are the Key Facts about Kaziranga National Park?

- **Location:** It is in the **State of Assam** and covers **42,996 Hectare (ha)**. It is the single largest undisturbed and representative area in the Brahmaputra Valley floodplain.
- **Legal Status:**
  - It was declared as a **National Park in 1974**.
  - It has been declared a **tiger reserve** since 2007. It has a total tiger reserve area of 1,030 sq km with a core area of 430 sq. km.
- **International Status:**
  - It was declared a **UNESCO World Heritage Site** in 1985.
  - It is recognized as an **Important Bird Area** by **BirdLife International**.
- **Important Species Found:**
  - It is the home of the world's most **one-horned rhinos**. **Pobitora Wildlife Sanctuary** has the **highest density of one-horned rhinos in the world** and second highest number of Rhinos in Assam after Kaziranga National Park.
  - Much of the focus of conservation efforts in Kaziranga are focused on the '**big four**' species—**Rhino, Elephant, Royal Bengal tiger and Asiatic water buffalo**.
  - Kaziranga is also home to 9 of the 14 species of **primates found** in the Indian subcontinent.
- **Rivers and Highways:**
  - The National Highway 37 passes through the park area.
  - The park also has more than 250 seasonal water bodies, besides the **Diphlu River** running through it.
- **Other National Parks in Assam are:**
  - Dibru-Saikhowa National Park,
  - **Manas National Park**,
  - Nameri National Park,
  - Rajiv Gandhi Orang National Park.

Note:





## Himalayan Brown Bear

### Why in News?

The **Himalayan brown bear** (*Ursus arctos isabellinus*) population in **Kashmir** is facing numerous challenges that threaten both their survival and human safety.

- Recent incidents of **bears entering residential areas** and wrecking graveyards have raised concerns among local communities.
- These incidents highlight the urgent need to **address the underlying factors causing this behavior** and safeguard the habitat of this critically endangered species.

### What are Himalayan Brown Bears?

- **About:**

- Himalayan brown bears are a **subspecies of brown bears** that inhabit the high-altitude regions of the Himalayas, ranging from Pakistan to Bhutan.



- They have **thick fur that is most often sandy or reddish-brown in color**.
- They can **grow up to 2.2 meters long** and weigh up to 250 kilograms.

#### ➤ Status:

- **IUCN Red List**- Critically Endangered
- Brown bear (*Ursus arctos*) is listed as **Least Concern**.
- **CITES** - Appendix I.
- Only the populations of Bhutan, China, Mexico and Mongolia; all other populations are included in Appendix II.

Note:



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- **Indian Wildlife (Protection) Act of 1972 - Schedule 1.**

- **Food:**

- **Omnivorous.**

- **Behavior:**

- They are **nocturnal**, and their sense of smell is acutely developed and believed to be their principal means of finding food.

- **Threat:**

- Human-animal conflict, rapid habitat loss, poaching for fur, claws, and organs, and, in some rare cases, bear baiting.

- **Range:**

- North-western and central Himalaya, including India, Pakistan, Nepal, the Tibetan Autonomous Region of China, and Bhutan.

- **Challenges:**

- **Insufficient Food Sources and Altered Behavior:**

- The bears' peculiar behavior of digging up graves and wandering into residential areas can be attributed to insufficient food in their natural habitats.
- A study conducted by **Wildlife SOS**, an organization established with the goal of making lasting changes to protect and conserve India's natural heritage, forests, and biodiversity, revealed that a significant portion of the bears' diet in Kashmir consists of **scavenged garbage, including plastic bags, chocolate wrappers, and other edible waste.**
  - This disrupts their **natural foraging patterns and alters their behavior, leading to conflicts with humans.**

- Improper disposal of kitchen waste by both local residents and hoteliers near bear habitats has provided easy access to food, leading to frequent interactions between bears and humans.
- This altered behavior, **coupled with complacency in hunting for food**, has created a dependence on human-generated waste, further exacerbating conflicts.

- **Restricted Distribution and Declining Population:**

- The restricted distribution of the Himalayan brown bear in the alpine meadows of the Himalayas has made it challenging for researchers to gather comprehensive data on the species.
- Habitat destruction caused by factors like **habitat encroachment, tourism, and grazing pressure** has contributed to the declining population of bears.
- With only an estimated **500-750 bears left in India**, urgent conservation efforts are required to ensure their survival.

- **Future Threats and Conservation Recommendations:**

- The Himalayan brown bear's future remains bleak, as a study predicts a **decline of about 73% of their habitat by 2050** in the **western Himalayas.**
- **Climate change** poses a significant risk, necessitating preemptive spatial planning of **protected areas to ensure the long-term viability of the species.**
- Conservation efforts should focus on **habitat preservation, creating biological corridors, and promoting responsible waste management** to minimize human-bear conflicts.
- Should Strengthen the legal protection and enforcement by implementing the **Wildlife (Protection) Act of 2022** and **CITES regulations.**

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# Art and Culture

## Highlights

- Kathakali

## Kathakali

### Why in News?

KK Gopalakrishnan has recently released a captivating book titled “Kathakali Dance Theatre: A Visual Narrative of Sacred Indian Mime.”

- The book offers a **behind-the-scenes look into the world of Kathakali**, focusing on the **green room**, artists’ struggles, and the **unique bonds forged during long make-up hours**.



### What is Kathakali?

- **Origin and History:**
  - Kathakali emerged in the 17<sup>th</sup> century in the kingdom of **Travancore** (present-day Kerala).
    - The art form was initially performed in **temple precincts** and later gained popularity in the **royal courts**.
  - Kathakali is based on **Natya Shastra**, the ancient treatise on dance, written by **Sage Bharata**.
    - However, Kathakali relies on **Hasthalakshana Deepika**, another classical text for its **hand gestures**.
  - Kathakali was in peril and on the **verge of extinction in the beginning of 20th century**.
- Renowned **Poet Vallathol Narayana Menon** and **Manakkulam Mukunda Raja** took the initiative to set up **Kerala Kalamandalam**, a centre of excellence for classical art forms for the revival of kathakali.
- **Dance and Music:**
  - Kathakali combines elements of **dance, music, mime, and drama**.
  - The movements are highly stylized and include **intricate footwork, rhythmic swaying, and various hand gestures called mudras**.
    - The dancers use their facial expressions, known as **rasas**, to **convey emotions and tell stories**.
  - **Manipravalam**, a blend of Malayalam and Sanskrit, is the **language used in Kathakali songs**.
  - The text of Kathakali songs is known as **Attakkatha**.
  - **Chenda, Maddalam, Chengila and Elaththalam** are the major instruments used with Kathakali music.
- **Makeup:**
  - Kathakali make-up is classified into five types according to the nature of the character.
- **Pacha (green):** noble and heroic characters, such as gods, kings and sages.
- **Katti (knife):** anti-heroes or villains with streaks of nobility or bravery
- **Thadi (beard):** different types of beards denote different types of characters, such as:
  - Vella Thadi (white beard): divine or benevolent characters
  - Chuvanna Thadi (red beard): evil or demonic characters
  - Karutha Thadi (black beard): forest dwellers or hunters
- **Kari (black):** characters who are evil, cruel or grotesque, such as demons or witches.
- **Minukku (radiant):** characters who are gentle, virtuous or refined, such as women, sages or Brahmins.
  - The costumes are colourful and extravagant, with heavy jewellery and headdresses.

Note:

➤ **Recent Developments:**

- **Inclusion of Women:** Traditionally performed by male actors only, **Kathakali has gradually opened up to female performers** who have trained in this art form and taken up various roles.
- **Innovation in Themes:** Apart from the classical stories from Hindu epics and Puranas, Kathakali has also explored new themes from other sources such as **Shakespearean plays**, social issues, historical events and contemporary topics.

➤ **Relevance of Kathakali in Today's Audience:**

- Kathakali, being a complex art form, requires the **audience to familiarise themselves with its gestural language, make-up codes, and stories to fully appreciate its depth.**
- Furthermore, the introduction of modern technology, such as microphones and improved acoustics, has contributed to the **renaissance of Kathakali music and its popularity.**



Note:



# History

## Highlights

- Major Tribal Revolts in India
- Ram Prasad Bismil
- 130th Year of Gandhiji's Satyagraha
- Purana Qila Excavation

## Major Tribal Revolts in India

MAJOR TRIBAL REVOLTS IN INDIA			
TRIBE (REVOLT)	REGION	YEAR	LEADER/S
Pahariya	Rajmahal Hills	1778	Raja Jagannath
Chuar (Jungle Mahal Rebellion)	Jungle Mahal (b/w Chota Nagpur & Bengal plains)	1798	Durjan/Durjol Singh, Madhab Singh, Raja Mohan Singh, Lachman Singh
Oraon and Munda (Tamar Revolt)	Tamar (Chhotanagpur)	1798; 1914-15	Bholanath Sahay/Singh (1798) Jatra Bhagat, Balram Bhagat (1914-15)
Ho and Munda	Singhbhum and Ranchi (Chhotanagpur region)	1820-37; 1890s	Raja of Parahat (Ho) Birsa Munda (1890s)
Ahom	Assam	1828-30	Gomdhar Konwar
Khasi	Hilly region b/w Jaintia and Garo hills	1830s	Nunklow ruler – Tirath Singh
Kol	Chhotanagpur (Ranchi, Singhbhum, Hazaribagh, Palamau)	1831	Buddho Bhagat
Santhals	Rajmahal Hills	1833; 1855-56	Sidhu Murmu and Kanhu Murmu
Khond	Orissa, Andhra Pradesh	1837-56	Chakra Bisnoi
Koya	Eastern Godavari track (Andhra) Rampa (Andhra)	1879-80; 1886 1916; 22-24	Tomma Sora, Raja Anantayyar Alluri Sitarama Raju (Rampa revolt)
Bhil	Western Ghats, Khandesh (MH), south Rajasthan	1817-19; 25; 31; 46 & 1913	Govind Guru (1913 Mangarh Massacre)
Gond	Adilabad (Telangana)	1940	Komrum Bheem

Note:

## Ram Prasad Bismil

### Why in News?

On 11<sup>th</sup> June 2023, 126<sup>th</sup> birth anniversary of Ram Prasad Bismil was commemorated. Known for his revolutionary spirit and poetic prowess, Bismil played a significant role in the fight against British colonial rule.

### What are the Key Points about Bismil?

#### ➤ Birth:

- Bismil was born on 11th June 1897, in a village in Uttar Pradesh's Shahjahanpur district to Murlidhar and Moolmati.

#### ➤ About:

- Bismil joined the Arya Samaj (founded in 1875 by Dayanand Saraswati) and became a talented writer and poet, using pen names like 'Bismil' meaning 'wounded' or 'restless.'
- The **ideals of a revolution first took root in his mind** when he read about the death sentence awarded to **Bhai Parmanand**, an Indian nationalist and Arya Samaj missionary.
  - He was 18 then and vented his anguish through his poem 'Mera Janm'.
- He **believed in revolutionary methods of freedom struggle** which were in contrast to **Gandhian methods**.

#### ➤ Contributions of Ram Prasad Bismil:

- **The Mainpuri Conspiracy:**
  - Bismil grew disillusioned with the moderate wing of the Congress Party and founded a revolutionary organization called 'Matrivedi'.
  - In **1918**, Bismil and Dixit got involved in the Mainpuri Conspiracy in which they distributed prohibited literature.
    - On 28 January 1918, Bismil distributed two of his writings to people- a pamphlet titled **Deshwasiyon ke Naam Sandesh (A Message to Countrymen)** and **Mainpuri ki Pratigya (Vow of Mainpuri)**.
  - To collect funds for their parties **they looted government coffers on three occasions in 1918**
- **Founding the Hindustan Republican Association:**
  - In **1920**, he formed the **Hindustan Republican Association (HRA)** with Sachindra Nath Sanyal and Jadugopal Mukherjee.

- The HRA's manifesto, largely penned by Bismil, **aimed to establish a federal Republic of United States of India** through an armed revolution.

#### ○ The Kakori Train Action:

- The Kakori train robbery in **1925** was a major action of the HRA, aimed at acquiring funds for their activities and generating publicity.
- Bismil and his companions **Chandrasekhar Azad** and **Ashfaqulla Khan** decided to loot a train in **Kakori** near Lucknow.
- They were successful in their attempt but were arrested alongside a dozen other HRA members within a month of the attack and tried under the **Kakori Conspiracy Case**.
- The legal process lasted 18 months. **Bismil, Lahiri, Khan and Thakur Roshan Singh were awarded death sentences.**

#### ○ Poetry and Writing:

- Bismil's prolific writings, including patriotic verses in Hindi and Urdu, **inspired Indians to join the freedom struggle.**
- His poems reflected concerns for societal issues and principles of equality and human dignity.

#### ○ Advocacy for Hindu-Muslim Unity:

- Bismil's close friendship with fellow revolutionary poet Ashfaqullah Khan symbolized communal harmony.
- In his last letter before his hanging, he **emphasized the need for Hindus and Muslims to unite for the nation's service.**

#### ➤ Death:

- He was **hanged on 19th December 1927** at Gorakhpur Jail.
- He was cremated on the banks of river Rapti, and the site was rechristened as **Raj Ghat** later.

## 130<sup>th</sup> Year of Gandhiji's Satyagraha

### Why in News?

On 7<sup>th</sup> June 2023, the **Indian Navy** participated in a commemorative event to mark the 130th Anniversary of the start of the struggle against apartheid, started by Mahatma Gandhi (**7<sup>th</sup> June 1893**) at the **Pietermaritzburg Railway Station near Durban, South Africa.**

Note:

- INS Trishul, a frontline warship of the Indian Navy visited Durban to commemorate the event.
- This visit also commemorates the **30-year re-establishment of diplomatic relations between India and South Africa**.

### **How was the Satyagraha Movement Started?**

- On 7th June, 1893, **Mahatma Gandhi** faced racial discrimination when he was forced to leave a **first-class compartment on a train in Pietermaritzburg, South Africa**. Despite purchasing a ticket, a European passenger demanded his removal, citing that **non-whites were not allowed in first-class compartments**.
- This incident became a pivotal moment for Gandhi, sparking his fight against racial oppression and the development of his philosophy of **Satyagraha (nonviolent resistance)**.
- In recognition of his contribution, Nelson Mandela, then President of South Africa, conferred **the Freedom of Pietermaritzburg** posthumously on **Mahatma Gandhi in a moving ceremony at Pietermaritzburg Railway Station on April 25, 1997**.

### **What were the**

### **Contributions of Gandhiji in South Africa?**

- **Legal and Social Activism:**
  - Gandhi arrived in South Africa in 1893 to handle a **legal case but was inspired to fight for the rights of Indians** in the country.
  - He organized Indians in **Durban and founded the Natal Indian Congress in 1894** to advocate for voting rights for Indians.
  - He **confronted discrimination and racism** through his law practice, representing Indians and addressing their grievances.
  - He mobilized support for the welfare of Indians and **established the Transvaal British Indian Association in Johannesburg in 1903**.
- **Satyagraha and Passive Resistance:**
  - Gandhi launched his first Satyagraha (nonviolent resistance) campaign in Johannesburg in 1906 against **an ordinance that imposed restrictions on Asians**.
  - He organized mass meetings and encouraged civil disobedience to challenge discriminatory laws.

- Gandhi faced imprisonment multiple times for his nonviolent protests, including the famous **Volkraast Satyagraha in 1913**.

### **Establishment of Communal Living:**

- Gandhi founded the **Phoenix Settlement in Durban in 1904** as a community living experiment.
- He established the Tolstoy Farm near Johannesburg in 1910 to prepare **Satyagrahis (followers of nonviolence)**.
- These initiatives aimed to foster self-reliance, promote communal harmony, and provide training in practical skills.

### **Mobilization of Indian Community:**

- Gandhi's activism and leadership inspired the **Indian community to stand up against discriminatory laws and regulations**.
- His methods of nonviolent resistance and civil disobedience had a significant impact on the **South African Native National Congress**, formed in 1912.
- Gandhi's political **ideas and mobilization efforts played a role** in shaping the formation and direction of the South African independence movement.

### **Legal Reforms and Recognition of Indian Rights:**

- Through his activism and negotiations, Gandhi compelled the South African government to **pass the Indian Relief Act in 1914**.
- This act abolished several discriminatory laws and recognized the rights of Indians in South Africa.
- Gandhi's efforts laid the **groundwork for future reforms and set a precedent** for nonviolent resistance in the struggle against oppression.

## **Purana Qila Excavation**

### **Why in News?**

The recent excavations by **Archaeological Survey of India (ASI)** at Purana Qila (Old Fort) in Delhi have revealed a continuous history spanning **over 2,500 years**. These excavations are aimed to **establish complete chronology of the site**.

- **Artifacts from various historical periods** have been discovered, which revealed **9 cultural levels** including Pre-Mauryan, Mauryan, Sunga, Kushana, Gupta, Post Gupta, Rajput, Sultanate, and Mughal.
- The plan is to showcase the findings in an **Open Air Site Museum at the fort**.

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### What are the Findings of the Excavation?

- **Shards of Painted Gray Ware Pottery:**
  - These pottery pieces are typically dated to the period of 1200 BC to 600 BC, indicating the existence of **human settlements** in the pre-**Mauryan era**.
- **Vaikuntha Vishnu Sculpture:**
  - A 900-year-old sculpture of **Vaikuntha Vishnu**, belonging to the **Rajput period**, was discovered during the excavation.
- **Terracotta Plaque:**
  - A terracotta plaque depicting the **goddess Gaja Lakshmi**, dating back to the **Gupta period**, was found at the site.
- **Terracotta Ring Well:**
  - The remains of a well dating back 2,500 years from the **Mauryan period** were unearthed.
- **Sunga-Kushan Period Complex:**

- The excavation revealed a well-defined **four-room complex from the Sunga-Kushan period**, which dates back approximately 2,300 years.
- **Coins, Seals, and Copper Artifacts:**
  - More than **136 coins, 35 seals and sealings**, and other copper artifacts were discovered at the site. These findings indicate the site's significance as a **center for trade activities**.

### What is Purana Qila?

- Purana Qila is **one of the oldest forts** belonging to the Mughal era and the site is identified as **ancient settlement of Indraprastha (the capital of Pandavas)**.
- The massive gateway and walls of Purana Qila **were built by Humayun in the 16<sup>th</sup> century** and the foundation was laid **for the new capital, Dinpanah**.
- The work was carried forward by **Sher Shah Suri**, who displaced Humayun.
- The major attractions inside the fort are the **Qila-i-Kuhna mosque** of Sher Shah Suri, **Sher Mandal** (a tower, which is traditionally associated with the death of Humayun), a stepwell and the remains of the extensive rampart, which has three gates.
- The unique features of **Indo-Islamic architecture** like **horseshoe-shaped arches, bracketed openings, marble inlay, carving** etc are very prominent in the structure.
  - The mosque has an inscription which says, 'As long as there are people on this earth, may this edifice be frequented, and people will be happy in it.'

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Note:



# Geography

## Highlights

- Delayed Monsoon
- El Nino 2023: Unusual Warming Like 2009
- Unveiling Ancient Climate Secrets with Ladakh

## Delayed Monsoon

### Why in News?

In 2023, the **monsoon** arrived over the Kerala coast on June 8, which is a delay compared to its normal onset date of June 1.

### What is Monsoon?

#### ➤ About:

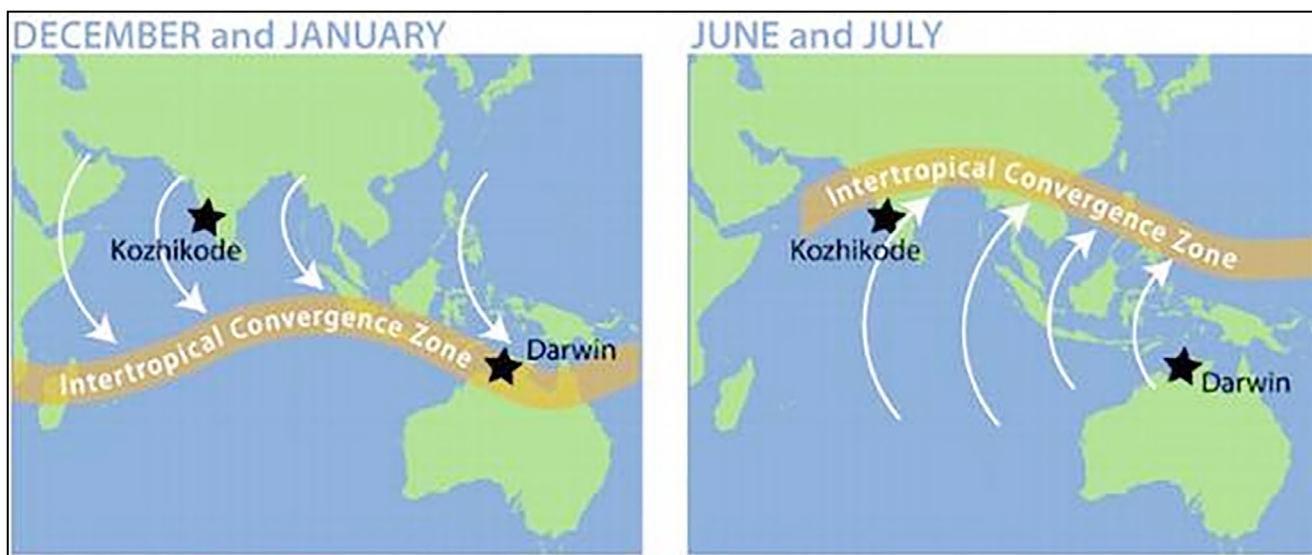
- Monsoons are **seasonal winds** (Rhythmic wind movements or Periodic Winds) **which reverse their direction** with the change of season.

#### ➤ Factors Influencing South-West Monsoon:

- The **differential heating and cooling of land and water** creates a low pressure on the landmass of India while the seas around experience comparatively high pressure.
- The **shift of the position of Inter Tropical Convergence Zone (ITCZ)** in summer, over the

Ganga plain (this is the equatorial trough normally positioned about 5°N of the equator).

- It is **also known as the monsoon-trough** during the monsoon season).
- The presence of the **high-pressure area, east of Madagascar**, approximately at 20°S over the Indian Ocean. The intensity and position of this high-pressure area affect the **Indian Monsoon**.
- The **Tibetan plateau gets intensely heated during summer**, which results in strong vertical air currents and the formation of low pressure over the plateau at **about 9 km above sea level**.
- The **movement of the westerly jet stream to the north of the Himalayas** and the presence of the **tropical easterly jet stream** over the Indian peninsula during summer.
- **Southern Oscillation (SO):**
  - It is a shift in wind and sea surface temperature between the tropical eastern Pacific Ocean and the Indian Ocean. It is commonly referred to as the phenomenon of shifting air pressure.



Note:

- **La Nina is the cooling phase, and El Nino** is the warming phase.
- La Nina generally impacts positively on Indian Monsoon.
- **Indian Ocean Dipole (IOD):**
  - IOD is the difference between the temperature of eastern (Bay of Bengal) and the western Indian Ocean (Arabian Sea).
  - A positive IOD brings more rainfall in India while negative IOD impacts negatively.

### ***What is the Onset of Monsoon?***

- **Monsoon Onset:**
  - The onset of the monsoon over the Kerala coast signifies the **start of the four-month southwest monsoon season**, which **accounts for over 70% of India's annual rainfall**.
  - Contrary to common assumptions, the onset does not refer to the first rain of the season but rather follows specific technical criteria set by the **India Meteorological Department (IMD)**.
- **Conditions for Monsoon Onset:**
  - The IMD determines the monsoon onset based on significant transitions in atmospheric and ocean circulations in the **Indo-Pacific region**.
  - The declaration of onset relies on specific parameters related to rainfall consistency, intensity, and wind speed.
- **Rainfall:**
  - The onset is declared when at least 60% of 14 designated meteorological stations in **Kerala and Lakshadweep** record at **least 2.5 mm of rain for two consecutive days** after May 10.
  - The **onset is declared on the second day if specific wind and temperature criteria are met**.
- **Wind Field:**
  - The **depth of westerlies within the equator to 10°N latitude and the 55°E to 80°E longitude** range should extend up to 600 hectopascal (hPa).
  - The **zonal wind speed between 5-10°N latitude and 70-80°E longitude** should be around 15-20 knots (28-37 kph) at 925 hPa.
- **Heat:**
  - The **Outgoing Longwave Radiation (OLR)** value, **derived from INSAT**, should be below 200 watt per sq m (wm<sup>2</sup>) in the area between 5°N and 10°N latitudes and 70°E and 75°E longitudes.

### ➤ **Impact of Delayed Onset:**

- **Agriculture:**
  - Delayed monsoon onset can affect agricultural activities, particularly sowing of crops.
  - Farmers heavily rely on monsoon rains for irrigation and crop growth.
  - A delay in rainfall can lead to a postponement of sowing, affecting crop yields and agricultural productivity.
- **Water Resources:**
  - Delayed monsoon onset can result in water scarcity, especially in regions dependent on rainfall for replenishing water reservoirs, rivers, and lakes.
- **Energy Sector:**
  - Delayed monsoon can impact hydropower generation, which relies on sufficient water availability.
- **Environment:**
  - It can affect the growth and distribution of vegetation, delay the migration of certain species, and disrupt ecological cycles.
  - Delayed monsoon can also contribute to soil erosion, land degradation, and reduced biodiversity in affected regions.

## **El Nino 2023: Unusual Warming Like 2009**

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

Recently, an **unusual phenomenon** is developing along the **equatorial Pacific region**, indicating the **emergence of El Nino conditions in 2023**. Experts warn that this **simultaneous warming of the eastern and western regions of the equatorial Pacific**, a trend **last observed in 2009**, could have severe implications for marine life worldwide.

### ***What are the Causes for this Phenomenon?***

- The **eastern Pacific is getting warmer**, which should make the **west cooler**.
  - However, due to **global warming**, there is **basin scale warming** across the **tropical Pacific**.
- Two things could have triggered this phenomenon:
  - **Global warming** in the Pacific and other modes of natural variability

Note:



drishti

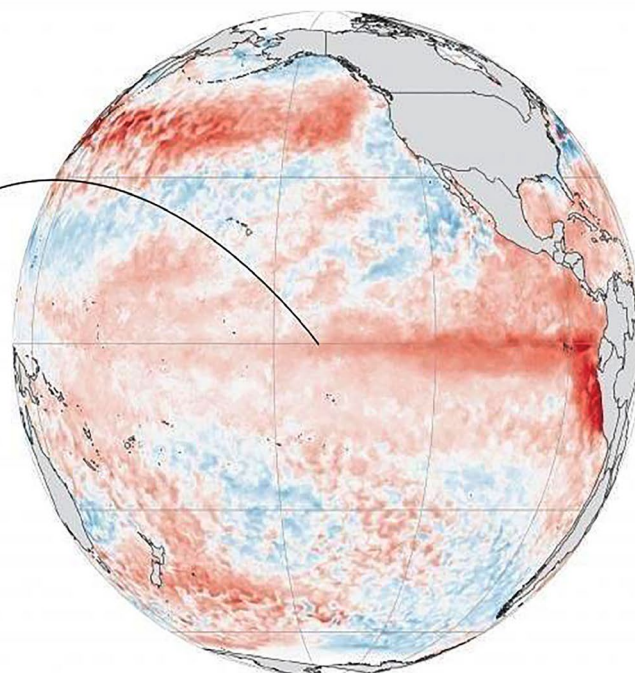
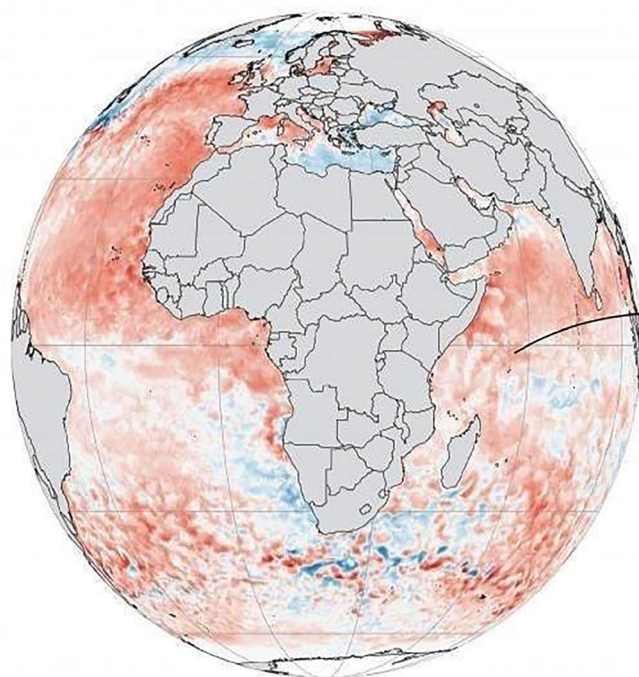
- The transition from **La Nina** winter into an **El Nino** summer which is part of the **El Nino-Southern Oscillation (ENSO)** cycle.

➤ **Basin Scale Warming in the Equatorial Pacific:**

- Due to **global warming**, the equatorial Pacific experiences basin scale warming, **causing both eastern and western regions to become warmer.**
- The measurement of basin scale **refers to the spatial extent of a basin or common water outlet**, in this case, the **equatorial Pacific region.**
- Recent data analysis shows that the ocean temperatures on May 29, 2023, were unusually warm compared to the 2003-2014 average.

## TRACKER: EL NINO

While all the signs are pointing towards an impending El Nino in the next few months, currently, an unusual phenomenon — not experienced since 2009 — is unfolding in the Pacific. As seen on the map (upper right), a high sea surface temperature anomaly off the coast of Peru is pointing towards a strong El Nino formation. But, that should also mean the western half of the Pacific (the region closer to Australia) should also be cooler. So why this anomaly?



Sea surface temperature anomaly

← cooler hotter →

-5 5

(2003 - 2014 avg.)

Not just the Pacific, globally, our oceans are unusually warm and while it is still early to suggest, according to experts, the Earth might temporarily breach the 1.5°C threshold

Note:



**What is ENSO?**

## El Nino Southern Oscillation (ENSO)

Describes the fluctuations in temperature between the ocean and atmosphere in the east-central Equatorial Pacific

**Significance:**

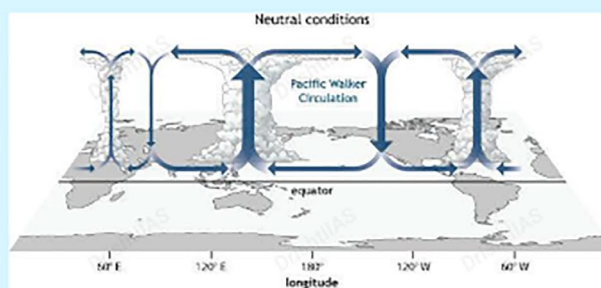
- Ability to change the global atmospheric circulation, influencing temperature and precipitation worldwide

**States of ENSO:**

- The two opposite phases - **El Niño** and **La Niña**
- The middle of the continuum - **Neutral**

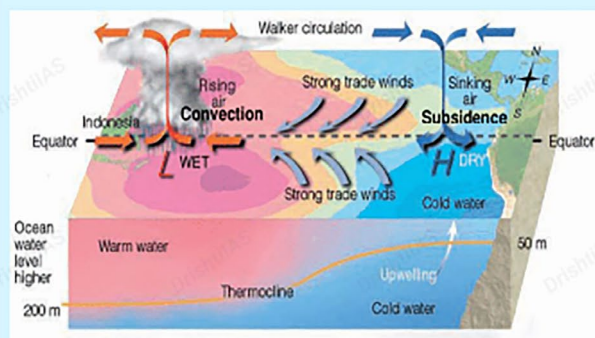
### Walker Circulation (WC)

- An atmospheric system of air flow in the equatorial Pacific Ocean
  - The trade winds across the tropical Pacific flow from east to west: air rises above the warm waters of the western Pacific, flows eastward at high altitudes, and descends over the eastern Pacific
- WC and ENSO:
  - A weak/reverse WC produces El Niño
  - Stronger WC results in La Niña



### Normal (non ENSO) Conditions in the Pacific Ocean

#### NEUTRAL ENSO



- Trade winds (easterlies) blow west along the equator, taking warm water from S. America towards Asia
- To replace that warm water, cold water rises from the depths — a process called upwelling
  - El Niño and La Niña are two climate patterns that break these normal conditions
- During an El Niño, sea level pressure tends to be lower in the eastern Pacific and higher in the western Pacific while the opposite tends to occur during a La Niña
  - This see-saw in atmospheric pressure between the eastern and western tropical Pacific is called the Southern Oscillation (SO)



### What are the Potential Consequences of this Phenomenon?

- **Global Warming:**
  - The end of La Nina means that the **ocean is not taking up heat**, which **will dissipate into the atmosphere**.
    - If the atmosphere is warmer, then the **ocean doesn't lose as much heat**, causing it to **warm up at the surface**.
    - This may temporarily push **global warming beyond 1.5°C**.
- **Geophysical Effect:**
  - The phenomenon will affect **cyclones, hurricanes, and typhoons**, with **Typhoon Mawar** in the **western Pacific** already being one of the strongest.
  - The warming of ocean waters acts as a catalyst for **marine heatwaves**, the **slowing of meridional circulation**, which could cause unmitigable losses for **marine biodiversity**.
- **Coral Bleaching:**
  - A warming of 1.5°C threatens to **destroy 70 to 90 per cent of coral reefs**, and a 2°C increase means a **nearly 100 per cent loss** – a point of no return.

#### ➤ Previous El Nino Events:

- El Nino events of **1982-83 and 1997-98** were the **most intense** of the 20th century.
- During the **1982-83** event, sea surface temperatures in the eastern tropical Pacific were 9-18° F above normal.
- The El Nino event of **1997-98** was the first El Nino event to be **scientifically monitored from beginning to end**.
- The 1997-98 event produced drought conditions in Indonesia, Malaysia, and the Philippines. Peru and California experienced very heavy rains and severe flooding.
- The Midwest experienced record-breaking warm temperatures during a period known as **"the year without a winter."**
- **The El Nino, along with global warming, had made 2016 the warmest year on record.**

### What is the Impact El Nino 2023 on India?

- **Weak Monsoon for India:** The development of an El Nino in May or June 2023 may cause weakening of the **southwest monsoon season**, which brings around 70% of the total rainfall India receives and on which most of its farmers still depend.
- However, **sub-seasonal factors** such as the **Madden-Julian Oscillation (MJO)** and monsoon low-pressure systems **can temporarily enhance rainfall** in some parts as witnessed in the year 2015.
- **Hot Temperatures:** It may also cause **heatwaves** and **droughts** in India and other regions around the world such as South Africa, Australia, Indonesia and the Pacific Islands.

## Unveiling Ancient Climate Secrets with Ladakh

### Why in News?

Scientists have made significant strides in understanding **climate variations** during the transition from the last **deglaciation period**, approximately 19.6 to 6.1 thousand years ago.

- By studying sediment deposits from **ancient lakes in the Indus River valley in Ladakh**, they have reconstructed climate records and shed light on the region's climate history.

### What are the Major Findings of the Research?

- **Research Methodology:**
  - Scientists sampled sediment deposits from an 18-meter-thick sequence found along the **Indus River** at an altitude of 3287 metres.
  - The researchers conducted meticulous laboratory analyses on the samples, examining physical characteristics such as **colour, texture, grain size, grain composition, total organic carbon, and magnetic parameters**.
    - These parameters were used to extract information about past climate conditions from the **palaeolake sedimentary archive**.
- **Major Findings Related to Climate Evolution:**
  - Between 19.6 and 11.1 thousand years ago, a **cold arid climate dominated the region** due to the influence of **westerly circulation**.

Note:

- From 11.1 to 7.5 thousand years ago, **monsoon forcings became the primary driver of climate**, leading to a period of strong monsoons.
- Afterward, **orbitally controlled solar insolation** played a crucial role in shaping the climate by influencing the position of the **Inter Tropical Convergence Zone (ITCZ)** and the variability of atmospheric circulations.
- During the mid-Holocene (7.5 to 6.1 thousand years ago), the westerlies regained strength, coinciding with decreasing insolation, **a weakening monsoon, and enhanced El Nino activities.**
- The study also demonstrates the **potential of using multiple physical parameters of sediments to reconstruct paleoclimate variations** (changes in Earth's climate that occurred in the geological past) with high resolution and accuracy.

#### Westerly Circulation

- It refers to the **predominant west-to-east flow of winds in the mid-latitudes of both hemispheres.**
- It is caused by the **rotation of the Earth and the temperature differences between the equator and the poles.** The westerlies play a crucial role in weather patterns and the transport of heat, moisture, and pollutants across regions.

#### Orbitally Controlled Solar Insolation

- It refers to the **variations in the amount of solar radiation received on Earth due to changes in Earth's orbit around the sun.**
- These orbital variations occur over long periods, such as tens of thousands of years, and can impact climate patterns.
- Intertropical Convergence Zone
  - The **ITCZ is a low-pressure zone near the equator** where trade winds from the northern and southern hemispheres converge.
  - It is **characterised by abundant rainfall and is responsible for the formation of tropical rainforests and monsoon systems.**
  - The **ITCZ migrates north and south with the changing seasons**, following the sun's zenith position.

■■■

Note:

# Ethics

## Highlights

- *Neurotechnology and Ethics*

## Neurotechnology and Ethics

### Why in News?

The **United Nations Educational, Scientific and Cultural Organization (UNESCO)** is organising an international conference in Paris, France to **address the ethical implications of neurotech devices that collect brain-wave data.**

- This conference aims to establish a global ethical framework to ensure individual freedom of thought, privacy, and protection of **human rights**.
- With the growing potential of neurotechnology to address neurological problems, concerns have been raised regarding its impact on personal identity and privacy.

### What is

### Neurotechnology?

- **Neurotechnology** is defined as the **assembly of methods and instruments that enable a direct connection of technical components with the nervous system.** These technical components are **electrodes, computers, or intelligent prostheses.**
- They are meant to either **record signals from the brain and “translate” them into technical control commands,** or to manipulate brain activity by applying electrical or optical stimuli.
  - From **bioelectronic medicine that improves the quality of life to brain imaging that revolutionizes our conception of human consciousness,** this technology has helped us to address many challenges.
- Neurotechnology **encompasses all technologies developed to understand the brain,** visualise its processes and even control, repair or improve its functions.

### What are the Ethical

### Concerns Related to Neurotechnology?

- **Privacy Issues:** The use of neurotechnology can potentially reveal highly personal and sensitive information about an **individual’s thoughts, emotions, and mental states.**
  - Combined with artificial intelligence, **its resulting potential can easily become a threat to notions of human dignity, freedom of thought, autonomy, (mental) privacy and well-being.**
- **Cognitive Enhancement and Inequality:** Neurotechnologies aimed at enhancing cognitive abilities raise concerns about fairness and equality.
  - If these technologies **become available only to a privileged few or exacerbate existing social inequalities,** it could lead to an unfair advantage for certain individuals or groups, **creating a “cognitive divide” in society.**
- **Psychological and Emotional Impact:** The ability to manipulate or access brain activity raises **ethical concerns regarding the psychological and emotional impact on individuals.**
  - For example, **deep brain stimulation or neurofeedback** techniques may have unintended consequences or side effects on an individual’s mental well-being, personal identity, or autonomy.

### What is Deep Brain Stimulation (DBS)?

- It is a **neurosurgical procedure** that involves the **implantation of a medical device called a neurostimulator,** which delivers electrical impulses to specific regions of the brain.
  - DBS works by altering the electrical signals in targeted brain regions, effectively “resetting” or normalising the neural activity.
- DBS is primarily used to treat neurological conditions such as **Parkinson’s disease, essential tremor, dystonia, and some cases of epilepsy and obsessive-compulsive disorder (OCD).**

Note:

- Parkinson's disease is a chronic, degenerative neurological disorder that affects the central nervous system.

### ***How can the Ethical Concerns Surrounding Neurotechnology be Resolved?***

- **Informed Consent:** Ensuring that patients have a **comprehensive understanding of the risks, benefits, and potential outcomes** of neurological interventions is crucial.
  - **Healthcare** providers should engage in transparent and thorough discussions with patients, providing them with the information necessary to make informed decisions about their treatment options.
- **Ethical Review Boards:** Establishing **independent and multidisciplinary ethical review boards** can help evaluate the ethical implications of neurology research and interventions.
  - These boards should consist of **healthcare professionals, ethicists, legal experts, and**

**patient advocates** who can assess the potential benefits, risks, and ethical implications of proposed interventions.

- **Maintaining Privacy and Confidentiality:** Safeguarding patient privacy and confidentiality is of utmost importance in neurology.
  - With the advancement of technologies like **brain-computer interfaces and deep brain stimulation**, it is crucial to implement robust privacy protocols and ensure that patients' sensitive information is protected.
- **Equity and Access:** Ethical concerns can arise when access to neurological treatments and interventions is limited by factors such as **cost, geographic location, or social disparities**.
  - Efforts should be made to promote equity and ensure that these **interventions are accessible to all individuals** who can benefit from them, regardless of socioeconomic status.

■■■

Note:



# Miscellaneous

## Highlights

- SIPRI Yearbook 2023
- Squash World Cup 2023
- Roland-Garros
- Sagar Samridhi
- Claims of Burial and Rock Art by Homo Naledi
- The Kakhovka Dam in Ukraine
- NIRF Ranking 2023
- Government Bans 14 Combination Drugs

## SIPRI Yearbook 2023

### Why in News?

Recently, **Stockholm International Peace Research Institute (SIPRI)** Yearbook 2023 revealed that China could potentially have as many Intercontinental Ballistic Missiles (ICBMs) as U.S. or Russia by the end of the decade.

- **Russia has the highest number of stored nuclear arsenals** followed by US and China while the US has deployed the highest number of nuclear arsenals followed by Russia and France.

### What SIPRI Reveal About Nuclear Arsenals?

- **Global Nuclear Arsenals:**
  - **Modernization and Expansion:**
    - The **nine nuclear-armed states**, including the **United States, Russia, and China**, continue to modernize and expand their nuclear arsenals, deploying **new nuclear-armed or nuclear-capable weapon systems** in 2022.
    - Other nuclear-armed countries are UK, France, India, Pakistan, the North Korea and Israel
  - **Total Global Inventory:**
    - As of January 2023, the **total global inventory of warheads is estimated at 12,512**, with **approximately 9,576 warheads held in military stockpiles for potential use.**

#### Dominance of Russia and U.S.:

- **90% of all Nuclear Weapons:**

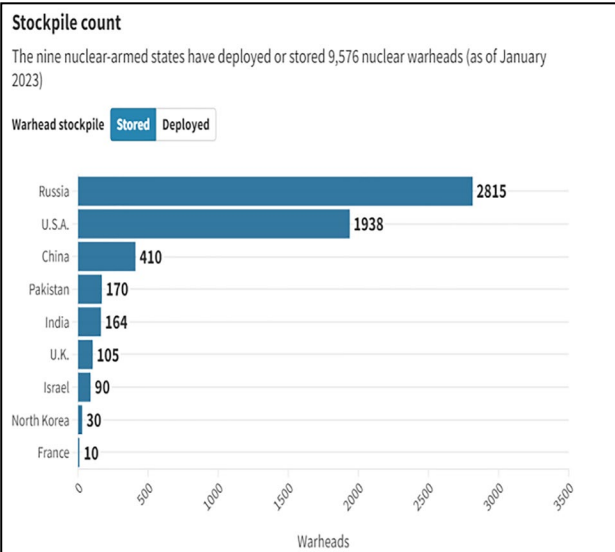
- **Russia and the United States possess almost 90% of all nuclear weapons**, with **relatively stable sizes** of their respective nuclear arsenals.

#### Arms Control Concerns:

- Transparency and **dialogue regarding nuclear forces declined** between Russia and the United States following Russia's invasion of Ukraine.
- The suspension of the strategic stability dialogue and the Treaty on Measures for the **Further Reduction and Limitation of Strategic Offensive Arms (New START)** has halted discussions for a follow-on treaty.

#### New START Limits Maintained:

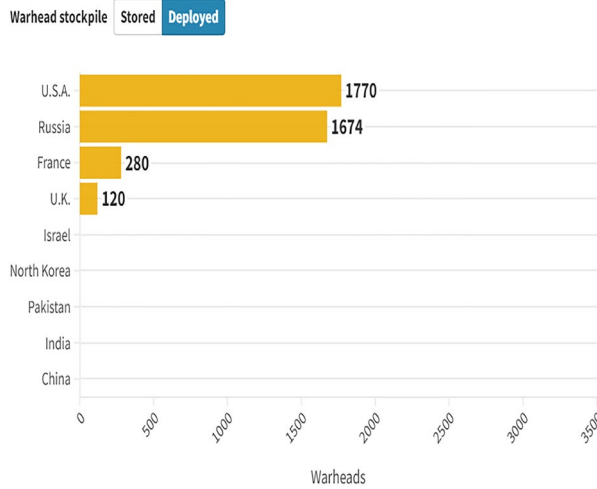
- Despite the strained relations, **both Russia and the United States remained within the limits set by New START** for their deployed strategic nuclear forces as of January 2023, according to SIPRI's assessment.



Note:

**Stockpile count**

The nine nuclear-armed states have deployed or stored 9,576 nuclear warheads (as of January 2023)



➤ **India's Nuclear Arsenal:**

○ **Growth in Arsenal:**

- India's nuclear arsenal also expanded, increasing from **160 warheads in 2022 to 164 warheads in 2023** and that of Pakistan from 165 to 170 in the same period.

○ **Focus on Longer-Range Weapons:**

- India's nuclear deterrent, while primarily focused on Pakistan, is placing growing emphasis on longer-range weapons capable of reaching targets across China.

○ **Upgrading Ballistic Missiles:**

- India is in the process of upgrading its ballistic missiles, with the development of a submarine-launched intermediate-range ballistic missile and the imminent induction of a new generation ballistic missile called '**Agni Prime.**'

➤ **China's Nuclear Arsenal:**

○ **Increased Size:**

- China's nuclear arsenal grew from **350 warheads in January 2022 to 410 warheads in January 2023**, according to the SIPRI.

○ **Concerns About Expansion:**

- The significant expansion of China's nuclear arsenal raises concerns as it contradicts China's stated goal of maintaining minimum nuclear forces for national security.

**What is SIPRI?**

- The SIPRI is an independent international institute dedicated to research into conflict, armaments, arms control and disarmament.
- Established in 1966 at Stockholm, SIPRI provides data, analysis and recommendations, based on open sources, to policymakers, researchers, media and the interested public.

**Squash World Cup 2023****Why in News?**

Recently, the **WSF (World Squash Federation)** board has decided the Venue for the **2023 Squash World Cup** to be held in Chennai, Tamil Nadu.

- There are eight teams from four different continents playing in the Chennai Squash World Cup: Australia; Colombia; Egypt; Hong Kong, China; India; Japan; Malaysia; South Africa.

**What is Squash?**

➤ **About:**

- Squash is a game of **agility, strategy, talent, and physical and mental strength.**
  - Squash offers numerous health benefits and has been recognized as the healthiest sport by Forbes Magazine.
- It can be played year-round, in **any weather condition**, and by players of all skill levels, making it a sport that anyone can enjoy.



➤ **Overview:**

- Squash is typically played by **two players for singles matches or four players for doubles matches.**

Note:

- The game is played on a four-walled court with a small, hollow rubber ball. The ball should be hit **against the front wall, above the tin** (a boundary line near the floor) and below the outline.
- A match consists of the best of either three or five games. Each game is played with 11 points. The first player to reach 11 points wins the game, unless the score becomes 10-all. In that case, the game continues until one player leads by two points.

### What is the Squash World Cup?

#### ➤ About:

- The Squash World Cup is an **International Tournament** in which national team squads represented by two men and two women play ties of four matches against each other.

#### ➤ History:

- The first Squash World Cup took place in **1996 in Petaling Jaya, Malaysia**, with 16 teams participating.
  - Australia, the top seeds, defeated England, the second seeds, in the final with a score of 3-0.
- In **1999, England became champions in 's-Hertogenbosch**, Netherlands.
- In 2011, Egypt lifted the trophy in Chennai. In the following year, an Under 21 World Cup was held in Chennai.

#### ➤ Changes:

- 2023's event has introduced some changes. Teams now have **gender parity, meaning equal representation** of male and female players.
- Additionally, the games are played to seven points, which is a **first in the history of the World Squash Federation**.

#### ➤ Rules:

- **Competition Format:** The World Cup will consist of **two round-robin pools**, followed by a knockout stage.
- **Team Composition:** Ties shall be contested by **teams of two men and two women**.
- **Match Scoring:** All matches will be played to a **best of 5 games to 7 points**. At 6-6, the game will still be played to 7 points.

### What is the World Squash Federation (WSF)?

- Formed in 1967, the WSF is the International Federation for squash, also a member of the **General Association of International Sports Federations (GAISF)** and of the Association of IOC Recognised International Sports Federations (ARISF).
- WSF has a membership of **123 National Squash Federations** and a close working alliance with its five Continental Federations.

## Roland-Garros

### Why in News?

The Stade Roland Garros in Paris is hosting the **Roland-Garros tournament also known as the French Open**, which took place from **May 28, 2023, until June 11, 2023**.

### What is Roland-Garros?

#### ➤ About:

- **Roland-Garros** is one of the **four Grand Slam tournaments in tennis**, along with the **Australian Open, Wimbledon and the US Open**. It is held over two weeks at the Stade Roland Garros in Paris, France.
- It is the **only Grand Slam event played on clay courts**, which makes it the most physically demanding and tactically challenging tournament in the world.

#### ➤ History and Significance of Roland-Garros:

- The tournament and venue are named after **Roland Garros, a French aviator who was the first person to fly across the Mediterranean Sea in 1913**.
  - He was also a pioneer of **aerial warfare during World War I** and died in combat in 1918.
- The tournament was first held in **1891 as a national championship for French players only**.
  - It became open to international players in 1925 and moved to its current location in 1928.
  - It was the **first Grand Slam tournament to join the "Open" era in 1968**, allowing both amateurs and professionals to compete.

**Note:** Rafael Nadal has won a record 14 titles at Roland-Garros, including four consecutive ones from 2005 to 2008 and five consecutive ones from 2010 to 2014. He also holds the record for the most match wins (105) and the highest winning percentage (98.2%) at the tournament. Unfortunately, **he is not participating in the Roland-Garros 2023 tournament**.

Note:

### ➤ Major Features:

- **French Fair:** Roland-Garros is not **only a tennis tournament, but also a cultural and artistic event that showcases the French flair and elegance.** **Courts:** Roland-Garros has **20 courts**, including three main show courts: Court Philippe-Chatrier, Court Suzanne-Lenglen and Court Simonne-Mathieu.
  - The courts are **made of crushed brick and limestone**, which give them their **distinctive red colour and slow down the ball speed.**
- **Major Trophies:** The two of the most iconic trophies in the event are: **the Coupe des Mousquetaires (Musketeers' Trophy) for men and the Coupe Suzanne-Lenglen (Suzanne Lenglen Trophy) for women.**
  - The trophies are named after four French tennis legends: René Lacoste, Jean Borotra, Henri Cochet and Jacques Brugnon for men, and Suzanne Lenglen for women.

### What is Grand Slam?

- Grand Slam tournaments, **also called majors**, are the four most important annual tennis events.
- The Grand Slam itinerary consists of the **Australian Open in mid-January, the French Open from around late May to early June, Wimbledon in June–July, and the US Open in August–September.**
  - Each tournament is played over a two-week period.
- The **Australian and United States tournaments are played on hard courts, the French on clay, and Wimbledon on grass.**
  - **Wimbledon is the oldest**, founded in 1877, followed by the US in 1881, the French in 1891, and the Australian in 1905.
- **Novak Djokovic equalised Rafael Nadal's record of most grand slam titles by winning the 2023 Australian Open.**

## Sagar Samriddhi

### Why in News?

Recently, the Ministry of Ports, Shipping & Waterways (MoPSW) has launched '**Sagar Samriddhi**,' an **online dredging monitoring system** to accelerate the '**Waste to Wealth**' initiative of the Government.

### What is Dredging?

- Dredging is the removal of sediments and debris from the bottom of lakes, rivers, harbors, and **other water bodies.**
  - This is necessary because over time, sediment builds up and makes the waterways too shallow for boats and ships to navigate safely.
- The main purpose of dredging is to **maintain or increase the depth of navigation channels, anchorages**, and berthing areas so that larger ships can pass through and transport goods. This is crucial for the economy, as these ships carry a significant portion of the country's imports.

### What is Sagar Samridhi?

#### ➤ About:

- This system has been developed by National Technology Centre for Ports, Waterways and Coasts (NTCPWC), the technological arm of MoPSW.
- The system aims to enhance productivity, contract management, and promotes **effective reuse of dredged material.**
- It aligns with the vision of **Atmanirbhar Bharat (Self-reliant India)** and Make in India, strengthening the country's technological capabilities.

#### ➤ Capabilities:

- Real time dredging progress report
- Daily and monthly progress Visualization
- Dredger performance and downtime monitoring
- Easy location track data with snapshot of loading, unloading and idle time

#### ➤ Significance:

- By minimizing human error through technology, the system **improves project implementation, reduces dredging costs**, promotes environmental sustainability, and enhances transparency and efficiency.
  - The annual maintenance dredging at Major Ports and Waterways is **around 100 million cubic meters, for which about Rs.1000 crores** are spent each year by the Ports and Inland Waterways Authority of India.
- By implementing the Addendum and using the 'Sagar Samriddhi' system, the dredging **cost will significantly decrease, ensuring transparency and efficiency.**

Note:



- The system enables better project planning, reduces operational costs, and facilitates the development of deep draft Ports.

### Are there any Guidelines Related to Dredging in India?

- The MoPSW issued '**Dredging Guidelines for Major Ports**' in 2021, which outlined the procedure for planning and preparation, technical investigations, dredged material management, estimating the cost of dredging etc., to enable the Major Ports to formulate the dredging projects in order to complete in time.
- In March 2023, the Ministry added an update to the **Dredging Guidelines for Major Ports**, including a provision in the bidding documents that helps **reduce dredging costs through the concept of 'Waste to Wealth.'**
- It suggests various beneficial ways to use the dredged material, such as in construction projects and for environmental improvement like beach nourishment.

#### What is NTCPWC?

- The NTCPWC was established under the **Sagarmala Programme of MoPSW** with the total investment of RS 77 Crores at IIT Madras in April 2023.
- The aim of the centre is **to enable research & development for the marine sector**, enabling solutions towards achieving the ultimate goal of building a robust marine industry in the country.
- This state-of-the-art centre has **world class capabilities for undertaking the 2D & 3D investigations of research** and consultancy nature for the Port, Coastal, and Waterways sector across all disciplines.

## Claims of Burial and Rock Art by Homo Naledi

### Why in News?

Recently, a study has been published, which suggests that **Homo Naledi**, an ancient human species, may have buried their dead and created meaningful symbols in a cave.

- However, these claims have **sparked controversy within the scientific community.**

### What is Homo Naledi?

- **Homo Naledi** is a species of human discovered in the **Rising Star cave system, a UNESCO World Heritage Site** in South Africa in 2013.
  - The remains of at least 15 individuals, including adults, juveniles, and infants, were found, making it the largest collection of a **single hominin species in Africa.**
- Homo naledi exhibits a **combination of primitive and modern features** and is not a direct ancestor of modern humans.
  - These **short-statured, small-brained ancient cousins** are thought to have lived in Southern Africa between **335,000 and 241,000 years ago (possibly up to 2 million years ago).**



### What Are the Key Highlights of the Study?

- **Burial Claims:**
  - Homo Naledi deliberately buried their dead, which would challenge existing **notions about advanced mortuary behavior.**
    - Humans exhibit a unique behavior among primates by burying their dead, which sets them apart from other animals. This behavior is known as Mortuary behavior, characterized by **social acts and a complex understanding of death.**
  - Previously, the earliest evidence of Mortuary behavior was found among Neanderthals and modern humans, occurring more than 100,000 years after Homo naledi.
- **Rock Art Claims:**
  - Homo naledi may have created rock art in Rising Star Cave. This is intriguing because **rock art has traditionally been associated with Homo sapiens and other large-brained ancestors.**

Note:

- The report describes **engravings in the form of deeply impressed cross-hatchings and geometric shapes** such as squares, triangles, crosses and X's.
- Additionally, a rock-like object found near a **Homo naledi body suggests it could be a stone tool.**
- **Use of Fire:**
  - Homo naledi used **fire strategically for illumination during mortuary** and engraving activities in the cave.

### What is the Controversy?

- There is **no compelling evidence of deliberately excavated pits** or anatomical alignment of skeletal remains.
- The **spatial association of some skeletal elements does not confirm intentional burial**, as it could be attributed to natural processes such as trampling or cave collapse.
- However, the absence of dating for the engravings raises doubts about their attribution to Homo naledi. Without firm dates obtained through associated residues, **natural deposits, or archaeological layers**, it is premature to ascribe the engravings to Homo naledi.

## The Kakhovka Dam in Ukraine

### Why in News?

The **Kakhovka Dam** was a major **hydroelectric power plant** and reservoir on the **Dnieper River** in **southern Ukraine**. It was destroyed on June 6th, 2023, in an explosion that caused massive flooding and a **humanitarian crisis in the war-torn region**.

- Ukraine and Russia have blamed each other for the attack, which has escalated the tensions between the two countries.

### What are the key Facts About Kakhovka Dam?

- **About:**
  - The **Kakhovka Dam was built in 1956** as part of the Soviet Union's ambitious project to harness the **Dnipro River** for irrigation, power generation and navigation.
  - The dam was **30 meters tall and 3.2 kilometers long**, creating a reservoir that **covered 2,155 square kilometers** and held **18 cubic kilometers of water**.

- The dam also supplied water to the **Crimean Peninsula, which Russia annexed in 2014**, and to the **Zaporizhzhia Nuclear Power Plant, which is under Russian control**.
- The dam was located on the **front line between Ukrainian and Russian forces in southern Ukraine**, where fighting has been ongoing since 2014.



- **Ongoing Issue:**
  - Recently, an explosion occurred inside the **Kakhovka Hydroelectric Power Station**, causing a **breach in the dam** and releasing a huge amount of water downstream.
  - The **floodwaters inundated (cover land with water) dozens of towns and villages** on both sides of the river, **displacing thousands of people and damaging infrastructure, crops and livestock**.
  - The water level also rose in the **Dniprovska Gulf, a bay of the Black Sea near Kherson city**, threatening coastal areas with erosion and salinization.

Note:



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- The explosion also cut off electricity to millions of people and **disrupted water supplies to Crimea and Zaporizhzhia**.
- **Impact on the Russia-Ukraine war:**
  - Adding a new dimension to the conflict, the **collapse of the dam** has **introduced an unexpected element to the ongoing Russia-Ukraine war**.
  - It **remains unclear whether either side benefits from the dam's damage** since **both Russian-controlled and Ukrainian-held lands are at risk**.
  - However, the damage could impede Ukraine's counteroffensive plans in the south and divert the government's attention.
- **The Aftermath and Immediate Concerns:**
  - **Environmental and Social Impact:**
    - The flooding resulting from the dam's collapse **has led to homes, streets, and businesses being inundated downstream**.
    - Emergency crews are undertaking evacuations, and concerns have arisen about the cooling systems at the Zaporizhzhia Nuclear Power Plant and the water supply to Crimea.
  - **Evacuation Efforts:**
    - Approximately 22,000 people in Russian-controlled areas and 16,000 people in critical zones in Ukrainian-held territory are at risk.
    - Russian and Ukrainian authorities are facilitating the evacuation of residents.

## NIRF Ranking 2023

### Why in News?

The **National Institutional Ranking Framework (NIRF) Ranking 2023** was announced recently, showcasing the excellence and achievements of various educational institutions in India.

- The **Indian Institute of Technology (IIT), Madras** secured the top spot in the overall ranking for the **fifth consecutive year**, while the Indian Institute of Science (IISc), Bengaluru was ranked as the best university.

### What are the Major

### Highlights of NIRF Ranking 2023?

- **Areas of Ranking:**
  - The ranking exercise for the year 2023 continues with the practice of providing a common **"Overall" rank in addition to a separate rank**

**for Universities, Research Institutions, Degree Colleges, and discipline-specific ranks in Engineering, Management, Pharmacy, Law, Medical, Dental and Architecture & Planning.**

### ➤ **Three Distinct Additions of 2023 Edition of India Rankings:**

- Introduction of a new subject namely **Agriculture & Allied Sectors**.
- Expansion of scope of **"Architecture"** to **"Architecture and Planning"** to include institutions imparting courses in Urban and Town Planning.
- Integration of the **"Innovation" ranking previously executed by the Atal Ranking of Institutions on Innovation Achievements (ARIIA)** into the India Rankings to reduce the burden on institutions of providing similar data to two different agencies.

### ➤ **Participants:**

- While the total number of **Higher Educational Institutes** that participated in the ranking exercise in various categories and subject domains have increased from **3565 in 2016 to 8686 in 2023**, the number of categories and subject domains have increased from **4 in 2016 to 13 in 2023**.

### ➤ **Major Top Rankings:**

- **Leading Engineering Institutions: IIT-Madras** maintained its dominance as the top engineering institution in India for the eighth consecutive year, with IIT-Delhi and IIT-Bombay securing the second and third positions, respectively.
- **Top Management Institutes: Indian Institute of Management (IIM), Ahmedabad**, claimed the top position as the leading management institute in India, followed by IIM Bangalore and IIM Kozhikode.
- **Top Law Institutes: The National Law School of India University, Bengaluru**, emerged as the top law institute in the country. National Law University, Delhi, secured the second position, and NALSAR University of Law, Hyderabad, was ranked third.
- **Top Pharmacy Institutes: The National Institute of Pharmaceutical Education and Research, Hyderabad**, was recognized as the leading pharmacy institute in India. It was closely followed by Jamia Hamdard and BITS Pilani.
- **Top Colleges: Delhi University (DU)** made its mark in the rankings, with **five of its colleges securing positions in the top 10 colleges in India**.
  - **Miranda House retained its top position**, while Hindu College secured the second spot.

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## What is NIRF Ranking?

### ➤ About:

- The NIRF is a methodology to rank institutions across the country based on various parameters.
- NIRF was approved by the **Ministry of Education (Erstwhile Ministry of Human Resource Development)** and launched on **29<sup>th</sup> September 2015**.
- It is the **first-ever effort by the government to rank Higher Education Institutions (HEIs)** in the country.
- **Parameters for NIRF Ranking:** The weightage for each parameter varies depending on the category of the institution.



### Teaching, Learning & Resources (0.30)

- Student Strength (20)
- Faculty Student Ratio (25)
- Faculty with Ph.D (20)
- Financial Resources & Utilisation (20)
- Online Education (15)

- Publications (35)
- Citations (35)
- Patents (15)
- Research Projects (15)

### Research and Professional Practice (0.30)



### Graduation Outcome (0.20)

- Placement & Higher Studies (40)
- University Examinations (15)
- Median Salary (25)
- Ph.D Students (20)

- Region Diversity (30)
- Women Diversity (30)
- Economically and Socially Challenged Students (20)
- Physically Challenged Students (20)

### Outreach and Inclusivity (0.10)



### Perception (0.10)

- Peer Perception: Academic Peers and Employers (100)

Note:



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## Government Bans 14 Combination Drugs

### Why in News?

The Central Government of India has issued a gazette notification banning 14 fixed-dose combination (FDC) medicines commonly used to treat cough, fever, and infections.

- The ban, which takes immediate effect, follows recommendations from an expert committee appointed to assess the efficacy of these drug combinations.

### What are FDC Medicines?

- **Definition:**
  - According to the **Central Drugs Standard Control Organisation (CDSCO)**, FDCs refer to products containing one or more active ingredients used for a particular indication(s).
- **Reason for the Ban:**
  - The ban follows the **recommendations of the expert committee and the Drugs Technical Advisory Board.**
  - The committee concluded that the banned FDCs lack therapeutic relevance and may pose risks to human beings.

### What are the Challenges of FDC?

- **Increased Risk of Side Effects:**
  - Combining multiple active ingredients in FDC drugs can lead to a higher risk of adverse drug interactions and increased susceptibility to side effects.

- Some patients may experience heightened sensitivity or allergic reactions to one or more components of the FDC drug, which may be difficult to identify and manage due to the fixed combination.

- For example, A combination of Paracetamol, Bromhexine, Phenylephrine, Chlorpheniramine, and Guaiphenesin in a single FDC drug may increase the risk of side effects such as drowsiness, dizziness, and elevated blood pressure.

### ➤ Regulatory Challenges:

- Regulating FDC drugs can be challenging due to the complexities associated with evaluating the safety and efficacy of multiple active ingredients in a single formulation.
- Ensuring quality control and standardization of FDC drugs becomes more demanding as compared to single-component medications.

### ➤ Overuse and Misuse:

- FDC drugs can contribute to overuse and misuse of medications. Patients may unknowingly consume multiple active ingredients unnecessarily or in inappropriate combinations, leading to potential health risks.

### ➤ Lack of Evidence-based Clinical Data:

- Some FDC drugs may have been approved based on limited or insufficient clinical evidence supporting their efficacy and safety profiles.
- The absence of robust scientific data can raise concerns about the appropriateness and reliability of FDC drugs for specific medical conditions.

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# Rapid Fire Current Affairs

## Highlights

- *Wealthy Indians Seek Greener Pastures as Outflow of Ultra-Rich Continues*
- *Decline in India's Remittance*
- *'Anjadip' Marks Milestone in Indigenous Shipbuilding for Indian Navy*
- *TRAI Directs Access Providers to Deploy AI-based System to Combat Unsolicited Commercial Communication*
- *3D Scanning and JATAN Virtual Museum Builder Software*
- *Antardrishti*
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- *Nyaya Vikas Portal*
- *Punjab-Himachal Pradesh Clash Over Shanan Hydropower Project*
- *Chhatrapati Shivaji Maharaj's Enduring Legacy*
- *Electronics Repair Services Outsourcing (ERSO)*
- *Fiscal Deficit Target Narrows To 6.4%*
- *GDP Expanded 6.1% in 2022-23 Last Quarter*
- *Regional Office of the Universal Postal Union (UPU) in New Delhi*
- *Desiccation-Tolerant Plants in India's Western Ghats: Potential for Agricultural Applications*
- *World Multiple Sclerosis Day*
- *UAE Withdraws from Maritime Coalition amid Rising Tensions in Gulf Waters*
- *World Milk Day Celebrations and Summer Meet*

## Wealthy Indians Seek Greener Pastures as Outflow of Ultra-Rich Continues

According to the **Henley Private Wealth Migration Report (2023)**, released by Henley & Partners, India is projected to experience a **net outflow of 6,500 High Net-Worth Individuals (HNWIs) in 2023**, making it the **second-worst performer in terms of losing ultra-rich individuals, trailing behind China**.

The report defines HNWIs as those with investable wealth of **USD 1 million or more, equivalent to Rs 8.2 crore or more in rupee terms**. This trend follows a previous outflow of **7,500 such individuals in 2022**. Conversely, **Australia, the UAE, Singapore, the USA, and Switzerland are expected to be the top destinations for net inflows**

of HNWIs in 2023.

India ranked **10<sup>th</sup> among the wealthiest countries in the world based on HNWI population**. It boasts **3,44,600 HNWIs, 1,078 centi-millionaires, and 123 billionaires**. In comparison, China has **7,80,000 HNWIs and 285 billionaires**, while the US, with a population of just 340 million, has **52,70,000 HNWIs and 770 billionaires**.

The **W10 grouping**, comprising the **US, Japan, China, Germany, the UK, Switzerland, Australia, Canada, France, and India**, represents the top 10 countries with the **highest number of HNWIs**.

Read more: **Human Migration: Reasons & Impact**

## Decline in India's Remittance

India experienced a **significant growth in inward remittances in 2022 at the growth of 24%**, reaching **USD**

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**111 billion**, surpassing the **World Bank's** estimate of USD100 billion. This **accounted for 63% of South Asia's remittance flows**, which amounted to USD176 billion. However, remittance flows to India are **projected to increase by only 0.2% in 2023** as per the latest Migration and Development Brief released by the World Bank due to a **slowdown in OECD economies**, particularly impacting employment opportunities and wages for migrants. The diversion of formal remittances to informal channels is also expected. **High-skilled Indian migrants in the United States, United Kingdom, and Singapore** played a substantial role in India's remittances, **benefiting from post-pandemic recovery and wage increases**.

## 'Anjadip' Marks Milestone in Indigenous Shipbuilding for Indian Navy

The launch of the third **Anti-Submarine Shallow Water Craft (ASMSWC) ship, 'Anjadip'**, signifies a significant milestone in the **indigenous shipbuilding efforts of the Indian Navy**. Manufactured by **Garden Reach Shipbuilders & Engineers (GRSE)** in collaboration with **Larsen & Toubro (L&T) Shipbuilding**, the launch ceremony was held at the **Kattupalli, Tamil Nadu** on June 13, 2023.

Named after the **strategically important island of Anjadip**, situated off the **coast of Karwar, Karnataka** and connected to the mainland by a breakwater, the ship represents the vital maritime role played by the island.

Furthermore, it is **part of the larger INS Kadamba naval base**. The ASW SWC project involves the construction of a **total of eight ships, designed to replace the existing Abhay class ASW Corvettes**. These Arnala class ships are specifically designed for **anti-submarine operations in coastal waters, Low Intensity Maritime Operations (LIMO), and Mine Laying operations**, including subsurface surveillance in littoral waters.

These ships boast over **80% indigenous content**, promoting large-scale defence production by Indian manufacturing units and bolstering employment opportunities while strengthening the country's capabilities in naval defence.

**Read more: India's Indigenous Move, INS Kadamba,**

## TRAI Directs Access Providers to Deploy AI-based System to Combat Unsolicited Commercial Communication

The Telecom Regulatory Authority of India (TRAI) has issued a directive to all **Access Providers**, mandating the **deployment of an Artificial Intelligence (AI) and Machine Learning (ML) based system called UCC\_Detect**.

The purpose of this system is to **detect, identify, and take action against senders of Commercial Communication** who are **not registered under the Telecom Commercial Communication Customer Preference Regulations, 2018 (TCCCPR-2018)**. These unregistered entities, known as **Unregistered Telemarketers (UTMs)**, use 10-digit mobile numbers to send commercial communications via messages or calls.

**UCC\_Detect system can adapt to new signatures, patterns, and techniques employed by UTMs**. Access Providers have also been instructed to share intelligence with other Access Providers using the **DLT (Distributed Ledger Technology) platform**. All Access Providers are required to comply with these directives and provide an updated status on the actions taken within thirty days.

**Read more: Telecom Regulatory Authority of India , Artificial Intelligence (AI) , Machine Learning (ML)**

## 3D Scanning and JATAN Virtual Museum Builder Software

A Memorandum of Understanding has been signed between the **MeitY and Union Culture Ministry** to complete **3D digitisation of all museums** under its administrative control for better conservation of artefacts.

The digitisation process involves 3D scanning which **means analysing a real-world object or environment to collect three-dimensional data** of its shape and possibly its appearance. The collected data is then used to construct digital 3D models. The 3D digitisation would be done using the **JATAN virtual museum builder software** which has been designed and developed by Human Centres Design and Computing Group, **Centre for Development of Smart Computing, Pune, Maharashtra**.

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JATAN is a **digital collection management system for Indian museums**. It is a client server application with features such as image cropping, watermarking, unique numbering, management of digital objects with multimedia representations. It can **create 3D virtual galleries and provide public access through web, mobile or touch screen kiosks**.

Read more: **3D Printing**

## Antardrishti

Recently, the **Reserve Bank of India Governor Shaktikanta Das** has launched 'Antardrishti', a **financial inclusion dashboard** aimed at **monitoring and evaluating** the progress of **financial inclusion in India**. The primary objective of the dashboard is to **assess the current state** of financial inclusion by analyzing key metrics and indicators, enabling policymakers and stakeholders to identify areas that require attention and implement targeted interventions. The dashboard **presently is intended for internal use in the RBI**, it will further facilitate **greater financial inclusion** through a multi-stakeholder approach.

The development of the **Financial Inclusion (FI) Index**, introduced by the RBI in 2021, involved collaboration between the government, sectoral regulators, and the central bank. The FI Index provides a comprehensive overview of financial inclusion in India, considering dimensions such as **'Access (35%)', 'Usage (45%)', and 'Quality (20%)'** across sectors including banking, investments, insurance, postal services, and pensions. This inclusive approach ensures accurate assessment of the progress and challenges in achieving financial inclusion goals, guiding the formulation of policies and initiatives to create a more inclusive financial ecosystem in the country.

Additionally, the index captures information on various aspects of financial inclusion in a **single value ranging between 0 and 100**, where **0 represents complete financial exclusion** and **100 indicates full financial inclusion**.

Read more: **Financial Inclusion Index**

## New Appointments in Financial Services Institutions

The **Financial Services Institution Bureau (FSIB)** has selected **N Ramaswamy**, the General Manager of General

**Insurance Corporation of India (GIC Re)**, as the next **Chairman and Managing Director (CMD)** of GIC Re, while **M Rajeswari Singh**, the General Manager and Director of United India Insurance, as the CMD of **National Insurance Company (NIC)**.

**FSIB** has been constituted in 2022, by Central Government for the **purpose of recommending persons for appointment as whole-time directors and non-executive chairpersons on the Boards of financial services institutions** and for advising on certain other matters relating to personnel management in these institutions. It replaced **Banks Board Bureau (BBB)**. FSIB is headed by a chairman, a central government nominee. The board comprises the **Secretaries of the Department of Financial Services**, the chairman of IRDAI, and a deputy governor of the RBI. Additionally, it has three part-time members who are experts in banking and three more from the insurance sector.

Read More: **Financial Services Institution Bureau (FSIB)**

## World Bank's Forecast on India's Economic Growth for FY 2023-24

The **World Bank's** latest edition of **Global Economic Prospects** paints the global growth is projected to **decelerate from 3.1% in 2022 to 2.1% in 2023**, and in **Emerging Markets and Developing Economies (EMDEs)** other than China, **growth is set to slow to 2.9% this year from 4.1% last year**. Unemployment in India **declined to 6.8% in the first quarter of 2023**, the **lowest since the onset of the COVID-19 pandemic**, and labour force participation increased. This revision can be attributed to factors such as **high inflation**, **rising borrowing costs**, and **fiscal consolidation** impacting private and government consumption. India will remain the **fastest-growing economy (in terms of both aggregate and per capita GDP)** of the largest EMDEs.

**Global Economic Prospects** is a World Bank Group flagship report that **examines global economic developments and prospects**, with a special focus on emerging market and developing economies. The report is issued twice a year, in January and June, and provides analysis and forecasts of global growth, trade, inflation, financial markets, and regional outlooks.

Read more: **World Bank, Global Economic Prospects**

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## Government Allows 2000 PACS to Establish Jan Aushadhi Kendras

The Government of India has taken a significant step by permitting **2000 Primary Agricultural Credit Societies (PACS)** to establish **Pradhan Mantri Bhartiya Jan Aushadhi Kendras** nationwide. These kendras are part of the **Pradhan Mantri Bhartiya Janaushadhi Pariyojana**, initiated by the **Department of Pharmaceuticals under the Ministry of Chemicals and Fertilizers** in November 2008. The objective of these kendras is to **provide affordable, high-quality medicines to all, especially those living in rural areas**, thereby reducing healthcare expenses.

Jan Aushadhi Kendras offer generic drugs that are equivalent in quality and efficacy to more expensive branded drugs but come at lower prices (50% to 90% lesser rate in comparison to the branded medicines). They also sell allied medical products commonly found in chemist shops to enhance the viability of running the Jan Aushadhi store. The **Pharmaceutical & Medical Devices Bureau of India (PMBI)**, established with the support of all **Pharma Central Public Sector Undertakings (CPSUs)** under the Department of Pharmaceuticals, oversees the procurement, supply, and marketing of generic drugs.

Read more: **Primary Agricultural Credit Societies (PACS), Pradhan Mantri Bhartiya Jan Aushadhi Kendras**

## Pradhan Mantri Matru Vandana Yojana As a 'Godh Bharai' Ceremony

The Prime Minister of India has lauded the new initiative of celebrating **Pradhan Mantri Matru Vandana Yojana** as a 'Godh Bharai' ceremony in Dausa, Rajasthan. The pregnant women gather for this celebration, where they are provided with **Poshan Kits to promote the health of their babies**. In **Rajasthan alone, approximately 3.5 lakh women have benefited from this scheme in the year 2022-23**. Godh Bharai' is a traditional Indian ceremony to celebrate the impending arrival of a baby, often referred to as a baby shower.

**Pradhan Mantri Matru Vandana Yojana is a maternity benefit program** in India that provides financial assistance to pregnant and lactating women for their healthcare and nutrition needs. It is a centrally sponsored scheme

being executed by the Ministry of Women and Child Development.

MATTER OF HEALTH	THE INITIATIVE
<ul style="list-style-type: none"> <li>Under-nutrition continues to adversely affect women in India</li> <li>Every third woman is under-nourished, while every second woman is anaemic</li> <li>Under-nourished women often give birth to babies with a low birth weight</li> <li>When poor nutrition starts in-utero, it extends throughout the life cycle</li> <li>Owing to economic and social distress, many women continue to work to earn a living for their family up to the last days of their pregnancy</li> <li>They resume work soon after childbirth, which prevents their bodies from fully recovering</li> <li>It also impedes their ability to exclusively breastfeed during the first six months</li> </ul>	<p>The Pradhan Mantri Matru Vandana Yojana provides maternity benefits of <b>₹5,000</b> for pregnant women and lactating mothers after their first delivery</p> <ul style="list-style-type: none"> <li>The benefit is provided in three instalments               <ul style="list-style-type: none"> <li>It is a conditional cash transfer scheme and provides a partial wage compensation to women for wage-loss during childbirth and childcare</li> <li>The scheme ensures safe delivery and good nutrition for women</li> <li>The benefits are not available for employees of the Central or State governments and any public-sector undertaking</li> </ul> </li> </ul>

Read more: **Pradhan Mantri Matru Vandana Yojana**

## Ex Ekuverin

The 12th edition of the joint military exercise "Ex Ekuverin" **between the Indian Army and the Maldives National Defence Force commenced at Chaubatia, Uttarakhand** from 11 to 24 June 2023.

This bilateral annual exercise, **alternately conducted in India and Maldives, aims to enhance interoperability in Counter Insurgency/Counter Terrorism Operations** under the UN mandate and **conduct joint Humanitarian Assistance and Disaster Relief operations**.

The Maldives is an **archipelago located in the Indian Ocean**, southwest of Sri Lanka. It consists of a chain of almost **1200 small coral islands that are grouped into clusters of atolls**. The capital and largest city of the Maldives is Malé. The majority of the population follows Islam. The official language of the Maldives is **Dhivehi**. English is also widely spoken, especially in the tourist areas.



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## Maiden India-France-UAE Maritime Partnership Exercise

The first edition of India, France, and United Arab Emirates (UAE) Maritime Partnership Exercise commenced on 7th June 2023 in the Gulf of Oman, featuring the participation of **INS Tarkash**, **French Ship Surcouf**, **French Rafale aircraft**, and **UAE Navy Maritime Patrol Aircraft**. It emphasizes the exchange of best practices and paves the way for greater naval collaboration among India, France, and the UAE.

India and France have established strong cooperation in the defense sector, the two countries regularly conduct joint exercises such as **Exercise Shakti**, **Exercise Varuna**, and **Exercise Garuda** involving their respective army, navy, and air force. Additionally, India has collaborated with France in the construction of **six Scorpene submarines** through a **technology-transfer arrangement in 2005**, and France has provided **India with 36 Rafale fighter jets** under an inter-government agreement.

Additionally, **India and the UAE** have also established strong cooperation in the defense realm, India and the UAE conduct joint air combat exercises, such as **'Desert Eagle II'**, to enhance **security cooperation and counter terrorist threats**.

Read more: **India, France, UAE Trilateral Initiative**

## Indian President Marks 150 Years of Indian Arrival in Suriname

The **Indian President** and President of Suriname commemorated the **150th anniversary of the arrival of Indians in Suriname**.

The **Indian President** emphasised the historical significance of this milestone, with the first group of Indians arriving in Suriname aboard the **ship Lalla Rookh in 1873**. She praised Suriname as a multicultural society that has embraced and integrated diverse communities into one family and one country, fostering unity and inclusiveness. And announced the extension of eligibility for the **OCI Card**, expanding the ties between India and Suriname.

President acknowledged the **deep-rooted attachment of the Indian diaspora to their heritage despite geographical distances** and expressed India's commitment to an **inclusive global order** and recognized Suriname's involvement in initiatives like the **G-20** and the **Voice of Global South Summit**.

The Indian President Droupadi Murmu was also bestowed with **Suriname's highest civilian honour "Grand Order of the Chain of the Yellow Star"**, further underscoring the importance of the bilateral relationship.



Read more: **OCI Card, G-20, Voice of Global South Summit**

## Iran Develops Hypersonic Missile

Iran has claimed regarding the **development of a hypersonic missile capable of traveling 15 times the speed of sound**, as tensions with the United States persist over Iran's nuclear program. According to Iran's state television, the missile, named **'Fattah'** or **"Conqueror"** in Farsi, boasts a **range of up to 1,400 kilometers (870 miles)**. The report also asserts that the missile can penetrate any regional missile defense system, although no evidence was provided to support this claim.

A **hypersonic missile** is a weapon system which flies **at least at the speed of Mach 5** i.e. five times the speed of sound and is **manoeuvrable**. While China and the United States are believed to be pursuing hypersonic weapons, Russia claims to have already deployed them in Ukraine.

Read More: **Hypersonic Missiles**

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## Agni Prime Ballistic Missile

The recent successful flight test of the new generation ballistic missile, **Agni Prime**, conducted by the **Defence Research and Development Organisation (DRDO)** from Dr **A.P.J. Abdul Kalam Island off Odisha** marks a significant milestone for India's strategic defence capabilities.

The test involved the **deployment of advanced Range Instrumentation such as Radar, Telemetry, and Electro Optical Tracking Systems** to capture crucial flight data throughout the vehicle's trajectory, including at the terminal point.

Agni Prime, a two-stage **canisterised solid propellant ballistic missile** with a range between 1000 to 2000 km, features a **dual redundant navigation and guidance system**. This technologically advanced missile, which is lighter than its predecessors in the **Agni series**, plays a vital role in India's nuclear weapons delivery system alongside the **Prithvi short-range ballistic missiles and fighter aircraft**.

Read more: **Agni Prime, Defence Research and Development Organisation (DRDO)**.

## Indigenous Heavyweight Torpedo Varunastra

In a significant achievement for the **Indian Navy**, the **indigenously designed and developed heavyweight torpedo Varunastra** has successfully demonstrated its effectiveness in a live test. Created by the **Naval Science and Technological Laboratory (NSTL)** under the **Defence Research and Development Organisation (DRDO)**, and manufactured by **Bharat Dynamics Ltd (BDL)**, Varunastra combines advanced features such as **low drift navigational systems, acoustic homing, and autonomous guidance algorithms**. During the test, Varunastra showcased its remarkable capabilities by **accurately hitting an undersea target**, solidifying its position as the **go-to anti-submarine torpedo for all naval warships**.

The torpedo will replace the older models currently equipped on naval ships that have the capability to fire heavyweight torpedoes. Varunastra's superior specifications include a **maximum speed of 40 knots and a maximum operating depth of 600 meters**. It boasts **long-range capabilities with multi-maneuvering features**, making it highly effective in **tracking and targeting silent underwater threats**.



Read more: **Varunastra**

## Captagon Pills Crisis

Recently, reports suggested that the **Islamic State (IS)** and **Syrian fighters widely consumed Captagon to increase alertness and suppress appetite** during their gruelling battles. Captagon, a potent amphetamine-type drug, is known for its highly addictive nature and is primarily manufactured in Syria. These pills act as **stimulants on the central nervous system, providing users with increased energy, improved focus, extended wakefulness, and a sense of euphoria**.

Originally developed in the 1960s, the genuine Captagon medication, which shares the same brand name, contained fenetylline, a synthetic drug belonging to the phenethylamine family, which also includes amphetamines. However, this authentic version was banned in the 1980s.

## "Hamari Bhasha, Hamari Virasat" and 75<sup>th</sup> International Archives Day

The Ministry of State for Culture inaugurated the exhibition "**Hamari Bhasha, Hamari Virasat**" under the Azadi Ka Amrit Mahotsav (AKAM) at the **National Archives of India in New Delhi, commemorating the 75th International Archives Day**. The exhibition aims to celebrate India's linguistic diversity, highlighting its status as one of the most linguistically diverse countries globally, with approximately **788 languages spoken**. India is thus **one of the four most linguistically diversified countries in the world, along with Papua New Guinea, Indonesia, and Nigeria**.

The exhibition features a variety of original manuscripts, including the ancient **Gilgit Manuscripts** (written between the 5th -6th centuries CE, which is the

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oldest surviving manuscript collection in India), **Tattvartha Sutra (Ancient Jain Text)**, Ramayana, and Srimad Bhagwad Gita, among others. Furthermore, the **National Archives of India has made over 72,000 manuscripts available, both physically and through digitization**, ensuring their accessibility to people worldwide.

**International Archives Day** is a day of celebration and awareness of the importance and value of archives and archivists. It is celebrated on **June 9 every year, since 2008**, to commemorate the date when the **International Council on Archives (ICA) was created under the auspices of UNESCO in 1948**.

Read more: **National Archives of India, UNESCO.**

## Birsa Munda

The Indian Prime Minister paid tributes to **Bhagwan Birsa Munda**, an iconic freedom fighter and tribal leader, on his death anniversary on June 9.

**Bhagwan Birsa Munda** was born on **November 15, 1875**, and belonged to the **Munda tribe**. He founded a faith called **Birsait**, which attracted many tribal followers. He organised and led the **"Ulgulan" or "Munda Rebellion" (1899-1900)** against the British authorities and the landlords who were usurping tribal lands and subjecting them to inhumane working conditions. He envisioned a **society free from exploitation and sought to restore the rights and dignity of the tribal communities**.

He is widely revered as a folk hero and a symbol of tribal resistance. The state of "Jharkhand" means "The Land of Forests" was brought into existence by the **Bihar reorganisation Act on 15th November 2000** - the birth anniversary of the legendary **Bhagwan Birsa Munda**.

Read more: **Birsa Munda, Munda Rebellion.**

## Tomb like Structure at Siri Fort

During renovation work at the **Siri Fort Children's Park, New Delhi**, the **Archaeological Survey of India (ASI)** made an accidental discovery of a **tomb-like structure**. The arched opening of the structure has been uncovered, but further excavation is not planned. Instead, the **structure will be preserved to educate children** visiting the museum about the process of uncovering buried structures.

**Siri Fort**, built by **Alauddin Khilji** in the 13th Century, served as a garrison town for his army. The **Siri Fort Children's Museum, established in 2011**, showcases **30 replicas of famous global monuments**. Recent renovations aimed to add 100 more replicas, leading to the discovery of the tomb-like structure. The excavation has revealed a **low-height structure of 2 to 3 meters**, suggesting it is **not a tunnel**.

## World Ocean Day

**World Oceans Day** is celebrated every year on **8 June** to create awareness among people regarding the significance of oceans, and the importance of preserving and conserving oceanic resources.

**"Planet Ocean: tides are changing," is the theme for World Oceans Day 2023.**

The ocean covers over 70% of the planet. The ocean produces at least **50% of the planet's oxygen**, it is **home to most of earth's biodiversity**, and is the main source of protein for more than a billion people around the world. The ocean is also key to our economy with an estimated **40 million people being employed by ocean-based industries by 2030**.

Even with all its benefits, the ocean is now in need of support. With **90% of big fish populations depleted**, and **50% of coral reefs destroyed**, we are taking more from the ocean than can be replenished. There is a need to work together to create a new balance with the ocean that no longer depletes its bounty but instead restores its vibrancy and brings it new life.

Read more: **World Oceans Day**

## Cyclone "Biporjoy" Threatens Arabian Sea

**Cyclonic Storm "Biporjoy"** intensifies in the Arabian Sea, posing significant risks and uncertainties for the affected regions. The **India Meteorological Department (IMD)** reports the storm's rapid development, expecting it to strengthen into a severe cyclonic storm with **winds reaching 115-125 kmph** and gusts of 140 kmph on June 8, 2023. The name 'Biporjoy' (meaning calamity or disaster) was given by Bangladesh.

The **formation of Cyclone "Biporjoy" in June is unusual**, and the increasing sea surface temperatures in the Arabian Sea, attributed to climate change, play a

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significant role. These higher temperatures, **reaching 30-32 degrees Celsius**, favour the **intensification of cyclones**.

The cyclonic system also **poses a threat to the southwest monsoon in India**, hindering its arrival and progression. By diverting moisture away from India, the **storm could further delay the monsoon onset**. Climate scientists point out the potential influence of long-term Indian Ocean warming and the developing El Nino, both of which can weaken the monsoon.

Read more: **Cyclone, Monsoon, Climate change**

## National Campaign "Addiction Free Amrit Kaal"

The **National Commission for Protection of Child Rights (NCPCR)** recently launched the National Campaign "Addiction Free Amrit Kaal" on **World No- Tobacco Day (31st May)**, aiming to create a healthier and addiction-free India.

The health risks associated with tobacco and drug addiction is alarming with an annual **death toll of over 13 lakh people due to tobacco consumption in India**. To actively involve children in the fight against tobacco and drugs, 'Prahari Clubs' have been established in schools, with approximately **60,000 such clubs formed thus far**. These clubs enable children to serve as the government's eyes and ears, reporting any tobacco-selling shops near their schools.

Read more: **Cigarettes and Other Tobacco Products Act (COTPA), World No- Tobacco Day**.

## E -Cigarettes

In India, the **Union Ministry of Health** has directed **OTT platforms** to promote anti-tobacco health messages and warnings on **World No Tobacco Day**, emphasising the amended rules under the **Cigarettes and Other Tobacco Products Act, 2004**.

However, the **regulations do not cover e-cigarettes or vapes containing nicotine**, which were banned in **2019 due to health and safety concerns**. Despite the ban, these devices **continue to enter the country through the black market, particularly from China**.

**E-cigarettes**, also known as electronic cigarettes, and vapes are electronic devices that **vaporise a liquid solution (e-liquid) containing nicotine, flavours, and other chemicals**. They are designed to simulate the

experience of smoking traditional cigarettes but without burning tobacco. Instead of producing smoke, **e-cigarettes and vapes produce vapour, which is inhaled by the user**.

Read more: **World No Tobacco Day**

## India's First International Cruise Vessel MV Empress

The Union Minister of Ports, Shipping & Waterways and Ayush, flagged off India's **first international cruise vessel, MV Empress, from Chennai to Sri Lanka**. This significant event marked the inauguration of the **international cruise tourism terminal in Chennai**, which is a testament to the government's commitment to enhancing **cruise tourism and maritime trade opportunities**. The **MV Empress** will sail to three Sri Lankan ports: **Hanbantota, Trincomalee, and Kankesanterai**.

The cruise service is the result of a Memorandum of Understanding (MoU) signed between **Chennai Port and M/S Waterways Leisure Tourism Pvt Ltd** during the first **Incredible India International Cruise Conference in 2022**. The government plans to develop **three new international cruise terminals in Andamans, Puducherry, and Lakshadweep**, which are expected to be operational by 2024. The government envisions an increase in the number of **cruise ships from 208 in 2023 to 500 in 2030 and up to 1100 by 2047**, with the number of **passengers rising from 9.5 lakhs in 2030 to 45 lakhs in 2047**.

Read more: **Ganga Vilas Cruise, Potential of Cruise Tourism in India**

## India's IT Growth: Pillars, Opportunities, and Future Tech Ecosystem

The **Software Technology Parks of India (STPI)**, under the **Ministry of Electronics and Information Technology (MeitY)**, celebrated its **32nd Foundation Day** by hosting a seminar on "**Growth avenues for the Indian IT industry and emerging tech ecosystem**." The six pillars that contribute to India's IT development were highlighted in the event. These pillars include **connectivity, low-cost data, affordable devices, people-friendly policies, future-ready talent, and cybersecurity**. Additionally, an agritech report titled "**Innovations through Agritech: A study on the adoption and impact of technology on agri and**

**agri-allied sectors”** was released. The report aimed to provide insights into the current state of Agritech in India, the challenges faced by the sector, and the opportunities for growth and innovation.

STPI was set up in 1991 as an autonomous society under the MeitY. STPI's main objective has been the promotion of software exports from the country. STPI has been implementing the **Software Technology Park (STP) scheme and the Electronics Hardware Technology Park (EHTP) scheme** for the promotion of IT/ITES industry.

Read more: **Indian IT industry, Agritech.**

## Nyaya Vikas Portal

The **Nyaya Vikas Portal** is part of the Department of Justice's implementation of the **Centrally Sponsored Scheme (CSS) for the Development of Infrastructure Facilities for Districts and Subordinate Judiciary**, which has been in operation since 1993-94. It has been developed to provide stakeholders with seamless access to crucial information related to **funding, documentation, project monitoring, and approval**.

This **CSS aims to support State Governments and Union Territory Administrations in constructing court halls and residential units for Judicial Officers, Judges of District and Subordinate Courts**. Over time, the scheme has evolved to include additional features such as **Lawyers Halls, Toilet complexes, and Digital computer rooms** to enhance convenience for lawyers and litigants, in addition to court halls and residential units. The funding pattern under the scheme follows a ratio of **60:40 between the Central Government and State Governments (excluding North Eastern and Himalayan States)**. For North Eastern and Himalayan States, the ratio is 90:10, while Union Territories receive 100% funding. The Nyaya Vikas Portal plays a crucial role in monitoring the implementation of this scheme, ensuring transparency and accountability.

Read more: **Centrally Sponsored Scheme (CSS) for the Development of Infrastructure Facilities for Judiciary**

## Punjab-Himachal Pradesh Clash Over Shanan Hydropower Project

The lease on the **110 MW Shanan hydropower project** located on Uhl river (Tributary of Beas), a British-era

installation located in **Jogindernagar, Mandi district of Himachal Pradesh**, is set to **expire in March 2024**, sparking a **potential conflict between Punjab and Himachal Pradesh**. The Himachal Pradesh Government has made it clear **that it will not renew or extend the lease**, demanding that the project be handed over to the state upon expiration. However, **Punjab intends to retain control of the project** and is prepared to resort to legal measures.

Uhl river originates from the **Thamsar glacier (in Himachal Pradesh)** which is situated in the **Dhauladhar ranges** of the Himalayas and flows through the Uhl valley passing Bada Gran and Barot village of Himachal Pradesh. Uhl river is the water basin of the Beas river. Uhl river is also known as Tiun Nala and the Uhl valley is also famous as Chohar valley. After crossing the Chohar valley, Uhl river meets the Beas river 5 km downstream from Pandoh.

## Chhatrapati Shivaji Maharaj's Enduring Legacy

Commemorating the **350th year of Chhatrapati Shivaji Maharaj's Coronation Day**, the Indian Prime Minister highlighted the significance of this historic event in the context of India's present era. He emphasised that **Shivaji Maharaj's coronation symbolises a chapter of immense importance**, characterised by **self-governance, good governance, and prosperity**, which continue to inspire the nation.

Shivaji Maharaj's coronation also embodied the spirit of **Swarajya (self-rule) and nationalism**, with a strong focus on upholding the unity and integrity of India. To honour this legacy, the Indian Navy replaced the flag representing British rule with the **emblem of Shivaji Maharaj**, symbolising India's maritime pride.

He was born on **19th February, 1630 at Shivneri Fort in District Pune** in the present-day state of Maharashtra. Shivaji **abolished the Jagirdari System** and replaced it with Ryotwari System. He took on the titles of **Chhatrapati, Shakakarta, Kshatriya Kulavantas and Haindava Dharmodhhaarak**. He was a unique leader in history who **demonstrated both military prowess and exceptional governance skills**. He conquered forts and defeated enemies at a young age, showcasing his military leadership, while simultaneously implementing reforms in **public administration to establish good governance**.

Read more: **Chhatrapati Shivaji Maharaj**

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## Electronics Repair Services Outsourcing (ERSO)

The **Ministry of Electronics and Information Technology (MeitY)**, Government of India has recently introduced the Electronics Repair Services Outsourcing (ERSO) **Pilot initiative** with the ambitious goal of establishing India as the Repair Capital of the World. The primary objective of this initiative is to position India as the most appealing destination for repairing **Information and Communication Technology (ICT)** products on a global scale.

The ERSO industry is **projected to contribute up to USD 20 billion in revenue to India within the next five years**, while also creating numerous employment opportunities. The pilot project, which will be conducted in Bengaluru, is scheduled to last for three months. Notably, this **initiative aligns with Mission LIFE**, which is dedicated to **promoting global environmental sustainability**. By facilitating affordable and dependable repair services for ICT products, the ERSO initiative aims to extend the lifespan of devices worldwide.

## Fiscal Deficit Target Narrows To 6.4%

In the financial year 2022-23, the Centre's **fiscal deficit decreased to 6.4% of the Gross Domestic Product (GDP)**, as estimated in the budget announcement made in February. The government **aims to further reduce the fiscal deficit to 5.9% of the GDP in the current financial year 2023-24**. During 2022-23, as part of devolution of taxes, the central government transferred ₹9.48 lakh crore to the State governments, showing an increase of ₹50,015 crore compared to the previous year (2021-22). In FY2023, the government witnessed a healthy growth of 15.2% in net tax revenues, despite a 17.8% contraction in non-tax revenues.

Fiscal deficit is the difference between **the government's total expenditure and its total revenue (excluding borrowings)**. It is an indicator of the extent to which the **government must borrow in order to finance its operations** and is expressed as a percentage of the country's GDP.

**Read More: Fiscal Deficit**

## GDP Expanded 6.1% in 2022-23 Last Quarter

India's GDP (Gross Domestic Product) growth **accelerated to 6.1% in the January to March 2023 quarter**, lifting the economy's uptick in 2022-23 to 7.2% from the 7% estimated earlier. India's 6.1% GDP growth was the fastest among major economies in the fourth quarter.

**Gross Value Added (GVA)** in the economy is reckoned to have risen 7% in 2022-23, compared to 8.8% in 2021-22, with manufacturing GVA growth sliding to just 1.3% from 11.1% a year ago, despite a 4.5% rebound in the final quarter after six months of contraction.

**Only three of eight broad economic activity segments recorded a higher GVA growth than in 2021-22**, with the agricultural GVA growing 4%, up from 3.5% in the previous year. **Consumption remained on lower side despite positive surprises in several sectors**, especially in the last quarter of the year.

The **higher-than-expected GDP growth in 2022-23 could temper growth expectations for 2023-24**, which the government and central bank expect to be around 6.5%.

**Read More: GDP and GVA**

## Regional Office of the Universal Postal Union (UPU) in New Delhi

The establishment of a **Regional Office of the Universal Postal Union (UPU)** in **New Delhi** has been **approved by India's Union Cabinet**. This decision allows India to actively engage in multilateral organizations within the postal sector, with a specific focus on **South-South and Triangular cooperation**. India will contribute staff and provide the necessary office setup for the UPU's regional office, which will be responsible for carrying out development cooperation and providing technical assistance in the region. The office **will undertake various projects aimed at enhancing the capacity, efficiency, and quality of postal services**, as well as advancing postal technology, e-commerce, and trade promotion. Through this initiative, India aims to expand its diplomatic presence, strengthen relationships with other countries, especially in the **Asia-Pacific region**, and enhance its participation in global postal forums.

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## Desiccation-Tolerant Plants in India's Western Ghats: Potential for Agricultural Applications

**India's Western Ghats**, a biodiversity hotspot, is home to a remarkable discovery of 62 desiccation-tolerant vascular (DT) plant species. DT plants possess a unique ability to withstand extreme dehydration, losing up to 95% of their water content, and then revive when water becomes available again.

A recent study shed light on the abundance of desiccation-tolerant species in the Western Ghats, surpassing the previously known count of nine species. The research provides an inventory of these species, highlighting their habitat preferences, with 16 species being endemic to India and 12 exclusive to the Western Ghats. Notably, the study identifies rock outcrops and partially shaded forests, including tree trunks, as crucial habitats for these resilient plants. Nine genera of DT plants are reported as new, also in a global perspective, with *Tripogon capillatus* representing the first record of an epiphytic DT angiosperm.

By studying these desiccation-tolerant plants, researchers hope to gain insights into the biodiversity and ecology of the Western Ghats and contribute to the conservation of these species. Moreover, understanding the mechanisms behind their ability to tolerate dehydration could pave the way for developing drought-resistant crops that require less water. The study opens up new possibilities for agricultural applications, particularly in regions with water scarcity.

Read more: [Western Ghats](#)

## World Multiple Sclerosis Day

The Department of Empowerment of Persons with Disabilities (DEPwD), under the Ministry of Social Justice and Empowerment, Government of India, observed **World Multiple Sclerosis (MS) Day** on 30th May 2023, joining the global MS community in raising awareness and fostering connections. With the theme of 'connections' for the 2020-2023 period, the MS Connections campaign aimed to build community connections, self-connections, and connections to quality care.

Multiple Sclerosis (MS) is a chronic autoimmune disease that affects the central nervous system, including the brain and spinal cord. It is characterized by inflammation and damage to the protective covering of nerve fibers, disrupting the normal flow of electrical impulses. This results in a wide range of symptoms, including fatigue, difficulty with coordination and balance, muscle weakness, and problems with vision and cognition. The exact cause of MS is still unknown, but it is believed to involve a combination of genetic and environmental factors. MS is a lifelong condition with varying degrees of severity and progression. While there is no cure for MS, there are treatments available to manage symptoms, slow down the progression of the disease.

Read more: [Multiple Sclerosis](#)

## World Milk Day Celebrations and Summer Meet

The Department of Animal Husbandry and Dairying, in partnership with the Agriculture Production Department of the Government of Jammu and Kashmir, is gearing up to celebrate **World Milk Day** on June 1, 2023. The occasion will be marked by a **Summer Meet for the animal husbandry and dairying sector**, taking place from June 1st to 2nd at SKICC in Srinagar, Jammu and Kashmir.

This event aims to raise awareness about the nutritional value and advantages of milk, while also acknowledging the significant contributions of dairy farmers, processors, and consumers. The event will review the progress of ongoing schemes, discuss outcomes, and identify mid-course corrections as necessary.

As part of the event, "Feeding the Future: Five Days of Action for Feed and Fodder and Training of A-HELP for 2023-24" campaign will be launched. This initiative aims to address the critical aspects of feed and fodder management for livestock while providing training through the A-HELP program.

In 2001, World Milk Day was established by the **Food and Agriculture Organisation of the United Nations** to recognize the importance of milk as a global food, and to celebrate the dairy sector. India is the highest milk producer in the world contributing 23% of global milk production in the year 2021-22. The top five major milk-producing states are Rajasthan, Uttar Pradesh, Madhya Pradesh, Gujarat and Andhra Pradesh.

Read more: [Animal husbandry](#)

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## UAE Withdraws from Maritime Coalition amid Rising Tensions in Gulf Waters

The **United Arab Emirates (UAE)** has announced its withdrawal from the US-led **Combined Maritime Forces (CMF)**, a coalition responsible for **securing crucial and volatile Gulf waters** that play a significant role in global oil trade.

Established in 2001, the **CMF** started as a partnership between **12 nations** and has since expanded to include **38 partner nations**, including the UAE. While the UAE has put its participation on hold, it **remains a partner nation**.

Recent incidents, such as **Iran's seizure of tankers** and a **drone attack on an Israeli-owned vessel**, have intensified tensions in the region. The UAE, as a major oil exporter, emphasises its commitment to peaceful dialogue, diplomatic engagement, and the responsible safeguarding of navigation in its seas.



Read more: [Combined Maritime Forces \(CMF\)](#)



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**Key Points**

**Details**


**Summary**

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## Key Points

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