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## A. POLITY & GOVERNANCE

### 1. No-Trust Motion Against Vice President Rejected

- In December 2024 the **no-confidence motion** moved by the Opposition **against** Rajya Sabha Chairman **Jagdeep Dhankhar** has been **rejected by Harivansh, the deputy chairperson** of Rajya Sabha.
- The motion was filed on 10<sup>th</sup> December 2024, the first such action in India’s parliamentary history.
  - A similar motion had been considered by the Opposition during the Budget Session in August, but was not followed through on that occasion.

#### What was the Issue and Why Motion was Rejected?

- Issue:** The opposition parties have accused Dhankhar of being **partial, saying that he does not allow them to speak or raise important issues.**
  - They believe that Dhankhar is **allowing the BJP to dominate the Rajya Sabha** debates and suppress opposition voices.
- Reasons for the rejection: Deputy chairperson** pointed out that the mandatory **14-day notice required to move such a motion was not provided.** Additionally, he noted that **Dhankhar’s name was misspelt** in the notice.

#### Qualification for Vice President

The Vice-President of India is the **second highest constitutional office** in the country (after the President of India). This office is modeled on the lines after the American Vice-President.

- To be eligible for election as Vice-President, a person should fulfil the following qualifications:
  - Citizen of India.
  - Completed 35 years of age.
  - Qualified for election as a member of the Rajya Sabha.
  - Not hold any office of profit under the Union government or any state government or any local authority or any other public authority.
- Note:** The sitting President or Vice-President, the Governor of any state, a Minister (Union or any State) is not deemed to hold any office of profit, and hence can contest the election for the Vice-President.

#### What does it take to remove the Rajya Sabha chairman from his position?

- Under **Article 64** of the Constitution of India, the Vice President “**shall be ex officio Chairman of the Council of the States**”.
- Since the **Vice President and Rajya Sabha chairperson** must be the same individual, the **process for their removal is also the same** – and is laid down under Article 67.
- Under this provision, the Vice President “**shall hold office for a term of five years from the date on which he enters upon his office**” unless the Vice President resigns before that by sending a letter to the President, or is removed from office.
- The requirements for **removing** the Vice President are provided **under Article 67(b)**.
- It states that the Vice President may be removed if a majority “**all the then members of the Council (Rajya Sabha)**” passes a resolution for his removal, which must then be “**agreed to**” by the House of the People (Lok Sabha).
- Under this provision, “**no resolution...shall be moved unless at least fourteen days’ notice has been given of the intention to move the resolution**”

#### How is the Removal Process of Vice-President Different from that of the Impeachment of President?

Aspect	Removal of Vice-President (Article 67)	Impeachment of President (Article 61)
<b>Grounds for Removal</b>	Can be removed for violation of the Constitution or other valid reasons, but the term "impeachment" is not explicitly used	Only for violation of the Constitution.
<b>Initiation Process</b>	A resolution is introduced in Rajya Sabha.	The process starts in either House of Parliament.

<b>Majority Needed to Pass Resolution</b>	Requires an absolute majority (more than 50% of the total members) in Rajya Sabha, followed by a simple majority in Lok Sabha.	Requires a two-thirds majority of members present and voting in both Houses.
<b>Nature of the Process</b>	Not as rigorous as the President's impeachment process.	Formal impeachment procedure with stringent conditions.

## 2. SC Upholds Inclusion of 'Socialist' and 'Secular' in Constitution's Preamble

- In November 2024, the Supreme Court (SC) of India in **Dr Balram Singh Vs Union of India** dismissed petitions challenging the **42<sup>nd</sup> Amendment** of the Constitution, which added the words '**secular**' and '**socialist**' to the Preamble in 1976 during the Emergency.

### What Arguments Were Presented for Removal of Terms "Socialist" and "Secular"?

- In July 2020, a Supreme Court advocate by the name of **Dr. Balram Singh** filed a petition challenging the inclusion of the words '**socialist**' and '**secular**' in the Preamble of the Constitution.
  - Later, former Law Minister Subramaniam Swamy and advocate Ashwini Kumar Upadhyay also filed petitions with similar challenges.
- Petitions against the inclusion of these words** were filed on the ground that they were inserted during times of Emergency (1975-1977) and do not represent the people's will.
- Petitions also held that since the **date of adoption (26th November, 1949)** by the Constituent Assembly, was mentioned in the Preamble, and no additional words could be inserted later to it.

### Do You Know

- Constituent Assembly, members such as **K T Shah** and **Brajeshwar Prasad** demanded the word secular to be included in the preamble.
- B.R Ambedkar** was of the opinion that policy of state and its social organisation must be decided by people according to time and circumstances it cannot be fixed in constitution otherwise it would undermine democracy.

## 42nd Amendment Act, 1976

The 42nd Amendment Act of 1976 is often referred to as the "**mini-Constitution**" because it made significant changes to various parts of the Constitution. These changes included amendments to the **Preamble**, **40 articles**, the **7<sup>th</sup> Schedule**, and the addition of **14 new Articles** and **two new Parts**.

### Key Changes Introduced:

- Preamble:**
  - The words '**Socialist**', '**Secular**', and '**Integrity**' were inserted into the Preamble.
  - The phrase '**unity of nation**' was changed to '**unity and integrity of the nation**'.
- Changes in the 7th Schedule:**
  - Several subjects were transferred from the State List to the Concurrent List, including:
    - Education, Forests, Protection of wild animals and birds, Weights and measures, Administration of justice, Constitution and organization of all courts** (except the Supreme Court and High Courts).
- Emergency Provisions:**
  - Article 352** was amended to allow the President to declare an Emergency not just across the entire country, but also in any specific part of the country.
- Addition of New Directive Principles of State Policy (DPSPs):**
  - Article 39:** Ensures opportunities for the healthy development of children.
  - Article 39A:** Provides for **equal justice and free legal aid**.
  - Article 43A:** Promotes the **participation of workers in the management of industries**.
  - Article 48A:** Focuses on the **protection and improvement of the environment** and the safeguarding of forests and wildlife.
  - Addition of new parts:** Part IV-A (Fundamental duties), Part XIV-A (Establishment of administrative tribunals).

### Court's Ruling:

- Dismissed retrospectivity:** Court **rejected** the argument that the **words could not have been added retrospectively in 1976** to the original Preamble which has a **cutoff date of November 26, 1949**.

- The bench said that the date of adoption does not limit or restrict the power granted under **Article 368 of the Constitution**”
- It also **noted that if the argument for retrospectivity were accepted, it could apply to any constitutional amendments.**
- However, the bench emphasized that **Parliament’s power to amend the Constitution under Article 368 is unquestionable and is not challenged.**

**1. Definition of Socialism and Secularism**

**a. Secularism:**

- **Secularism** is considered a facet of the right to equality. It signifies that the State does not endorse any religion nor does it restrict the freedom of conscience and the right to freely profess, practice, and propagate religion for its citizens.
  - In the landmark cases **Kesavananda Bharati v. State of Kerala and S.R. Bommai v. Union of India**, the Supreme Court of India observed that secularism is a basic feature of the Constitution.

- This view is reflected in **Articles 14, 15, and 16, which guarantee equality before the law**, protection from discrimination, and freedom of religion.

**b. Socialism:**

- The court explained that the term ‘socialist’ **should not be interpreted in a way that limits the economic policies of an elected government.**
- Instead, it refers to the State’s commitment to establishing a Welfare State and ensuring equality of opportunity for all citizens.
- The bench referred to a decision by a **9-judge bench in Property Owners Association and Others v. State of Maharashtra**, which stated that the Constitution allows the government to adopt any economic structure that best serves the welfare of the people, as long as it is accountable to the electorate and complies with the Constitution.

- c. **The Constitution as a Living Document:** Over time, India has developed its own interpretation of these terms, giving the Constitution an organic character. This reflects the evolving nature of the Constitution to adapt to changing societal needs.

**Differences Between Western and Indian Concepts of SECULARISM and SOCIALISM**

**1. Secularism**

Aspect	Western Concept of Secularism	Indian Concept of Secularism
<b>Definition</b>	Strict separation of religion from state affairs.	No strict separation; promotes equal respect for all religions. The state actively fosters religious harmony.
<b>Role of Religion</b>	Religion is a private matter; the state remains neutral.	State recognises and accommodates diverse religions, promoting peaceful coexistence.
<b>Government’s Obligation</b>	No obligation to endorse or support any religion.	The state is responsible for treating all religions equally and ensuring their respect in society.
<b>Individualism vs Collectivism</b>	Focus on individual religious freedom without state interference.	Emphasises the collective rights of religious communities, safeguarding their cultural practices.
<b>Cultural Context</b>	Developed in societies with religious conflicts, prioritising state neutrality.	Evolved in a pluralistic society with a history of religious coexistence.
<b>Educational Institutions</b>	Public schools are secular and prohibit religious instruction.	Schools may include religious education to reflect the community’s diversity.

**2. Socialism**

Aspect	Western Concept of Socialism	Indian Concept of Socialism
<b>Main Focus</b>	Advocates for collective or government ownership of production to achieve economic equality.	Focuses on democratic socialism with equitable distribution, while allowing a mixed economy with both public and private sectors.
<b>Economic Structure</b>	Typically involves centralised planning with state control over industries, especially in Marxist or Leninist contexts.	Involves indicative planning with the private sector also playing a role in achieving economic targets.

<b>Class Struggle</b>	Emphasises class conflict (proletariat vs. bourgeoisie) as a driving force for change. Often sees capitalism as the enemy.	Focuses on social justice and uplifting marginalized communities, without advocating class struggle.
<b>Role of the State</b>	The state plays a central role in economic planning and resource allocation in radical socialism.	The state has a regulatory role, implements welfare schemes, and encourages private enterprise while balancing social justice.
<b>Cultural Context</b>	Rooted in response to industrial capitalism and urbanisation in the West, often influenced by Marxist theory.	Developed in post-colonial India to address inequalities, with a focus on both social justice and respecting diverse cultural identities.
<b>Globalisation and Trade</b>	Critical of globalisation, viewing it as capitalist exploitation.	Generally supportive of globalisation, recognising India's need to engage in global markets while ensuring social welfare.

### Role of the Indian Judiciary in Shaping SECULARISM:

The **Indian Judiciary** has played a significant role in defining and safeguarding **secularism** through various landmark judgments:

- Sardar Taheruddin Syedna Sahib Case (1962):** The Supreme Court emphasized that Articles 25 and 26, which guarantee freedom of religion ensures state neutrality and non-interference in religious matters.
- SR Bommai Case (1994):** It held that **secularism** means **equal treatment** of all religions by the state.
  - Articles 25 to 28 of the Indian Constitution protect religious freedom (a key feature of Indian secularism) which was explicitly reinforced by the 42nd Amendment Act of 1976 through the inclusion of the term “secular” in the Preamble.

### Role of the Indian Judiciary in Shaping SOCIALISM:

The **Indian Judiciary** has also significantly influenced the development and understanding of **socialism** in India through several key cases:

- Kesavananda Bharati Case (1973):** The Supreme Court ruled that **socialism (which ensures social justice and equality)** is a **fundamental part** of the Constitution's basic structure.
- State of Karnataka vs Sri Ranganatha Reddy Case (1977):** The Court emphasized that **socialism** ensures equitable wealth distribution by policies related to **nationalisation** and **acquisition** of resources.
- Maneka Gandhi Case (1978):** The Supreme Court emphasized that the **right to life** includes the **right to live with dignity**, a principle central to **socialism** and state must ensure a **fair quality of life** for all its citizens, especially the marginalized.

- Minerva Mills Case (1980):** The Court emphasized the need to harmonize **Fundamental Rights** with the **Directive Principles of State Policy (DPSP)**, arguing that the DPSP should guide state policies to secure **social and economic justice** in line with **socialist principles**.

### Conclusion

The **Supreme Court's** ruling affirming the inclusion of ‘**socialist**’ and ‘**secular**’ in the **Constitution's Preamble** solidifies the **constitutional commitment** to **social justice** and **religious neutrality**. The Court's interpretation ensures that **socialism** and **secularism** are not merely theoretical concepts but are central to the **functioning of the state** and the **protection of rights** in modern India. These principles remain **foundational** to India's governance and are reflected in the evolving **jurisprudence** of the Indian judiciary.

### 3. AMU Minority Status Case: SC overrules 1967 Verdict

#### Timeline of how the case panned out

- 1875: The Muhammadan Anglo-Oriental College is founded**
  - Sir Syed Ahmad Khan establishes the Muhammadan Anglo-Oriental College in Aligarh, with the aim of providing modern education to Muslims in India, who were perceived to be socially and educationally backward.
  - The institution later becomes the basis for AMU.
- 1920: AMU takes shape**
  - The Aligarh Muslim University Act is passed by the Indian Legislative Council, formally transforming the MOA College into Aligarh Muslim University (AMU).

3. The legal dispute over the university's minority status is more than a half century old.
4. In 1967, the Supreme Court ruled on a **challenge to two amendments** to the university's founding Act, which argued that they deprived the Muslim community, which had set up AMU, of the right to administer it under Article 30 ("Right of minorities to establish and administer educational institutions").
  - a. The **first of these amendments, in 1951**, allowed non-Muslims to be members of the University Court, its supreme governing body at the time, and replaced the university's Lord Rector with the Visitor, who was the President of India.
  - b. The **second, in 1965**, expanded the powers of AMU's Executive Council, which meant the University Court would no longer be the supreme governing body.
5. The Supreme Court held that AMU was neither established nor administered by the Muslim minority — rather, it came into existence through an Act of the central legislature (Aligarh Muslim University Act, 1920). (*S Azeez Basha vs Union of India*, 1967)
6. Faced with a backlash over the ruling, the government amended the AMU Act **in 1981**, saying that it was established by the Muslim community to promote the cultural and educational advancement of Muslims in India.
7. **In 2005, AMU for the first time provided 50% reservation for Muslims** in postgraduate medical programs. The following year, Allahabad High Court struck down both the university order, and the 1981 amendment on the ground that AMU was not a minority institution as per *Azeez Basha*.
8. 2016: Government withdraws its appeal the Supreme Court against AMU's minority status.
  - The government argues that AMU does not qualify as a minority institution, reinstating its position based on the 1967 ruling. The government maintains that AMU renounced its religious status when it was established as a central university in 1920.
9. The HC order was challenged in the SC soon afterward. In 2019, three Judge bench, headed by then Chief Justice Ranjan Gogoi, refers the issue to a seven-judge Bench.
2. In a 4-3 majority ruling, the court overruled an earlier Supreme Court decision, which held that AMU was not a minority institution.
3. However, whether AMU will retain its minority status or not has been left for a separate Bench to decide.

### Majority vs. Dissenting Opinion:

#### The decision was made by a 4-3 majority:

- a. The majority, led by **Chief Justice D.Y. Chandrachud**, ruled that the **minority status** of an institution should be based on a **broader understanding**, and **statutory creation** does not remove this status.
- b. Three judges disagreed with this view, with **Justice Dipankar Datta** strongly stating that AMU should not be considered a minority institution. The other dissenting judges raised concerns about the way the case was referred to a larger bench.

#### What minority status means?

1. **Under Article 30(1)**, all minorities have the right to establish and administer educational institutions of their choice.
2. **Under Article 15(5), introduced in the Constitution in 2006**, Minority Educational Institutions (MEI) are exempt from reserving seats for Scheduled Castes and Scheduled Tribes.
3. Since **AMU's minority status** is sub judice, and the SC directed in 2006 that status quo be maintained, the university **does not have SC/ST quotas**.
4. The **Centre argued before the Supreme Court** this year that if AMU is declared a minority institution, "it will continue not to provide for reservation for SCs/STs/OBCs/EWS, [in jobs and seats, but] it will provide for reservation for Muslims which can be up to 50 per cent or even more".
5. Also, "**the administrative structure**" of AMU "will change from the current set-up which provides for the supremacy of Executive Council consisting of people from various fields of life with domain expertise" — and despite being an institution of national importance, AMU would have an admission procedure separate from other such institutions.
6. The Centre also argued that "**a large national institute like AMU** ought to maintain its secular origins and serve the larger interest of the nation first".
7. Submissions made on behalf of **AMU stated that it was "fallacious"** for the Centre to hold that AMU's minority status "would be contrary to public interest as it would exempt them from reserving seats for

other disadvantaged groups”, since this negates the Constitutional provision that shields special rights of minorities.

8. On reservation not being applicable to AMU, senior advocate Kapil Sibal stated in a rejoinder note submitted on behalf of the AMU Old Boys’ (Alumni) Association that “Article 30 is itself a recognition of rights of communities that also require special protection”.
9. Therefore, the exemption for minority educational institutions provided by Article 15(5) is “not an exception to equality but simply a different facet of it, which seeks to balance the needs of different sections of society whether on the basis of religion, or caste and class”.

### Legal and Constitutional Significance

1. This judgment shows the balance between **minority rights** (to set up and manage their institutions) and **social justice** (through reservations for backward classes).
2. It reflects the Court’s view that **minority institutions** should have the **right to autonomy**, but at the same time, the **larger national interest** should be protected, ensuring fairness and equality.

## 4. Bulldozer Justice: No Demolition Without 15-Day Notice

Bulldozer Justice refers to the practice of collective punishment through the destruction of the accused person’s property. This approach has sparked significant concern due to its disregard for legal procedures and rights.

In **November 2024**, a **bench of Justices B R Gavai and K V Viswanathan** ruled that “the executive cannot become a judge and decide that a person accused is guilty and, therefore, punish him by demolishing his residential/commercial property/properties. Such an act of the executive would be transgressing its limits”.

### Supreme Court’s Guidelines on Bulldozer Demolition

The Supreme Court issued several guidelines to ensure transparency and fairness in the demolition process. These guidelines aim to protect citizens’ rights and uphold the rule of law.

1. **Providing Notice:** The SC ruled that a minimum of 15 days’ notice must be provided to the property owner or occupier before any demolition action is carried out. This notice period starts from the date the individual

receives the notice, allowing them time to respond or make arrangements.

2. **Hearing & Final Order:** A hearing must be conducted, with all arguments from the property owner or occupier recorded in detail. The final demolition order must include:
  - Arguments made by the owner/occupier,
  - Reasons the authority believes demolition is necessary,
  - Whether the entire structure or just part of it will be demolished.
3. **The Aftermath:** Once the final demolition order is passed, it will not be implemented for 15 days. This grace period allows the affected party to either remove the construction or challenge the order in court, potentially securing a stay. Demolition can only proceed after the 15-day period, provided no legal stay has been granted.

### SC’s Reasoning for the Guidelines:

The Supreme Court’s decision is based on several key constitutional and legal principles that are violated by arbitrary demolitions.

#### A. Judiciary’s Role vs. Executive Actions:

- The Court emphasized that the government (executive) cannot assume the role of the judiciary in determining guilt and deciding punishment.
- Demolitions carried out without proper legal procedure undermine the rule of law and violate citizens’ rights.

#### B. Demolition Should Be a Last Resort:

- The Court insisted that authorities must prove that demolition is the only viable solution.
- Other methods, such as fines or penalties, should be considered before opting for demolition, especially in cases of encroachments.

#### C. Transparency and Accountability:

- **Online Portal for Notices:** All demolition notices must be uploaded to a dedicated online portal managed by local authorities. This ensures citizens have access to information about ongoing demolition actions in their areas.
- **District Magistrates’ Accountability:** The Court held District Magistrates responsible for ensuring that demolition procedures are followed and that they are carried out legally.

#### D. Right to Shelter:

- The SC emphasized that the right to shelter is part of the fundamental right to life with dignity under Article 21 of the Constitution.

- The demolition of property without due process deprives innocent individuals—such as family members or tenants—of their shelter, which the Court deemed unconstitutional.

**Issues Arising Out of Bulldozer Justice:**

Category	Issue/Concern
<b>Violation of Rule of Law</b>	Demolitions without following legal procedures, notices, or hearings.
<b>Violation of Due Process</b>	Actions taken without legal process, undermining natural justice.
<b>Disproportionate Punishment</b>	Affects entire families, not just the accused individual.
<b>Potential for Misuse of Power</b>	Can be used for political or personal agendas, rather than for justice.
<b>Infringement of Rights</b>	Violates individuals’ rights, particularly those of marginalized or indigenous communities.
<b>Lack of Transparency</b>	Decisions are made without informing or involving the affected parties.

**Outcomes of Bulldozer Justice:**

The practice of bulldozer justice has led to a range of negative consequences:

1. **Social Unrest:** Protests and demonstrations arise from those affected by unlawful demolitions.
2. **Economic Impact:** Demolitions can lead to the loss of jobs and create financial insecurity for families.
3. **Legal Repercussions:** Legal battles and delays in resolution, as affected parties seek justice.
4. **Loss of Public Trust:** The practice erodes trust in public institutions and governance.
5. **Moral Conflict:** Ethical dilemmas for officials carrying out such actions, particularly when motivated by political or personal interests.

**Conclusion:**

The Supreme Court’s ruling on bulldozer demolitions is a crucial step in ensuring that demolition actions by the state are conducted fairly, legally, and transparently. The guidelines mandate 15-day notices, the recording of hearings, and the uploading of demolition notices to online portals, ensuring that demolitions are subject to judicial oversight and due process. This decision is vital for protecting property rights and safeguarding the fundamental

rights of citizens, especially those from marginalized or minority communities. The ruling reaffirms that demolitions must always follow due process, reinforcing the rule of law and justice in India’s governance.

**5. Prior Sanction Mandatory to Prosecute Public Servants**

**What is the Prior Sanction Provision?**

1. **Section 197** of the Code of Criminal Procedure, 1973, (CrPC) bars courts from taking cognisance of offences alleged to have been committed by a judge, a magistrate, or a public servant who was “acting or purporting to act in the discharge of his official duty” while committing the alleged offence, unless prior or “previous” sanction has been given by the government.
2. An identical requirement can be found under **Section 218 of the Bharatiya Nagarik Suraksha Sanhita, 2023** (BNSS) as well. This provision is meant to shield public servants from unnecessary prosecution.
3. However, the explanation to the provision clarifies that “no sanction shall be required” when public servants are accused of certain crimes against women (such as rape, sexual harrassment, stalking, and voyeurism), and other serious crimes such as human trafficking.
4. Several rulings on the provision have held that the provision does not extend its protective cover to every act or omission of a public servant while in service. It applies only to those acts or omissions which are done by public servants while discharging their official duties. For instance, in the case of *Devinder Singh v. State of Punjab (2016)*, the SC held that “Protection of sanction is an assurance to an honest and sincere officer to perform his duty honestly and to the best of his ability to further public duty. However, authority cannot be camouflaged to commit crime.”

**What does the recent SC verdict say?**

1. On November 6, 2024 the Supreme Court held that **Section 197(1) of the CrPC** will apply to alleged offences under the **Prevention of Money Laundering Act (PMLA)** too.
2. A Bench comprising **Justices A S Oka and Augustine George Masih** delivered the verdict in a case involving **IAS officers Bibhu Prasad Acharya and Adityanath Das**, both of whom are facing money laundering charges, in a case that also implicates former Andhra Pradesh Chief Minister Jagan Mohan Reddy.

3. The SC essentially upheld a January 2019 order by the Telangana High Court which set aside the trial court's order taking cognisance of the case. The **challenge was on the ground that both of them were public servants** and, therefore, it was necessary to obtain prior sanction under **Section 197(1) of the CrPC** before they could be prosecuted.
4. The SC noted that although **there is no specific provision in the PMLA** that states prior sanction is not required, it did not find "any provision therein which is inconsistent with the provisions of Section 197(1) of CrPC".
5. The **Bench referred to Section 65 of PMLA** which makes the provisions of the CrPC applicable to all proceedings under the PMLA, unless they are inconsistent with the PMLA provisions.
6. The SC also recorded that the accused were public servants, and that there was a connection between their duties and alleged criminal acts, thus satisfying both conditions for requirement of prior sanction under CrPC section 197(1).
7. The SC's judgement has now been cited by public servants such as Congress MP and former finance minister P Chidambaram and former Delhi CM Arvind Kejriwal before the Delhi HC to challenge the cognisance taken by trial court of ED chargesheets in the absence of prior prosecution sanction by the central agency. In Chidambaram's case the prosecution complaints against him were filed in 2018, and the trial court took cognisance in 2021.

### Is prior sanction required in other kinds of cases?

1. Apart from the requirement under **CrPC section 197(1)**, the Prevention of Corruption Act (PCA) also provides for the requirement of prior sanction to prosecute for offences alleged under PCA against public servants.
2. **Section 19(1) of PCA** contains a requirement for prior sanction from the government before the court can take cognisance of certain offenses against public officials such as accepting bribes (Section 7) or receiving undue advantage without paying sufficient consideration in return (Section 11).
  - This sanction, in most cases, must be obtained by the police or the investigating agency. Further, the

public servant must be given an opportunity to be heard by the government before allowing the prosecution to go ahead.

3. In 2018, the **PCA was amended** to expand the situations where prior sanction is necessary to prosecute public officials.
  - Under the new Section 17A of the PCA, any recommendation or decision made by a public official "**in discharge of his official functions or duties**" cannot be investigated without the "**previous approval**" of the government.
  - Following a split verdict in January 2024, a case is pending at the SC to decide if this section applies to cases filed before Section 17A was introduced in 2018.

Notably, with **former CM Arvind Kejriwal challenging the cognisance of an ED chargesheet in the liquor policy excise case** before Delhi HC on grounds of absence of prior prosecution sanction, one of the arguments put forth has been that for the very same allegations against him, the Central Bureau of Investigation (CBI) had filed the chargesheet against him "**only after applying for Sanction u/s 19 of the PC Act**, which clearly shows that the facts of the present matter also required the sanction to be obtained."

### How will the requirement of prior sanction impact ED cases involving public servants?

1. While complaints and the investigation under PMLA will hold, cognisance of chargesheets accusing public servants of money laundering purportedly while in discharge of their duty, by the trial court can go away.
2. In effect, this can mean that an accused public servant, even if convicted by the trial court, can argue during an appeal that the offences alleged were in discharge of their duty, and that the trial took place without obtaining prior sanction from the government. If this argument is accepted, it can result in the court setting aside the conviction.
3. In ***P K Pradhan v. State of Sikkim (2001)***, the SC held that the argument that **prior sanction under Section 197 was not obtained** can be raised by the accused at any time during a trial, or even after conviction.

- However, the accused public servant must establish that his alleged act was in the course of the performance of his official duty.
4. As the SC held in the Bibhu Prasad Acharya judgement, “there is no embargo on considering the plea of absence of sanction, after cognizance is taken by the Special Court of the offences punishable under Section 4 of the PMLA.”

### Prevention of Money Laundering Act, 2002 (PMLA)

1. PMLA forms the core of the legal framework put in place by India to combat **money laundering**.
2. PMLA and the Rules notified there under came into force with effect from July 1, 2005.
  - The PMLA was enacted by India’s Parliament under **Article 253** which empowers it to make laws for implementing the international conventions.
3. The Act seeks to combat money laundering in India and has **three main objectives**:
  - to prevent and control money laundering
  - to confiscate and seize the property obtained from the laundered money
  - to deal with any other issue connected with money laundering in India.
4. Director, **FIU-IND** and **Director (Enforcement)** have been conferred with exclusive and concurrent powers under relevant sections of the Act to implement the provisions of the Act.
5. The Act was amended by the Prevention of Money Laundering (Amendment) Act, 2009 and by the Prevention of Money Laundering (Amendment) Act, 2012.

## 6. 51<sup>st</sup> Chief Justice of India: Justice Sanjiv Khanna

In November 2024, Justice Sanjiv Khanna takes oath as 51st Chief Justice of India (CJI)

### Appointment of Judges in India

1. **Chief Justice of India (CJI)**
  - **Appointment Process:**
    - As per **Article 124(2)** of the **Indian Constitution**, the **Chief Justice of India**

and other judges of the **Supreme Court** are appointed by the **President**.

- The President’s appointment is made **after consultation** with the judges of the Supreme Court, as the President may deem necessary.
- The senior-most Supreme Court judge, considered fit for the role, is usually appointed as the CJI. This appointment is typically based on the **recommendation of the outgoing CJI**. However, this convention has been breached in the years **1964, 1973, and 1977**.

- **Tenure:** The CJI holds office until they attain the age of **65 years**.

### 2. Judges of High Courts

- **Appointment Process:** As per **Article 217** of the **Indian Constitution**, the **President** should consult the **CJI, Governor**, and the **Chief Justice of the concerned High Court** before appointing judges to High Courts.
- **Tenure:** **High Court judges** retire at the age of **62 years**.

### Key Role of the Chief Justice of India (CJI)

#### 1. First Amongst Equals:

- a. In the **State of Rajasthan v Prakash Chand (1997)** case, the **Supreme Court** ruled that the **CJI** is the head of the judiciary and holds a leadership position but does not have superior judicial authority over other judges of the Supreme Court.
- b. This means the CJI is considered the “first amongst equals.”

2. **Master of the Roster:** The CJI has the **exclusive power** to constitute benches, including **Constitution benches**, to hear cases.

3. **Head of the Collegium:** The CJI heads the **Collegium**, which is responsible for making recommendations for judicial appointments and transfers in the higher judiciary (Supreme Court and High Courts).

4. **Appointment of Officers and Staff of the Supreme Court:** Under **Article 146** of the Constitution, the CJI or any designated judge/officer of the Court is responsible for appointing officers and servants of the **Supreme Court**.

### The Collegium System

The **Collegium** is a system in India used for recommending appointments of judges to the **Supreme Court (SC)** and **High Courts (HC)**.

#### 1. Composition of the Collegium:

**a. For the Supreme Court:** The **Collegium** for the **Supreme Court** consists of the **CJI** and the **four senior-most judges** of the Supreme Court.

#### b. For the High Courts:

**i.** The **Collegium** for the **High Court** consists of the **Chief Justice of the High Court** and **two senior-most judges** of the concerned High Court.

**ii.** The **Collegium** at the **Supreme Court** for High Court appointments includes the **CJI** and the **two senior-most judges of the SC**.

**Role of the Collegium:** The Collegium is tasked with recommending judges for **appointment** and **transfer** within the higher judiciary, based on the Constitution's provisions under **Article 124 (for SC)** and **Article 217 (for HC)**.

### 7. Conversions for Quota Benefits Violate Constitution: SC

- In November 2024**, the Supreme Court in the matter of **C. Selvarani V. The Special Secretary- Cum District Collector and Others** made an important ruling about fraudulent religious conversions for the purpose of getting reservation benefits.
- Supreme Court reviewed an appeal by **C Selvarani**, who was denied a **Scheduled Caste (SC)** certificate after claiming she had converted to **Hinduism in order to get benefits** reserved for Schedule Castes (SCs) in government jobs.

#### What was the Background of the Case?

- The appellant, **C. Selvarani**, was **born in November 1990** to a Christian father named Christian (son of Mounien) and a mother named Santhamarie.
- The Appellant claimed that her father's side of the family originally belonged to the Valluvan caste, which is recognized as a Scheduled Caste in the Pondicherry region.

- She asserts that her mother converted to Hinduism after marriage and that her family has been practicing Hinduism.
- In 2015, C Selvarani** applied for a post as an Upper Division Clerk (UDC) in Puducherry under the **Scheduled Caste (SC)** category and was selected.
- During the verification process, she was asked to produce community, residence, and nativity certificates.
- Her application for a Scheduled Caste community certificate was initially rejected by the local authorities on the grounds that she does not profess Hinduism.
- She claimed to belong to the **Valluvan caste**, which is **listed as a Scheduled Caste under the Constitution (Pondicherry) Scheduled Castes Order, 1964**.
- She argued that **she had reverted to Hinduism and followed Hindu customs to regain her caste status**, which would entitle her to SC benefits.
- Her claim was **checked by the authorities, and it was found that she had been baptized as a Christian at birth** and had been **practicing Christianity throughout her life**.

#### What was the Court's Observations?

- Once someone converts to a religion like Christianity, they lose their caste identity.** To get it back, they must **genuinely revert to Hinduism**, and **this must be accepted by both the person and their community**.
- Doctrine of Eclipse**, which means that when a person converts from Hinduism to another religion, their caste status is temporarily suspended.
- It can only be revived when the person genuinely converts back to Hinduism** and is accepted by the community.
- However, the Court said that **if someone has been part of another religion for several generations, it may be difficult to revive their original caste identity**.
- If people misuse the system, **genuine beneficiaries** who need the support will be deprived of their rights.
- Finally, Court **rejected Selvarani's appeal**, agreeing with the **Madras High Court** and the authorities **who had found that her claims were not genuine and that she did not meet the criteria for SC status**.

### What is the Reservation?

1. Reservation is a **form of positive discrimination**, created to promote equality among marginalized sections, so as to protect them from social and historical injustice.
2. Generally, it means giving **preferential treatment to marginalized sections** of society in employment and access to education.
3. In India, people have been historically discriminated on the basis of caste.

### Scheduled Castes Reservations and Religion

1. The main reason for giving **reservations** (special benefits) to Scheduled Castes (SCs) is that they suffered from **untouchability**.
2. **Untouchability** meant people from lower castes were discriminated against and faced severe social and economic disadvantages.
3. **Article 341** of the Indian Constitution gives the President the power to decide which communities, castes, or tribes should be considered **Scheduled Castes** (SCs).
4. **Article 16(4)** of the Indian Constitution states that the state can make provisions for the reservation of appointments or posts for backward classes of citizens:
  - a. The state can make these provisions **if it believes that the backward classes are not adequately represented in state services**.
  - b. The state can also make provisions for reservation in matters of promotion, with consequential seniority.
5. **Constitutional Provision:**
  - a. The Indian Constitution under **Article 25 of the COI** guarantees the freedom to profess, propagate, and practice religion, and allows all religious sections to manage their own affairs in matters of religion, subject to public order, morality, and health.
  - b. However, **no person shall force their religious beliefs and consequently, no person should be forced to practice any religion against their wishes**.

### Scheduled Castes Reservations and Dalit Converts – Constitutional Context

1. Currently, the **Constitution (Scheduled Castes) Order, 1950** says that **only people who follow Hinduism, Buddhism, or Sikhism** can be considered as **Scheduled Castes**.
2. Initially, only Hindus were recognized as SCs, but It was amended in 1956 to include Sikh communities and again in 1990 to include Buddhist communities as SCs
3. However, people who convert to **Christianity** or **Islam** are **not** considered SCs, **even if they were Dalits before conversion. This means they do not get reservation benefits**.
4. **Why the difference?** The government argues that **Scheduled Tribe (ST)** and **Other Backward Classes (OBC)** **status is not affected by religion**. People from these groups can get the benefits even if they convert to another religion.
5. **Example:** Several Muslim and Christian communities have been included in the **OBC** list after the **Mandal Commission Report**.

### Larger Constitutional Question on Extending SC Benefits to Dalit Christians and Muslims

1. A few petitions were filed in the **Supreme Court** asking whether **Dalit Christians** and **Dalit Muslims** should be included in the **SC category** and whether the **religion-based rule** should be removed.
2. In **August 2022**, the Supreme Court asked the **Union Government** to explain its position on this issue.
3. As a result, in **October 2022**, the Ministry of Social Justice and Empowerment set up a **three-member Commission** headed by **Justice K.G. Balakrishnan** (former Chief Justice of India) to look into the issue.

### Views of Previous Panels on This Issue

1. **Ranganath Misra Commission (2007):** Recommended that **SC status** should **not be linked to religion**. In other words, people from any religion who were Dalits should get the benefits.
2. **Sachar Committee (2005):** Noted that **Dalit Muslims and Dalit Christians** still face **social and economic backwardness**, even after conversion, but do not get the same benefits as Dalits who remain Hindu, Sikh, or Buddhist.

## 8. 75 years of adoption of the Constitution

On November 26, 2024, India celebrated the 75<sup>th</sup> anniversary of the adoption of its Constitution.

### Why is November 26 observed as Constitution Day?

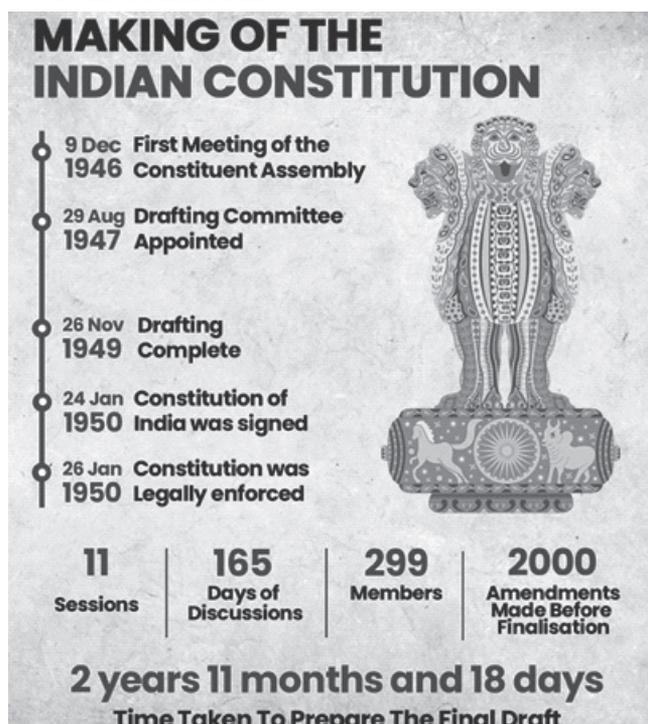
1. On November 26, 1949, the Constituent Assembly **adopted** the Constitution of India.
  - Notable, two months later, the Constitution of India finally **came into effect** on January 26, 1950, which is observed as **Republic Day** since then.
  - January 26 was chosen since the Congress' **Poorna Swaraj resolution** was declared on this day in the year 1930.
2. To mark this historic date, in May 2015, the Union Cabinet announced that **November 26 would be observed as Constitution Day** to promote "constitutional values amongst citizens".
3. On **November 19, 2015**, the government **formally notified** November 26 as **Constitution Day or Samvidhan Divas**. Before this, the day was observed as **National Law Day** as Ambedkar was also the first Law Minister of India.
  - Notable, **Year 2015 also marked the 125th birth anniversary of BR Ambedkar (Father of India's Constitution)**, the Chairman of the Drafting Committee of the Constitution. K.M. Munshi, Muhammed Saadulah and Alladi Krishnaswamy Iyer were also among the committee's members.

### How the Indian Constitution was adopted?

1. India's struggle for independence highlighted the need for a governing framework to ensure justice, equality, and liberty for all citizens. Therefore, the **Government of India Act, 1935** served as a **foundation** for India's governance **but lacked provisions for a sovereign democratic republic**.
  - **Government of India Act, 1935** introduced **bicameralism** — upper and lower Houses — at

the Centre and in six provinces along with direct elections to these chambers. At the time, it was one of the longest pieces of legislation passed in the British Parliament.

2. **In December 1946** the **Constituent Assembly** was formed through elections held under the Cabinet Mission Plan.
  - Notable, The **Elephant** was adopted as the **symbol (seal) of the Constituent Assembly**
3. It had 389 members, including prominent leaders like Dr BR Ambedkar, Jawaharlal Nehru, and Sardar Patel. After Partition, the membership was reduced to 299.
4. The Assembly met for the **first time on 9 December 1946**, was presided over by Dr Rajendra Prasad as its chairman, attended by **207 members**, including **nine women**.
5. On **December 13, 1946**, Nehru moved the "**Objectives Resolution**" that was later **adopted as the Preamble** on January 22, 1947, to encapsulate the basic philosophy of the Constitution.



6. The Drafting Committee, led by Dr BR Ambedkar, was tasked with preparing the draft. The draft was deliberated over in **11 sessions spanning 2 years, 11 months, and 18 days**.
7. On November 26, 1949, the Constituent Assembly **adopted** the Constitution, which came into **effect** on January 26, 1950, marking India's transition to a democratic republic.
8. It is the longest written constitution in the world, with **with 1,17,360 words (in the English version)**. **At its inception, it had 395 Articles and 8 Schedules** (later amended).

## Key Features of the Indian Constitution

### 1. Longest Written Constitution

- a. The Indian Constitution is the longest written constitution in the world.
- b. Originally, it comprised a Preamble, 395 Articles (divided into 22 Parts), and 8 Schedules.
- c. Over time, it has expanded to more than 470 Articles, 25 Parts, and 12 Schedules.

### 2. Blend of Rigidity and Flexibility

- a. The Constitution has a unique blend of rigidity and flexibility, allowing it to adapt to changing needs while preserving fundamental principles.
- b. **Amendments can be made in different ways:**
  - i. By a simple majority (e.g., the 1st Amendment of 1951, which introduced restrictions on freedom of speech).
  - ii. By a special majority (e.g., the 101st Amendment of 2016, which required a special majority in Parliament).
  - iii. With state ratification (in cases where the amendment affects the federal structure, such as the 101st Amendment, which introduced GST and required ratification by at least half of the state legislatures).

### 3. Federal System with Unitary Features

- a. The Indian Constitution establishes a federal system with two levels of government: the Union and the States.
- b. However, it also includes unitary features, which give more power to the Union government. These features include:
  - i. A strong central government
  - ii. Single citizenship
  - iii. Emergency provisions

- c. As a result, India follows a “quasi-federal” system, where power is shared between the Union and the States, but the Union holds more authority.

### 4. Parliamentary System of Government

- a. India's Constitution adopts the British parliamentary model of government.
- b. **This system features:**
  - i. A nominal head of state with De-jure authority (the President).
  - ii. A real executive with De-facto authority (the Prime Minister), who is accountable to the legislature.
- c. The system operates at both the central and state levels of government.

### 5. Fundamental Rights and Duties

- a. Fundamental Rights (Part-III) guarantee six basic rights to all citizens, including the right to equality, freedom of speech, and constitutional remedies.
- b. Fundamental Duties (Part-IV-A), added in 1976, outline 11 duties of citizens, reminding them of their responsibilities to the nation.

### 6. Directive Principles of State Policy

- a. Inspired by the Irish Constitution, the Directive Principles of State Policy (Part-IV) guide the state to work toward social justice, economic welfare, and equitable development.
- b. These principles are non-justiciable, meaning they cannot be enforced by the courts.

### 7. Secularism: India is a secular state, meaning it gives equal respect to all religions without endorsing any religion as the state religion.

### 8. Integrated and Independent Judiciary

- a. **Integrated Judiciary:** The Indian judiciary is a unified system, with the Supreme Court at the top, followed by High Courts and subordinate courts. This ensures a cohesive legal framework throughout the country.
- b. **Independent Judiciary:** The judiciary operates independently from the executive and legislature, ensuring impartiality in its decisions.
  - o Provisions like security of tenure for judges and financial autonomy for the judiciary protect its independence.

These features together ensure the Constitution's adaptability, justice, and protection of rights, while maintaining the balance of power between the Union and States.

## BORROWED FEATURES OF INDIAN CONSTITUTION

Source Country	Borrowed Features in Indian Constitution
<b>British Constitution</b>	Parliamentary form of Government, Rule of Law, Law making procedure, Single Citizenship, Institution of Speaker, Doctrine of Pleasure, Tenure of civil servants
<b>American Constitution</b>	Judicial System, Fundamental Rights
<b>Canadian Constitution</b>	Federal System with a strong central authority, Residual powers, Centre-State Relations
<b>Irish Constitution</b>	Directive Principles, Election of the President of India
<b>Australian Constitution</b>	Concurrent List, Freedom of Trade & Service within the country
<b>German Constitution</b>	Emergency Provisions
<b>Soviet Constitution</b>	Five Year Plans, Fundamental Duties
<b>South African Constitution</b>	Amendment of the Constitution

### CONSTITUTION AS A LIVING DOCUMENT

A living document evolves over time, adapting to societal changes and contemporary challenges while maintaining its core principles. The Indian Constitution embodies this concept by balancing rigidity with flexibility through amendments.

<b>1951 (1<sup>ST</sup> AMENDMENT)</b> Introduced 9th Schedule to keep certain laws beyond the scope of judicial review.	<b>1956 (7<sup>TH</sup> AMENDMENT)</b> States reorganised by language; Union Territories introduced	<b>1976 (42<sup>ND</sup> AMENDMENT)</b> 'Socialist', 'Secular' and 'Integrity' added in the Preamble; fundamental duties prescribed.
<b>1978 (44<sup>TH</sup> AMENDMENT)</b> Right to Property knocked off from the list of fundamental rights	 <p><b>MAJOR CONSTITUTIONAL AMENDMENTS THAT CHANGED THE COURSE OF INDIA</b></p>	<b>1985 (52<sup>ND</sup> AMENDMENT)</b> Defection becomes illegal
<b>1989 (61<sup>ST</sup> AMENDMENT)</b> Voting age reduced to 18 from 21 years		<b>1992 (73<sup>RD</sup> AND 74<sup>TH</sup> AMENDMENT)</b> Direct election for Panchayats and urban local bodies
<b>2023 (106<sup>TH</sup> AMENDMENT- Nari Shakti Vandan Adhiniyam, 2023)</b> which seeks to reserve 1/3rd of the total number of seats for women in Lok Sabha, SLAs and Delhi Assembly.	<b>2019 (103<sup>RD</sup> AMENDMENT)</b> 10% reservation for economically weaker sections of upper castes	<b>2016 (101<sup>ST</sup> AMENDMENT)</b> Introduction of the Goods and Services Tax (GST)

## Important personalities related to Indian constitution

Fact	Details
<b>Symbol of the Constituent Assembly</b>	The <b>Elephant</b> was adopted as the symbol (seal).
<b>Constitutional Advisor</b>	<b>Sir B.N. Rau</b> was appointed as the legal advisor to the Constituent Assembly.
<b>Secretary to the Constituent Assembly</b>	<b>H.V.R. Iyengar</b> served as the Secretary.
<b>Chief Draftsman of the Constitution</b>	<b>S.N. Mukerjee</b> was the chief draftsman.
<b>Calligrapher of the Constitution</b>	<b>Prem Behari Narain Raizada</b> handwrote the original constitution in a flowing italic style.
<b>Artists from Shantiniketan</b>	Artists like <b>Nand Lal Bose</b> and <b>Beohar Rammanohar Sinha</b> beautified and decorated the original Constitution.
<b>Decoration of the Preamble</b>	<b>Beohar Rammanohar Sinha</b> illuminated, beautified, and ornamented the original Preamble.
<b>Calligraphy of Hindi Version</b>	<b>Vasant Krishan Vaidya</b> did the calligraphy of the Hindi version, and <b>Nand Lal Bose</b> decorated it.

### Quotes: -

- The Constitution is not a mere lawyer's document; it is a vehicle of life, and its spirit is always the spirit of age. – **Dr B.R. Ambedkar**
- We are Indians, firstly and lastly. – **Dr B.R. Ambedkar**
- The spirit of the Constitution is to provide equality of status and opportunity to every citizen. – **Sardar Vallabhbhai Patel**
- “Liberty, equality, and fraternity are not to be treated as separate items in a trinity. They form a union of trinity in the sense that to divorce one from the other is to defeat the very purpose of democracy. – **Dr B.R. Ambedkar**
- A Constitution is not merely a document in black and white. It is a living document that evolves with the nation. – **Justice PN Bhagwati**
- Democracy is not merely a form of government. It is primarily a mode of associated living, of conjoint communicated experience. – **Dr B.R. Ambedkar**
- The greatness of a nation lies in its fidelity to its Constitution and its adherence to the rule of law. – **Pranab Mukherjee**
- The will of the people is the only legitimate foundation of any government, and to protect its free expression should be our first object. – **Dr Rajendra Prasad**

## 9. State of India's Undertrial Prisoners

In November 2024, the Ministry of Home Affairs announced the release of undertrial prisoners who have spent over one-third of their prescribed sentence in jail, as part of efforts to address overcrowding and prevent unfair punishment for those waiting too long for trial.

### Who are Undertrial Prisoners?

Undertrial prisoners are those who are in judicial custody while awaiting trial. Despite being presumed innocent until proven guilty, many of these individuals spend years in prison due to prolonged legal procedures and their inability to afford bail.

### The State of Undertrial Prisoners in India

1. India's prison system faces significant challenges, particularly concerning the high proportion of undertrial prisoners and issues of overcrowding.
2. The National Crime Records Bureau (NCRB) 2022 report "*Prison Statistics India 2022*" (published in December 2023) highlights the troubling state of undertrial prisoners in Indian prisons:



- High Number of Undertrials:** Indian prisons had an occupancy rate of 131%, with 5,73,220 inmates against a capacity of 4,36,266.
- 4,34,302 are undertrials against whom cases are still pending, amounting to nearly 75.8% of all prisoners in India.
- Long Duration of Detention:** As of December 31, 2022, around 8.6% of all undertrial prisoners had been in prison for more than three years.
- Gender Disparity:** Out of 23,772 women prisoners, 18,146 (76.33%) are undertrials, reflecting a similar trend among female detainees.

## DIFFERENCE BETWEEN POLICE CUSTODY AND JUDICIAL CUSTODY (asked in prelims 2021)

Aspect	Police Custody	Judicial Custody
<b>Authority in Control</b>	Accused is under the control of the police.	Accused is under the custody of the magistrate and held in jail.
<b>Purpose</b>	Used for investigation, such as questioning or gathering evidence.	Used when the investigation is ongoing but police custody is not required.
<b>Place of Custody</b>	Police station or a lock-up.	Jail or prison.
<b>Duration</b>	Up to 15 days in total, as per Section 167(2) of CrPC.	Can extend up to 60 or 90 days, depending on the severity of the offense.
<b>Role of Magistrate</b>	Magistrate grants police custody based on necessity.	Judicial custody is ordered by the magistrate.
<b>Access to Legal Counsel</b>	Limited; questioning is under police supervision.	More rights to meet legal counsel.
<b>Interaction with Police</b>	Direct; accused is in police control.	Indirect; police need magistrate's permission to interrogate in jail.

### What are the Impacts?

1. The prolonged detention of undertrial prisoners violates their **fundamental right** to a **timely trial**, leading to the need for systemic reforms in the judicial process.
2. Long periods of detention result in **overcrowded, unsanitary environments** with **inadequate medical care, exposing prisoners** to physical harm and health risks.
3. The harsh conditions of prolonged detention **hinder the rehabilitation process**, negatively affecting both the physical and mental well-being of undertrial prisoners.
4. **Women, juveniles, and marginalized communities** face unique challenges during prolonged detention, including limited access to necessary resources and support systems.

5. Women, particularly those with young children, face additional hardships due to the lack of appropriate facilities and support mechanisms tailored to their needs.

### What are the Legal Framework on Bail for Undertrial Prisoners?

1. **Section 479 of Bharatiya Nagarik Suraksha Sanhita (BNSS):** Section 479 of the BNSS lays down the maximum period for which an undertrial prisoner can be detained.
  - It states that a prisoner who is **not accused of offences punishable with death or life imprisonment shall be released on bail** if they have undergone detention for a period extending up to **one-half of the maximum period of imprisonment** specified for that offence.
2. **Relaxation for First-Time Offenders:** The BNSS introduces a new provision that reduces the detention period for undertrials before they can be released if they are ‘first-time offenders’.
  - It states that such a person “**shall be released on bond by the Court**, if he has undergone detention for the period extending up to **one-third** of the maximum period of imprisonment specified for such offence under that law”.
3. **Criminal Procedure Code (CrPC) (Section 436A):** Similar provisions are found in the Criminal Procedure Code, 1973 (Section 436A), allowing for **bail after the undertrial** has served half of the prescribed sentence, except for those charged with offences punishable by death or life imprisonment.

### What is the Constitutional protection for Undertrials?

1. Prisons and persons detained therein are a State subject under **Entry 4 of List II** of the **Seventh**

**Schedule**, with their administration managed by State Governments.

2. **Article 39A** mandates the State to **provide free legal aid and ensure equal access** to the legal system, **eliminating barriers** due to economic or other disabilities.
3. **Article 21** guarantees that no person shall be deprived of life or personal liberty except according to the procedure established by law.

### Supreme Court’s Intervention

Since 2013, the Supreme Court has been monitoring issues related to prison conditions in the **case *Re Inhuman Conditions in 1382 Prisons***. This case originated from a PIL filed after concerns about overcrowding and inadequate treatment of prisoners. Some key rulings include:

1. **August 2024 Ruling:** The Court decided that **Section 479** of the BNSS would apply retrospectively, benefiting first-time offenders already in jail before July 1, 2024, when the **BNSS law came into effect**.
2. **State Government Reports:** The Court asked all states and Union Territories to submit reports detailing how many undertrials could be released under Section 479 and how many prisoners had been released so far.
3. **Challenges with Implementation:** As of October 2024, **only 19 out of 36 states and Union Territories** had submitted the required reports.
4. **The Supreme Court’s October 3, 2024 ruling urged the government**
  - to **address caste-based discrimination** in prisons,
  - update **rules to align with constitutional equality**,
  - **redefine habitual offenders**,
  - giving states **three months to comply where laws were absent**.

### Centre Amends Prison Manual to Address Caste-Based Inequality

1. In December 2024, the **Union Ministry of Home Affairs (MHA)** made important changes to the **Model Prison Manual, 2016** and the **Model Prisons and Correctional Services Act, 2023**.
2. These changes aim to **end caste-based discrimination** in India’s prisons.
3. The revisions were made after the **Supreme Court’s order** on October 3, 2024, which raised concerns about caste-based segregation in prisons and directed the Centre to take action.
  - A. Ban on Caste-Based Discrimination:** The new rules prohibit caste-based discrimination, segregation, or task allocation based on caste in prisons, ensuring equal treatment for all prisoners.
  - B. New Legal Framework – Section 55(A):** Section 55(A) of the Model Prisons and Correctional Services Act, 2023, officially bans caste-based discrimination in prisons, making it binding on all states and Union Territories.

**C. Ban on Manual Scavenging:** The new rules ban manual scavenging in prisons, aligning with the Prohibition of Employment as Manual Scavengers Act, 2013, to uphold prisoners' dignity and end this caste-linked inhumane practice.

**D. Habitual Offenders: Revised Definition:** The MHA revised the definition of habitual offenders in the Model Prison Manual and Act, defining them as **individuals convicted more than twice for unrelated crimes within five continuous years**, excluding jail time from this period, to address inconsistencies in states lacking a Habitual Offenders Act.

**Reason for Change:** The MHA made this change because many states and UTs have not passed a **Habitual Offenders Act**, leading to confusion over how habitual offenders should be treated.

#### Impact of the Amendments:

1. The amendments aim to make prisons fairer by protecting the rights of SC/ST prisoners, banning degrading practices like manual scavenging, and ensuring equality and dignity for all.
2. The changes make sure that the **rules for treating habitual offenders** are the same across India.
3. States that do not have a **Habitual Offenders Act** will need to make their laws fit with the new rules.

#### Time Frame and Compliance:

States and UTs must revise prison rules **within three months**, focusing on the Habitual Offenders Act, while the MHA **ensures compliance and monitors caste-based discrimination**.

### REPORT ON PRISONS IN INDIA

In November, 2024 President of India, Smt. Droupadi Murmu released report on **“Prisons in India: Mapping Prison Manuals and Measures for Reformation and Decongestion”**.

This Report, **prepared by Centre for Research & Planning**, the research wing of Supreme Court of India, seeks to highlight the complexities of India's prison system, with a focus on the potential for technology-driven solutions.

#### Key insights from the report

1. **Stereotyping:** Prison manuals often refer to essential sanitation and conservancy work as “menial” or “degrading,” perpetuating a hierarchical view of labour.
2. **Bail Rejection:** Rejection rate for bail applications is high (32.3% in Sessions Courts and 16.2% in Magisterial Courts).
3. **Slow Trial:** Over 52% of cases where accused were in custody for more than a year were still pending at evidence stage in 2023.
4. **Others:** Persistence of Manual Scavenging in prisons; Division of prison work based on caste system (held unconstitutional in Sukanya Shantha Case); Underutilization of open prisons etc.

#### Use of Technology for Prison Reforms

- **E-prisons:** Developed by National Informatics Centre to integrate all activities related to prison and prisoner management.
- **Model Prison and Correctional Services Act, 2023:** Introduced the use of electronic monitoring technology as a condition for granting prison leaves for prisoners.
- **FASTER (Fast and Secured Transmission of Electronic Records)** system of Supreme Court resolved delay in communication of bail orders from courts to prison.
- **Interoperable Criminal Justice System (ICJS):** It can create an automatic channel between courts, police and prisons and reduce unjustified delay in custody cases.

## 10. Presidential Election in United States of America

1. Presidential elections were held in the United States on November 5, 2024.
2. Donald Trump (Republican Party), who was the 45<sup>th</sup> president of the United States from 2017 to 2021—defeated Kamala Harris (Democratic Party), the incumbent vice president.
3. President elects Donald Trump, scheduled to be inaugurated as the 47<sup>th</sup> president on January 20, 2025, after their formal election by the Electoral College.
4. **Trump will be the second Republican to get a second term in office in 20 years.** George Bush, a Republican, was president from 2001 to 2009.

**The election of the President of India differs from the U.S. Electoral College system in several key ways:**

Aspect	U.S.A	India
<b>About</b>	US President is both head of state & of government with significant executive powers.	<b>Head of State</b> with <b>ceremonial</b> powers; real executive power lies with the <b>Prime Minister</b> and the <b>Council of Ministers</b>
<b>Eligibility</b>	<b>Must be:</b> <ul style="list-style-type: none"> <li>• Natural-born citizen of USA</li> <li>• 35 years or older</li> <li>• Resident of the U.S. for 14 years</li> </ul> <b>Note: A naturalized citizen is not eligible to become President in the USA.</b>	<b>Must be:</b> <ul style="list-style-type: none"> <li>• Citizen of India</li> <li>• 35 years or older</li> <li>• Qualified to become a member of Lok Sabha.</li> <li>• Should not hold any office of profit under the government</li> </ul> <b>Note: A naturalized citizen can become President in India.</b>
<b>Tenure</b>	<b>Four Years.</b> A person can be President for <b>only two terms.</b>	<b>Five years.</b> Eligible for re-election to the office for any number of terms.
<b>Electoral System</b>	Uses the Electoral College, where voters cast ballots for electors who then vote for the president.	Uses a parliamentary system where the president is elected by an electoral college composed of elected members of <b>both houses of Parliament and the elected members of the Legislative Assemblies of States and Union territories.</b>
<b>Governing Act/ Rules</b>	Each state establishes its own election rules, reflecting the U.S.'s decentralized system, where individual states oversee and manage their electoral processes.	The Presidential and Vice-Presidential Elections Act, 1952
<b>Nomination Process</b>	Candidates secure party nominations through primaries and caucuses.	A prospective Presidential candidate should get his/her nomination paper subscribed by <b>at least 50 electors as proposers and at least 50 electors as seconders.</b>
<b>Role of Political Party</b>	<b>Non-partisan role;</b> no direct party involvement in election process	<b>Significant role;</b> candidates are from political parties
<b>Manner of Election</b>	<b>Indirectly</b> elected by <b>Electoral College</b> , which consists of Electors chosen by voters through <b>popular vote</b> (Electors represent states in the Electoral College)	<b>Indirectly elected</b> by members of an <b>electoral college</b> consisting of elected members of <b>both Houses</b> of Parliament and elected members of <b>Legislative Assemblies</b> of States and <b>UTs of Delhi and Pondicherry.</b>

<b>Number of Electors</b>	<b>538 electors.</b> Calculated based on the total number of members in the U.S. Congress plus 3 electors for Washington, D.C.	<b>Varies</b> depending on the total number of MPs & MLAs
<b>Election Methods</b>	Most states follow a winner-take-all approach, where the candidate with the majority in a state wins all its electoral votes, except in Maine and Nebraska. <ul style="list-style-type: none"> <li>• Candidates can win the presidency without winning the popular vote.</li> <li>• Like Donald Trump win in 2016.</li> </ul>	System of Proportional Representation by means of single transferable vote and the voting at such election shall be by secret ballot. <ul style="list-style-type: none"> <li>• The candidate needs to secure 50% of the total votes cast + 1 to win.</li> </ul>
<b>Majority Requirement</b>	Candidates need a majority of electoral votes <b>(270 out of 538) to win.</b>	The <b>president is elected through a system of proportional representation</b> , where votes are weighted based on the population of states and union territories.
<b>Vote-Counting Process</b>	Significantly prolonged largely due to reliance on paper ballots and the handling of mail-in votes (like our postal ballots).	Use of EVMs (Electronic Voting Machines).
<b>Constitutional Role</b>	The U.S. president has significant executive power and is the <b>head of state and government.</b>	The Indian president is primarily a ceremonial figure with <b>limited executive powers, while real executive authority lies with the Prime Minister</b> and the Council of Ministers.
<b>Impeachment</b>	The U.S. President can be impeached for “treason, bribery, or other high crimes and misdemeanors,” as per <b>Article II, Section 4</b> . The impeachment process begins in the House of Representatives and concludes with a trial in the Senate, where a two-thirds majority is needed for conviction.	The Indian President can be impeached for violating the Constitution, as outlined in <b>Article 61</b> , which requires a <b>two-thirds majority</b> in both Houses of Parliament to pass an impeachment resolution

## 11. UGC Approved Flexible-Duration Degrees for U.G Students

1. In November 2024, The **University Grants Commission (UGC)** has approved new **guidelines** that will allow **undergraduate students** in India to **complete their degree programs** either **earlier** or extend them beyond the usual duration.
2. This new system aims to provide students with the **flexibility** to graduate based on their learning pace and needs.
3. Whether students opt for an **Accelerated Degree Programmes (ADPs)** or **Extended Degree Programmes (EDP)** timeline, they will earn the same degree as those on the standard track, provided they

fulfil all academic requirements. Higher education institutions can offer these options starting with the 2025-26 academic session.

### Key Highlights of the New Guidelines

1. **Flexibility in Degree Duration:** Students can complete their degrees based on their own pace, either by shortening the duration (Accelerated Degree Programmes) or extending it (Extended Degree Programmes).
2. **Same Degree, Different Timelines:** Regardless of whether students opt for the accelerated or extended track, they will earn the same degree as those on the standard duration, provided they fulfill all academic requirements.

3. **Starting in 2025-26:** The new system will be implemented in higher education institutions starting with the 2025-26 academic session.

### What are ‘Accelerated Degree Programmes’ (ADPs) and ‘Extended Degree Programmes’ (EDPs)?

These two options are designed to give students the freedom to choose the pace at which they wish to complete their undergraduate degrees:

Aspect	Accelerated Degree Programmes (ADPs)	Extended Degree Programmes (EDPs)
<b>Eligibility</b>	Available to undergraduate students at the end of 1st or 2nd semester (but not beyond)	Available to undergraduate students at the end of 1st or 2nd semester (but not beyond)
<b>Credits Required</b>	Same as the standard 3- or 4-year UG programme However, they can complete their programme sooner by earning additional credits starting from the semester they choose the ADP.	Same as the standard 3- or 4-year UG programme
<b>Course Duration (3-year UG)</b>	5 semesters <b>instead of the standard six</b> (shortened by a maximum of one semester)	7 or 8 semesters (extended by a maximum of two semesters)
<b>Course Duration (4-year UG)</b>	6 or 7 semesters (shortened by a maximum of two semesters) rather than 8.	9 or 10 semesters (extended by a maximum of two semesters)
<b>Credits per Semester</b>	Students may earn additional credits to complete the programme sooner	Students earn fewer credits per semester than the standard programme
<b>Time to Complete Programme</b>	Shortened, can finish earlier than the standard duration	Extended, takes longer than the standard duration

### What is the objective behind ADP and EDP, and who may benefit from it?

The new guidelines aim to accommodate a wide range of student needs:

- **ADP:** Aimed at high-performing students who can complete their degree in a shorter time frame by earning additional credits. This option helps them enter the workforce or pursue higher studies earlier.
- **EDP:** Designed for students who face academic challenges and need more time to complete their degree. EDP offers an extended timeline, allowing them to complete their coursework at a more manageable pace.

According to UGC, the **National Credit Framework (NCrF)** supports both ADPs and EDPs to promote diverse academic needs and cognitive abilities, ensuring equity in higher education.

### How will they be implemented?

1. **Committee Evaluation:** Institutions will form a committee to evaluate ADP and EDP applications based on student performance in their first or second semester. This will assess their “credit-completing potential.”
2. **ADP Student Cap:** Institutions can allocate up to 10% of the total intake to ADP students.
3. **No EDP Cap:** There is no cap on the number of students who can enroll in EDP, as students in this track often require more time to master concepts.

### Exam and Degree Recognition

1. **Standard Exams:** The exams will remain the same as those for students on the standard track. ADP and EDP students will face the same academic assessments.
2. **Degree Equivalence:** Degrees earned through ADP and EDP will be treated equally to those completed within the standard duration. A note will indicate if the program was completed in an accelerated or extended timeline.

### Timeline for Implementation

1. **Start Date:** Higher education institutions can start offering ADPs and EDPs from the July-August 2025-26 academic session.

**2. Online and Hybrid Learning:** Institutions can offer up to 40% of courses online, which helps ADP and EDP students manage their credits flexibly without affecting the regular class schedules. Additional classes can be scheduled outside standard hours to accommodate ADP students.

### What is the National Credit Framework (NCrF)?

The National Credit Framework (NCrF), a pivotal element of the National Education Policy (NEP) 2020, represents a significant stride towards modernizing India’s educational system. It emphasizes flexibility, interdisciplinarity, and skill integration, which align with the needs of a dynamic global economy and a diverse society.

### Who Developed the NCrF?

Sector	Contributing Bodies
School Education	CBSE, NCERT, NIOS
Higher Education	UGC, AICTE
Vocational Education	NCVET, DGT
Overall Oversight	Ministry of Education, Ministry of Skill Development and Entrepreneurship

### Key Features of the National Credit Framework (NCrF)

Feature	Details
Credit Transfer	Allows seamless transfer of credits across disciplines, including vocational and skill education.
Flexibility	Students can earn credits through activities like classroom learning, research, internships, sports, and apprenticeships.
Modern Needs	Aligns education with emerging jobs and self-employment opportunities.

### Impact on Higher Education Institutions (HEIs)

1. **Emphasis on Multidisciplinary Approach:**
  - a. Encourages the creation of Multidisciplinary Education and Research Universities (MERUs),

envisioned as epicenters for scholarly and creative excellence.

- b. Supports a dual focus on generating knowledge and practical skill development, aligning educational outputs with societal and industrial demands.

### 2. Democratization of Education:

- a. Enhances accessibility and inclusivity in higher education by integrating flexibility in learning pathways and reducing traditional academic elitism.
- b. Balances theoretical knowledge with practical skills, making education more comprehensive and universally beneficial.

### 3. Vocational and Skill Training:

- a. Elevates the status of vocational and skill-based training to be on par with conventional academic studies.
- b. Encourages institutions to diversify their roles from pure academic research to include skill training, promoting a holistic educational ecosystem.

### University Grants Commission (UGC)

The University Grants Commission (UGC) came into existence on **28th December 1953** and became a statutory organization of the Government of India under the **UGC Act, 1956**.

The UGC has the following key responsibilities:

- a. Ensuring the development and coordination of university education across India.
- b. Setting and upholding standards for teaching, examination, and research in universities.
- c. Allocating and distributing grants to universities and colleges to support their growth and development.
- d. Acting as a vital intermediary between the Union and State Governments and institutions of higher learning.
- e. Providing advice to both the Central and State Governments on measures to enhance the quality and scope of university education.



## B. INTERNATIONAL RELATIONS

### 1. Chennai-Vladivostok Eastern Maritime Corridor Operational

1. The recent launch of the **Eastern Maritime Corridor (EMC)** between Chennai and Vladivostok (Russia) has **enhanced India-Russia trade** by reducing shipping time and costs.
  - a. This new route is crucial for increasing trade in sectors like crude oil, coal, fertilizers, and metals, with India becoming the largest importer of Russian oil.
  - b. The corridor is expected to significantly reshape bilateral trade dynamics, promoting economic and strategic cooperation between the two nations.

#### What is the Eastern Maritime Corridor (EMC)?



1. The **Chennai-Vladivostok Eastern Maritime Corridor (EMC)** is a sea link connecting the **east coast of India (Chennai Port)** with **ports in the far-east region of Russia (Vladivostok Port)**.
2. The EMC passes through key waterways, including the **Sea of Japan, East China Sea, South China Sea, Malacca Straits, Andaman Sea, and the Bay of Bengal**.
3. Ports along the route include **Dalian, Shanghai, Hong Kong, Ho Chi Minh City, Singapore, Kuala Lumpur, Bangkok, Dhaka, Colombo, and Chennai**.

#### Significance of EMC:

1. **Reduced Logistics Costs:**
  - a. EMC has reduced the shipping distance from 8,675 nautical miles (via the traditional St

**Petersburg-Mumbai route** through Europe) to **5,600 nautical miles**, cutting transit time from over 40 days to just **24 days**.

- b. This is significant for India as it has surpassed China to become the largest buyer of Russian oil in July 2024.
  - c. **India imports over 85% of its crude oil demand.**
2. **Diversification of Trade:** The corridor facilitates not only crude oil shipments but also **coal, LNG, fertilizers, and other commodities, broadening the trade relationship.**
  3. **Boost to India's Maritime Sector:** The corridor supports **India's maritime sector**, which handles around **95% (by volume) and 70% (by value)** of the country's trade, contributing to its growth and efficiency.
    - This new route aligns with **India's Maritime Vision 2030**, which includes over 150 initiatives aimed at transforming the maritime sector.

#### Strategic Importance of EMC:

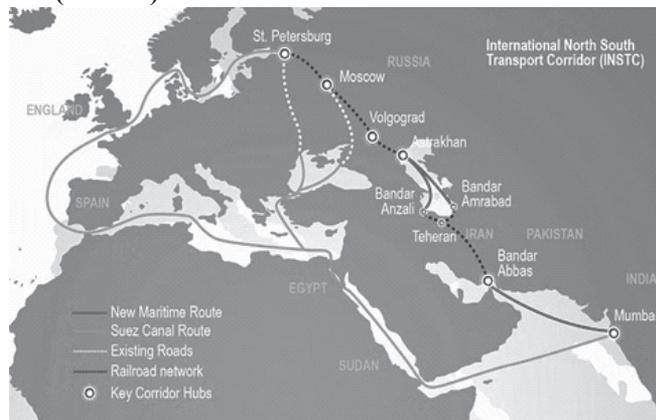
1. Vladivostok is the **largest Russian port on the Pacific Ocean**, and the corridor passes through the **South China Sea** and strengthens India's strategic presence **addressing China's dominance** in the region.
2. The Chennai-Vladivostok corridor is aligned with other initiatives, such as the **Northern Sea Route** and the **International North-South Transport Corridor (INSTC)**.

#### Advancing India's Act Far East Policy:

1. The EMC **boosts India's access to Russian resources** and strengthens its position in the Pacific trade network.
2. By enhancing regional connectivity, it promotes trade with **East Asia, ASEAN, and Russia**, facilitates multimodal transport, and supports infrastructure development.
3. This also opens avenues for trade agreements, cultural exchanges, and tourism, positioning India as a key player in the region.

## What are the Other Maritime/Regional Corridors?

### 1. International North-South Transport Corridor (INSTC):



- a. INSTC is a **7,200 km multimodal transit route** linking the **Indian Ocean and Persian Gulf** to the Caspian Sea via Iran, and further to northern Europe via **St. Petersburg, Russia.**
  - i. It was launched in 2000 through a trilateral agreement between **India, Iran, and Russia**, it has expanded to include **13 member countries.**
- b. It connects **ship, rail, and road routes** between **India, Iran, Azerbaijan, Russia, Central Asia, and Europe.**
  - i. The **corridor has 3 routes:** the Central Corridor (India to Russia via Iran), the Western Corridor (Azerbaijan-Iran-India), and the Eastern Corridor (Russia to India through Central Asia).

2. **Trans-Caspian International Transport Route (TITR):** Also called the ‘Middle Corridor’, it is a multi-modal corridor connecting China with European Union through Central Asia, Caucasus, Türkiye and Eastern Europe. It was launched in 2017.

3. **China-led Belt and Road Initiative (BRI):** Launched in **2013**, it seeks to connect Asia with Africa and Europe via land and maritime networks.

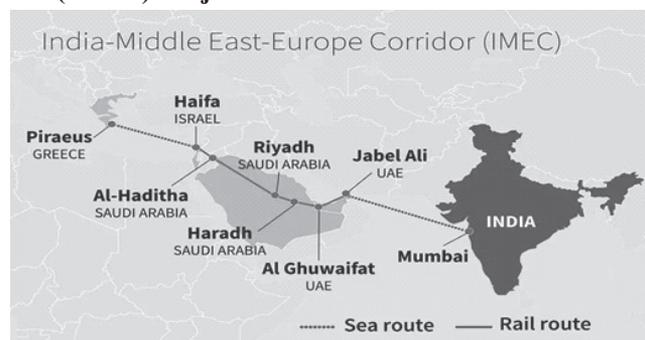
- **It comprises:**
  - a. **Silk Road Economic Belt:** A trans-continental passage that links China with south east Asia, south Asia, Central Asia, Russia and Europe by **land.**
  - b. **Maritime Silk Road:** A **sea route** connecting China’s coastal regions with south east and south Asia, the South Pacific, the Middle East and Eastern Africa, all the way to Europe.

### 4. Northern Sea Route (NSR):



- a. The NSR is a **5,600 km Arctic shipping route** connecting the **Barents and Kara Seas** to the **Bering Strait.**
- b. It offers up to **50% shorter transit times** than **traditional routes** like the Suez Canal and gained attention after the **2021 Suez Canal blockage.**
  - i. It has also become an area of focus, with both nations working on projects **related to Arctic shipping and polar navigation**, providing a strategic **shipping route between Western Eurasia and the Asia-Pacific.**
- c. **India is interested in the NSR** due to growing **imports of Russian crude oil and coal.** The NSR is also key for **balancing Russia-China influence in the region.**

### 5. India-Middle East-Europe Economic Corridor (IMEC) Project:



- a. The **IMEC Project** was announced at the **G20 Summit (2023)**, the IMEC aims to **connect India, the Middle East, and Europe** through a network of **railways, roads, and ship-to-rail links.**
- b. It includes **two corridors:** the **East Corridor** (India to the Arabian Gulf) and the **Northern Corridor** (Gulf to Europe).

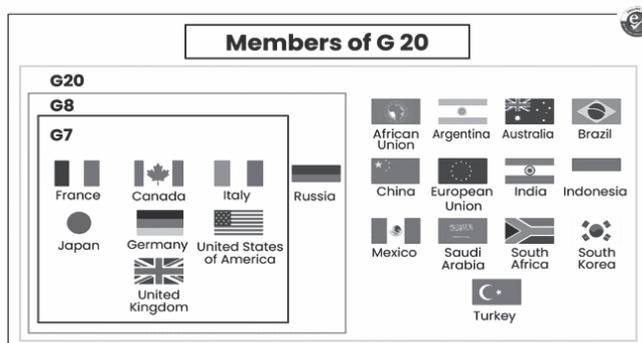
- c. The project will also **feature an electricity cable, a hydrogen pipeline, and a high-speed data cable**, fostering regional integration across Asia, Europe, and the Middle East.

### Conclusion:

India's vision for **2047** focuses on becoming the **top maritime nation** in terms of **port operations, shipping, shipbuilding, and maritime policies**. The operationalization of the **Chennai-Vladivostok Eastern Maritime Corridor** and the **IMEEC**, alongside substantial investment in **port infrastructure, clean fuel shipbuilding, and legislative reforms**, will help India realize its maritime aspirations. The country is on track to become a global leader in the maritime sector, with a robust **sustainability agenda** and improved **port efficiencies**.

## 2. 19<sup>th</sup> G20 Summit in Brazil

- In **November 2024**, the **19th** Heads of State and Government Summit of the Group of 20 (**G20 Summit**) held in **Rio de Janeiro, Brazil**.
- The **2024 Summit's** theme is 'Building a Just World and a Sustainable Planet'.
- It was the **first G20 summit to be hosted in Brazil**, the **3rd Global South** host after Indonesia (2022) and India (2023).
- Additionally, it marked the **first full G20 summit** with the **African Union (AU)** as a member, following its inclusion during the previous summit in 2023, which held in New Delhi.
- The **next G20 summit** is scheduled to be hosted in **Johannesburg, South Africa, in 2025**.
- Notably**, Brazil, India & South Africa **together forms the troika (previous, current, and upcoming) of G20**. These countries representing the Global South and are also part of IBSA and BRICS grouping.



### All About G20

- The Group of Twenty (G20) is a forum, **not a legislative body**, for international economic cooperation, consisting of 19 countries, the EU, and the African Union.
- Founded in 1999** after the Asian financial crisis, it initially served as a platform for Finance Ministers and Central Bank Governors to address global economic issues.
- In response to the 2007 global financial crisis, it was elevated to a Heads of State-level forum.
- By 2009, it was recognized as the **“premier forum for international economic cooperation.”**
- Over time, its agenda expanded from macroeconomic concerns to include topics like sustainable development, health, energy, environment, climate change, and anti-corruption.
- The G20 Summit, **held annually**, is led by a **rotating Presidency**, with **no fixed headquarters or permanent Secretariat**.
- The first Summit took place in **2008 in Washington, DC**, and the **US hosted the event twice**, in 2008 and 2009.
- The G20 represents **around 85% of global GDP and 75% of global trade**, as well as **two-thirds of the world's population, prior to the AU joining**.

### What are Major Outcomes of G20 Summit 2024?

- Climate Finance Commitment:** The G20 recognized the urgent need to scale up **climate finance “from billions to trillions”**, but no concrete plan was established for the sources of this funding.
  - Leaders supported **COP29 in Azerbaijan** and called for enhanced financing to help **developing nations** adapt to **climate change**, though consensus on the financial mechanisms remained elusive.
- Taxation of the Billionaires:** A major achievement was the endorsement of measures to tax **ultra-high-net-worth individuals**.
  - Brazil** led the charge, with discussions about a **global tax on the super-rich**, though concerns about **national sovereignty** and tax principles were not fully resolved.
- Global Hunger and Poverty Alliance:** The Task Force for a Global Alliance Against Hunger and

**Poverty**, proposed by **Brazil's G20 presidency**, aims to create a **Global Alliance** to mobilize resources and knowledge for effective policies and social technologies to reduce **hunger** and **poverty**.

- The initiative was launched and gained support from **82 countries** and aims to help **500 million people by 2030**, marking a significant success for the **G20** agenda, as it focuses on concrete social actions.
4. **Financial Reform and MDB Cooperation:** The G20 reaffirmed the need to reform **Multilateral Development Banks (MDBs)** to better address global challenges, including **climate change** and **poverty**.
    - Leaders agreed on strengthening **cooperation** within MDBs to ensure resources are effectively mobilized for high-impact projects.
  5. **Energy Transition and Fossil Fuel Subsidies:** The summit highlighted the need for continued **investment in renewable energy** and **clean technologies** but did not reaffirm the previous **COP28** commitment to phase out fossil **fuel subsidies**.
    - Emphasis was placed on reducing **food loss** and **waste** as part of broader climate action.
  6. **Global Governance and Social Inclusion:** The G20 called for reforms in **global governance** to address **global inequalities**.
    - The **G20 Social Summit** culminated with declaration, emphasizing **combating hunger, poverty, and inequality**, advocating for **sustainability, climate change action, just transition, and global governance reform**, while highlighting **tax justice** and **inclusive decision-making**.
  7. **Inclusion of Sustainable Development Goal 18 (SDG 18):** A new **SDG**, focusing on **ethnic-racial equality**, was officially included as a key element among the G20 priorities.
    - The goal addresses **systemic discrimination** and promotes policies for the social, economic, and political inclusion of marginalized ethnic groups. It aligns with the broader agenda of **sustainable and equitable global development**.

### The G20's Dilemma: Inequity, Division, and Unrealized Reforms”

1. **Representational inequity:** Reluctance to rename the forum as “G21” after the African Union’s inclusion

demonstrates persistent barriers to genuine global representation.

#### 2. **Diplomatic Fragmentation:**

- a. Key leaders’ absences at the recent summit, like the Russian President and Saudi Crown Prince, highlight divisions within the G20.
- b. Also, **Argentina’s opposition** to sustainable development and welfare spending underscores **significant differences among members**.
- c. **Major economies** like the US, Germany, and Argentina **resist wealth tax and progressive taxation proposals**, impeding efforts to reduce global disparities.

#### 3. **Unrealized Goals in Governance Overhaul:**

- a. **Global institutional reforms:** Calls for reforming global institutions like the UN Security Council and World Bank remain unaddressed, limiting the G20’s impact on global governance.
- b. **Climate Commitments:** Despite coinciding with COP29, the summit failed to advance climate goals beyond previous declarations.

#### 4. **Structural and Operational Weaknesses:** G20 decisions are non-binding, reducing their enforceability. Also, it operates without a formal charter, limiting accountability and public scrutiny.

#### 5. **Competition from Other Institutions:** Growing influence of organizations like BRICS and the Shanghai Cooperation Organisation (SCO) poses challenges to a divided G20.

### Strengthening Global Cooperation: Enhancing the Effectiveness of G20 Summits

1. **Permanent Secretariat:** Establish a secretariat with research and policy capabilities to ensure policy continuity and strategic insights between summits.
2. **Empowering Middle-Income Members:** Enable countries like Argentina, Brazil, India, and South Africa to take active diplomatic roles.
3. **Accountability Framework:** Introduce mechanisms to track commitments, monitor implementation, and provide transparent annual performance reviews.
4. **Strategic Coordination with UN Agencies:** Collaborate with organizations like WHO, UNEP, and UNDP to avoid duplication of efforts and maximize public goods delivery.
5. **Addressing Global South Priorities:** Advocate for equitable global governance, reducing G7 dominance (e.g., G7 represents 13% of the population but controls 59% of IMF and World Bank voting rights).

### G20's Debt Service Suspension Initiative (DSSI)

1. The G20's Debt Service Suspension Initiative (DSSI) **provided temporary debt relief to 73** of the poorest countries during the **COVID-19 pandemic**.
2. Official **bilateral creditors suspended debt repayments**, freeing up billions for health and economic needs.
3. While it offered **short-term liquidity and stability**, the **exclusion of private creditors** and multilateral institutions **limited its impact**.
4. Ending in December 2021, DSSI transitioned to the **Common Framework for deeper debt restructuring**, showcasing global cooperation in economic recovery efforts.
5. The **Common Framework for Debt Treatments beyond the DSSI**, endorsed by the **G20 and Paris Club** in November 2020, aims to provide **structured debt relief to low-income countries** facing unsustainable debt.
6. Paris Club is an **informal group of official creditors** whose role is to find **coordinated and sustainable solutions** to the payment difficulties experienced by debtor countries.
7. Origin of the Paris Club dates back to 1956 when Argentina agreed to meet its public creditors in Paris. Since then, the Paris Club has reached 480 agreements with 102 different debtor countries.

### 3. Global Alliance Against Hunger and Poverty

1. In November 2024, The **Global Alliance Against Hunger and Poverty** was launched during the **2024 G20 Leaders' Summit** in Rio de Janeiro, Brazil.
2. **Brazil, pushed for the initiative, provided leadership**, and worked to ensure its success within the G20 meetings and discussions.

#### About Alliance

1. The Alliance **aims to eradicate hunger and poverty**, alongside partners willing to offer **expertise or financial support**.
2. **Goal:** Reach **500 million people with cash transfer programs** in low-income countries by 2030. Provide **high-quality school meals to 150 million additional children** in vulnerable countries.
3. **Approach:** Operates globally through voluntary partnerships and commitments.

4. **Membership:** As of now, it consists of more than 150 members including 90 countries, 42 foundation and others, 25 International Organizations etc. **India is also member**.
5. **Key Pillars of Alliance**
  - I. **National:** Domestic policy and programme implementation and/or direct country-to-country support and lesson sharing, South-South and trilateral cooperation.
  - II. **Financial Support:** Multilateral funding, official bilateral and multilateral assistance and development, innovative financial mechanisms, climate funding, philanthropies, and others.
  - III. **Knowledge:** Institutions for technical assistance and cooperation, capacity building, and knowledge sharing.

#### The Need for the Alliance: Current Situation (Data and Projections)

1. **Escalating Poverty and Hunger:** In 2022, approximately **712 million people lived in extreme poverty**—23 million more than in 2019—with the highest rates in the poorest countries.
  - a. In 2023, **733 million people faced hunger**, and **148 million children** under five suffered from **stunting** (low height-for-age).
2. **Increasing Financing Gaps:** The widening gaps in financing for achieving **Sustainable Development Goals (SDGs)**, particularly **SDGs 1 (no poverty) and 2 (zero hunger)**, highlight the urgent need for additional resource mobilisation.
3. **Gender-Based Food Insecurity:** **26.7% of women** worldwide were **food insecure**, compared to **25.4% of men**, showing a gender gap worldwide.
4. **Insufficient Responses:** Ineffective policies, inadequate **social protection**, and **limited resources** continue to worsen hunger and malnutrition, leaving vulnerable populations without sufficient means to access adequate food and healthy diets.
5. **Economic Impact of Poverty:** Poverty, hunger, and malnutrition impose major economic costs on **households, health systems, and national economies**, particularly in developing countries.
  - a. This cycle **lowers productivity, hampers sustainable growth**, and deepens social and economic inequalities.
6. **Crisis Among Vulnerable:** Rising acute **food insecurity**, humanitarian crises, and fragile states call for improved crisis prevention, preparedness, and resilience.

- a. A global alliance can enable targeted investments and coordinated responses to protect vulnerable populations.

### What are India's Progress on Hunger and Poverty Alleviation?

1. **Poverty Alleviation:** Between 2014-2024, India lifted 250 million people out of poverty.
2. **Food Security:** Over 800 million people are being given food grains free of cost.
3. **Financial and Social Inclusion:** Over 300 million women micro-entrepreneurs have been linked to banks and given access to credit.
4. **Farmer Support:** Under **Pradhan Mantri Fasal Bima Yojana (PMFBY)**, over 40 million farmers have received benefits worth 20 billion US dollars.
  - a. Under **PM-KISAN**, assistance worth over 40 billion dollars has been given to 110 million farmers.
  - b. India has developed over 2000 climate-resilient crop varieties.
5. **Nutritional Focus:** The **Saksham Anganwadi and Poshan 2.0** campaign focuses on nutrition for pregnant women, newborn babies, children under the age of 6, and adolescent girls.
6. **Global Contributions to Food Security:** Recently, India has provided humanitarian assistance to Malawi, Zambia and Zimbabwe.

#### Hunger

The **Food and Agriculture Organization (FAO)** defines hunger as food deprivation, or undernourishment, as the habitual consumption of too few calories to provide the minimum dietary energy an individual requires to live a healthy and productive life, given that person's sex, age, stature, and physical activity level.

#### Global Hunger Index (GHI) 2024

1. The GHI is published by **Concern Worldwide and Welthungerhilfe** annually to measure and track hunger at global, regional, and national levels.
2. GHI is calculated based on a **formula combining 4 indicators** that capture the multidimensional nature of hunger; **i) Undernourishment, ii) child stunting, iii) child wasting, and iv) child mortality.**
3. **According to the GHI 2024**, the hunger levels in **42 countries are at alarming levels**, making the goal of Zero Hunger by 2030 unattainable.
4. India is ranked **105th among 127 countries**, indicating a 'serious' level of hunger.

### 4. Italy-India Joint Strategic Action Plan 2025-2029

1. In **November 2024**, Prime Minister **Narendra Modi** and Italian Prime Minister **Giorgia Meloni**, unveiled **Joint Strategic Action Plan** for the period of **2025-2029**, during their meeting at the **G20 Summit in Rio de Janeiro, Brazil**,
2. The action plan is aimed at further strengthening the **India-Italy Strategic Partnership** over the next 5 years, focusing on **economic growth, security cooperation, and innovation.**

#### Key Highlights

1. **Economic Cooperation:** Both countries agreed to **boost trade & investment** in sectors like green technologies, pharmaceuticals, etc through Joint Commission for Economic Cooperation & Working Group on Food Processing.
2. **Connectivity:** They agreed to cooperate on **India-Middle East-Europe Economic Corridor (IMEEC)**, a strategic initiative aimed at enhancing connectivity & trade between India, Middle East, and Europe.
3. **Science and Technology:** They agreed on expanding cooperation in critical technologies like artificial intelligence & digitalization, with implementation of **2025-27 Executive Programme for Scientific & Technological Cooperation.**
  - They also introduced a new Indo-Italian Innovation and Incubation Exchange Program to foster academic & industrial collaboration.
4. **Energy Transition:** Both countries agreed on organizing **"Tech Summits"** & strengthening alliances like Global Biofuels Alliance & International Solar Alliance.
5. **Defense cooperation:** They decided to hold annual Joint Defense Consultative (JDC) meetings & Joint Staff Talks (JST) to improve coordination in defense matters.
  - They also discussed establishing a **Defense Industrial Roadmap** to foster cooperation in defense manufacturing.

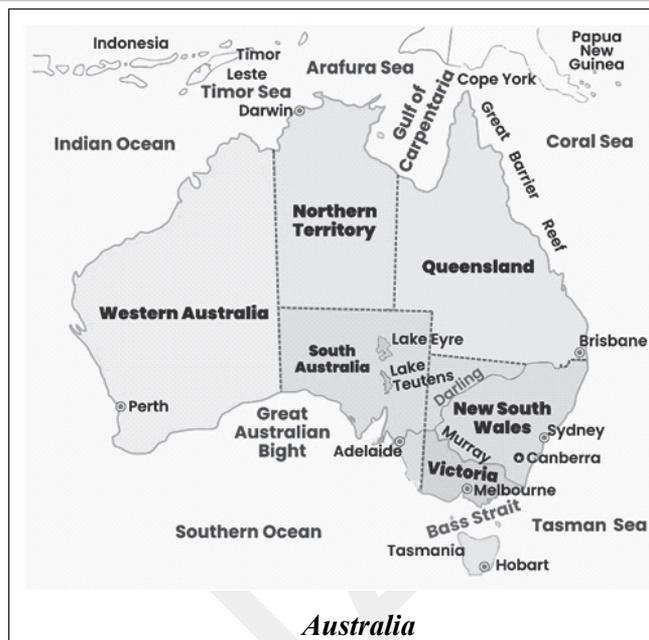
#### India-Italy Relations

1. **Historical Significance:** India has a significant **"footprint"** in Italy due to the contributions of Indian soldiers during **World War II**. By 1945, **5,782 Indian soldiers died in Italy**, and six were awarded the **Victoria Cross.**

2. Diplomatic ties between India and Italy were **established in 1947**.
3. A Virtual Summit in November 2020 between PMs of India and Italy resulted in the adoption of a 2020-2025 Action Plan.
4. **Trade** between India and Italy amounted to **€14.34 billion** in 2023.
  - **India's Exports to Italy:** €9.16 billion
  - **India's Imports from Italy:** €5.18 billion
  - **Trade Surplus for India:** €3.98 billion
5. Italy is India's **4th largest trading partner in the EU** after Germany, Belgium, and the Netherlands.
6. Italy is the **18th largest foreign investor** in India, with a cumulative FDI inflow of **USD 3.53 billion** (2000-2023).
7. In 2021, the **'India-Italy-Japan' trilateral was launched**, with an aim to work towards the security, stability, prosperity and multilateralism of the Indo-Pacific region.
  - It is the second trilateral that India has, in the Indo-Pacific region, involving a European country, after the 'India-France-Australia' trilateral.
8. **Global Forums:** Italy joined both the significant initiatives, launched on the margins of the G20 Summit, the **'Global Biofuel Alliance'** and the **'India-Middle East-Europe Economic Corridor'**.
  - Italy has also joined the **'International Solar Alliance'** (ISA), in 2021, which was the year of the Italian Presidency of G20 and co-Presidency of COP26.

## 5. Second India-Australia Annual Summit

1. In November 2024, **2nd India-Australia Annual Summit** was held on the sidelines of the **G20 Summit in Rio de Janeiro**.
2. The **1st Annual Summit** was held in March 2023 in New Delhi during the State Visit of Prime Minister Albanese to India.
  - Ahead of the **5th anniversary of the India-Australia Comprehensive Strategic Partnership** in 2025, the Prime Ministers highlighted significant progress in areas including climate change, trade, defence, education, and regional cooperation.



### Key Outcomes of the Summit:

1. **India-Australia Renewable Energy Partnership (REP):** The partnership will focus on key areas like **solar energy, green hydrogen, energy storage**, and investments in renewable energy projects.
2. Both nations Committed to developing a **Comprehensive Economic Cooperation Agreement (CECA)**, building on the success of the India-Australia Economic Cooperation and Trade Agreement (**Ind-Aus ECTA**), which led to a 40% increase in mutual trade within two years.
  - a. The **Ind-Aus ECTA signed in 2022**, aimed to boost trade between the two nations. It granted **India preferential access to 100% of Australia's tariff lines**, covering key sectors like gems, textiles, leather, and agriculture.
  - b. In return, **India offered preferential access to over 70% of its tariff lines**, including raw materials like coal and minerals, benefiting both countries' trade interests.
3. The Prime Ministers highlighted the complementarity between **'Make in India'** and **'Future Made in Australia,'** emphasising their potential to create jobs, drive economic growth, and secure future prosperity.
4. **Australia-India Business Exchange (AIBX) programme:** Both sides extended AIBX programme for another four years from 2024.
  - **AIBX was launched in 2021**, to provide businesses with market insights and foster commercial partnerships.

### 5. Agreement to renew and strengthen **Joint Declaration on Defence and Security Cooperation in 2025.**

- The JDSC, agreed in 2007, aimed to strengthen cooperation in areas such as counter-terrorism, disarmament, non-proliferation, and maritime security.

### India-Australia Comprehensive Strategic Partnership

In June 2020, India and Australia **elevated their relationship** from a ‘**Strategic Partnership**’ signed in 2009 to a ‘**Comprehensive Strategic Partnership**’ (CSP) to strengthen bilateral ties.

- It is grounded in mutual trust, shared democratic values, and common interests in areas like regional security, economic growth, and global cooperation.

#### Key Features of the CSP:

1. **Science, Technology & Research Collaboration:** Enhanced cooperation on medical research, technology, and cyber security.
2. **Maritime Cooperation:** Joint efforts to ensure a free, open, and inclusive Indo-Pacific, with a focus on sustainable maritime resources and combating illegal fishing.
3. **Defence:** Expanding military cooperation by conducting joint exercises like the “Malabar” exercise and providing logistics support through agreements such as the Mutual Logistics Support Agreement (MLSA) to address common security challenges.
4. **Economic Cooperation:** Re-engaging on a Comprehensive Economic Cooperation Agreement (CECA), encouraging trade, investment, and collaboration in infrastructure, education, and innovation.

**Implementation:** The CSP includes regular dialogues at various levels, including foreign and defence ministers meeting in a ‘**2+2**’ format, Annual summits and ministerial meetings are intended to ensure continued cooperation.

### Key Milestones in India-Australia Relations

1. **Bilateral Trade:** India is Australia’s **5th largest trading partner** with two-way trade in goods and services valued at USD 49.1 billion in 2023.
  - a. **India’s Exports to Australia:** Refined petroleum, Pearls and gems, Jewellery, and Made-up textile articles.
  - b. **Australia’s Exports to India:** Coal, Copper ores and concentrates, Natural gas, Non-ferrous/

Ferrous waste and scrap, and Education-related services.

2. **Civil Nuclear Cooperation:** In 2014, India and Australia signed the **Civil Nuclear Cooperation Agreement**, allowing **uranium exports to India**.
  - a. The agreement came into force in 2015, facilitating the supply of uranium for India’s peaceful nuclear energy needs.
3. **Defence and Security Cooperation:** India-Australia defence ties are strengthened through joint exercises like **AUSINDEX**, **Pitch Black**, and initiatives like the **2022 General Rawat Exchange Programme**, a military exchange program.
  - a. India and Australia have signed an agreement allowing the **Royal Australian Air Force (RAAF) to refuel Indian aircraft near Australian airspace**. This aims to enhance interoperability and **boost operational reach in the Indo-Pacific region**.
    - i. Under this agreement, the **RAAF’s KC-30A will refuel India’s P-8I surveillance aircraft**, strengthening defence ties and regional security.
4. **Multilateral Engagement:** Active participation in Quad initiatives, IORA, and the **International Solar Alliance (ISA)**.
  - a. Australia supports India’s candidature for a permanent seat in the **United Nation Security Council** and membership in the **Asia-Pacific Economic Cooperation**.

### Way Forward

1. **Economic and Trade Partnership:** Strengthen ECTA and finalize CECA. Further, **promote bilateral investments in critical sectors** like clean energy, mining, and technology.
2. **Strengthening Strategic and Security Ties:** Work together in countering traditional and non-traditional security threats, including cybersecurity, maritime security, and counterterrorism.
3. **Strengthening Cooperation in the Indo-Pacific:** Collaborate under regional frameworks such as the ASEAN, and Pacific Islands Forum and supporting development initiatives in small island nations to counterbalance unilateral influences.
4. **Addressing Extremism:** Strengthen bilateral mechanisms such as joint monitoring and intelligence-sharing frameworks and promote community dialogues.

## 6. PM's State Visit to Nigeria

1. In November 2024 Prime Minister Narendra Modi paid **state visit to Abuja, Nigeria**.
2. Following his visit to Nigeria, the PM travelled to Brazil to participate in the 19th **G20 Summit** and subsequently proceeded to Guyana.
3. This is the first visit by an Indian **Prime Minister to Nigeria in 17 years**, symbolizing the importance of deepening bilateral ties with West Africa's largest economy and democracy.
  - **Last bilateral visit** was that of former PM Manmohan Singh in 2007.
4. PM Narendra Modi was honoured with **Nigeria's 2<sup>nd</sup>-highest national award, the Grand Commander of the Order of the Niger (GCON)**, emphasizing Nigeria's acknowledgment of India as a critical global player.
  - He thus became the **first foreign leader to receive the award since 1969**.

### Key Highlights/Outcomes

1. **Trade and Investment Expansion:** Both sides agreed to encourage early conclusion of three pending bilateral trade agreements i.e. Economic Cooperation Agreement (ECA), Double Taxation Avoidance Agreement (DTAA) and Bilateral Investment Treaty (BIT) to encourage further investments.
  - India one of the largest trading partners of Nigeria and Nigeria as India's largest trading partner in Africa.
2. **Capacity Building and Education:** India offered to expand its support through programs such as the Indian Technical and Economic Cooperation (ITEC) and scholarships, encouraging more Nigerian nationals to participate.
3. **Healthcare Cooperation:** Both sides recognized the potential for expanded cooperation in healthcare, including setting up hospitals, sharing digital health infrastructure (such as the COWIN platform), and supplying generic medicines under **India's Pradhan Mantri Bhartiya Janaushadhi Pariyojana scheme (PMBJP)**.
4. **Agriculture and Food Security:** The leaders agreed to collaborate more on agricultural technologies, high-yield seeds, and technical expertise.
5. **Energy and Oil & Gas Cooperation:** India expressed readiness to enter into long-term contracts for crude oil and LNG imports from Nigeria. They also agreed

to explore further cooperation in areas such as pipeline security, CNG conversion, and LPG network development in Nigeria.

6. **Counter-Terrorism and Security:** Both leaders condemned terrorism in all forms and committed to strengthening cooperation on counter-terrorism, including the adoption of the Comprehensive Convention on International Terrorism and enhancing bilateral cooperation in this area.
7. **Support in International Fora:** Nigeria expressed support for India's bid for a permanent seat in the UN Security Council, and both countries reiterated their commitment to reforming the UN Security Council.
8. **Regional Cooperation:** They recognized the potential for collaboration between ECOWAS and India, particularly in trade and economic cooperation, and agreed to leverage the opportunities created by the African Continental Free Trade Area (AfCFTA).

## 7. Prime Minister's Guyana Visit

1. **Prime Minister Narendra Modi** visited **Guyana in November, 2024**, becoming the **first Indian Prime Minister** to visit the country in **56 years**.
  - The last Indian PM to visit Guyana was **Indira Gandhi** in 1968.
2. During PM Narendra Modi's India and Guyana signed **following Memorandum of Understanding (MoU)**, covering areas such as **hydrocarbons, digital payment systems, pharmaceuticals, and defense cooperation** etc.

### MoU Signed

1. MoU on Cooperation in **Hydrocarbons Sector**
2. MoU for Bilateral Cooperation in the field of **Agriculture and Allied Sectors**
3. **Cultural Exchange Programme (2024-27)**
4. MoU for **Recognition of Indian Pharmacopoeia** between Indian Pharmacopoeia Commission, Ministry of Health & Family Welfare and Ministry of Health, Guyana
5. MoU between M/s HLL Lifecare Ltd and the Ministry of Health of Guyana for implementation of **Janaushadhi Scheme (PMBJP)**.
  - India also agreed to set up a **Jan Ausadhi Kendra** in Guyana.
6. MoU between CDSCO and Ministry of Health of Guyana on **cooperation in the field of medical products**

7. **INDIA STACK MoU on Cooperation in the field of sharing successful digital solutions** implemented at population scale for digital transformation
8. MoU between **NPCI International Payments Ltd** and Ministry of Foreign Affairs, Guyana for enabling **deployment of UPI like system in Guyana**
9. MoU on **Cooperation and collaboration in field of Broadcasting** between **Prasar Bharti** and National Communications Network, Guyana
10. MoU between **NDI (National Defence Institute, Guyana) & RRU (Rashtriya Raksha University, Gujarat)**

### PM Received Top National Awards from Guyana, Barbados and Dominica

1. The PM of India received the highest national honours from:
  - **Guyana (Order of Excellence),**
  - **Barbados (Honorary Order of Freedom of Barbados) and**
  - **Dominica (Dominica Award of Honour).**
2. With these awards, PM international recognition tally now stands at 19.

### Guyana-India Bilateral Relations:

1. **Established in May 1965**, marking the beginning of formal diplomatic ties.
2. **Cultural Diplomacy: Swami Vivekananda Cultural Centre (SVCC): Established in 1972** to promote cultural exchange and strengthen mutual understanding between India and Guyana.
3. **Infrastructure Support:** India has provided support for several key infrastructure projects in Guyana, including:
  - I. **National Cricket Stadium**
  - II. **Solar Traffic Lights**
  - III. **Centre of Excellence in Information Technology (CEIT)**

### Geographical Context of Guyana:

#### Geographical Context of Guyana:



1. **Location:** Situated in the northeastern corner of South America.
2. **Borders:** **North:** Atlantic Ocean, **East:** Suriname (along the Courantyne River), **South and Southwest:** Brazil and **West:** Venezuela.
3. **Major Rivers:** Courantyne, Berbice, Demerara and Essequibo
4. **Oil Reserves:** Guyana has become a significant player in the global oil and gas market with recent discoveries of 11.2 billion barrels of oil equivalent, making up about 18% of global oil and gas discoveries.

### 8. Second India-CARICOM Summit

1. In November 2024, PM Modi attended the **2nd India-CARICOM Summit in Guyana**, where he joined leaders from the **Caribbean Community (CARICOM) to discuss areas of mutual interest.**
  - In 2019, **First India-CARICOM Summit** held on the side-lines of the UNGA in New York.
  - India has proposed to host the **third India-CARICOM Summit in India**, aiming to enhance ties and further develop strategic partnerships between India and the Caribbean countries.
2. This summit was aimed at **strengthening ties between India and the Caribbean region.**

### 7 Key Pillars

The seven pillars listed by PM Modi also form the acronym **C-A-R-I-C-O-M**.

#### C- Capacity Building

- **IT Scholarships:** India announced 1,000 information technology scholarships for CARICOM nations.
- Proposed expanding the technology centre **India is establishing in Belize to benefit all CARICOM members.**

#### A- Agriculture and Food Security

- India can share advancements in **agricultural technology, including the use of drones.**

#### R- Renewable Energy and Climate Change

- India Invited CARICOM nations to join the **International Solar Alliance** initiative for solar energy development.
- Encouraged participation in the **Coalition for Disaster Resilient Infrastructure, Mission Life for Sustainable Lifestyles**, and the **Global Biofuel Alliance** to combat climate change.

**I- Innovation and Technology**

- **Technological Advancements:** India can extend its innovative solutions, including the “Stack” infrastructure and **Universal Payment Interface (UPI)** for digital payments, to CARICOM nations.

**C- Cricket and Culture**

- **Women’s Empowerment through Cricket:** Proposed offering **11 scholarships** to each CARICOM country for women’s cricket coaching as a tool for empowerment.

**O- Ocean Economy**

- **Marine Resources:** India can assist CARICOM nations in developing untapped marine resources, enhancing regional connectivity, and supporting maritime security initiatives.

**M- Medicine and Healthcare**

- **Affordable Healthcare:** India offers affordable healthcare solutions through its **Janaushadi scheme**, which provides low-cost medicines to CARICOM countries.
- India’s contribution during the **COVID-19 pandemic** was highlighted, **including the delivery of vaccines to CARICOM countries. India will continue to assist CARICOM nations in the pharmaceutical sector.**

**What is CARICOM?**

1. **Full Form:** CARICOM stands for the **Caribbean Community**.
2. **Established:** CARICOM was formed in **1973** with the signing of the **Treaty of Chaguaramas**. It is the oldest surviving integration movement in the developing world.

- a. The **Treaty of Chaguaramas** was later revised in **2002**, paving the way for the creation of a **single market** and a **single economy** among its members.

**3. Members:**

- a. CARICOM includes **21 countries** in total, consisting of **15 member states** and **6 associate members**.
- b. The member states stretch from the **Bahamas** in the north to **Suriname** and **Guyana** in South America.
- c. All CARICOM member states are considered **developing countries** in the Caribbean region.

**Objectives of CARICOM:**

CARICOM’s objectives are rooted in 4 main pillars:

1. **Economic Integration**
2. **Foreign Policy Coordination**
3. **Human and Social Development**
4. **Security**

**CARICOM’s Historical Background:**

1. **Political Union and Early Integration:** The Caribbean’s journey toward regional integration began with the **West Indies Federation** in **1958**, a political union that eventually collapsed in 1962.
2. This was followed by the creation of the **Caribbean Free Trade Association (CARIFTA)** in **1965**, which served as a precursor to CARICOM.
3. **Formation of CARICOM:** The formal establishment of CARICOM in **1973** marked a more structured approach to regional cooperation and integration, focusing on both economic and social development.

**Why is CARICOM Important to India’s Global South Strategy?**

1. By engaging with CARICOM, India seeks to enhance its influence in the Global South and promote cooperative efforts on a wide range of issues.
2. **Additional Global Platform for India: Commonwealth Ties:** Many CARICOM countries are also members of the **Commonwealth of Nations**, providing India with additional platforms for diplomatic cooperation, particularly in **international forums** such as the **United Nations** and **World Trade Organization (WTO)**.
3. **Shared Concerns on Climate Change:**
  - **Existential Threats:** Climate change is a significant issue for both India and CARICOM nations. **Rising sea levels, extreme weather**

events, and **environmental degradation** pose existential threats to many Caribbean countries.

- For India, which faces its own challenges with climate impacts, strengthening ties with CARICOM nations on this front is crucial.

**Cooperation on Climate Action:** India and CARICOM have agreed to collaborate on **climate action**, given their shared vulnerabilities and common goals of **environmental protection and sustainable development**.

### Global South and India's Role



1. The **Global South** refers to countries often classified as **developing, less developed, or underdeveloped**. These countries, mostly in **Africa, Asia, and South America**, face common challenges such as:
  - a. **Poverty**
  - b. **High income inequality**
  - c. **Lower life expectancy**
  - d. **Harsh living conditions**
2. **Brandt Report** proposed a **division between North and South countries** based on various parameters such as technological advancement, GDP etc.
  - *The line that divides the countries of the North and South is known as the **Brandt Line**.*
3. **India's Position:** **India, as a leading member of the Global South**, is strategically focusing on enhancing its ties with other developing nations to promote mutual development and address common global challenges. CARICOM is an important part of India's diplomatic outreach within this framework.
4. **The Global North:** In contrast to the Global South, the **Global North** refers to wealthier countries like the **U.S., Canada, Europe, Russia, Australia, and New Zealand**, which have higher levels of economic development and generally better living conditions.

## 9. Nepal Begins 1<sup>st</sup> -Ever Electricity Export to Bangladesh via India

1. India, Bangladesh, and Nepal jointly inaugurated the **1st trilateral power transaction through the Indian grid**, marking a significant step toward an integrated South Asian power market.
2. Export is a **“green energy initiative”** that supports sustainable development in the region.

### About Agreement

1. A power sales agreement was signed in October 2024, between NTPC Vidyut Vyapar Nigam (NVVN), Nepal Electricity Authority (NEA), and Bangladesh Power Development Board (BPDB).
2. **Power Export Details:** The power transaction involves the **export of up to 40 MW** of power from Nepal to Bangladesh through India.
3. **Expected Impact:** The transaction is expected to enhance sub-regional connectivity in the power sector and benefit all stakeholders.
  - a. It will strengthen cooperation and mutual benefits among India, Nepal, and Bangladesh in the energy sector.

### NTPC and NVVN

1. **NTPC**, a **Central Public Sector Undertaking (PSU)** under the **Ministry of Power**, established in 1975 to accelerate power development in the country.
  - NTPC became a **Maharatna company** in May 2010 and is headquartered in **New Delhi**.
2. **NVVN (NTPC Vidyut Vyapar Nigam) Ltd.**, a wholly owned subsidiary of NTPC Ltd, was formed in 2002 to tap into **India's power trading potential**. It holds the highest **Category 'I' power trading licence as per Central Electricity Regulatory Commission regulations**.
  - NVVN is diversifying into **renewables, e-mobility, waste-to-green fuel conversion**, and providing comprehensive business solutions across the power value chain, in addition to trading in gypsum.

### India's Energy Trade Ambitions:

1. India aims to become a major hub for electricity and refined petroleum product trading in South Asia, including supplying **LNG to Sri Lanka** and working on an undersea electricity transmission line.

2. **Current power trading** between India and neighbouring countries is conducted through bilateral agreements under the **2014 SAARC Framework Agreement for Energy Cooperation**.
3. **Key Agencies:** NTPC Vidyut Vyapar Nigam (NVVN) is the nodal agency for cross-border power trading, along with PTC India.
  - a. Since 2021, the Indian Energy Exchange (IEX) has facilitated electricity trading with Nepal.
4. **Policy Enhancements:** India introduced market coupling for spot power trading and revised guidelines for import/export of electricity in 2023 to strengthen regional energy cooperation and grid reliability.
  - a. India is advancing the **OSOWOG initiative** to create a transnational mega grid enabling renewable energy trade from Southeast Asia to Europe via the Middle East.
  - b. India is collaborating with Saudi Arabia, the UAE, and Singapore to develop the OSOWOG grid infrastructure, facilitating low-cost access to renewable energy for participating nations.

## 10. China and the U.S. Extend S&T Cooperation Agreement for 5 Years

1. In December 2024, China and the United States agreed to extend their **Science and Technology Cooperation Agreement** for another five years, effective from August 27, 2024.
  - a. They also signed a protocol to amend the agreement. This move has been widely welcomed as a positive step toward sustained collaboration between the two global powers in science and technology.

### Background of the Agreement

1. **Initial Signing:** The agreement was **originally signed in 1979**, by Chinese leader Deng Xiaoping and U.S. President Jimmy Carter. This occurred shortly after the establishment of diplomatic ties between the two nations.
2. **Purpose:** The initial focus was on cooperation in agricultural research and technology.
3. **Renewals and Scope Expansion:** Since 1979, the agreement has been renewed every five years, with an increasing range of covered topics.
4. **Governance and Structure:** The agreement is overseen by the **US-PRC Joint Commission on**

**Scientific and Technological Cooperation.** Both countries appoint co-chairs for the commission.

### Importance of Bilateral S&T Agreements

1. Bilateral S&T agreements play a crucial role in fostering collaboration in science and technology.
2. Often, these agreements are part of larger frameworks and promote joint research, student and scientist mobility, and institutional cooperation.
3. They can lead to the establishment of bilateral research centres, even though they typically do not specify direct investments in S&T.
4. **India has entered into such agreements with 83 countries.**

### Key Changes in the Renewed Agreement

1. **Scope of Collaboration:** Future cooperation is limited to **intergovernmental initiatives, basic research, and pre-identified areas of mutual benefit** (e.g., earthquake studies and basic health research).
  - a. **Critical and emerging technologies are excluded** to prevent perceived imbalances, particularly accusations that China disproportionately benefits at the U.S.'s expense.
2. **Concerns Addressed:** The U.S. has noted China's ability to leverage the research ecosystem more effectively and raised intellectual property (IP) concerns.
  - a. A **2017 Congressional Research Service** report highlighted over 400 Chinese patents tied to Agreement projects that were commercialized without U.S. benefits.
  - b. In response to growing tensions, particularly over technology exports, the renewed S&T agreement includes provisions for **researcher safety and data reciprocity**.
3. **Enhanced Researcher Safety:** New provisions have been introduced to ensure the safety and security of researchers involved in collaborative efforts.
  - a. Both nations are now obligated to follow guidelines that protect their respective research environments.
4. **Data Reciprocity and Transparency:** To address past issues related to intellectual property and data misuse, the agreement includes new clauses ensuring mutual reciprocity and transparency in data sharing between the two countries.

5. **Dispute Resolution Mechanism:** A structured mechanism has been added to resolve disputes in cases where either party fails to meet the agreed-upon terms.
  - a. This provides a clear framework for addressing potential conflicts in collaborative projects.
6. **Termination Clause:** The agreement now includes a provision allowing for the cancellation of proposed projects if “bad faith actions” are detected. This aims to safeguard against misuse of the cooperation framework.

### How Has the U.S. Benefited Under This Agreement?

1. **Access to Chinese Research Ecosystem:** The agreement has opened doors for U.S. researchers to collaborate within China’s rapidly growing research landscape, allowing both nations to capitalize on their respective scientific strengths.
2. **Increased R&D Investment:** The collaboration has encouraged significant growth in R&D spending by both nations.
  - a. Since the agreement’s inception in 1979, China’s R&D investments have increased tremendously, benefiting joint initiatives.
3. **Joint Research Opportunities:** Collaborative efforts under the agreement have driven progress in fields such as agriculture, health, and environmental science, promoting shared knowledge and innovation.
4. **Educational Exchanges:** The partnership has facilitated exchanges of students and scientists, strengthening educational ties and promoting understanding at multiple levels.

### How Has the China Benefited Under This Agreement?

1. **Global Leader in Science:** Over decades, China has grown into a global leader in science, supported by substantial investments in research and development (R&D).
  - a. R&D spending rose from \$375 million in 1979 to \$442 billion in 2021, placing China second only to the U.S.
2. **Educational and Research Growth:** The number of Chinese students in the U.S. rose from 2,770 in 1985 to over 109,000 by 2000.
  - a. Collaborative research between U.S. and Chinese authors has expanded significantly, both in volume and across diverse fields.

### How will it impact India?

1. **Increased Competition in R&D:** China’s rapid advancements in technology and innovation, particularly in areas like AI, 5G, and quantum computing, pose competitive challenges for India’s R&D efforts.
2. **Geopolitical Leverage:** India’s strategic ties with both the U.S. and other global powers may require adjustment.
  - a. As the U.S. manages its dual approach of rivalry and cooperation with China, India’s diplomatic and technological engagements could experience significant shifts.
3. **Elevating role in the global scientific community:** India’s expanding research ecosystem and established bilateral agreements in S&T position it as an alternative partner for nations seeking to reduce dependence on China.
4. **Strategic Technological Partnerships:** India’s growth in critical sectors such as space research, IT, and pharmaceuticals will hinge on its ability to deepen technological and research partnerships with developed nations.
5. **Strengthening Bilateral Agreements:** India must prioritize enhancing its S&T agreements with countries like the U.S., Japan, and European nations to secure a competitive edge in global innovation.
6. **Geopolitical Opportunities:** The ongoing tensions between China and the U.S. create opportunities for India to bolster its strategic position. Alliances like the Quad allow India to align with the U.S. and its partners to counter China’s influence in the Indo-Pacific region.

## 11. India Hosts Global Conference of Cooperatives for the First Time

1. In November 2024, Prime Minister Narendra Modi inaugurated the Global Cooperative Conference 2024 at Bharat Mandapam in New Delhi.
  - **The theme** of the conference: “Cooperatives Build Prosperity for All,” aligns with the Indian Government’s vision of “Sahkar Se Samridhi” (Prosperity through Cooperation).
2. India is hosting the Global Conference of the International Cooperative Alliance (ICA) for the **first time in the 130-year history of the ICA.**

3. PM Narendra Modi also launched the United Nations' **International Year of Cooperatives 2025 (IYC 2025)**, which will focus on the **theme**, "Cooperatives Build a Better World," and released a commemorative postal stamp.
- The **stamp showcases a lotus**, symbolizing peace, strength, resilience, and growth, reflecting the cooperative values of sustainability and community development.
  - The **5 petals** of the lotus represent the **5 elements** of nature (Panchatatra), highlighting cooperatives' commitment to environmental, social, and economic sustainability.
    - Panchatatra includes **earth, water, fire, air, and space**.
  - The design **also incorporates sectors like agriculture, dairy, fisheries, consumer cooperatives, and housing**, with a drone symbolizing the role of modern technology in agriculture.

#### Do You Know

- 2012 International Year of Cooperatives:** The year 2012 was recognized as the International Year of Cooperatives (IYC), promoting the role of cooperatives in fostering economic and social development. This recognition aimed to highlight their contributions to sustainable development, job creation, and poverty alleviation.
  - The **theme for the year 2012** was "*Cooperative Enterprises Build a Better World*"
  - Following the success of 2012 campaign The United Nations declared 2025 as the **second International Year of Cooperatives**.
- International Day of Cooperatives:** The International Day of Cooperatives is observed annually on the **first Saturday of July**, a tradition that dates back to 1923.
  - 2025 International Day of Cooperatives:** The 2025 edition of the International Cooperative Day will be celebrated on July 5<sup>th</sup>.
    - 2024 International Day of Cooperative:** The **102<sup>nd</sup> edition** of the International Day Cooperative was celebrated on July 6, 2024, under the theme "Cooperatives Build a Better Future for All".

#### What are Cooperatives?

- A cooperative (or co-op) is an **organization or business that is owned and operated by a group of individuals** who share a common interest, goal, or need.
- These **individuals, known as members**, participate in the cooperative's activities and **decision-making process**, typically on a one-member, one-vote basis, regardless of the amount of capital or resources each member contributes.
- The main purpose of a cooperative is **to meet the economic, social, or cultural needs of its members**, rather than to maximize profits for external shareholders.
- The **UN SDGs recognize cooperatives as crucial drivers of sustainable development**, particularly in reducing inequality, promoting decent work, and alleviating poverty.

#### Cooperatives in India

- Constitutional Provision:** The 97th Constitutional Amendment, 2011, gave constitutional status and protection to cooperatives in India.
  - Part IX B (Articles 243-ZH to 243-ZT)** was added to the Indian Constitution, which deals with cooperative societies and their functioning.
  - It made the right to form cooperative societies a fundamental right under Article 19 (1).
  - A new **Directive Principle of State Policy (DPSP), Article 43-B**, was introduced to promote cooperative societies.
- Legal Framework:** Cooperatives are governed by the Cooperative Societies Act, which is implemented at both the state and national levels.
  - The Multi-State Cooperative Societies Act (2002):** This law regulates cooperatives that operate in more than one state.
  - The National Cooperative Policy (2002):** Aimed at creating an enabling environment for the cooperative movement, it focuses on improving governance, member participation, and financial sustainability.
- Promotion of Cooperatives:** The Ministry of Cooperation was constituted in 2021 to strengthen the cooperative movement and deepen its reach to the grassroots.

- The Union government plans to establish a cooperative university and also plans to unveil a new cooperative policy.

**4. Contribution of Cooperatives:** India has over 8 lakh cooperatives, and 98% of rural areas are covered by them. About 300 million people are associated with cooperatives in India.

### Benefits of Cooperatives:

- 1. Democratic Control:** Members have a voice in decision-making.
- 2. Economic Participation:** Profits are distributed based on usage or contribution, not capital invested.
- 3. Community Focus:** Co-ops often aim to benefit local communities by keeping resources and profits within the group.
- 4. Better Services/Prices:** By pooling resources, cooperatives often offer better services or prices than for-profit businesses.

### Types of Cooperatives in India:

- 1. Agricultural Cooperatives:**
  - a. Dairy Cooperatives:** Focus on the collective production, processing, and marketing of dairy products (e.g., Amul).
  - b. Farmers' Cooperatives:** Provide services like access to seeds, fertilizers, and agricultural equipment, and help with marketing and processing crops.
  - c. Fishermen Cooperatives:** Support fishermen in managing resources and marketing their catch collectively.
- 2. Consumer Cooperatives:** These cooperatives are formed to provide goods and services to members at reasonable prices, reducing reliance on middlemen. **Examples** include consumer stores and fair-price shops.
- 3. Worker Cooperatives:** In these cooperatives, workers own and manage the business, sharing profits and decision-making. **Examples** include small-scale manufacturing cooperatives or artisan co-ops.
- 4. Credit Cooperatives:** Cooperative Banks and Credit Societies offer financial services, such as savings accounts, loans, and credit, to members, particularly in rural and underserved areas.

**5. Housing Cooperatives:** These cooperatives help members collectively build or manage housing projects, providing affordable living spaces, especially in urban areas.

### Success Stories of Cooperatives in India:

- 1. Amul (Gujarat):** Amul, a dairy cooperative, has been one of India's most successful cooperatives, transforming the dairy sector by empowering millions of small farmers and bringing India to the forefront of the global dairy market.
- 2. Irrigation Cooperatives in Maharashtra:** Water-user associations and cooperatives in Maharashtra have successfully managed water resources for irrigation purposes, helping farmers achieve better yields.
- 3. Kerala's Co-operative Movement:** Kerala has one of the most successful cooperative movements in India, with strong cooperatives in sectors like banking, farming, consumer goods, and housing.

### Challenges Faced:

- 1. Weak Governance:** They are issues of poor management, corruption, and political interference, leading to inefficiency and lack of transparency.
- 2. Limited Access to Credit:** Many cooperatives struggle with access to financing, which hinders their ability to expand or improve their operations.
- 3. Competition from Private Sector:** Cooperatives often face stiff competition from large private enterprises and multinational corporations, especially in sectors like retail and agriculture.
- 4. Technological Gaps:** Many cooperatives, especially in rural areas, lack access to modern technology or are slow to adopt new systems that could improve efficiency.

### Way Forward

1. Cooperatives in India have proven to be an essential tool for economic empowerment, especially for marginalized groups, and contribute significantly to rural development.
2. However, for cooperatives to thrive in the modern economy, governance reforms, better access to technology and credit, and increased member engagement are necessary.

3. With the right support and reforms, cooperatives can continue to contribute to inclusive growth and social development in India.

#### About the International Cooperative Alliance (ICA)

1. ICA is a **non-profit international association** that unites, represents, and serves cooperatives worldwide.
2. It was **founded in 1895**, making it one of the oldest non-governmental organizations in existence.
3. It is also one of the largest NGOs, with 1 billion cooperative members globally, representing diverse cooperative sectors.
4. The ICA serves as the apex body for cooperatives, which number around 3 million worldwide.
5. The ICA operates through a central office in **Brussels, Belgium**, with **4 regional offices: Africa, Americas, Asia-Pacific, and Europe**.

## 12. Cairo Call to Action

World Urban Forum (WUF) concluded its 12<sup>th</sup> edition, held in Cairo (Egypt), with the adoption of **10-point Cairo Call to Action**.

- WUF, established in 2001 by UN, is the premier **global conference on sustainable urbanization**.

### Cairo Call to Action

It calls for:

1. Urgent action to **address the global housing crisis**, sharing **urban spaces** inclusively, and **urban planning** to deliver better local outcomes.
2. Achieving **global goals through local action**, **representation of local actors** at all levels, and building **alliances to scale local impact**.
3. **Unlocking finance for cities** and communities, and ensuring **equity and justice**.
4. **Leveraging local and grassroots data** for decision-making.
5. **Harnessing culture and heritage** as an asset for sustainability.

## 13. Indian Chemical Council Wins OPCW-The Hague Award

The 2024 OPCW-The Hague Award was conferred upon the Indian Chemical Council (ICC).

1. **The Organisation for the Prohibition of Chemical Weapons (OPCW) Hague award** acknowledges ICC contributions to chemical safety, compliance with **Chemical Weapon Convention (CWC)**.
2. **This is the first time** that the Award recognises the efforts of a **chemical industry body**.
3. **Hague Award** was established in 2014 to honour OPCW's contributions to **Chemical Weapons Conventions (CWC)** goals.

### About Chemical Weapon Convention (CWC)

1. **Genesis:** It came into force in **1997**, and presently has **193 States Parties**.
2. **India is an original signatory** to the Convention.
3. **Aim:** To eliminate an entire category of weapons of mass destruction by **prohibiting the development, production, acquisition, stockpiling, retention, transfer or use of chemical weapons by States Parties**.
4. **Implementation:** OPCW is the implementing body, with a mission to achieve a **world free of chemical weapons**.
  - a. OPCW was awarded the **Nobel Peace Prize in 2013**.
  - b. **Chemical Weapon** is a chemical used to cause intentional death or harm through its toxic properties.
    - o **Munitions, devices and other equipment** specifically designed to **weaponise toxic chemicals** also fall under the definition of chemical weapons.
5. **Implementation in India:** **National Authority Chemical Weapons Convention (NACWC)** is responsible for implementing the Convention in India.
  - NACWC was established under the **Chemical Weapons Convention Act, 2000**.

### Indian Chemical Council (ICC) Mumbai, India

1. **Genesis:** Founded in 1938 to support and drive the growth of India's chemical industry.
2. **About:** Apex national body representing all branches of India's chemical industry, including organic/inorganic chemicals, plastics, and petrochemicals.
3. **Industry Representation:** Represents -over 80% of India's \$220 billion chemical industry

## 14. U.S., Japan, and South Korea Sign DiGi Framework

The **Digital Infrastructure Growth Initiative for India Framework (DiGi Framework)** aims to advance cooperation between the United States, Japan, South Korea, and India. The initiative seeks to support the development of India's digital infrastructure, fostering economic growth, financial inclusion, and technological innovation.

### Key Objectives

1. **Primary Goal:** The framework's main objective is to collaborate with the Indian private sector to enhance digital infrastructure within India.
2. **Supporting Agencies:**
  - a. **U.S. International Development Finance Corporation (DFC)**
  - b. **Japan Bank for International Cooperation (JBIC)**
  - c. **Export-Import Bank of Korea (Korea Eximbank)**

### Focus Areas for Implementation

The DiGi Framework will focus on the following sectors within India's information and communications technology landscape: **5G Networks, Open RAN (Radio Access Networks), Submarine Cables, Optical Fiber Networks, Data Centres, Smart Cities, E-commerce, Artificial Intelligence (AI) and Quantum Technology.**

### Digital Public Infrastructure (DPI) in India

India has made significant progress in the development of Digital Public Infrastructure (DPI), with a particular focus on inclusive development, economic growth, and sustainability. India's **India Stack** is the backbone of this infrastructure, which includes three key components:

1. **Aadhaar** – Digital Identification system
2. **Unified Payments Interface (UPI)** – Real-time rapid payment system
3. **Data Empowerment and Protection Architecture (DEPA)** – Data-sharing architecture

### Significance of DPI in India

1. **Inclusive Development:** DPI has played a pivotal role in achieving **80% financial inclusion** between 2018 and 2023. It has also facilitated **direct benefit transfers**, supporting 87% of poor households during the COVID-19 pandemic.
2. **Economic Growth:** The implementation of DPI in the financial sector could **accelerate economic growth by 33%** by improving financial services and access.
3. **Emission Reduction:** DPI applications in the **climate sector** can help India reduce emissions by **5-10 years** by supporting carbon offsetting and trading, land mapping, and enhanced weather information and monitoring.

### India's Efforts to Globalize DPIs

India has been at the forefront of promoting Digital Public Infrastructure (DPI) globally through various international initiatives:

1. **US-India Global Digital Development Partnership:** This partnership focuses on the responsible use of emerging digital technologies, particularly in Asia and Africa.
2. **G20 Framework for Systems of DPI:** Under India's leadership, the G20 adopted a framework outlining principles for the **design and deployment** of DPI systems worldwide.
3. **Virtual Global DPI Repository:** India is setting up a global repository to host tools, resources, and experiences related to DPI from around the world, promoting knowledge sharing and global collaboration.



## C. SECURITY

### 1. PAP reimposed in Manipur, Mizoram and Nagaland

In December 2024, The **Protected Area Permit (PAP)** or '**Protected Area Regime**' (PAR) has been reinstated in the Myanmar-bordering states of India, namely, **Manipur, Mizoram and Nagaland**, following **security concerns**, particularly influx of illegal migrants from neighbouring countries.

#### Protected Area Permit System

1. **Protected Area Permit** is a **special permit** required by **foreign nationals** to visit certain areas in India deemed **sensitive** due to their proximity to international borders.
2. **Protected Areas:**
  - a. Whole of Arunachal Pradesh
  - b. Whole of Manipur
  - c. Whole of Mizoram
  - d. Whole of Nagaland
  - e. Whole of Sikkim (partly in Protected Area and partly in Restricted Area)
  - f. Parts of Himachal Pradesh
  - g. Parts of Uttarakhand
  - h. Parts of Jammu & Kashmir
  - i. Parts of Rajasthan
3. A **foreign national is not normally allowed** to visit a Protected Area unless the government is satisfied that there are **extraordinary reasons** to justify such a visit.

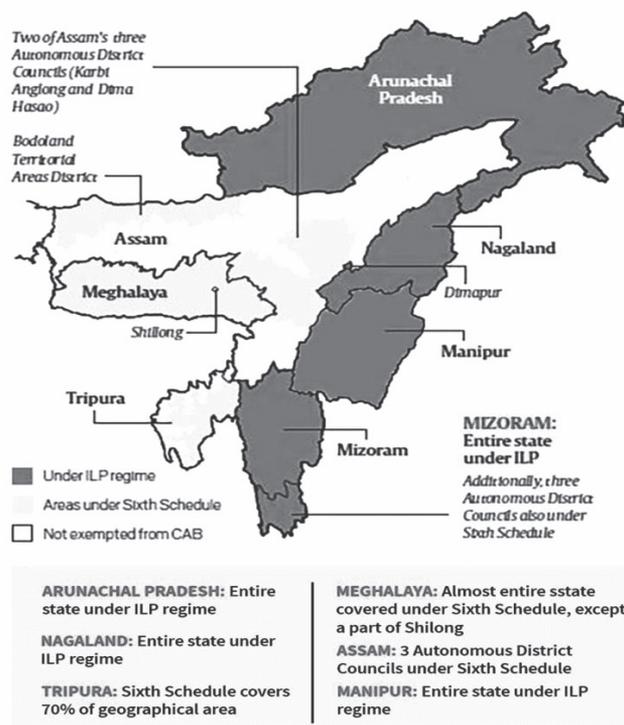
#### Related Regulations:

1. **Foreigners (Protected Areas) Order, 1958:**
  - a. All areas falling between the **Inner line** and the **International Border of the State** have been declared as **Protected Areas**.
  - b. Under the PAP system, **foreigners must obtain permits** to visit these states, as mandated by the **Foreigners (Protected Areas) Order, of 1958**.
2. **Foreigners (Restricted Areas) Order, 1963:**
  - a. It specifies certain regions as **restricted areas** (such as Andaman & Nicobar Islands and parts of Sikkim), which require a Restricted Area Permit for foreign nationals.

### 3. Inner Line Permit (ILP):

- a. It is a **travel document** that must be availed by **Indian Citizens** (domestic tourists) to visit these Protected and Restricted Areas of the ILP states, for a limited period.
- b. **ILP States:** Arunachal Pradesh, Nagaland, Mizoram and Manipur.

**Note:** ILP is required by Indian citizens, whereas PAP is required by foreign nationals for entry into these designated areas.



#### Case of Manipur, Mizoram and Nagaland:

- a. In 2010, PAP had been relaxed for Manipur, Mizoram and Nagaland for **boosting tourism**. However, even then certain restrictions continued. For instance, citizens and foreign nationals of **Afghanistan, China and Pakistan** origins still needed **prior approval** from the Ministry of Home Affairs for entry into these states.
- b. The current scenario of **influx of illegal immigrants from bordering countries** necessitated the reimposition of Protected Area Permit.

## How can Foreign nationals visit Protected Areas?

- a. Every foreigner, except a citizen of Bhutan, who desires to enter and stay in a Protected Area, is **required to obtain a special permit** from a **competent authority** delegated with powers to issue such a special permit to a foreigner, on application.
- b. If powers have not been delegated to any subordinate authority by the Government of India, the application for special permit should be **referred to the Ministry of Home Affairs** for prior approval (at least eight weeks before the date of the expected visit).

## 2. Ministry of Home Affairs (MHA) plan for the proposed National Counter-Terrorism policy

1. In November 2024, During **Anti-Terrorism Conference-2024**, Ministry of Home Affairs (MHA) made announcement to **formulate a National Counter-terrorism Policy & Strategy to fight the entire 'ecosystem' of terrorism**
  - **The Anti-Terror Conference 2024 (ATC 2024)** was organized by the **National Investigation Agency (NIA)** in New Delhi.

### What is the MHA's Plan for the National Counter-Terrorism Policy?

The MHA's proposal for a **national counter-terrorism policy** includes the following key features:

1. **Uniform Anti-Terror Units:** Every state and UT should have a **specialized counter-terrorism unit** with **adequate strength**, ensuring a coordinated and effective response to terrorist threats.
2. **Additional Specialized Units:**
  - a. **Prison Monitoring Unit:** To keep track of prisoners who may have terrorist links.
  - b. **Language Expert Unit:** To assist in intelligence gathering, particularly in areas with diverse languages.
  - c. **Deradicalisation Unit:** To focus on rehabilitating and deradicalizing individuals involved in terrorism.
  - d. **Financial Intelligence Unit:** To monitor and counter financing of terrorism.
3. **Upgraded Weapons:** States and UTs should equip their anti-terror units with **weapons recommended by the National Security Guard (NSG)**, which is **India's premier counter-terrorism force**.

4. **Standardized Training:** All counter-terror units should follow a **standard training module** set by the **NSG** to ensure uniformity in operational tactics and procedures.

### Key Features of the National Counter-Terrorism Policy

1. **Unified Strategy for Counter-Terrorism:** Coordination between agencies like **NIA, RAW, and NTRO** to streamline operations and improve intelligence-sharing.
2. **Focus on Emerging Threats:** The policy addresses **cyber terrorism** and **misinformation** as rising threats.
3. **Proposal for Anti-Terrorism Units:** Introducing **model Anti-Terrorism Squads (ATS)** and **Special Task Forces (STF)** across states and union territories, with flexible SOPs for adaptation.
4. **Multi-Agency Centre (MAC):** A real-time intelligence-sharing grid that involves agencies such as **RAW, armed forces, and state police**.
5. **State Rights:** The new policy will not infringe on state autonomy, ensuring **collaboration** without compromising state rights.

### Key Discussions at the Anti-Terror Conference 2024 (ATC)

At the ATC, the MHA discussed a **model anti-terror structure** that could be adopted by all states and UTs. The following points were considered:

1. **Leadership Structure:**
  - a. The proposed **anti-terror units** should be headed by an **Inspector General (IG)** or a senior officer of equivalent rank.
  - b. Each unit should have at least **two Deputy Inspectors General (DIGs)** and **four Superintendents of Police (SPs)**.
2. **Work Distribution Among Officers:**
  - a. **One SP** should focus on **intelligence gathering and operations**.
  - b. Another **SP** will be responsible for **investigations and prosecutions**.
  - c. A third **SP** should handle **administration and logistics**.
  - d. The fourth **SP** would focus on **research, analysis, and training**.
3. **Intelligence Coordination:** There was a strong emphasis on improving **intelligence processing** and ensuring better coordination between **Central and state agencies** in counter-terrorism operations.

## Terrorism in Global Context and India

1. **No Universally Accepted Definition:** There is **no universally accepted legal definition of terrorism**.
2. **Comprehensive Convention on International Terrorism (CCIT):**
  - a. Proposed by **India in 1996** at the **UN General Assembly**.
  - b. The CCIT aims to criminalize all forms of international terrorism, denying terrorists, their financiers, and supporters access to resources, arms, and safe havens.
  - c. **Definition of Terrorism in CCIT:** Actions that cause **death or serious injury**, damage property (including public infrastructure), and **intimidate populations** or coerce governments and international organizations.
3. **UAPA Definition:** Under the **UAPA**, a terrorist act threatens India's **unity, integrity, security**, and **economic stability** and instills fear in people or specific segments of the population, both domestically and internationally.

### Current Status of Anti-Terror Units in India :

According to sources in the security establishment, current status of **anti-terror units** across Indian states and UTs:

1. **18 states/UTs** already have specialized **Anti-Terrorism Squads (ATS)**, **Special Task Forces (STF)**, or **counter-terrorism units/cells**.
2. **13 states/UTs** have designated these units as official **police stations**.
3. **80 to 650** is the range of sanctioned strength in these units, depending on the state.
4. Only **6 states/UTs** have **Standard Operating Procedures (SOPs)** for counter-terrorism operations.
5. Just **6 states/UTs** have **designated courts** specifically for terrorism-related cases.

### Global Terrorism Index 2024 (GTI)

1. **Published By:** Institute for Economics and Peace (IEP).
2. **India's Rank:** 14<sup>th</sup>/163 in the **GTI 2024**, dropping one position from the previous year.

### Factors Contributing to the Rise of Terrorism in India

1. **Communal Politics:** Politicians often exploit religious and ethnic divisions, which create an environment ripe for radicalization and violence.

2. **Extremist Movements:** Ideologically driven extremist groups, often based on political or religious beliefs, use violence to further their goals.
3. **Human Rights Abuses:** State-sponsored human rights violations, such as excessive force or discrimination, fuel resentment and create conditions conducive to terrorism.
4. **High Youth Unemployment:** Economic instability and high youth unemployment create vulnerabilities, making youth more susceptible to extremist ideologies.
5. **Poverty and Illiteracy:** Lack of economic opportunities and education makes individuals more likely to fall prey to extremist propaganda.

### Types of Terrorism

1. **Domestic Terrorism:** Perpetrated within a country by groups or individuals targeting their own citizens or government.
2. **International Terrorism:** Terrorism involving actors from different countries, often with cross-border involvement.
3. **State-Sponsored Terrorism:** Governments that sponsor or condone terrorism to achieve political objectives.
4. **Left-Wing Terrorism:** Violent actions carried out by groups with leftist ideologies, often focusing on social justice, anti-capitalism, and wealth redistribution.
5. **Religious Terrorism:** Motivated by religious beliefs, aiming to impose ideologies or punish those who disagree.
6. **Ethno-Nationalist Terrorism:** Terrorism driven by ethnic or nationalist groups seeking independence or autonomy (e.g., Tamil Tigers in Sri Lanka).
7. **Cyber Terrorism:** Attacks on infrastructure or spreading fear through digital platforms.
8. **Lone Wolf Terrorism:** Perpetrated by individuals acting independently, often self-radicalized.

### India's Stance on Terrorism

1. **Rejection of 'Good' and 'Bad' Terrorism:** In 2022, at the **90th INTERPOL General Assembly**, India rejected the narrative of **'good terrorism' and 'bad terrorism'**, stressing that all forms of terrorism are equally reprehensible.
2. **Terrorism vs Insurgency:**
  - a. **Terrorism** involves violence or threats aimed at intimidating a government or population, often targeting civilians.

- b. Insurgency** refers to rebellion or armed conflict aimed at challenging or overthrowing an established authority, often involving armed forces.

### India's Initiatives to Combat Terrorism

- 1. Zero Tolerance Policy:** Strong stance against terrorism, with a focus on eradicating terror networks.
- 2. Creation of NIA:** Established in 2008, the **National Investigation Agency** is the central agency for counter-terrorism investigations.
- 3. Expansion of UAPA:** Powers to confiscate properties and designate individuals/organizations as terrorists.
- 4. National Intelligence Grid (NATGRID):** A centralized database for counter-terrorism.
- 5. Standard Operating Procedures (SOPs):** Developed under the **Multi-Agency Centre (MAC)** to address cyber threats, narco-terrorism, and emerging radical hotspots.

### Key Terror Organizations

- 1. Al-Qaeda:** Responsible for 9/11 attacks, motivated by an extremist interpretation of Sunni Islam.
- 2. Lashkar-e-Taiba (LeT):** Responsible for 26/11 attacks, aims to establish an Islamic state in Kashmir.
- 3. Jaish-e-Mohammed (JeM):** An extremist group based in Pakistan.
- 4. Hizb-ut-Tahrir (HuT):** Aims to establish a global Caliphate, overthrowing governments.

### International Cooperation Against Terrorism

- 1. UN Global Counter-Terrorism Strategy:** Adopted in 2006, it aims to enhance global efforts against terrorism.
- 2. SAARC Convention:** Promotes regional cooperation among South Asian nations to combat terrorism.
- 3. INTERPOL and FATF:** Facilitate international police cooperation and work to counter terrorism financing.
- 4. UNSC 1267 Committee:** A global list for terrorists and terror groups.

## 3. Telecommunications (Telecom Cyber Security) Rules, 2024

The rules have been issued by exercising power under Telecommunications Act, 2023 and in supersession of the prevention of tampering of the Mobile Device Equipment Identification Number Rules, 2017.

### Provisions of Telecommunications (Telecom Cyber Security) Rules, 2024

- 1. Defines terms** such as **Telecom Cyber Security**, **Telecommunication entity**, **Security Incident** etc.
- 2. Collection, sharing and analysis of data:** Central Government or designated agency may seek traffic data and any other data from a telecommunication entity and can share them with law enforcement and telecom entities.
  - It can also direct telecommunication entity to establish necessary infrastructure for collection and provision of such data from designated points to enable its processing and storage
- 3. Obligations relating to telecom cyber security:-**
  - **For Individuals**
    - i. No person shall endanger or send any message which adversely affects telecom cyber security
  - **For Entities**
    - i. Entities should develop and adopt telecom cyber security policy addressing risks, audits, and incident responses.
    - ii. Establish **Security Operations Centres (SOCs)** for telecom cyber security incidents, intrusions etc.
    - iii. Entities should mandatorily appoint **Chief Telecommunication Security Officer (CTSO)** whose details shall be provided to Central Government
- 4. Reporting of security incidents:**
  - It is to be done **within 6 hours of becoming aware of a security incident with reporting to the Central Government.**
  - Within 24 hours of becoming aware of incidents, entities should furnish details such as number of users affected, duration, geographical area affected, remedial measures taken etc.

#### Key Terms Defined

- **Telecom Cyber Security:** Cyber security of telecommunication networks and telecommunication services which includes tools, policies etc. that can be used to safeguard telecommunication networks and telecommunication services against relevant security risks in the cyber environment;
- **Telecommunication Entity:** It means any person providing telecommunication services, or establishing, operating, maintaining, or expanding telecommunication networks etc.
- **Security Incident:** It means an event having real or potential risk on telecom cyber security.

## 4. Sabal 20 Logistics Drone

1. In November 2024, The Indian Army received the Sabal 20 logistics drone, which was bought from EndureAir Systems, a company supported by IIT Kanpur.
2. This drone is being sent to the Eastern sector of India, an area where the terrain is rough and difficult for regular transport.

### Key Features of the Sabal 20 Drone:

1. **Type:** The Sabal 20 is an electric unmanned helicopter. It uses variable pitch technology, which helps control the drone's speed and movement.
2. **Payload Capacity:** The drone can carry up to 20 kg of cargo.
3. **Design:** The drone has a tandem rotor system (two rotors one above the other). This design helps the drone stay stable, especially in high altitudes where the air is thin and conditions are tough.
4. **Performance:** It is designed to work well at high altitudes, making it ideal for areas like the Eastern sector.
5. **VTOL (Vertical Take-Off and Landing):** This allows the drone to take off and land vertically, which makes it useful in small or difficult spaces where traditional aircraft can't land.
6. **Stealth:** The drone's low RPM (revolutions per minute) design makes it quieter, which helps it stay hidden during sensitive missions.

### IIT Kanpur Develops Metamaterial Surface Cloaking System (Anālakshya):

1. IIT Kanpur has developed a new stealth technology called the Metamaterial Surface Cloaking System (Anālakshya).
2. This technology is designed to make objects harder to detect by radar.

### Key Features of Anālakshya MSCS:

1. **Radar Absorption:** The system uses a special material that absorbs radar signals, making it difficult for radar to detect the object.
2. **Stealth Technology:** The system helps reduce the radar signature of objects (such as military vehicles or planes), making them harder to see on radar.
3. **Missile Protection:** The system also helps protect against missiles that use radar to guide them by making the target harder to find.

### Indigenous Contributions:

1. **Made in India:** About 90% of the materials used in this system are sourced locally, supporting India's goal to be self-reliant in defense technologies.
2. The technology has been licensed to Meta Tattva Systems Pvt. Ltd., a company that will handle the production and deployment of the system.

### Impact of These Developments

1. **Better Defense:**
  - a. The Sabal 20 drone will help the Army carry out missions in remote areas where other transport methods cannot go. It makes transporting supplies easier and faster.
  - b. The Anālakshya system will help protect Indian assets by hiding them from radar and making them harder to target by radar-guided missiles.
2. **Self-Reliance in Defense:**
  - a. These technologies show that India is becoming more self-reliant in developing its own defense technologies, reducing the need to depend on other countries for advanced military equipment.
3. **Broader Use:**
  - a. These technologies could also be used for commercial purposes, such as in logistics, surveillance, or security, which could help India grow its tech industry.

## 5. Exercises in News

Name	Type	Participants	Brief Description
<b>GARUD SHAKTI 24</b>	Bilateral Joint Special Forces Exercise	India-Indonesia	<ol style="list-style-type: none"> <li>1. 9<sup>th</sup> edition held in Cijantung, Jakarta, Indonesia. –</li> <li>2. <b>Focus:</b> Enhancing military cooperation and interoperability.</li> <li>3. <b>Activities</b> include joint operations, counter-terrorism drills, and cultural exchanges.</li> </ol>
<b>VAJRA PRAHAR 2024</b>	Joint Special Forces Exercise	India-US	<ol style="list-style-type: none"> <li>1. 15<sup>th</sup> edition (Conducted annually) held at Orchard Combat Training Centre, Idaho, USA.</li> <li>2. <b>Focus:</b> Tactical drills, reconnaissance missions, and special operations using UAS.</li> <li>3. <b>Objectives:</b> Enhance military cooperation and promote interoperability and tactical exchange.</li> </ol>

<b>Poorvi Prahar</b>	Tri-Services Exercise	Indian Army, Navy, and Air Force	<ol style="list-style-type: none"> <li>1. <b>High-intensity exercise</b> in Arunachal Pradesh's forward areas.</li> <li>2. <b>Features</b> advanced military platforms like Chinook helicopters and M777 howitzers.</li> <li>3. <b>Focus:</b> Integrated Joint Operations in challenging terrains.</li> </ol>
<b>Sanyukt Vimochan 2024</b>	Humanitarian Assistance and Disaster Relief (HADR) exercise	Indian Army, Navy, Air Force, Coast Guard, NDRF, SDRF, other Central & State Agencies, and 15 organizations from 9 friendly foreign countries	<ol style="list-style-type: none"> <li>1. <b>Focus:</b> It focused on the theme of 'Cyclone in Coastal Region of Gujarat'.</li> <li>2. <b>Objective:</b> To showcase India's readiness for disaster response</li> <li>3. <b>Indigenous Capabilities:</b> The exercise featured the use of indigenous HADR equipment like fire-resistant clothing, aligning with the Atmanirbhar Bharat.</li> </ol>
<b>Bharat National Cyber Security Exercise 2024</b>	Cybersecurity Exercise	Cybersecurity professionals, CISOs, and Indian startups	<ol style="list-style-type: none"> <li>1. <b>12-day exercise</b> aimed at enhancing India's cybersecurity resilience.</li> <li>2. <b>Features</b> include live-fire simulations, cyber defense training, strategic decision-making, and a cybersecurity startup exhibition.</li> </ol>
<b>AUSTRAHIND</b>	Joint Military Exercise	India-Australia	<ol style="list-style-type: none"> <li>1. <b>3<sup>rd</sup> edition</b> (conducted annually) held at the Foreign Training Node, Maharashtra.</li> <li>2. <b>Focus:</b> Counterterrorism and joint operations in semi-urban and semi-desert terrain.</li> <li>3. <b>Other joint exercises:</b> AUSINDEX (Naval), PITCHBLACK (Air).</li> </ol>
<b>Antariksha Abhyas 2024</b>	Space Exercise	Defence Space Agency (Ministry of Defence)	<ol style="list-style-type: none"> <li>1. <b>India's 1<sup>st</sup> space exercise</b> held in New Delhi.</li> <li>2. <b>Objective:</b> Simulating threats to space assets and securing national strategic objectives.</li> <li>3. <b>Focus:</b> Enhancing the integration of space capability into military operations, identifying vulnerabilities and handling disruptions</li> <li>4. <b>Military Use of Space:</b> Detecting border infiltration, artillery movements, missile launches</li> <li>5. <b>India's Capability:</b> ASAT test under Mission Shakti (2019).</li> <li>6. <b>Regulation:</b> Outer Space Treaty (outer space should be used only for peaceful operations)</li> </ol>
<b>VINBAX 2024</b>	Bilateral Military Exercise	India-Vietnam (Army and Air Force)	<ol style="list-style-type: none"> <li>1. <b>5<sup>th</sup> edition</b> held in Ambala, Haryana.</li> <li>2. <b>Focus:</b> Deployment of Engineer &amp; Medical teams for UN Peacekeeping Operations under Chapter VII.</li> <li>3. <b>Includes HADR</b> demonstration and cultural exchanges.</li> </ol>
<b>Axiom-4 Mission</b>	Private spaceflight to International Space Station (ISS)	<b>Multinational crew</b>	<ol style="list-style-type: none"> <li>1. <b>Private spaceflight</b> to the ISS with two Indian astronauts using the <b>SpaceX Crew Dragon spacecraft</b> (reusable spacecraft launched by a Falcon 9 rocket)</li> <li>2. <b>Focus:</b> Commercial space initiatives, diverse multinational crew, emphasising global cooperation and R&amp;D in microgravity.</li> <li>3. <b>Duration:</b> 14 days aboard ISS for experiments and technology demonstrations.</li> </ol>



## D. ECONOMY

### 1. Annual Survey of Unincorporated Sector Enterprises (ASUSE) 2023-24

- In December 2024, the **Annual Survey of Unincorporated Sector Enterprises (ASUSE) 2023-24** was released by the **Ministry of Statistics and Programme Implementation (MoSPI)**.
- The survey covers the **reference period from October 2023 to September 2024**.

#### What is ASUSE?

ASUSE **exclusively** measures various economic and operational characteristics of **unincorporated non-agricultural establishments in manufacturing, trade and other services sector** (excluding construction).

- Unincorporated non-agricultural establishments are enterprises in the **unorganised or informal sector**, comprising **MSMEs, household units** including those with hired workers, and **own-account enterprises**.

#### 1. Coverage:

- **Geographic:** Rural and urban areas of the whole of India (except the villages in Andaman and Nicobar Islands, which are difficult to access).
- **Sector Wise:** Unincorporated non-agricultural establishments belonging to three sectors viz., **Manufacturing, Trade and Other Services**.
- **Ownership:** Proprietorship, partnership (excluding Limited Liability Partnerships), **Self-Help Groups (SHGs), cooperatives, societies/trusts** etc.

2. **Survey Timeline:** The **first** full ASUSE was conducted in **2021-22** (April 2021 - March 2022), followed by the 2nd survey from October 2022 to September 2023.

- The current **3rd** survey (ASUSE 2023-24) was conducted from **October 2023 to September 2024**.

3. **Sample Size:** In ASUSE 2023-24, data were collected from a total of **4,98,024 establishments (2,73,085 in rural and 2,24,939 in urban)** from **16,842 surveyed first stage units (8,523 in rural and 8,319 in urban)**.

- First stage units were census **villages in rural areas and blocks in urban areas**.

### Key highlights of the ASUSE 2023-24 Results

#### 1. Significant Sectoral Growth

##### a. Total Number of Establishments:

- **2022-23:** 6.50 crore establishments.
- **2023-24:** 7.34 crore establishments.
- **Growth:** 12.84% increase in the number of establishments.

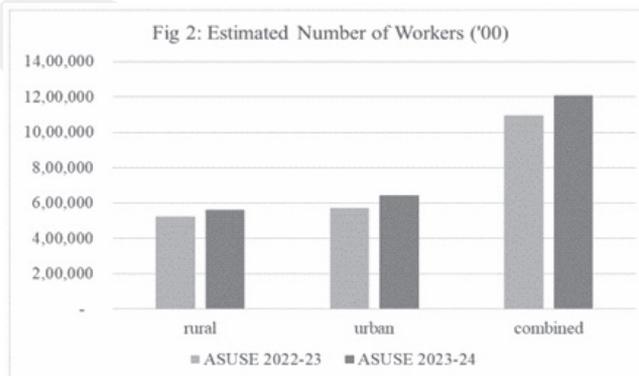
##### b. Growth by Sector:

- **Other Services** sector: **23.55%** growth in the number of establishments.
- **Manufacturing** sector: **13%** growth in the number of establishments.

##### c. Gross Value Added (GVA):

- **2022-23:** GVA growth across all sectors.
- **2023-24:** Overall GVA increased by **16.52%**.
  - **Other Services** sector led the growth with a **26.17%** rise in GVA.

#### 2. Labour Market Expansion



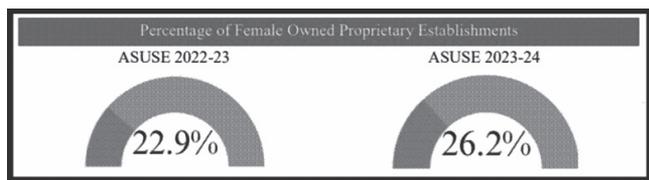
##### a. Total Employment:

- **2022-23:** Around 11 crore workers were employed in the unincorporated sector.
- **2023-24:** Employment increased to **over 12 crore** workers, marking a growth of more than **1 crore** workers.

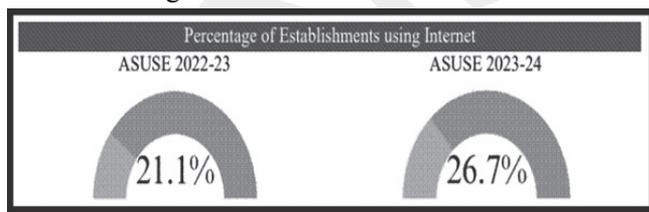
##### b. Employment Growth by Sector:

- **Other Services** sector: **17.86%** increase in employment.
- **Manufacturing** sector: **10.03%** increase in employment.

##### c. Female-Owned Proprietary Establishments:



- **2022-23:** Female-owned establishments accounted for **22.9%**.
  - **2023-24:** Female-owned establishments increased to **26.2%**, showing a significant rise in gender inclusivity.
- d. Average Emoluments (Wages) per Hired Worker:**
- The **average wages** grew by **13%** in 2023-24 compared to the previous year.
  - **Manufacturing sector** experienced the highest wage growth at **16.3%**.
- 3. Labour Productivity**
- a. Gross Value Added (GVA) per Worker:**
- **2022-23:** Rs. 1,41,769 in current prices.
  - **2023-24:** Increased to Rs. 1,49,742, marking a **5.62%** increase in labour productivity.
- b. Gross Value of Output (GVO) per Establishment:**
- **2022-23:** Rs. 4,63,389 in current prices.
  - **2023-24:** Increased to Rs. 4,91,862, reflecting an increase in the value of output per establishment.
- 4. Digital Adoption:**
- a. 2022-23:** Around **21.1%** of establishments were using the internet for business operations.
- b. 2023-24:** This number increased to **26.7%**, indicating a **5.6%** increase in digital adoption among establishments.



- 5. Economic Contribution and Recovery**
- a.** The data highlights the **unincorporated sector's contribution** to India's **economic recovery** and growth trajectory.
- b. Sectoral Growth in Other Services and Manufacturing** shows resilience and growth potential in key industries.

- c. Digital Transformation:** The rise in **digital adoption** supports the modernization of traditional sectors, helping businesses to operate more efficiently and reach wider markets.
- d. Employment Growth:** A key driver of economic growth, particularly in the context of India's ongoing socio-economic recovery post-pandemic.

### Challenges Related to Unincorporated Non-agricultural Units in India

- 1. Gender Disparities:** Women make up a significant portion of the informal workforce, yet they face severe disadvantages, including **lower wages, income instability, and the absence of social security.**
- 2. Vulnerability to Uncontrollable Factors:** During the **monsoon season** in India, construction activities often come to a halt, leaving **migrant workers** without steady work.
- 3. Lack of Employment Protections:** Informal employment by nature **lacks** the protections and benefits associated with formal employment, such as **written contracts, minimum wages, paid leave, and regulated working hours.**
- 4. Tax Evasion:** Many firms **evade taxes** by concealing revenue and expenses from the legal system resulting in a **substantial loss** of government revenue.
- 5. Challenges in Growth:** Long-term stagnation remains a concern, with the sector's growth rate from **2015-2023** showing **minimal expansion of only 2%.**
- 6. Absence of Accurate Data:** The **Economic Survey of 2018-19** states that **93%** of India's workforce is informal, while the **Niti Aayog's Strategy for New India at 75** estimates it at **85%.**
- 7. 'Report of the Committee on Unorganised Sector Statistics'** of the **National Statistical Commission (NSC), 2012** claims **over 90%** of the workforce is informal, though sources are not specified.

### Way Forward

- 1. Encouraging Formalization:** Encourage **formalization** by simplifying **registration** processes, **reducing taxes** for small firms, and providing **incentives** for businesses to comply with labor and safety standards.
- 2. SHGs for Empowerment:** Establishing **self-help groups (SHGs)** can provide informal employees with the tools and support they need to improve their working conditions and economic security.

3. **Comprehensive Database:** Collecting detailed data on the **informal economy** helps policymakers make informed decisions, design targeted interventions, and assess policy impact.
4. **Equal Pay for Equal Work:** The government should enforce measures ensuring equal pay for equal work, as per **Article 39(d)** of the **Directive Principles of State Policy**.
5. **Capacity Development:** Offer skill development programs for informal workers, covering trades like **carpentry, plumbing, tailoring, food processing, digital literacy, and soft skills**.
  - Introduce apprenticeship and **mentoring programs** for experienced workers to **train newcomers**.

## 2. DIPAM Issues Revised Capital Restructuring Norms for CPSEs

1. In November 2024, the **Finance Ministry** issued new guidelines for **capital restructuring** by **Central Public Sector Enterprises (CPSEs)**.
2. These changes focus on improving the financial flexibility of CPSEs, increasing shareholder value, and improving their performance.

### Central Public Sector Enterprises (CPSEs)?

1. It refers to government-owned companies or entities where the **Central Government holds a controlling stake of 51% or more in the share capital**.

#### The term includes several types of entities:

1. **Government Companies:** These are companies in which the **Central Government owns at least 51% of the paid-up share capital, or a combination of the Central and State Governments together hold at least 51%**. A government company can also be a **subsidiary** of another government company. (as per **Companies Act, 2013**)
2. **Statutory Corporations:** These are entities **created by an Act of Parliament or state legislature** and are **owned or controlled by the government**. **Statutory Corporations** are also considered CPSEs when they meet the ownership criteria.
3. **Subsidiaries of Government Companies:** Any company that is a subsidiary of a government company, where the Central Government's stake is 51% or more, is also categorized as a CPSE.

4. **Government-Controlled Other Companies:** These are companies where the Central Government, or a combination of the Central and State Governments, hold substantial control, though they may not meet the strict ownership percentage criteria of 51% shareholding.

### Exclusions from CPSEs:

1. **Departmentally Run Public Enterprises:** Enterprises directly managed by the government without being incorporated as companies.
2. **Banking Institutions:** Banks owned or controlled by the government, such as public sector banks.
3. **Insurance Companies:** Public sector insurance companies.

## Key Features of the Revised Guidelines

### Dividend Payment Rules

1. As per the guidelines issued by the **Department of Investment and Capital Asset Management (DIPAM)**, CPSEs are now required to pay at least **30% of their net profit or 4% of their net worth**, whichever is **higher**, as an **annual dividend** to shareholders.
  - a. **DIPAM** comes under the **Ministry of Finance**.
  - b. **Functions:** Deals with matters relating to management of Central Government investments in CPSEs.
  - c. 3 major areas of its work relate to **Strategic Disinvestment and Privatization, Minority Stake Sales and Capital Restructuring, bonus, dividends, etc.**
2. For **financial sector CPSEs** like NBFCs, the minimum dividend is **30% of profit after tax (PAT)**, but this is subject to any existing legal limits.
  - a. **Non-Banking Financial Companies (NBFCs)** are financial institutions that provide a variety of financial services similar to banks but do not have a full banking license and cannot engage in activities like accepting demand deposits (savings or checking accounts) or offering direct payment settlement services.
3. The new rules are stricter than the **2016 guidelines**, which required **30% of profit after tax (PAT)** or **5% of net worth** as the minimum dividend.

### Share Buyback Option

- CPSEs whose **share price** has been **below its book value** for the last **six months** and meet the following conditions may **buy back their shares**:

- Net worth** of at least **₹3,000 crore**.
- Cash and bank balance** of over **₹1,500 crore**.

#### Issuing Bonus Shares

- CPSEs may issue **bonus shares** if their **reserves and surplus** are at least **20 times their paid-up equity share capital**.

### Share Split Option

- If a listed CPSE's **share price** is more than **150 times its face value** for **six months in a row**, it can consider **splitting** its shares.
- However, there must be a **cooling-off period** of at least **three years** between two share splits.
  - A **cooling-off period** is essentially a waiting period, designed to prevent rash decisions, conflicts of interest, or undue pressure, giving time for reflection or to comply with specific regulatory requirements

### Applicability of the Guidelines

- The revised rules apply to **all CPSEs**, including **subsidiaries** where the parent CPSE owns more than **51% stake**.
- These guidelines do not apply to **public sector banks, public sector insurance companies**, or other bodies that are not allowed to distribute profits (e.g., companies under **Section 8 of the Companies Act**).
- The new rules will be in effect from the **current financial year 2024-25**.

### Interim Dividends and Payment Schedule

#### For Listed CPSEs:

- Listed CPSEs must pay at least **90% of their expected annual dividend** as **interim dividends**, either in one or more installments.
  - An **interim dividend** is a dividend payment made by a company to its shareholders before the end of the financial year
- CPSEs may choose to pay **interim dividends** after each quarterly result, or at least **twice a year**.
- The **final dividend** for the previous year should be paid **soon after the Annual General Meeting (AGM)**, which is usually held in **September**.

### Key Differences Between Interim and Final Dividends

Aspect	Interim Dividend	Final Dividend
<b>Declared</b>	During the year (based on interim results)	After the financial year (based on audited results)
<b>Approval</b>	Declared by the Board of Directors	Approved by shareholders at the AGM
<b>Payment Frequency</b>	Paid multiple times in a year (quarterly, semi-annually)	Paid once, at the end of the financial year
<b>Basis</b>	Based on unaudited financial results	Based on final audited results

#### For Unlisted CPSEs:

- Unlisted CPSEs** can pay a **final dividend once a year** based on the audited financial results of the previous year.

### Objectives of the Revised Guidelines

- The new rules aim to **increase the value** of CPSEs and provide **better returns** for shareholders.
- The changes give CPSEs more **flexibility** in managing their operations and finances, encouraging them to perform better.
- The guidelines are designed to allow more investors to participate in the growth and success of CPSEs, which could lead to **greater profitability**.

### Governance and Oversight

- A committee called the **Committee for Monitoring of Capital Management and Dividend by CPSEs (CMCDC)** will discuss any issues related to capital management or restructuring.
- The **Secretary of DIPAM** will lead this committee, which will oversee the implementation of the guidelines and ensure they are followed.

### Importance and Impact

- Financial Flexibility:** By requiring more **dividends** and allowing **share buybacks**, the guidelines give CPSEs more **flexibility** in managing their finances and operations.
- Shareholder Value:** The rules are designed to **increase shareholder value** by making CPSEs more **accountable** to investors and ensuring higher returns.

- Efficiency & Performance:** The guidelines aim to **improve the efficiency** and overall **performance** of CPSEs, making them more attractive to investors.
- Capital Restructuring:** By allowing CPSEs to buy back shares, issue **bonus shares**, or **split shares**, the new rules provide several ways for CPSEs to manage their capital structure effectively.

### Conclusion

The revised guidelines for capital restructuring by DIPAM are a big step toward improving the financial health of CPSEs. By focusing on higher dividend payments, offering share buyback and bonus share options, and allowing share splits, the guidelines aim to make CPSEs more efficient and profitable. These changes will not only improve shareholder returns but also help CPSEs grow and attract more investors.

### 3. RBI’s Framework for Reclassification of FPI to FDI

In November 2024, The **Reserve Bank of India (RBI)** introduced a streamlined operational framework to allow **foreign portfolio investors (FPIs)** to convert their investments to **foreign direct investment (FDI)** when equity holdings in Indian companies surpass the prescribed 10% limit.

#### Key Highlights of the Framework

- Any **foreign portfolio investor** investing above 10% of the total paid-up equity has the option of **divesting their holdings or reclassifying** such holdings as **FDI**.
- FDI is the investment through **capital instruments** by a person resident outside India.
  - In an **unlisted Indian company** or
  - In **10% or more of the paid-up equity** capital of a **listed Indian company** (Below 10% is considered **foreign portfolio investment (FPI)**).
- The reclassification must be completed within **five trading days** from the transaction that results in **breaching the 10% limit**.
- Compliance Requirements:** FPIs must adhere to reporting obligations under the **Foreign Exchange Management (Mode of Payment and Reporting of Non-Debt Instruments) Regulations, 2019 (FEM (NDI) Rules, 2019)**.
  - FEM (NDI) Rules, 2019 mandates that investments by non-residents in India must follow

**entry routes, sectoral caps, or investment limits** unless specified otherwise.

- Sector Restrictions:** Reclassification is not permitted in sectors where **FDI is restricted** E.g., Gambling and betting, **Real Estate Business, Nidhi company** (Mutual Benefit Funds Company) etc.
- Complementary Measures:** It complements a similar update from the **Securities and Exchange Board of India (SEBI)** which mandates that once an **FPI exceeds the 10%** equity threshold, it may opt to convert the holdings to FDI.

### What is the Difference Between FDI and FPI?

Parameter	FDI (Foreign Direct Investment)	FPI (Foreign Portfolio Investment)
Nature of Investment	Direct investment and <b>business ownership</b> in India by a foreigner.	Indirect investment in financial assets like <b>stocks and bonds</b> .
Investor Role	Active role	Passive role
Control and Influence	<b>High degree of control</b> over management and business operations.	<b>No significant control</b> over day-to-day operations of the company.
Asset Type	<b>Physical assets</b> of the foreign company.	Financial assets like <b>stocks, bonds, and Exchange-Traded Fund (ETF)</b> .
Investment Approach & Time Frame	<b>Long-term</b> approach. It can take years to progress from planning to implementation.	<b>Shorter term</b> than FDI. It is focused on market-linked gains.
Motive	Securing <b>market access or strategic interests</b> in a foreign country for long-term gains.	Short-term returns and <b>market-linked gains</b> .
Risk Factor	Generally, <b>more stable</b> , but affected by the host country’s policies, political environment, and regulations.	Generally, <b>more volatile</b> due to fluctuations in asset prices.
Entry and Exit	Entry and exit are <b>difficult</b> .	Entry and exit are <b>easy</b> due to <b>liquidity</b> and wide trading of assets.

## 4. Domestic Systemically Important Banks (D-SIBs)

1. In November 2024, The **Reserve Bank of India (RBI)** confirmed that **State Bank of India (SBI)**, **HDFC Bank**, and **ICICI Bank** will continue to be listed as **Domestic Systemically Important Banks (D-SIBs)**.
2. These banks are in the same category (or **bucket**) as the **2023 list of D-SIBs**. Their importance to the economy remains unchanged.

### What Are D-SIBs?

1. **Systemically Important Banks (SIBs)** are banks whose failure or problems could harm the economy.
2. They are also called “**Too Big To Fail (TBTF)**” because their failure could **disrupt the financial system** and impact many people. These banks provide essential services that are important for the economy to run smoothly.
3. The RBI has been classifying these banks **since the mid-2010s**:
  - a. **SBI**: Classified as a **D-SIB in 2015**.
  - b. **ICICI Bank**: Classified as a **D-SIB in 2016**.
  - c. **HDFC Bank**: Classified as a **D-SIB in 2017**.

### Why Are D-SIBs Important?

1. Some banks become very important because:
  - a. **Size**: They are very large and handle huge amounts of money.
  - b. **Complexity**: They offer a wide range of services, making them harder to replace.
  - c. **Cross-border Activities**: They operate in many regions or countries.
  - d. **Interconnectedness**: Their failure could affect many other parts of the economy.
2. If a D-SIB fails, it can cause **disruption** in the **financial system** and **hurt the economy**. For this reason, D-SIBs are seen as “**Too Big To Fail**” (TBTF). This means people expect the government to step in if these banks face a crisis.

### Risks of TBTF Banks

While the government’s help can prevent a crisis, it also causes problems:

1. Banks may take bigger risks, thinking they will be saved by the government.
2. Investors and the public might not worry about the bank’s mistakes.
3. Because of this, the chances of the bank getting into trouble again increase.

### Buckets for D-SIBs:

1. To decide how risky each D-SIB is, the RBI places them in different buckets. Each bucket determines how much extra capital (money) the bank must hold to protect itself from losses.
  - a. **Bucket 4**: The most important banks (highest extra capital required).
  - b. **Bucket 3**: Moderately important banks.
  - c. **Bucket 1**: Less important banks.
2. For 2024, the banks are placed in the following buckets:
  - a. **SBI**: Bucket 4 (Most important, needs higher capital).
  - b. **HDFC Bank**: Bucket 3.
  - c. **ICICI Bank**: Bucket 1.

### Capital Requirements

1. Each bucket means the bank needs to keep extra money (capital) in case of trouble. This extra capital is based on the **Risk-Weighted Assets (RWAs)** of the bank.
  - a. **SBI**: Needs an additional **0.80%** of RWAs.
  - b. **HDFC Bank**: Needs an additional **0.40%** of RWAs.
  - c. **ICICI Bank**: Needs an additional **0.20%** of RWAs.
2. From **April 1, 2025**, **SBI** and **HDFC Bank** will need to keep more capital:
  - a. **SBI**: Additional **0.80%**.
  - b. **HDFC Bank**: Additional **0.60%**.

### How Are D-SIBs Selected?

The RBI follows a two-step process to decide which banks should be D-SIBs:

1. **Step 1 - Selecting Banks for Study**: Not all banks are studied. Only the larger banks (those whose size is more than **2% of the country’s GDP**) are considered.
2. **Step 2 - Assessing Importance**: The RBI looks at a range of factors, such as:
  - a. **Size**: The bank’s size compared to the country’s economy.
  - b. **Interconnectedness**: How connected the bank is to other financial institutions.
  - c. **Complexity**: How complex and wide the bank’s operations are.
  - d. **Substitutability**: How easily its services could be replaced by other banks.
3. Banks that score high on these factors are classified as **D-SIBs** and placed into different buckets based on their importance.

### What is Global Systemically Important Banks (G-SIBs)?

1. The **Global Systemically Important Banks (G-SIBs)** are so important that their failure could affect the entire world economy.
2. Some well-known **G-SIBs** are: **JP Morgan Chase (USA)**, **Bank of America (USA)**, **Citigroup (USA)**, **HSBC (UK)**, **Barclays (UK)**, **BNP Paribas (France)**
3. These banks are assessed globally, with a focus on their operations across multiple countries.

## 5. PAN 2.0 Project

The Cabinet approved the **PAN 2.0 Project** of the **Income Tax (IT) Department**, with a cost of Rs 1,435 crore, under which the existing system will be upgraded completely, the digital backbone will be revamped and PAN will be made as a common business identifier for all digital systems of specified government agencies.

### About PAN 2.0 Project

1. An **e-Governance initiative** for re-engineering the business processes of taxpayer registration services through technology driven transformation.
2. The **PAN 2.0 Project** aims to modernize the existing **PAN system** by introducing new features and transforming it into a **common identifier** for businesses and digital systems.
3. **Aim:**
  - a. To modernize the existing PAN system.
  - b. To introduce features such as a **QR code** on PAN cards.
  - c. To transform **PAN** into a common identifier for businesses and digital systems.

### Key Features:

1. **Upgrade from PAN/TAN 1.0:**
  - PAN 2.0 is an upgrade from the current **PAN/TAN 1.0** ecosystem.
  - It will incorporate both **core** and **non-core PAN/TAN activities** under a unified, paperless, and online system.
2. **Integration of QR Code:**
  - A **QR code** will be included on all **new and existing PAN cards**.
  - **Existing PAN card holders** can upgrade their cards free of cost.

### 3. Common Business Identifier:

- PAN will serve as a common **business identifier** for all **digital systems** of specified **government agencies** and **businesses**.
- All **PAN, TAN, and TIN** numbers will be clubbed under this system.

### 4. Unified Portal and Data Vault:

- The project aims to set up a **unified portal** and a **mandatory PAN data vault system** for all entities using PAN data.
- This will ensure **data protection** and **cybersecurity**. Entities such as **banks, insurance companies**, and others that store PAN details will be required to keep the data safe through this system.

### Benefits of PAN 2.0

1. **Ease of Access and Speedy Service Delivery:** Improved quality and faster access to PAN-related services.
2. **Single Source of Truth:** Ensures **data consistency** and accurate information.
3. **Eco-Friendly Processes:** Optimizes costs and promotes **eco-friendly practices**.
4. **Security and Infrastructure Optimization:** Enhances security and infrastructure to ensure **greater agility** and better protection.

### Significance of PAN 2.0

For businesses, **PAN 2.0** offers a **seamless**, common system for filing various **tax challans** and **returns**, streamlining the process and improving efficiency.

#### 1. Permanent Account Number (PAN)

- a. **Definition:** PAN is a **10-digit alphanumeric number** issued by the **Income Tax Department** to link all transactions of a person with the department.
- b. **Purpose:** It helps track various financial transactions, including:
  - **Tax payments**
  - **Tax Deducted at Source (TDS)** and **Tax Collected at Source (TCS)** credits
  - **Income tax returns**
  - **Specified transactions**
- c. **Functionality:** PAN acts as a unique **identifier** for an individual or entity with the tax department. Once issued, **PAN remains the same for life**.
- d. **Mandatory Requirement:** Quoting PAN is **mandatory** when filing an **income tax return**.

## 2. Tax Deduction and Collection Account Number (TAN)

- a. **Definition:** TAN is a **10-digit alphanumeric number** issued by the **Income Tax Department**.
- b. **Purpose:** TAN is required for individuals or entities responsible for **deducting or collecting tax at source**.
- c. **Mandatory Requirement:** It is compulsory to quote TAN in:
  - o TDS/TCS returns
  - o TDS/TCS payment challans
  - o TDS/TCS certificates

## 6. E-Daakhil Portal

The **E-Daakhil portal**, launched nationwide by the **Department of Consumer Affairs**, is now operational in all states and union territories, with its latest launch in **Ladakh in November 2024**.

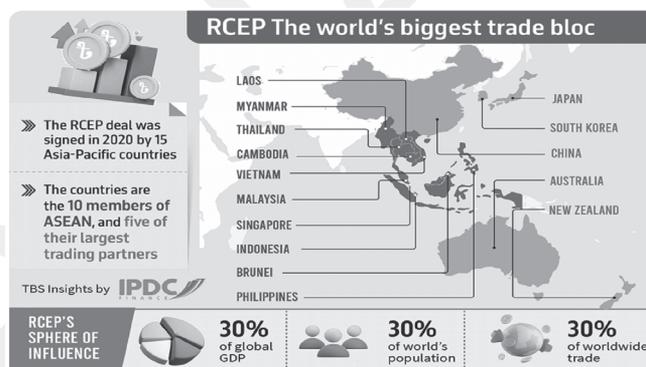
1. **About:** The E-Daakhil portal was **first launched on 7th September 2020** by the **National Consumer Dispute Redressal Commission** under the **Consumer Protection Act 2019**, amid the **COVID-19 pandemic**.
2. **Features:**
  - a. It provides an **inexpensive, speedy, and hassle-free mechanism** for filing consumer complaints online.
  - b. It lets consumers file complaints, pay fees, and track cases from home. Registration is simple via **OTP** on mobile phones or email addresses.
3. **Usage and Impact:**
  - a. Over **281,024 users** have registered on the portal, with **198,725 cases filed** and **38,453 resolved**, addressing issues like **faulty product compensation** and financial grievances.
4. **Integration with E-Daakhil:** The government is also developing **e-Jagriti**, a platform to enhance case filing and resolution, aiming to transform consumer justice in India.

## 7. India Should Join RCEP and CPTPP: NITI Aayog CEO

1. In **November 2024**, **B.V.R. Subrahmanyam**, CEO of **NITI Aayog**, suggested that **India** should be part of 2 major international trade agreements: the **Regional Comprehensive Economic Partnership (RCEP)** and the **Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)**.

2. His remarks reflect a growing debate over India's role in global trade and its future economic strategy.
3. **In this context, The World Bank India Development Update suggested reforms** to reduce trade costs, lower trade barriers and re-strategizing participation in FTAs like the RCEP.
  - FTA is an **agreement between two or more countries** where they agree on certain obligations that affect trade in goods and services, and protections for investors and intellectual property rights, among other topics.
4. On the contrary, the **Global Trade Research Initiative (GTRI)** negated the World Bank's suggestions for India to reconsider joining RCEP.

### What is RCEP?



The **Regional Comprehensive Economic Partnership (RCEP)** is a free trade agreement between 15 countries:

1. **10 ASEAN countries:** (Brunei, Cambodia, Indonesia, Malaysia, Myanmar, Singapore, Thailand, the Philippines, Laos, and Vietnam) and
2. **5 FTA partners:** (China, Japan, South Korea, Australia, and New Zealand).

**Objective:** To achieve a modern, comprehensive, high-quality, and mutually beneficial economic partnership agreement among the ASEAN Member States and ASEAN's FTA partners.

### The agreement includes:

1. Trade in goods and services
2. Investment and economic cooperation
3. Intellectual property rights
4. Competition policies
5. Dispute resolution
6. E-commerce
7. Support for Small and Medium Enterprises (SMEs)

**Significance:**

1. RCEP covers over **30% of the world's total GDP** and about **one-third of the global population**.
2. It officially started on **1 January 2022** after being signed in **November 2020**.

**India's Withdrawal from RCEP (2019):**

India was initially part of the RCEP talks but decided to leave in **2019** for several reasons:

1. **Trade Deficits:** India was concerned that joining RCEP would worsen its trade imbalance, especially with **China**. For example, ASEAN's trade deficit with China rose from **USD 81.7 billion** in 2020 to **USD 135.6 billion** in 2023.
2. **Cheap Chinese Goods:** India was worried about a flood of **cheap Chinese products** that could hurt local industries, particularly **steel** and **dairy**.
3. **Protecting Local Industries:** India feared that **zero tariffs** in RCEP would hurt its own industries. It was also concerned about **rules of origin**, which could allow goods to enter India without paying tariffs through other countries.

**What is CPTPP?**

1. The **Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP)** is another major free trade deal.
  - Originated as the **Trans-Pacific Partnership (TPP)**, a U.S.-led trade pact.
  - Renamed the CPTPP after the **U.S. withdrew in 2017 under President Donald Trump**.
2. Involving **12 countries:** Australia, Brunei, Canada, Chile, Japan, Malaysia, Mexico, Peru, New Zealand, Singapore, Vietnam and U.K.
  - In December 2024, U.K became the **12th member of the CPTPP**, marking its most significant trade deal since Brexit.
  - **Also, it becomes first European country** to join the **Indo-Pacific trade bloc**.
  - Previously, **in 2023**, CPTPP parties and the UK **signed the accession protocol** to enable the UK to join the CPTPP.
3. The bloc accounts for about **15% of global GDP** and provides trade access to a **market of more than 500 million people**.
4. **India's Concerns:** India did not join the CPTPP because of concerns about **strict labor laws**,

**investment protections**, and **transparency** rules that might limit India's ability to make its own regulations.

**Benefits for India in Joining RCEP and CPTPP:**

1. **Access to Larger Markets**
  - a. Joining RCEP and CPTPP would open up new markets in the **Asia-Pacific** region, helping India's **small businesses (MSMEs)** which account for **40% of India's exports**.
  - b. Lower tariffs and easier access to resources would help India scale up its **"Make in India"** initiative and improve its manufacturing.
2. **China Plus One Strategy:** With many countries looking to reduce their dependence on **China**, India has the chance to attract foreign investment as a **manufacturing hub** in Asia.
3. **Better Trade Competitiveness:** Lower tariffs would make India's goods more competitive, especially in markets like **Japan, South Korea, and Australia**.
4. **Attracting Foreign Investment (FDI):** India could attract more **foreign investments** by offering clearer trade rules and better access to regional markets, which would create more jobs and help grow industries like **technology** and **infrastructure**.
5. **Sharing Knowledge and Technology:** RCEP would help India access **new technologies** and **innovative practices** from countries like **Japan and South Korea**, boosting India's growth in areas like **electronics** and **manufacturing**.
6. **Stronger Trade Power:** Being part of RCEP would give India a stronger voice in **trade negotiations**, especially in areas like **agriculture, technology, and services**.

**India's Current Tariff Structure and Global Trade Competitiveness:**

1. **Average Tariffs:** India's average tariff rate is about **13.8%**, which is higher than **China's (9.8%)** and the **United States (3.4%)**.
2. **High Bound Tariffs:** India has some of the highest **tariff limits** in the world, especially for **agricultural products**, which range from **100% to 300%**. These high tariffs make Indian markets less attractive to foreign businesses.

These factors make it harder for India to benefit fully from global trade agreements and hurt its ability to integrate into global supply chains.

**Way Forward: Strategic Trade Initiatives**

Initiative	Description
<b>Bilateral FTAs</b>	India should prioritize completing <b>free trade agreements (FTAs)</b> with important partners like the <b>United Kingdom</b> and the <b>European Union</b> to expand market access.
<b>Strengthening Regional Ties</b>	India should focus on enhancing relations with <b>SAARC</b> and <b>BIMSTEC</b> , regional groupings that connect South and Southeast Asia, to boost <b>regional trade</b> .
<b>Trade Agreements with Gulf and African Countries</b>	India should pursue <b>trade deals</b> with <b>Gulf countries</b> and <b>African nations</b> , focusing on key sectors like <b>energy, infrastructure,</b> and <b>digital cooperation</b> .
<b>Indo-Pacific Economic Framework (IPEF)</b>	India should actively engage in the <b>Indo-Pacific Economic Framework (IPEF)</b> , which can support India's growth by promoting <b>trade, clean energy,</b> and <b>supply chain resilience</b> .
<b>Self-Reliant India Initiatives</b>	India should continue developing its domestic capabilities through programs like <b>Make in India 2.0</b> and the <b>Production Linked Incentive (PLI) Scheme</b> to boost <b>manufacturing</b> and <b>exports</b> .

**Conclusion**

India's rethink on joining RCEP and CPTPP is part of a larger strategy to improve its trade competitiveness and better connect with regional markets. While there are challenges to overcome, such as protecting local industries and aligning with global standards, joining these agreements could help India become a stronger player in global trade. To succeed, India must balance international engagement with strengthening its domestic economy.

**8. Anna Chakra**

- In November 2024 Ministry of Consumer Affairs, Food & Public Distribution launched 'Anna Chakra'. It is the Public Distribution System (PDS) **Supply chain optimisation tool** and **SCAN (Subsidy Claim Application for NFSA) portal**.

- This will enhance the efficiency of the PDS supply chain and streamline the subsidy claim process, benefiting millions of citizens reliant on food security programs.
- Developed in collaboration** with the World Food Programme (WFP) and Foundation for Innovation and Technology Transfer (FITT), IIT-Delhi.

**What is Anna Chakra and the SCAN System?**

- Anna Chakra System:** This is an optimization initiative focused on enhancing the Public Distribution System (PDS) logistics network in India. Its primary goal is to ensure the timely delivery of essential food grains to citizens while achieving significant operational savings.

**Key Features of Anna Chakra System:**

- Enhanced Efficiency and Cost Savings:** The system optimizes the PDS logistics network, reducing fuel consumption, time, and transportation costs, which leads to an annual savings of Rs 250 crores.
  - Environmental Sustainability:** By reducing transportation distances by 15-50%, the Anna Chakra system helps lower emissions, contributing to a reduced carbon footprint.
  - Wide Coverage:** The optimization process covers 30 states, benefiting about **4.37 lakh Fair Price Shops (FPS)** and **6,700 warehouses** within the PDS supply chain.
  - Seamless Integration:** The system is integrated with the **Railways' Freight Operations Information System (FOIS)** and linked to the **Unified Logistics Interface Platform (ULIP)**, allowing geo-location mapping of FPS and warehouses. It is also connected with the **PM Gati Shakti platform** for further logistical efficiency.
- SCAN System** the **SCAN System** is an online platform designed to modernize the subsidy claim process under the **National Food Security Act (NFSA) 2013**. It aims to streamline fund utilization, reduce leakages, and improve food security.

**Key Features of the SCAN System:**

- Unified Platform:** SCAN offers a single-window system for states to submit their food subsidy claims, simplifying the process for all involved stakeholders.
- Automated Workflow:** The system ensures full automation from claim submission to subsidy release and settlement, improving efficiency and transparency in the process.

**iii. Rule-Based Mechanism:** The SCAN System employs rule-based processing for scrutinizing and approving subsidy claims. This expedites the settlement process and ensures faster processing.

### Significance

- 1. Economic Benefits:** Both Anna Chakra and SCAN contribute to the **effective utilization of funds** by streamlining logistics and subsidy claims, thus reducing inefficiencies and leakages.
- 2. Food Security:** Together, these systems benefit over **80 crore people** by enhancing the delivery and accessibility of food grains across India.
- 3. Environmental Impact:** These systems significantly contribute to **sustainability goals** by reducing the carbon footprint through optimized transportation routes and logistical processes.

### What is PDS?

The PDS is an **Indian food Security System** established to **address food scarcity** by **providing foodgrains at affordable prices**. It operates under the **National Food Security Act (NFSA), 2013**, ensuring **food security for nearly two-thirds of India's population** based on **Census 2011 data**.

- 1. Nodal Ministry:** Ministry of Consumer Affairs, Food, and Public Distribution.
- 2. Evolution of PDS:**
  - a. The Public Distribution System (PDS) in India originated during **World War II** as a **wartime rationing measure** and evolved through several phases.
  - b. In the **1960s**, PDS expanded in response to **food shortages**, with the establishment of the **Agriculture Prices Commission** and the **FCI** to ensure **domestic procurement and storage**.
  - c. By the **1970s**, PDS became a **universal scheme**, and in **1992**, the **Revamped Public Distribution System (RPDS)** aimed to strengthen and **expand PDS reach** in remote areas.
  - d. The **Targeted Public Distribution System (TPDS)**, launched in **1997**, focused on the **poor** by **categorizing beneficiaries into Below Poverty Line (BPL) and Above Poverty Line (APL) households**.
  - e. The **Antyodaya Anna Yojana (AAY)**, launched in **2000**, further targeted the **poorest families**.
- 3. Management:**
  - a. It is **jointly managed by the Central and State/UT Governments**, with distinct responsibilities.

- b. The Central Government, via the **Food Corporation of India (FCI)**, handles **procurement, storage, transportation, and bulk allocation** of foodgrains.
- c. State Governments manage **local distribution, identify eligible households, issue ration cards, and supervise Fair Price Shops (FPSs)**.
- d. **Commodities Distributed:** PDS primarily provides **wheat, rice, sugar, and kerosene**. Some states also distribute items like **pulses, edible oils, and salt**.

## 9. India Launches \$25 Million Pandemic Fund for Animal Health

1. Recently, the central government of India launched the **“Animal Health Security Strengthening in India for Pandemic Preparedness and Response”** project.
2. The initiative, aimed at improving the monitoring and management of animal health.
3. **Goal:** To enhance India's capacity to **prevent, detect, and respond to animal health threats**, particularly **zoonotic diseases** (diseases transmitted from animals to humans) that could potentially lead to pandemics.
4. This is part of the larger global effort to improve preparedness and response to health emergencies.

### Which Key Documents are Released?

- 1. Standard Veterinary Treatment Guidelines (SVTG):** A comprehensive guide for veterinary care, aiming to **improve livestock health and productivity**.
  - Supports the **National Action Plan on Antimicrobial Resistance**, ensuring responsible use of antibiotics and improving treatment practices.
- 2. Crisis Management Plan (CMP) for Animal Diseases:** A framework for **rapid response and containment** of animal disease outbreaks.
  - Ensures that veterinarians and authorities are prepared to manage disease crises effectively, minimizing the spread and impact of outbreaks.

### What is the “One Health Approach”?

1. The **“One Health Approach”** is an integrated framework that recognizes the interconnection between **human health, animal health, and environmental health**.
2. The approach is particularly relevant given the fact that **most public health emergencies** in recent decades, including the **COVID-19 pandemic**, have originated from animals.

## Funding and Timeline

1. The project is being funded through the **Pandemic Fund**, which was created by **G20 countries under Indonesia's presidency in 2022**.
2. The **Pandemic Fund** has a core focus on helping **low- and middle-income countries** enhance their capacity to identify, report, and contain future pandemics. In its **1st investment round**, the Fund mobilized a total of **\$2 billion**.
3. **19 grants** were approved, covering **37 countries**.
4. India's proposal under this project secured a funding of **\$25 million**.
5. The project is expected to be completed by **August 2026**. It will be carried out with the collaboration of three major international implementing agencies:
  - a. **Asian Development Bank (ADB)**
  - b. **World Bank**
  - c. **Food and Agriculture Organization (FAO)**

## Why is this Project Needed?

1. **Zoonotic Diseases:** According to the **World Health Organization (WHO)**, **six public health emergencies of international concern** have been declared in recent decades. Out of these, **five were zoonotic** diseases.
  - a. The **COVID-19** pandemic is the **latest example of such a zoonotic disease**.
2. **2/3rd of infectious diseases** that affect humans originate from animals.
3. India, with a **livestock population of 536 million** animals, is especially **vulnerable to the outbreak of zoonotic diseases**. Managing the health of these animals is crucial for preventing future pandemics.

## What are the Expected Outcomes of the Project?

1. Improve **infrastructure for testing and vaccine development** to support rapid responses to disease outbreaks.
2. Enhance the ability to **monitor and detect diseases early** to prevent their spread to humans.
3. Train and equip personnel with the skills needed to manage animal health and outbreak responses.
4. **Improve data management and risk communication** capabilities to ensure better decision-making during health crises.
5. Improve the capacity of institutions at both the national and regional levels, promoting better coordination in managing cross-border animal health threats.

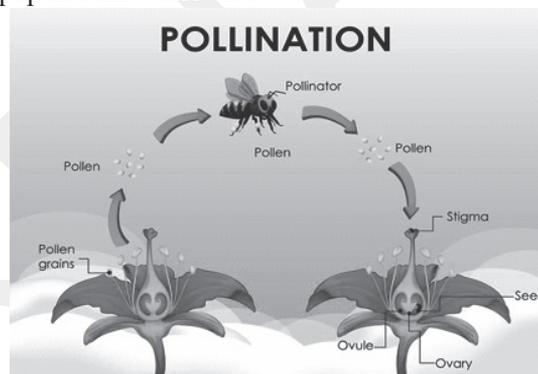
## Conclusion

This is an important step towards enhancing India's preparedness for potential future pandemics, particularly those originating from animals. It will improve surveillance

systems, strengthen laboratory capacities, and ensure better regional cooperation, ultimately reducing the risk of zoonotic diseases spreading to humans and safeguarding public health, nutritional security, and the livelihoods of vulnerable populations.

## 10. New Diseases Among Bees Are Threatening Global Economies

1. Bees play a pivotal role in sustaining life on Earth. As vital pollinators, they contribute to the **pollination of over 75% of the world's crops**, fruits, and flowering plants, directly impacting global food security and economic stability.
2. However, the rise of new infectious diseases, coupled with challenges such as habitat loss, climate change, and pesticide use, poses a severe threat to bee populations worldwide.



## The Role of Bees in Ecosystems and Agriculture

1. **Pollination and Food Production:** Pollination is the process by which pollen is transferred from the male part (anther) of a flower to the female part (stigma), enabling plants to reproduce.
  - a. Bees, alongside other pollinators like butterflies and bats, are crucial in this process, ensuring the growth of crops and the formation of seeds and fruits.
2. **Economic Impact:** Bees contribute significantly to agriculture, providing pollination services valued at billions of dollars annually.
  - a. For instance, in the United States alone, pollination services by bees are estimated to be worth over \$15 billion. Their decline could lead to reduced crop yields, affecting food availability and affordability.

## What are the Emerging Infectious Diseases Among Bees?

### Major Diseases and Pathogen Spillover

1. Recent studies highlight the emergence of infectious diseases that threaten both managed and wild bee populations.

2. **Thai Sacbrood Virus (TSBV):** TSBV is one of the **most devastating diseases** affecting bees. In 1991-1992, it wiped out **90% of Asiatic honey bee colonies** in **South India** and reemerged in 2021 in **Telangana**.
  - a. This virus **primarily targets larvae**, killing them before they mature, and poses a more significant threat to native bees than to Western honey bees.
3. **Deformed Wing Virus (DWV) and Black Queen Virus:** Studies in **Switzerland** found these viruses in wild bees and hoverflies, with **infection rates 10 times higher in habitats shared with Western honey bees**.
  - a. The **Western honey bee (Apis mellifera)**, which is the most studied bee, can carry **diseases** that affect both **managed bees** (bees kept by beekeepers) and **wild pollinators**.
  - b. These pathogens often spill over from managed honey bees to wild pollinators, a process called **pathogen spillover**.
  - c. The viruses can also mutate in wild species and spill back to managed bees in a more virulent form (pathogen spillback).

### Habitat Loss and Disease Spread

1. Habitat destruction forces pollinators into smaller spaces, increasing their interactions and the likelihood of disease transmission.
2. A study in the Indian Himalayas projected that **40% of bumblebee species could lose 90% of their habitat by 2050**, leading to competition for limited resources and heightened disease risks.
3. The **decline in bee populations** has already been seen in places like **Europe** and **North America**, but there is not much information about bee populations in places with a lot of wildlife, like the Indian subcontinent.

### Challenges in Bee Conservation in India

#### Native Bee Species and Habitat Overlap

1. **India is home to over 700 species of bees**, including: **Asiatic honey bee (Apis cerana indica)**, **Giant rock bee (Apis dorsata)**, **Dwarf honey bee (Apis florea)** and **Stingless bee (Trigona species)**
2. The introduction of Western honey bees in 1983 to boost honey production has inadvertently increased competition and disease spread among native species.
3. In regions like Maharashtra, the migration of Western honey bees has led to the decimation of local bee populations, drastically reducing honey yields.

#### Implications for Agriculture and Economies

1. **Reduced Crop Yields:** Declining bee populations directly impact agricultural productivity, particularly

for crops dependent on pollination, such as fruits, nuts, and vegetables.

2. **Economic Consequences:** The loss of pollination services affects farmers, especially smallholders who rely on these services for income. Reduced yields lead to higher food prices, threatening food security worldwide.

### Migration of Managed Honey Bees

1. Beekeepers move their **honey bee colonies** along routes where there are many flowers for the bees. This migration can cause problems because **wild bees** may have to compete for food and space with **Western honey bees**.
2. In places like **Gujarat, Madhya Pradesh, and Maharashtra**, some local bee species have disappeared, possibly because they are competing with migrating honey bees.
3. This has led to **disease transmission** and a **decline in local bee populations**.
4. In **Kolhapur (Maharashtra)** beekeepers noticed that after they brought in Western honey bees, local bee populations were wiped out by disease. As a result, the area went from producing 8-10 tonnes of honey to less than 1 tonne.

### Mitigation Strategies

Addressing the threats to bee populations requires a multifaceted approach:

1. **Research and Monitoring:** Increased funding for research to understand pathogens and their transmission mechanisms. Regular monitoring of both managed and wild bee colonies to detect and prevent disease outbreaks.
2. **Habitat Restoration:** Creating diverse, pollinator-friendly habitats with ample floral resources. Rehabilitation of degraded environments to provide bees with forage and nesting spaces.
3. **Integrated Pest Management:** Employing non-chemical methods to manage pests like the Varroa mite, which exacerbate disease risks.
4. **Public Awareness and Engagement:** Educating communities about the importance of bees and the need to protect their habitats. Promoting sustainable agricultural practices that support pollinator health.

### Conclusion

Bees are crucial for farming and food production around the world. New threats, including diseases, are spreading between managed honey bees and wild pollinators, and they are becoming a growing problem for global food security.



## E. SCIENCE & TECHNOLOGY

### 1. 61 Years Since Thumba Launch of India's 1st space programme

1. November 21, 2024, marks 61 years since the launch of India's first space programme.
2. On this day in 1963, ISRO (Indian Space Research Organisation) launched the Nike-Apache sounding rocket from Thumba, Kerala.
3. This was a crucial step in India's space journey, helping the nation develop solid propellant technology used today in its launch vehicles.
4. These early rockets laid the foundation for India's growing space ambitions.
5. This anniversary comes at a time when India has achieved significant milestones, including launching its first satellite aboard a SpaceX rocket, while several private Indian companies are also preparing for their own space missions.

### India's Private Space Sector Boom and ISRO's Role

#### Introduction

1. ISRO, since its establishment in 1969, has relied on both state-owned and private sector companies to support its space programs.
2. Antrix Corporation, established in 1992 as a commercial arm of ISRO, was created to market and promote ISRO's commercial activities, such as satellite launches, satellite systems, and space data services to international clients.
3. ISRO Expansion:
  - a. ISRO is involved in significant space missions, including:
    - i. Missions to the Sun (Aditya-L1).
    - ii. Missions to the Moon (Chandrayaan missions).
    - iii. Mars missions (Mangalyaan).
    - iv. Launching space telescopes and astronauts.
    - v. ISRO's Bharatiya Antariksh Station : 2028-35
4. Private Sector Growth:
  - a. The Indian government has allowed 100% Foreign Direct Investment (FDI) in the space

sector, encouraging private companies to seek overseas funding.

### History of ISRO's Commercialisation

1. Antrix Corporation Ltd (1992):
  - a. Created as a commercial arm of ISRO, Antrix was designed to:
    - o Market ISRO's products internationally.
    - o Facilitate technology transfer.
    - o Deliver launch services using ISRO's PSLV and GSLV vehicles.
  - b. Key tasks of Antrix:
    - o Satellite communication via INSAT system.
    - o Launch services for foreign commercial satellites (via PSLV).
    - o Providing data from Indian Remote Sensing (IRS) satellites.
    - o Consulting and technology transfer.
2. NewSpace India Limited (NSIL) (2019):
  - a. NSIL, a public sector undertaking under the Department of Space (DoS), aims to:
    - o Boost indigenous production of ISRO products.
    - o Focus on domestic clients, unlike Antrix, which focuses on international clients.
3. Private Players in the Space Sector
  1. Early Aerospace Companies:
    - a. HAL: Provides structural parts (e.g., heat shield assembly, nose cone assembly, fuel tanks).
    - b. Godrej Aerospace: Manufactures liquid propulsion engines, satellite thrusters, valves, and complex fabricated assemblies.
    - c. Ananth Technologies: Provides components for ground stations, nano-satellites, automated test equipment, printed circuit boards (PCBs), and sub-systems for satellites.
    - d. Data Patterns: Manufactures telemetry systems, communications systems, payload control units, and launch vehicle control systems.
  2. Start-up Emergence:
    - a. The first space start-up was Dhruva Space Private Limited (2012) in Hyderabad.

- b. As of 2023, over **200 space start-ups** are registered in India, attracting investments of ₹1,000 crore in 2023.

### Notable Space Start-ups

#### 1. Dhruva Space:

- Founded in **2012**, it designs **satellites, ground stations**, and offers **launch services**.
- 1U, 3U, 6U satellite orbital deployers** successfully tested on ISRO's **PSLV missions** in 2022-2023.
- Funding:** Raised ₹22 crore in October 2021 from **Indian Angel Network** and **Blue Ashva Capital**.

#### 2. Skyroot Aerospace:

- Founded in **2018**, specializes in **space launch vehicles**.
- First private Indian start-up** to test **liquid propulsion engines** and **3D printed cryogenic engine**.
- Vikram-S:** India's first private rocket, launched in **November 2022** from **Sriharikota**.
- Funding:** Raised ₹250 crore in **2023** from investor **Temasek**.
- Currently developing **Vikram-I, Vikram-II, and Vikram-III** rockets.

#### 3. Agnikul Cosmos:

- Founded in **2017** at **Indian Institute of Madras**.
- Created **India's first private mobile launchpad Dhanush** and **Agnibaan** (a transportable launch vehicle).
- First 3D printed engine Agnilet** tested in **2022**.
- Funding:** Raised **\$11 million** in Series A round.

#### 4. Manastu Space:

- Founded in **2017** in **Mumbai**.
- Focuses on **green propulsion systems** for satellites (hydrogen peroxide-based rocket fuel).
- Also develops **debris collision avoidance systems** for **CubeSats** and **in-space refuelling stations**.
- Funding:** Raised **\$3 million** in pre-Series A round in **2023** from **Indian Angel Network**.

### Regulatory Framework for Private Space Companies

#### 1. IN-SPACe (2020):

- Independent body** to promote and authorize space activities of private companies.
- Core tasks:**
  - Supervise private entities involved in **launch vehicles, satellite manufacturing, and infrastructure sharing**.

- Provide **technical incubation** for start-ups.
- Support **space tourism** and **student participation**.
- Signed **45 MoUs** with non-government entities (NGEs) as of 2023.

#### 2. National Geospatial Policy (2022):

- Allows private companies to acquire **geospatial data** (maps, satellite imagery) without the need for licenses or government clearances, except for specific categories.

#### 3. Indian Space Policy (2023):

- Key provisions:
  - **Private companies** can manufacture and operate **launch vehicles** and satellites.
  - Companies can operate **ground facilities** like **telemetry, tracking, and command systems (TT&C)**.
  - Permission for **space resource recovery** (e.g., asteroid mining).
  - Provides a framework for **commercial space activities**, including **satellite communication, remote sensing, and space transportation**.
- Impact on ISRO:** ISRO will transition towards a focus on **research and development** in advanced technologies, while private companies take on more operational tasks.

#### 4. Amended FDI Policy (2024):

- 74% FDI** allowed for **satellite manufacturing** and operations.
- 49% FDI** allowed for **launch vehicles, spaceports**, and associated systems.
- 100% FDI** allowed for **satellite components** (including **ground segments**).
- Investments beyond these limits can be made through the **government route**.

### ISRO's Ongoing Role

#### 1. ISRO's Leadership:

- Launches:** As of 2023, **ISRO** has launched **424 foreign satellites** since the 1990s, with **389** launched since 2014.
- Revenue generated from foreign satellite launches:
  - \$174 million** from foreign satellite launches (since 2014).
  - £256 million** from **European satellite launches**.
- Future Missions:** Scheduled missions to **the Moon, the Sun, Mars, and deep space** explorations.

- d. **Collaboration with Private Players:** ISRO is focusing on **advanced technologies** and **research** while collaborating with private start-ups for smaller satellite subsystems.

## Future Prospects

### 1. Target for 2040:

- a. India's space economy is projected to grow from **\$8 billion** (2% of the global space economy) to **\$100 billion** by 2040.

- 2. **ISRO's Role:** While the private sector is growing, ISRO remains the driving force behind major space missions and technological innovation, focusing on advanced missions like deep space exploration, moon landings, and large-scale satellite deployments.

## Key Space Launches & Missions:

### 1. GSAT-N2/GSAT-20 Satellite Launch:

- a. **In November 2024, NewSpace India Ltd.** launched the **GSAT-N2/GSAT-20 satellite** aboard **SpaceX Falcon 9** from **Florida, USA**.
- b. The satellite weighed **4,700 kg**, making it too heavy for India's heaviest rocket, the **LVM-3**, which can carry up to **four tonnes** into **Geostationary Transfer Orbit (GTO)**.
- c. This satellite is a **Ka-band high-throughput communication satellite** built by **ISRO**. It is designed to enhance **broadband services** in remote regions, including the **northeast, Andaman & Nicobar Islands, and Lakshadweep**.
- d. The satellite will also support **in-flight internet connectivity** and the **Smart Cities Mission**.
- e. After launch, the satellite was placed into a **GTO** with:
  - i. **Perigee** (closest point to Earth) of **250 km**,
  - ii. **Apogee** (farthest point from Earth) of **59,730 km**,
  - iii. **Inclination** of **27.5°**.
- f. The satellite will use its onboard thrusters to move to its **geostationary orbit** at **63° East longitude** over the next few days.

### 2. Upcoming ISRO Launches:

- a. ISRO is preparing for the **PSLV-C59 mission**, which will carry the **European Proba-3 mission**. This mission, set to launch on **December 4, 2024**, will study the **Sun**.
- b. The launch vehicle will be the **Polar Satellite Launch Vehicle (PSLV)** in its extended configuration (XL), which was last used for the **Aditya-L1** solar mission in **September 2023**.

- c. The **Proba-3 spacecraft** arrived in **Chennai** on **November 6**, and the spacecraft will be integrated with the **PSLV** before launch.

### 3. India's First Astronaut Designate Training:

- a. **Shubhanshu Shukla**, India's **astronaut-designate**, is currently training at the **European Space Agency's (ESA) European Astronaut Centre**.
- b. Shukla is set to travel to the **International Space Station (ISS)** in **2025**. His training includes familiarizing himself with the **European modules** of the ISS.

## Indian Private Sector Developments:

Several Indian private companies are preparing to launch their satellites and payloads into space.

### 1. Pixxel:

- a. **Pixxel**, an Indian-American space company, introduced its **'Fireflies'** project, which consists of **six hyperspectral satellites**.
- b. These satellites, each weighing **around 50 kg**, have a **5-meter spatial resolution** and will scan **40 km swaths** of Earth for data across more than **150 spectral bands**.
- c. This batch of satellites is the **first step** towards a planned **constellation of 24 satellites**. These satellites will help monitor various environmental issues like **crop diseases, water stress, deforestation, and ocean pollution**.
- d. The satellites are expected to be launched **early in 2025**.

### 2. GalaxEye Space:

- a. **GalaxEye Space** is preparing to launch a **technology demonstration** satellite called **"It's NOT a Satellite, It's Just a Tech Demo"**.
- b. This satellite will be launched on the **PSLV's Orbital Experimental Module (POEM)** platform. POEM is a platform in which the final stage of a PSLV rocket becomes an **orbital platform** to carry out experiments.
- c. The demonstration will focus on testing subsystems for **synthetic aperture radar (SAR)**, which can be used for high-resolution Earth observation.

### 3. PierSight Space:

- a. **PierSight Space** is preparing for a mission called **'Varuna'**, which will also be flown on the **PSLV POEM** platform.

- b. This mission will demonstrate a **deployable reflectarray antenna** and test **SAR** and **aeronautical information service avionics** in orbit.
4. **HEX20:**
- HEX20** plans to launch its ‘Nila’ satellite onboard **SpaceX’s Transporter 13 mission** in **February 2025**.
  - The **Nila satellite** weighs **5 kg** and can host multiple payloads, providing **data processing services**.
  - A ground station will be set up in **Thiruvananthapuram, Kerala**, to control and receive data from the satellite.
5. **Catalyx Space:**
- Catalyx Space** launched the **SR-0 satellite** aboard the third developmental flight of the **Small Satellite Launch Vehicle (SSLV)**.
  - The satellite completed its mission objectives and re-entered Earth’s atmosphere on **November 3, 2024**, after a three-month operational life.
6. **AAKA Space Studio:**
- AAKA Space Studio** launched **India’s first Space Analog Mission** in **Leh, Ladakh**, in collaboration with **ISRO’s Human Spaceflight Centre, IIT Bombay**, and the **University of Ladakh**.
  - The mission will simulate life on **the Moon** and **Mars** and will test the **habitat sustainability, life-support systems**, and **human isolation** in space.
  - One person from **AAKA Space Studio** will stay in the habitat in **Leh** for **21 days** as part of the experiment.
7. **SatSure:**
- SatSure** is working with the **Ministry of Electronics and Information Technology** on a project to map **over 200,000 villages** in India.
  - Under the **Svamvita programme**, drones will be used to capture high-resolution images (3-5 cm) to map **building footprints, roof types, roads**, and **water bodies**.
  - SatSure will use its **machine learning** tools developed for satellite data to classify and extract the relevant features.
- b. The telescope will be located in **Australia** and **South Africa**. India will contribute **cash**, as well as **advanced electronics** and **engineering** for telescope components.
- c. In return, India will have access to scientific data gathered by the telescope.
2. **Aditya-L1 Mission:**
- The **Visible Emission Line Coronagraph (VELC)** onboard the **Aditya-L1 spacecraft** made its first significant contribution to space science. Researchers from the **Indian Institute of Astrophysics (IIA)**, Bengaluru, used data from the coronagraph to **predict a coronal mass ejection (CME) on July 16, 2024**.
  - CMEs** can disrupt satellites, power grids, and radio communications on Earth when they pass by the planet.
3. **Biological Experiments on Bharatiya Antariksh Station:**
- The **Departments of Space and Biotechnology** have signed agreements to conduct **biological experiments** on India’s upcoming **Bharatiya Antariksh Station** (India’s space station).
  - Researchers will be able to conduct biological experiments during **uncrewed Gaganyaan flights**, as well as onboard the Indian space station once it is operational.

## 2. ISRO Launched European Space Agency’s Proba-3 Solar Mission

### What are the Proba series of missions?

- The **Proba missions** are a series of **IOD** (in-orbit demonstration) missions from the European Space Agency, for demonstrating and validating new technologies and concepts in orbit.
- They are based on small satellites, embarking payload and instruments to deliver actual data to users to demonstrate a new capability.
- They are developed under the General Support Technology Programme (GSTP) of ESA.
  - Proba-1, launched by ISRO** in 2001, an Earth observation satellite with advanced on-board autonomy and embarked an innovative hyperspectral instrument. It has been operational for more than 20 years.
  - Proba-2, launched** in 2009, is observing the Sun, with more than 20 technology payloads and scientific instruments.

- c. **Proba-V (for Vegetation)**, launched in 2012, it flies an innovative Earth imager, for multi-spectral global vegetation mapping.

### Current Context

1. On December 5, 2024, the Indian Space Research Organisation (ISRO) successfully launched **PSLV-C59/PROBA-3 mission** (a European Space Agency's mission) on its PSLV rocket to **study the solar corona**, the outer most and hottest part of the Sun's atmosphere, from Sriharikota.
2. The mission will attempt the **first-ever "precision formation flying"**, where 2 satellites will fly together and maintain a fixed configuration in space.
3. This is the **latest solar mission in ESA's Proba suite** of missions.
  - Its predecessors **Proba-1 launched by ISRO** in 2001 and **Proba-2 launched by Eurockot** in 2009.
4. Teams of scientists from Spain, Belgium, Poland, Italy and Switzerland have worked on Proba-3.

### What is Proba-3?

1. **Proba-3**, Developed at an estimated cost of 200 million euros.
2. Proba-3 has an expected **mission life of two years**.
3. It will be **launched into a highly elliptical orbit** measuring around 600 x 60,530 km and have an **orbital period of 19.7 hours**.
  - Imagine throwing a ball really hard. Instead of going in a perfect circle, it goes up really high and then comes back down close to you before going up high again. That's kind of like the path ESA's Proba 3 will take around Earth.
    - a. **Elliptical Orbit:** This means the path isn't a perfect circle, but more like an oval.
    - b. **600 x 60,530 km:** These numbers tell you how far away the proba-3 will be from Earth at its closest point (600 km) and its farthest point (60,530 km). So, it gets really close and then goes really far away.
    - c. **Orbital Period of 19.7 hours:** This means it takes about 19.7 hours for the proba-3 to complete one full loop around the Earth.
  - So basically, **Proba 3 will be zooming around Earth** in a stretched-out oval path, getting super close and then super far away every 19.7 hours.
4. The mission is **designed with two satellites** that will be launched together, separate from each other

and then fly in tandem. They will then form a solar coronagraph, an instrument that helps block out the bright light emitted by the Sun to reveal the objects and atmosphere around it.

### What will Proba-3 study?

1. Due to the corona's temperature, going upto 2 million degrees Fahrenheit, it is difficult for any instrument to observe it closely.
  - However, it is important for scientific study, as all space weather and its associated turbulences — solar storms, solar winds, etc. — originate from the corona.
2. These phenomena influence space weather and can potentially interfere with the smooth operations of all satellite-based communications, navigation, and power grids on Earth. To study these, **Proba-3 will have three instruments** onboard:
  - i. The **Association of Spacecraft for Polarimetric and Imaging Investigation of the Corona of the Sun (ASPIICS)** or the **coronagraph**. Its field of view is between the Sun's outer and inner corona, a circular belt normally observable during solar eclipse events.
    - The **instrument has a 1.4 metre diameter** occulting disk mounted on it, to block the Sun's light and facilitate a close-up view of this belt.
  - ii. The **Digital Absolute Radiometer (DARA)** will maintain a continuous measurement of the Sun's total energy output, known as the total solar irradiance.
  - iii. The **3D Energetic Electron Spectrometer (3DEES)** will measure electron fluxes as it passes through Earth's radiation belts, providing data for space weather studies.

### Why do we study the corona?

1. The solar corona has many mysteries associated with it, starting with the counter intuitive fact that the corona is more than a million degrees warmer than the surface of the Sun underneath it.
2. It is a major focus of scientific research and study, not only to improve our understanding of the Sun, but also as the origin of solar weather, such as coronal mass ejections or solar storms which can affect the functioning of satellites, or communication and power networks down on Earth.

## Why is Proba-3 unique?

- The two satellites — **Oculter Spacecraft (weighing 200 kg)** and the **Coronagraph Spacecraft (weighing 340 kg)** — will mimic a natural solar eclipse.
  - They will manoeuvre precisely in Earth's orbit so that one satellite casts a shadow onto the other.
- A **naturally occurring solar eclipse** allows solar physicists to observe and study the Sun's corona for 10 minutes, across an average of about 1.5 eclipse events per year.
  - Proba-3 will give six hours**, equivalent to 50 such events annually, which will help deepen understanding of the Sun's corona like never before.
- Both the **Oculter and Coronagraph** will face the Sun at all times. They will maintain a formation of a few millimeters and then move to a position where they will be 150 meters for six hours at a time.
- One satellite will act as a viewing telescope, kept at the centre of a shadow cast by the other satellite positioned 150 meters away. This positioning will facilitate observing the Sun's corona and will be autonomously achieved through precise flight formation.
- If done successfully, the Oculter will create an artificial yet stable eclipse by masking large parts of the Sun.
  - As a result, the Sun's blinding light will be blocked, and only the solar corona will be visible to the Coronagraph, which will photograph and facilitate studies of the lesser-known features.

## Why is the mission being launched from India?

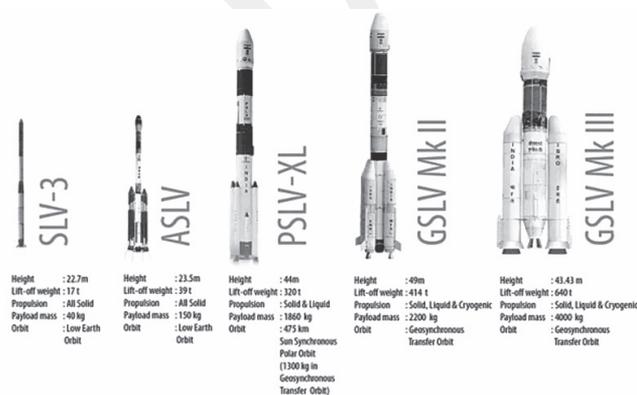
India's PSLV-XL launcher was chosen since the lift required to place the combined Proba-3 satellites (550 kg) on their desired highly elliptical orbit is above the capability of ESA's Vega-C launcher, while Ariane-6 would be too costly.

## How might India benefit?

- Proba-3 is being called ESA's technology demonstration mission.
- The fact that ISRO has been designated to launch the mission demonstrates India's reliable space launch facilities and growing space capabilities. A cost-effective launch is also one of the highlights of the mission.

- There is a strong possibility that the Indian solar physicist community **will get exclusive access to the Proba-3 data**.
  - A few Indian solar physicists have also been involved in conceptualising the scientific goals of this mission along with their Belgian counterparts.
  - Soon after the launch, India plans to host a meeting with the ESA's Proba-3 team to explore **opportunities for using data from Aditya L1**, India's first mission to the Sun (launched in 2023) and **Proba-3** for collaborative research.
  - This would allow Indians to work towards and **contribute to newer scientific advancements** related to the Sun.

## Polar Satellite Launch Vehicle (PSLV)



- The PROBA-3 Mission is the 61st flight of PSLV and the 26th using PSLV-XL configuration which is set to launch the spacecraft into a highly elliptical orbit as a Dedicated commercial mission of NewSpace India Limited (NSIL).
- The Polar Satellite Launch Vehicle (PSLV) is the third generation of Indian satellite launch vehicles, first used in 1994. More than 50 successful PSLV launches have taken place to date. It has also been called "the workhorse of ISRO" for consistently delivering various satellites into low earth orbits (less than 2,000 km in altitude) with a high success rate.
- PSLV-XL can lift 1,750 kg of payloads to the sun-synchronous polar orbit (spacecraft here are synchronised to always be in the same 'fixed' position relative to the Sun), and much more — 3,800 kg — to a lower Earth orbit (normally located at an altitude of less than 1,000 km but could be as low as 160 km above the planet).

4. PSLV has successfully launched two spacecraft **Chandrayaan-1** in 2008 and **Mars Orbiter Spacecraft** in 2013. The launch of PSLV-C48 marks the 50th Launch of PSLV. **Aditya-L1 mission**, weighting 1,472 kg, was launched by PSLV-C57.

### 3. India's first Analog Space Mission

1. Indian Space Research Organisation (ISRO) has announced the launch of its **first analog or simulated space mission at Leh in Ladakh.**

#### What are Analog Space Missions?

1. Analog missions are field tests in locations that have physical similarities to the extreme space environments. NASA engineers and scientists work with government agencies, academia, and industry to gather requirements for testing in harsh environments before they are used in space.
2. **Tests include:**
  - a. New technologies, robotic equipment, vehicles, habitats, communications, power generation, mobility, infrastructure, and storage.
  - b. Behavioural effects – such as isolation and confinement, team dynamics, menu fatigue etc.
3. **Significance:** Analog missions provide space agencies with data about strengths, limitations, and the validity of planned human-robotic exploration operations. They also define ways to combine human and robotic efforts to enhance scientific exploration.

#### India's first Analog Mission:

1. Located in Leh, Ladakh, the mission includes a compact, inflatable **habitat named Hab-1** which will simulate life in an interplanetary habitat.
2. **Aim:** To study the challenges of extra-terrestrial conditions, as part of efforts towards developing a long-term human spaceflight programme.
3. **Hab-1** is designed to mimic environments on Mars and the Moon. The simulation will explore the conditions of an interplanetary habitat, testing new technologies, robotic equipment, vehicles, habitats and communications.
4. The mission is spearheaded by ISRO's Human Spaceflight Centre and brings together partners from AAKA Space Studio, the University of Ladakh, IIT Bombay, and is supported by the Ladakh Autonomous Hill Development Council.

#### Other analog missions

- **Nasa's NEEMO:** Conducted underwater to simulate microgravity conditions, allowing crews to perform tasks similar to those expected in space.
- **SIRIUS Program (UAE):** It focuses on understanding the psychological impacts of isolation during long-duration missions. It includes international collaborations to conduct various scientific experiments.
- **Arctic Mars analogue Svalbard Expedition (AMASE):** Uses the Svalbard archipelago's extreme environments to test equipment and procedures relevant to Mars exploration.

#### Why was Ladakh chosen?

1. Ladakh's extreme isolation, dry climate, and barren, high-altitude terrain make it ideal for simulating conditions similar to Mars and the Moon.
2. **Similarities:**
  - a. Both Moon and Ladakh have extremely dry environments.
  - b. Ladakh experiences significant temperature fluctuations, similar to both the Moon and Mars.
  - c. Ladakh's rocky, barren terrain resembles the terrain of the Moon and Mars.
3. **Dissimilarities:**
  - a. The Moon has virtually no atmosphere, whereas Mars has a thin atmosphere, whereas, Ladakh is a part of Earth's atmosphere.
  - b. The Moon has no water vapour in its atmosphere, Mars has some water vapour, whereas Ladakh's atmosphere, though dry, still contains some moisture.
  - c. The Moon has an intense thermal radiation caused by the direct sunlight which is hard to replicate on Earth.

#### Quest for Glory

Ladakh's rugged landscape offers an excellent venue, simulating extravehicular activities and low-gravity operations

The mission will simulate extreme conditions of extraterrestrial environments

It will also help devising future missions such as the Bharatiya Antariksh Station

The research will provide critical insights for ensuring the safety and performance of astronauts during long-duration spaceflight

The findings will directly support India's Gaganyaan mission, slated to send Indian astronauts into space by 2026



**Significance:**

1. **Hab-1** allows scientists to study the effects of isolation and confinement on human health and performance and includes essentials such as a hydroponics farm, kitchen, and sanitation facilities. This setup will help study the challenges astronauts will face in a base station beyond Earth and prepare them accordingly.
2. Ladakh's environment presents an opportunity for researchers to gather critical data that will support India's Gaganyaan program and future missions.

#### 4. **Lignosat: World's First Wood-Panelled Satellite**

1. Recently, **Lignosat**, an experimental satellite, has been deployed from the International Space Station (ISS) to test how the renewable, sustainable material withstands the harsh orbital environment.
  - In November 2024, SpaceX rocket launched **Lignosat (world's first wood-panelled satellite)** into space.

**What is LignoSat?**

1. LignoSat measures just 4 inches (10 centimeters) on each side, and weighs 900 grams.
2. The satellite is named after the Latin word for wood, with panels built from a type of **magnolia tree**, using a traditional Japanese crafts technique **without screws or glue to hold it together**.
3. The satellite will test the durability of wood in the extreme environment of space where temperatures fluctuate from -100 to 100 degrees Celsius every 45 minutes, even as objects traverse through sunlight and darkness.
4. The satellite will also gauge timber's ability to reduce the impact of space radiation on semiconductors.

**Significance:**

1. Wooden satellite is part of a plan to use **renewable materials** for space structures.
2. Wood can **better withstand space conditions** than metal, as there's no water or oxygen to cause decay.
3. When decommissioned, wooden satellites burn up **without releasing harmful pollutants, unlike metal ones**.

#### 5. **BSNL launches India's first Direct-to-Device (D2D) Satellite connectivity**

It marks a major event in extending satellite communications to everyday consumers which were earlier limited to emergency and military use

- Global initiatives such as **AST SpaceMobile, Lynk Global, Constellation Global, SpaceX- Starlink** are also uses D2D technology.

**Working of Direct-to-Device Satellite Technology**

1. **Principle:** Satellites act as cell towers in space, bypassing the need for terrestrial cell towers as used in traditional mobile connectivity.
  - It uses satellites in orbit to transmit signals directly to devices on the ground.
2. **Non-Terrestrial Network (NTN) technology :** It allows for seamless two-way communication between devices and satellites.
  - BSNL uses **Viasat's Geostationary L-band satellites** positioned 36,000 kilometers above which bypasses ground-based cell towers, making it ideal for remote coverage.

**Significance**

1. **Reliable connectivity:** Uninterrupted internet connectivity, regardless of weather conditions.
2. **High-speed internet and wider coverage** even in the **remotest areas where** cellular or Wi-Fi networks are unavailable.
3. **Support UPI payments:** Empower people in rural or underserved regions to make digital transactions
4. **Emergency calls and SOS messaging:** Communication in emergency situations where cellular or Wi-Fi networks are unavailable (useful for **adventurers, travellers etc**)

**Challenges**

1. **Latency:** Ensuring minimal delay for real-time applications like voice calls and video streaming.
2. **Regulatory Challenges:** As D2D service may cross geographical borders
3. **Spectrum allocation:** Obtaining sufficient bandwidth for seamless satellite-to-ground communication.
4. **Device compatibility:** Ensuring technology works across various smartphones and operating systems.
5. **Propagation challenges:** Overcoming signal loss and interference in diverse environments

#### 6. **World's First Carbon-14 Diamond Battery**

Recently University of Bristol and UK Atomic Energy Authority (UKAEA) have created world's first Carbon-14 diamond battery.

Diamond battery is cutting edge energy technology that utilises radioactive isotopes of carbon trapped within synthetic diamond.

The diamond battery has the potential to power the devices for thousands of years.

### How Diamond battery works?

1. Diamond battery uses synthetic diamonds. **Synthetic diamonds**, also known as **lab-grown diamonds** or **man-made diamonds**, are diamonds produced in a controlled laboratory environment using advanced technological processes that replicate the natural conditions under which diamonds are formed in the Earth’s mantle.
2. The **diamond battery** mechanism combines radioactive decay with the unique properties of synthetic diamond to generate electricity in a safe and long-lasting way.

### Mechanism of diamond battery

1. **Radioactive Source: Beta Decay**
  - a. The core of a diamond battery contains a **radioactive isotope** (like Carbon-14 or Nickel-63) that undergoes **beta decay**.
  - b. Radioactive isotopes, or **radioisotopes**, are unstable forms of elements that emit radiation to achieve a more stable state.
  - c. Beta decay is a type of radioactive decay where a nucleus emits a **beta particle** (an electron or a positron) to transform into a more stable nucleus.
  - d. These beta particles are the source of energy for the battery.
2. **Synthetic Diamond Enclosure**

The radioactive material is encased in **synthetic diamond**, which serves two purposes:

- a. **Energy Conversion:** Synthetic diamond is a semiconductor. When beta particles hit the diamond, they generate a flow of electrons, producing electricity.
- b. **Radiation Shielding:** Diamond absorbs the radiation emitted by the isotope, ensuring safety by preventing harmful radiation from escaping.

### 3. Direct Energy Conversion

- a. When the beta particles emitted during decay interact with the diamond’s lattice structure, they excite electrons within the diamond.
- b. This creates an **electric current** via the **beta-voltaic effect** (similar to how solar cells convert sunlight into electricity but using beta particles instead of photons).

### 4. Continuous Power Output

- a. The radioactive material decays at a steady rate over time, providing a consistent energy source.
- b. The power output is relatively low but extremely stable and long-lasting, depending on the half-life of the radioactive isotope.

### Applications of Diamond Batteries

Due to their long life and low maintenance, diamond batteries are ideal for:

- a. **Space Exploration:** Powering satellites, rovers, and spacecraft for decades.
- b. **Medical Devices:** Long-lasting pacemakers and implants.
- c. **Remote Sensors:** Devices in harsh or inaccessible environments.
- d. **Military Equipment:** Uninterrupted power supply for critical systems.

### Comparison Between Diamond batteries (Beta-Voltaic Effect) and Solar Panel (Photovoltaic Effect)

Feature	Beta-Voltaic Effect	Solar Panel (Photovoltaic Effect)
<b>Energy Source</b>	Beta particles emitted during radioactive beta decay.	Photons from sunlight.
<b>Primary Mechanism</b>	Excitation of electrons in a semiconductor by beta particles.	Excitation of electrons in a semiconductor by photons.
<b>Material Used</b>	Synthetic diamond or specialized semiconductors.	Silicon or other photovoltaic materials (e.g., perovskite).
<b>Power Output</b>	Low and consistent over decades.	High but intermittent, depending on sunlight availability.
<b>Duration of Operation</b>	Decades to centuries (depending on isotope half-life).	Years to decades (with regular sunlight and maintenance).

<b>Applications</b>	Long-term power for medical implants, space probes, and remote sensors.	Renewable energy for homes, businesses, and large-scale solar farms.
<b>Energy Availability</b>	Independent of environmental conditions (works in dark or isolated areas).	Dependent on sunlight (does not work at night or in low-light conditions).
<b>Safety Considerations</b>	Requires radiation shielding to prevent exposure.	No radiation involved; generally safe for all environments.
<b>Environmental Impact</b>	Can use recycled radioactive materials (e.g., nuclear waste).	Environmentally friendly, with no emissions during operation.
<b>Efficiency</b>	Low efficiency due to limited energy from beta decay.	High efficiency with advancements in photovoltaic technology.
<b>Cost</b>	Expensive due to handling and encapsulating radioactive materials.	More cost-effective and scalable for mass energy production.

The diamond battery’s longevity (long life ) stems from its use of long-lived radioactive isotopes and robust materials, making it a revolutionary solution for applications requiring sustained, low-power energy sources over long periods.

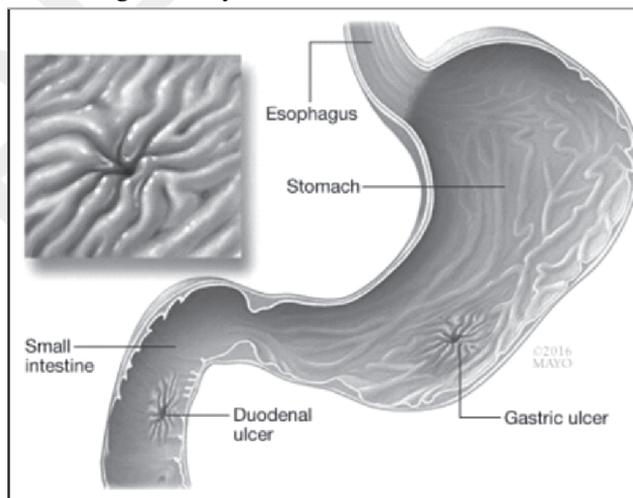
- b. **Gastritis:** Inflammation of the stomach lining.
- c. **Dyspepsia:** Indigestion characterized by bloating, stomach discomfort, and belching.
- d. **Gastric Cancer:** Long-term H. pylori infection significantly increases stomach cancer risk.

## 7. CRISPR-based FELUDA Diagnostic Method for H. pylori Detection

1. In December 2024, researchers at the **Council of Scientific and Industrial Research–Institute of Genomics and Integrative Biology (CSIR–IGIB)** have developed a **CRISPR-based FELUDA diagnostic tool**.
  - a. This tool helps **identify Helicobacter pylori (H. pylori) infections and clarithromycin resistance mutations**.
2. This innovation is particularly valuable for resource-limited settings, offering a cost-effective and efficient diagnostic solution.

### About Helicobacter pylori (H. pylori)

1. Helicobacter pylori (H. pylori) is a common bacterium that **grows in the digestive tract and attacks the stomach lining**. It is well-suited to survive in the stomach’s harsh, acidic environment.
2. **H. pylori infections** often occur during childhood. While typically harmless, the bacterium is the **main cause of stomach and small intestine ulcers**.
3. It **affects over 43% of the global population**, contributing to gastrointestinal disorders like:
  - a. **Peptic Ulcers:** Open sores in the stomach or small intestine lining.



4. H. pylori can modify its surroundings to reduce stomach acidity, making the environment more favourable for its survival. Its spiral shape enables it to burrow into the stomach lining, where mucus protects it from immune cells.
5. **Symptoms of H. pylori Infection:** When symptoms appear, they are usually linked to gastritis or peptic ulcers.
  - a. **Common symptoms include:** Ache or burning sensation in the abdomen, stomach pain that worsens on an empty stomach, nausea, loss of appetite, unintentional weight loss
6. **Treatment:** A standard treatment involves a **combination of antibiotics and a proton-pump**

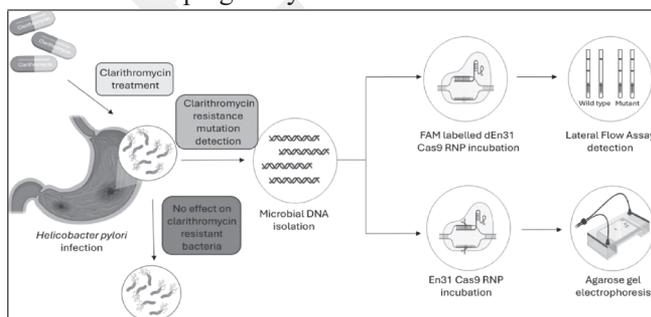
**inhibitor**, which lowers stomach acid levels. This regimen, often called “**triple therapy**,” typically lasts for up to 14 days.

### Public Health Challenge of Clarithromycin Resistance

1. **Clarithromycin**, a macrolide antibiotic, is used for treating mild-to-moderate bacterial infections, including *H. pylori*.
2. Mutations in the 23S ribosomal RNA **gene** of *H. pylori* contribute to **clarithromycin resistance**, complicating treatment.
3. Resistance necessitates repeated diagnostics and complex antibiotic regimens, posing a significant global health threat.
4. **Need for Cost-Effective Diagnostics:** Timely eradication of *H. pylori* requires affordable and accessible diagnostic tools that: detect infections, identify antibiotic susceptibility, enable tailored therapeutic strategies to minimize resistance risks.

### FELUDA: A Revolutionary Diagnostic Method

1. **CRISPR-based methodologies** are known to **enable site recognition and cutting of the target DNA with exceptional accuracy** by designing guide RNAs targeting the respective mutation site in various kinds of DNA samples.
2. Hence, in-depth understanding of *H. pylori* genetic makeup by **CRISPR-based diagnostics (CRISPRDx)** could aid in molecular dissection of its pathogenicity and development of targeted therapeutics against different strains.
3. The **FnCas9 Editor Linked Uniform Detection Assay (FELUDA)** uses CRISPR-Cas9 technology for rapid molecular diagnostics.
4. Initially developed for detecting SARS-CoV-2 viral RNA, it employs a paper strip for a quick visual readout, similar to a pregnancy test.



### How CRISPR-Cas9 Works?

1. **CRISPR:** Guides Cas9 to target specific DNA sequences.
2. **Cas9:** A protein that precisely cuts the target DNA.
3. Together, they enable high-precision diagnostics and gene editing.

### FELUDA for *H. pylori* Detection

1. Researchers employed an engineered Cas9 protein, **en31-FnCas9**, to detect *H. pylori* infections and mutations in 23S rDNA. Diagnostic methods included **in vitro cleavage tests** and lateral flow-based assays.
2. The study focused on gastric biopsy samples from dyspeptic Indian patients.
3. **First-of-Its-Kind Achievement:** This marks the 1st report of en31-FnCas9-mediated detection of clarithromycin resistance mutations in *H. pylori*.

### Advantages of FELUDA

1. **Sequencing-Free:** Eliminates the need for advanced genetic sequencing.
2. **Cost-Effective:** Affordable for remote and resource-poor settings.
3. **Rapid Results:** Delivers quick, accurate diagnoses.
4. **Targeted Treatment:** Helps personalize therapies, reducing resistance risks.

### Conclusion

The CRISPR-based FELUDA diagnostic method represents a significant advancement in combating *H. pylori*-related disorders. Its affordability, accuracy, and rapid results make it an invaluable tool, particularly in resource-limited settings. The ability to identify antibiotic resistance mutations empowers healthcare providers to deliver personalized treatments, addressing global challenges of antibiotic resistance and gastric cancer prevention effectively.

## 8. ICMR-NIN scientists get patent for menopausal care formulation

1. In December 2024, ICMR-National Institute of Nutrition (NIN) scientists have been granted a patent for the **innovative menstrual care formulation that addresses menopausal syndrome**.
2. This groundbreaking **Non-Hormonal Therapy (NHT)** utilizes an **indigenous grass species** as its key ingredient, offering a novel alternative for women post-menopause.

- The formulation reflects a **blend of Ayurvedic principles and modern pharmacological research**, marking a significant advancement in women's healthcare.
- The research involved identifying suitable plant species and ensuring adherence to Ayurvedic guidelines.
- With menopausal syndrome expected to affect over 1.2 billion women globally by 2030, this development addresses a major public health concern.

### What is the Need for Non-Hormonal Therapy (NHT)?

- Hormonal Replacement Therapy (HRT)** has been a conventional treatment for managing menopause symptoms. However, long-term HRT use is associated with risks.
- Risks include vaginal bleeding, liver issues, breast cancer, heart disease, and stroke.
- Menopausal syndrome is a global issue, with millions of women seeking safe and effective treatments.
- This scenario has created a demand for non-hormonal alternatives that are effective and safe for long-term use.

### Benefits of the Formulation

- Non-Hormonal Therapy (NHT):** The formulation provides a safe and effective alternative to hormone-based treatments, addressing the critical need for a solution without the adverse effects of HRT.
- Specific Health Benefits:** It demonstrates efficacy in addressing osteoporosis, helping to maintain bone density and reduce the risk of fractures. The formulation aids in managing fatty liver, promoting healthier liver function.
  - It is effective against metabolic syndrome, helping regulate conditions such as high blood sugar, cholesterol, and body weight.
- Safety for Long-Term Use:** The formulation is non-carcinogenic, ensuring it can be used safely over an extended period without increasing cancer risks.
- Eco-Friendliness:** It is a cost-effective and sustainable therapy, making it accessible for widespread use while minimizing environmental impact.
- Enhanced Quality of Life:** The therapy significantly improves the overall well-being of menopausal women by alleviating common symptoms and associated health risks.

### Recognition and Impact

- Patent Achievement:** The formulation has been patented, showcasing its uniqueness and innovation.

- Global Recognition:** Shortlisted for the prestigious **Alice and Albert Netter Prize 2023** by the **European Society of Gynaecology**.
  - Acknowledged in scientific journals and professional societies through peer-reviewed publications.

### Future Implications

- Advancing Women's Health:** The formulation paves the way for future research and innovations in Ayurvedic therapies targeting women's health.
  - Highlights the importance of integrating ancient knowledge systems with modern scientific rigor.
- Promoting Research in Ayurveda:** Encourages a deeper exploration of indigenous plant species for therapeutic use.
  - Sets a precedent for developing cost-effective and sustainable health solutions.

### What is Menopause?

- Menopause** is a natural process that begins at the average **age of 50 years**. "Menopause marks the **end of the menstrual cycle**."
- It happens when the **ovaries stop producing eggs and releasing hormones**. Menopause is said to have occurred when there has been **no menstruation for one year**.
- Stages of Menopause:**
  - Perimenopause:** Perimenopause means "around menopause". It is the menopausal transition, or the time leading up to your last period. It can start **5-10 years before menopause**.
  - Menopause:** When a woman has gone 12 months in a row without a period, it is diagnosed as menopause.
  - Post-menopause:** Begins one year after the last menstrual period and continues for the rest of a woman's life.

### Causes of Menopause

- Natural Aging:** This is due to a decline in ovarian function and ovarian hormones.
- Forced Menopause:** This can happen when ovaries are removed surgically or get damaged after chemo or radiotherapy treatments.
- Premature Menopause:** It may result from the failure of ovaries to produce normal levels of hormones (primary ovarian insufficiency), which can be due to defective genes or autoimmune diseases.
  - It can happen in one per cent of women.

### Symptoms of Menopause

1. Hot flushes and night sweats.
2. Vaginal dryness and decreased libido.
3. Mood changes, irritability, and anxiety.
4. Joint and muscle pain.
5. Period irregularities and weight gain.

### Diagnosis

1. For women over 45 experiencing symptoms, treatment is tailored based on severity.
2. In premature menopause, **Follicle-Stimulating Hormone (FSH) tests** can differentiate menopause from other conditions causing irregular periods.

## 9. AgeXtend - AI-Powered Solution for Anti-Aging Research

1. In December 2024, IIIT-Delhi researchers have developed **AgeXtend** as a **tool to efficiently cut down the time taken to identify viable molecules with geroprotectors** (anti-aging properties) than conventional research.
2. They have **used Artificial Intelligence (AI) to predict and identify compounds** with anti-aging properties.
3. Over a span of two years, the team **screened more than 1.1 billion compounds** and highlighted several promising molecules that showed potential for anti-ageing effects.
4. Scanning 1.2 billion molecules makes this the **largest study in the field of anti-aging research**.
5. Scanned compounds included commercial drugs, Chinese drugs, ayurveda and molecules approved by the U.S. Food and Drug Administration.
6. These molecules were tested and validated through **experiments on yeast, worms (C. elegans), and human cell models**. Less than 1% of the identified compounds demonstrated anti-ageing properties.
7. It assesses their safety and analyses their biological effects. By studying the structure of new molecules, AgeXtend can **predict with high accuracy whether they possess geroprotective qualities**.
8. **Unique Approach of AgeXtend:** Unlike other research tools, AgeXtend not only **identifies potential anti-aging compounds** but also **provides explanations for its choices**.
  - a. It reveals the underlying mechanisms behind the selection of these compounds, offering valuable insights that can guide future research and help pinpoint areas that need further validation.

9. **Working:** AgeXtend successfully identified the benefits of well-known molecules like **metformin** and **taurine**, even without prior knowledge of these compounds.

## 10. 700 kg of methamphetamine Drug Seizure in Gujarat's Porbandar



1. **On 15th November 2024, a joint operation by the Indian Navy, Narcotics Control Bureau (NCB), and Gujarat Anti Terrorist Squad (ATS) led to the seizure of about 700 kg of methamphetamine** (a type of illegal drug) from a boat near **Porbandar, Gujarat**.
2. 8 people (part of an **international drug smuggling group**) were **arrested and taken for questioning by the Special Operations Group (SOG)**.

### Do you know ?

**Sonali Phogat** (Actor and a Politician) was killed by giving the recreational drug **methamphetamine in feb 2022**.

1. She died after a heart attack caused by an overdose of methamphetamine.

### Details of the Operation:

1. **Operation Name:** This action is part of a larger effort called **Sagar Manthan**, which involves several agencies working together **to stop drug trafficking**.
2. **Tip-off and Raid:** The operation was based on a **tip-off** received by the NCB about a suspicious boat coming from **Iranian waters**.
3. The boat was stopped at night in the **middle of the sea near Porbandar, and the drugs were found hidden on it**.
4. **Drugs Found:** The drugs seized were mostly **methamphetamine**.
5. The arrested people **did not have any documents on them, and authorities are checking their identities**.
6. They claim to have come from Iran.

### Agencies Involved:

1. **Indian Navy:** The Navy played an important role in stopping the boat at sea as part of its ongoing efforts to protect India's coastline from illegal activities.
2. **NCB:** The NCB was in charge of gathering intelligence and coordinating the operation.
3. **Gujarat ATS:** The Gujarat Anti Terrorist Squad (ATS) helped in seizing the drugs and arresting the suspects.

### Importance of the Operation:

1. **2nd Major Operation:** This is the 2nd major anti-drug operation at sea by the Indian Navy this year.
  - **1st major anti-drug operation :** Indian Navy and the Narcotics Control Bureau (NCB) in February 2024, seized around (3089 Kgs Charas, 158 Kgs Methamphetamine 25 Kgs Morphine) from a ship near Gujarat's Porbandar, making it the biggest such drug seizure
2. **Impact on Drug Trafficking:** The seizure is a big blow to international drug gangs that smuggle drugs into India.
3. **Results of Sagar Manthan:** So far, the joint operations under Sagar Manthan have led to the seizure of about 3,700 kg of drugs in 2024.
4. **International Cooperation:** The success of this operation suggests that countries may need to work together to stop drug smuggling, especially between India, Iran, and other neighboring regions.

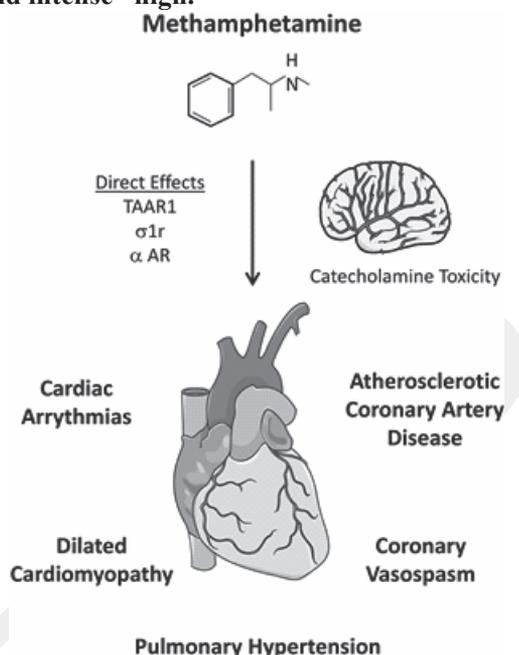
### What Is Methamphetamine?



**Methamphetamine** (often called **meth**) is a powerful and highly addictive **stimulant drug**. It affects the brain and body by increasing levels of **dopamine**, a **chemical that plays a key role in feelings of pleasure and reward**.

1. **Appearance:** Methamphetamine is usually found in the form of a **white, odorless powder** or a **crystal**. It's sometimes called **crystal meth** when in its crystal form.

2. **How It's Used:** People can take meth by **smoking, snorting, or injecting** it, all of which lead to a **rapid and intense "high."**



3. **Effects on the Body:**

- a. It **increases energy**, making users **feel more awake, alert, and euphoric**.
- b. It can lead to **dangerous health problems**, like **heart problems, high blood pressure, and damage to the brain**.
- c. It's known for being **highly addictive**, which means users often feel the need to keep taking it, leading to a cycle of dependency.

### Why Is Methamphetamine Dangerous?

1. **Addiction:** One of the main risks of methamphetamine is its **addictive nature**. People who use it can quickly become dependent on the drug.
2. **Mental and Physical Damage:** Long-term use can cause **serious damage to the brain, affecting memory, emotions, and decision-making**. It can also harm other organs and lead to serious health issues.
3. **Illegal Status:** Methamphetamine is **illegal in most countries, including India**, and is often produced and trafficked by criminal groups.

### Common Street Names for Methamphetamine:

1. Crystal Meth
2. Ice
3. Crank
4. Glass

In conclusion, **methamphetamine** is a dangerous drug that has harmful effects on both the mind and body, and its illegal use is a major public health concern.



## F. GEOGRAPHY & ENVIORNMENT

### 1. India State of Forest Report 2023

1. In December 2024, the Ministry of Environment, Forest and Climate Change has released the **18th ‘India State of Forest Report 2023’ (ISFR 2023)**.
  - a. The ISFR is a **biennial report** published by the **Forest Survey of India (FSI)**, an organisation of the Ministry of Environment, Forest & Climate Change.
  - b. The first State of Forest report was brought out in 1987.
2. The report shows a **marginal gain of 156 sq. km in forest cover**, and a **sizable increase of 1,289 sq km in tree cover since 2021**.

#### Key Terms:

1. **Tree cover:** It is defined as all tree patches of size less than one hectare occurring outside the recorded forest area. This covers trees in all formations, including scattered trees.
2. **Forest area:** It denotes the legal status of the land as per the government records, whereas the term ‘forest cover’ indicates the presence of trees over any land.
3. **Forest carbon stock:** The amount of carbon that has been sequestered from the atmosphere and is now stored within the forest ecosystem, mainly within living biomass and soil, and to a lesser extent also in dead wood and litter.
4. **National Forest Inventory:** A systematic approach to generate national level estimates on growing stock, forest area and other forest resources parameters by doing regular inventory in selected sample districts in a cycle of two years.

#### Key Findings of ISFR 2023:

Class	in km <sup>2</sup>	
	Area	Percentage of GA
Forest Cover	7,15,342.61	21.76
Tree Cover	1,12,014.34	3.41
<b>Total Forest and Tree Cover</b>	<b>8,27,356.95</b>	<b>25.17</b>
Scrub	43,622.64	1.33
Non Forest	24,16,489.29	73.50
<b>Geographical Area of the country</b>	<b>32,87,468.88</b>	<b>100.00</b>

1. The **Forest and Tree cover** of India is **8,27,357 sq km** which is **25.17%** of the geographical area of the country, consisting of:
  - a. 7,15,343 sq km (21.76%) as forest cover.
  - b. 1,12,014 sq km (3.41%) as tree cover.

For the first time, **India’s green cover has exceeded the 25% threshold**. Of this, 49.57% (4,10,175 sq km) is classified as **dense forests**.
2. **Increase in tree cover and forest cover:**
  - a. Sharpest **growth ( 0.5%) in tree cover** (from 2.91% in 2021 to 3.41% in 2023)
  - b. Marginal growth in **forest cover (0.05%)** since 2021.
    - i. Between 2003 and 2013, forest cover increased by 0.61%, from 20.62% to 21.23%.
    - ii. In the next 10 years, it grew by only 0.53% to 21.76%.
3. **Total mangrove cover** is 4,992 sq km in the country.
4. **Total bamboo bearing area** is 1,54,670 sq km. (an increase from 2021).
5. **Total carbon stock in the country’s forest** is estimated to be **7,285.5 million tonnes** (an increase of 81.5 million tonnes as compared to 2021).
6. **India’s carbon stock has reached 30.43 billion tonnes of CO2 equivalent;** which indicates that as compared to the base year of 2005, India has already reached 2.29 billion tonnes of additional carbon sink as against the target of 2.5 to 3.0 billion tonnes by 2030.

#### Rankings of States & UTs:

- **Top four states showing maximum increase in forest and tree cover:**

State	Increase in Forest & Tree Cover (in sq km)
<b>Chhattisgarh</b>	684
<b>Uttar Pradesh</b>	559
<b>Odisha</b>	559
<b>Rajasthan</b>	394

- **Top three states showing maximum increase in forest cover:**

States	Increase in forest cover (in sq km)
Mizoram	242
Gujarat	180
Odisha	152

- Area wise top three states having largest forest and tree cover:

State	Forest and Tree Cover Area (in sq km)
Madhya Pradesh	85,724
Arunachal Pradesh	67,083
Maharashtra	65,383

- Area wise top three states having largest forest cover:

State	Forest Cover Area (in sq km)
Madhya Pradesh	77,073
Arunachal Pradesh	65,882
Chhattisgarh	55,812

- In terms of percentage forest cover with respect to total geographical area:

State/UT	Forest Cover (%) of Geographical Area
Lakshadweep	91.33%
Mizoram	85.34%
Andaman & Nicobar Islands	81.62%

- 19 states/UTs have above 33% of the geographical area under forest cover.
  - o According to the National Forest Policy of 1988, 33% of India’s geographical area is required to be forests.

**8 states/UTs:** Mizoram, Lakshadweep, Andaman & Nicobar Island, Arunachal Pradesh, Nagaland, Meghalaya, Tripura, and Manipur have forest cover above 75%.

**Types of Forests**

1. Forests: Irrespective of land use or ownership, tree patches measuring 1 hectare or more with a minimum canopy cover of 10% are counted as forests in India.
2. Dense forests: Areas with a canopy density of 40% and above are considered dense forests
3. Open forests: Areas with canopy density of 10-40% are open forests (OF).
4. Very dense forests: Since 2003, areas with at least 70% canopy density have been classified as very dense forests (VDF).

**Note: - Canopy density:** It is the percentage of an area that is covered by the crowns of trees. It’s also known as forest canopy density (FCD) or crown cover. Canopy density is a key indicator of a forest’s health and is used to assess the forest’s condition and potential management actions.

**Concerning findings of the Report:**

1. ISFR-2023 shows that **3,913 sq km of dense forests (an area larger than Goa) have disappeared** in India in just two years since 2021.
2. India has witnessed the **complete destruction of 24,651 sq km (more than 6.3%) of its dense forests in the two decades since 2003.**
3. The **bulk of this loss has been offset by the rapid transformation of 15,530 sq km of non-forested or scantily forested land to dense or even very dense forests (during 2003-2023).**
4. However, **this offset has been accomplished through Plantations**, because natural forests do not grow this fast.

	2021-23	2003-13	2013-23	2003-23		2021-23	2003-13	2013-23	2003-23
LOST					GAINED				
VDF to NF	295	288	1,277	1,565	NF to VDF	56	43	483	526
MDF to NF	3,362	6,714	15,086	21,800	NF to MDF	839	3,631	7,554	11,185
VDF to scrub	24	5	65	70	Scrub to VDF	1	0	54	54
MDF to scrub	313	144	1,153	1,297	Scrub to MDF	102	105	1,043	1,148
Disappeared	3,994	7,151	17,581	24,732	OF to VDF	496	124	2,567	2,691
VDF to OF	228	134	1,128	1,262	Plantations	1,494	3,903	11,701	15,604
MDF to OF	5,166	6,414	22,249	28,663	OF to MDF	8,610	6,122	34,301	40,423
TOTAL LOSS	9,388	13,699	40,958	54,657	TOTAL GAIN	10,104	10,025	46,002	56,027
<b>NET CHANGE</b>					2021-23: 716	2003-13: -3,674	2013-23: 5,044	2003-23: 1,370	Source: ISFR 2003-23
<small>VDF: Very Dense Forest (canopy over 70%); MDF: Moderate Dense Forest (canopy 40-70%); OF: Open Forest (canopy 10-40%); Scrub (canopy under 10%); NF: Non-Forest (no canopy)</small>									

**Conundrum of Dense forests:**

1. Areas under plantations-as-dense-forests are expanding as the disappearance of natural dense forests becomes routine.
2. Large swaths of Open forest (OFs) become Moderately dense forest (MDFs) in the last decade owing to better management. At the same time, plantations are supplementing these natural gains to keep the extent of India’s dense forest cover stable.
3. Though, India’s dense forest cover has grown by 6% during 2003-2023. Experts question such an increase as they were brought through a series of unexplained revisions of data presented in ISFR adding a total of 20,232 sq km of dense forest to the inventory.

## Plantations as Natural Forest – Issues and Implications:

1. Plantations usually have **trees of the same age (and often the same species), are vulnerable to fire, pests and epidemics.**
2. Plantations **often act as a barrier to the regeneration of natural forests** which are more biodiverse, perform a wider range of ecological functions, and support numerous species.
3. **Old natural forests stock a lot more carbon in their frame and in the soil.** In 2018, the United Nations Framework Convention on Climate Change (UNFCCC) flagged India's assumption that plantations reach the carbon stock level of existing forests in just eight years.
4. **Plantations are frequently promoted** for their rapid growth which can achieve carbon targets faster. However, **plantations are often harvested more readily**, defeating climate goals in the long term.

The **18<sup>th</sup> India State of Forest Report 2023** highlights **positive trends** in forest and tree cover, carbon stock, and soil health, while addressing challenges like forest fires and mangrove loss. India's commitment to global climate goals, such as the **Paris Agreement** and **Bonn Challenge**, reinforces its ongoing conservation efforts.

### Related facts

1. **Paris Agreement:** In the **Nationally Determined Contribution (NDC)** commitments made at the Paris Climate Change Agreement, **India** has resolved to create an **additional carbon sink of 2.5 to 3 billion tonnes of CO<sub>2</sub> equivalent** through additional forest and tree cover by **2030**.
2. **Bonn Challenge:** India has also pledged to bring in **26 million hectares of degraded land under restoration by 2030**, as part of **Bonn Challenge**.
3. **Livelihood:** India's forests support the livelihoods of about **17% of the global human population** and **18% of the world's total livestock**.
4. **Global Standing:** As per **Global Forest Resource Assessment (GFRA, 2020)** published by **FAO**, India is ranked amongst the **top 10** countries of the world, in terms of **forest area** and holds **3rd position** for **highest annual net gain in forest cover** between 2010-2020.

## About Forest Survey of India

1. **Established:** Established on **1st June 1981**, succeeding the **Pre-Investment Survey of Forest Resources (PISFR)** initiated in **1965**.
  - a. In **1976**, the **National Commission on Agriculture (NCA)** recommended establishing a **National Forest Survey Organization**, leading to the creation of **FSI**.
  - b. PISFR was initiated in **1965** by the Government of India with the sponsorship of **FAO and UNDP**.
2. **Parent Organization:** **Ministry of Environment and Forests**, Government of India.
3. **Primary Objective:** To **assess and monitor the forest resources** of India regularly.
  - a. In addition, it is also engaged in providing the services of **training, research and extension**.
4. **Functioning:** FSI has headquarters at **Dehradun** and has pan India presence with four regional offices at **Shimla, Kolkata, Nagpur and Bangalore**.
  - a. The Eastern zone has a sub centre at **Burnihat (Meghalaya)**.

## 2. India's 57<sup>th</sup> Tiger Reserve: Ratapani Wildlife Sanctuary

1. In December 2024, the **Ratapani Wildlife Sanctuary** has been officially **declared a tiger reserve**, becoming the **8th tiger reserve in Madhya Pradesh** and the **57th in India**.



- This long-awaited notification marks a significant step forward in conserving India's tiger population and biodiversity.
- The Ratapani Tiger Reserve (RTR) is not only home to a rich variety of flora and fauna but also holds historical and cultural significance, making it a critical addition to India's network of protected areas.
- The other seven tiger reserves in MP include **Kanha, Satpura, Bandhavgarh, Pench, Sanjay Dubri, Panna** and **Veerangana Durgavati**.

### About Ratapani Tiger Reserve

#### Location and Area

- Geographical Location:** Situated in the **Vindhya Range**, spanning the **Raisen** and **Sehore** districts of Madhya Pradesh.
- Total Area:** 1,271.4 square kilometers.
  - Core Area:** 763.8 square kilometers.
  - Buffer Area:** 507.6 square kilometers.
- Major Water Bodies:** Includes the **Barna Reservoir** and **Ratapani Dam (Barrusot Lake)**.

#### Unique Features

- Historical Significance:** The reserve encompasses the **Bhimbetka Rock Shelters**, a **UNESCO World Heritage Site**, featuring **Stone Age rock paintings** over **30,000 years old**.
- Ecological Importance:** A critical habitat for tigers, with approximately **90 tigers** currently residing in the reserve.
  - Acts as a **migration corridor for tigers** from nearby **Satpura ranges**.

### Flora and Fauna of Ratapani

#### Vegetation

- Types of Forests:** **Dry and moist deciduous forests** dominated by Teak trees (covering 55% of the area).
  - Bamboo groves and evergreen Saja forests.
- These varied ecosystems enhance the appeal for eco-tourism and provide critical habitats for wildlife.

#### Wildlife

- Fauna:**
  - Large mammals:** **Tigers, leopards, dhole** (Indian wild dog), sambar deer, wild boar, and sloth bears.
  - Reptiles and Amphibians:** 33 species of reptiles and 10 amphibian species with 14 fish species
- The reserve supports more than **35 species of mammals**, ensuring ecological diversity.

#### Tiger Reserves in India

- Tiger reserves are **legally protected areas** designated for the conservation of tigers and their habitats. These reserves follow a **core-buffer strategy**:
  - Core Area:** National parks or wildlife sanctuaries with minimal human interference.
  - Buffer Zone:** Mixed-use areas balancing human activities and conservation needs.
- Legal Framework and Governance:** Governed under the **Wildlife Protection Act, 1972**.
  - Administered by the **National Tiger Conservation Authority (NTCA)**, which provides funding and management oversight.

### Chhattisgarh's Guru Ghasidas-Tamor Pingla Tiger Reserve: India's 56<sup>th</sup> Tiger Reserve

- Earlier in November 2024, the **Chhattisgarh government** notified the **Guru Ghasidas-Tamor Pingla Tiger Reserve** as India's **56<sup>th</sup> tiger reserve**.
- The reserve also aligns with the state's ambitious plans to reintroduce **cheetahs** — the last cheetah was spotted here in the 1940s.
- Chhattisgarh** is now **home to 4 Tiger Reserves**.
- This makes it the **3<sup>rd</sup> largest tiger reserve** in the country after **Nagarjunasagar-Srisailem Tiger Reserve in Andhra Pradesh** and **Manas Tiger Reserve in Assam**.

#### Key Features of the Guru Ghasidas-Tamor Pingla Tiger Reserve:

- Geographical Area and Location:**
  - Size:** The reserve spans an area of **2,829.387 sq km**, making it the **3<sup>rd</sup> largest tiger reserve** in India.
  - Location:** It is spread across **4 districts** in the northern tribal region of **Sarguja** in Chhattisgarh: **Manendragarh-Chirmiri-Bharatpur (MCB), Korea, Surajpur, Balrampur**
  - The reserve lies between **Bandhavgarh** in Madhya Pradesh and **Palamau** in Jharkhand, and is adjacent to the **Sanjay Dubri Tiger Reserve** in Madhya Pradesh.

**2. Biodiversity:**

- a. **Wildlife:** Tigers, elephants, sloth bears, vultures, leopards, wolves, peacocks, bison, hyenas, langurs, jackals, cobras, and more.
- b. **Flora:** The reserve has rich vegetation including species like **sal, saja, kusum, and dhavda** trees. The topography comprises **hills, plateaus, valleys**, and a **river system** that creates diverse habitats for wildlife.

**Current Tiger Population in Chhattisgarh**

1. As of now, the state has a total of **30 tigers**, including **three sub-adults** and **two cubs**.
2. **Guru Ghasidas-Tamor Pingla Tiger Reserve** currently houses **five to six tigers**.
3. However, the state's tiger population has declined over the years, from **46 tigers in 2014** to only **17 in 2022**, according to the latest **National Tiger Conservation Authority (NTCA)** report released in 2023.

**Plans to Boost the Tiger Population**

1. **Tigress Relocation:** To address the tiger population imbalance, the government plans to relocate **tigresses** from **Bandhavgarh** and **Sanjay Dubri Tiger Reserves** in Madhya Pradesh to the Guru Ghasidas-Tamor Pingla Reserve.
2. **Other Measures:** Establishing rapid response teams, building strong relationships with local villagers, developing informant-based wildlife protection systems, deploying full-time guards for constant vigilance.

**Conservation Efforts and Preparations**

1. **Tiger Conservation Plan (TCP):** The reserve authorities are preparing a comprehensive **Tiger Conservation Plan (TCP)** to address challenges and ensure the reserve becomes a sustainable tiger habitat. The TCP includes:
  - a. **Improving connectivity** with MP, which has a rising tiger population.
  - b. **Developing grasslands and water bodies** to increase the prey base, including translocating animals like **cheetal** and **wild boars** from other parts of the state.
  - c. **Wildlife corridor development** to facilitate tiger migration and reduce human-wildlife conflict.
2. **Human-Wildlife Conflict Mitigation:**
  - a. The reserve includes **42 sparsely populated villages**.
  - b. Authorities are working on voluntary relocation options for these residents and providing employment opportunities, especially in **eco-tourism** activities like **tour guiding, homestays, boating, and handicrafts**.

**Future Plans and Challenges**

1. **Cheetah Reintroduction:** Wildlife activists have suggested the reintroduction of **cheetahs**, similar to efforts in **Madhya Pradesh**.
2. While the **cheetah population is extinct in the region**, conservationists are hopeful about reintroducing this species.

**India's Contribution to Global Tiger Conservation**

1. India is home to **75% of the global tiger population**, with **3,682 tigers** as per the **2022 census**.
2. The **National Tiger Conservation Authority (NTCA)** conducts a **tiger census** across India every **4 years**.
3. **Madhya Pradesh** leads with **785 tigers**, followed by Karnataka and Uttarakhand.
4. **Conservation status:**
  - a. IUCN Red List: **Endangered**
  - b. Wildlife Protection Act: **Schedule 1**
  - c. CITES: **Appendix 1**

**Procedure for Declaring a Tiger Reserve**

1. **Proposal by State Government:** Identification of ecologically significant areas with tiger populations.
  - a. Preparation of a comprehensive conservation plan and submitted to NTCA.
2. **Approval by NTCA:** The proposal is reviewed and granted **in-principle approval** if found suitable.
3. **Official Notification:** The state government formally declares the area as a tiger reserve under **Section 38V of the Wildlife Protection Act, 1972**.
4. **Monitoring and Evaluation:** Initiatives are launched to manage the reserve, enhance ecosystems, and benefit local communities and continuous evaluation is done by NTCA.

### What is Project Tiger?

1. Project Tiger was launched by the Indian government in **1973**, as a conservation initiative aimed at protecting the country's rapidly dwindling tiger population.
2. At the time, India's tiger population was critically low due to rampant hunting and poaching.

### Background

1. **Declining Tiger Population:** Before Independence, India was home to around **40,000 tigers**. By the 1970s, this number had dropped to below **2,000**, primarily due to hunting, poaching, and habitat loss.
2. **Endangered Status:** In 1970, the **International Union for Conservation of Nature (IUCN)** declared tigers as **endangered species**. A 1972 census confirmed the tiger population at a mere **1,800**.
3. **Wildlife Protection Act, 1972:** This Act laid the foundation for tiger conservation and wildlife protection in India.
4. **International Tiger Day:** Celebrated annually on **July 29** to raise awareness about tiger conservation.

### Launch of Project Tiger

1. **Prime Minister Indira Gandhi's Vision:** Following recommendations from a task force, Prime Minister Indira Gandhi unveiled **Project Tiger in 1973**.
2. **Initial Launch:** Officially launched at **Jim Corbett National Park**.
  - a. Initially, **nine tiger reserves** were established across different states: Assam, Bihar, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Uttar Pradesh, and West Bengal.
  - b. These reserves covered over **14,000 square kilometers**.
3. **Holistic Approach:** The project emphasized protecting both tigers and their habitats to ensure ecological balance.

### Progress and Challenges

1. **Tiger Population Growth:** By the 1990s, the tiger population increased to around **3,000**.
  - a. However, poaching incidents, such as those at Sariska Tiger Reserve in 2005, underscored the need for stricter conservation measures.
2. **Reconstitution of Project Tiger:** In 2005, then Prime Minister Manmohan Singh established a task force to reshape conservation efforts.
  - a. The **National Tiger Conservation Authority (NTCA)** was formed to oversee tiger protection and habitat management.

### 3. Why CO<sub>2</sub> is the Primary Driver of Climate Change?

1. India's carbon dioxide (CO<sub>2</sub>) emissions from burning fossil fuels are expected to increase by **4.6% in 2024**, the highest among major economies.
2. At the same time, **global CO<sub>2</sub> emissions** from fossil fuels are set to hit a record **37.4 billion tonnes** in 2024, a **0.8% rise** from 2023.
3. According to the **Global Carbon Project**, if this continues, there is a **50% chance** that global warming will go above **1.5°C** consistently in the next **six years**.
4. CO<sub>2</sub> is the **main cause** of human-driven climate change, and it is the biggest reason for the rise in global temperatures.

### What Are Greenhouse Gases (GHGs)?

1. Greenhouse gases (GHGs) are gases in the Earth's atmosphere that trap **heat**.
2. When sunlight (shortwave radiation) reaches the Earth's surface, some of it is absorbed, and some is reflected back as **infrared radiation** (heat).
3. GHGs like CO<sub>2</sub> and methane (CH<sub>4</sub>) absorb this heat and trap it in the atmosphere, keeping the Earth warm.

### Main Greenhouse Gases:

1. **Carbon Dioxide (CO<sub>2</sub>)**
2. **Methane (CH<sub>4</sub>)**
3. **Water Vapour (H<sub>2</sub>O)**
4. **Nitrous Oxide (N<sub>2</sub>O)**
5. **Ozone (O<sub>3</sub>)**
  - a. These gases act like a **blanket** around the Earth, keeping the planet warm enough to support life. Without this **greenhouse effect**, Earth would be too cold for liquid water and life to exist.
  - b. However, the issue is not the presence of GHGs but their **increased levels**.
  - c. Since the Industrial Revolution, human activities like burning fossil fuels have raised the levels of GHGs, especially CO<sub>2</sub>.
  - d. This leads to more heat being trapped, which causes global temperatures to rise.

### Why CO<sub>2</sub> Has Caused Most of the Global Warming

1. CO<sub>2</sub> is the **main cause** of global warming, responsible for about **70%** of the warming that has occurred.

- While other GHGs like **methane (CH<sub>4</sub>)** and **hydrofluorocarbons (HFCs)** are more powerful in trapping heat, CO<sub>2</sub> has had the biggest impact on climate change for several reasons.

### Reasons Why CO<sub>2</sub> is the Main Cause of Climate Change:

- More CO<sub>2</sub> in the Atmosphere:**
  - Methane (CH<sub>4</sub>) is **80 times more powerful** than CO<sub>2</sub> at trapping heat in the short term, and HFCs are even more powerful. However, **CO<sub>2</sub> is much more common** in the atmosphere.
  - CO<sub>2</sub> levels** have increased by **50%** since the Industrial Revolution. Today, the amount of CO<sub>2</sub> in the atmosphere is **150% of what it was in 1750** (before industrial times).
- CO<sub>2</sub> Stays in the Atmosphere Longer:**
  - CO<sub>2</sub> remains in the atmosphere much longer than other major GHGs. Here are some important facts:
    - 40% of CO<sub>2</sub>** stays in the atmosphere for **100 years**.
    - 20% stays for 1,000 years**.
    - The remaining **10% stays for up to 10,000 years**.
  - In comparison, methane (CH<sub>4</sub>) stays in the atmosphere for about **10 years** before it breaks down into CO<sub>2</sub>. Nitrous oxide (N<sub>2</sub>O) stays for about **100 years**. This long life of CO<sub>2</sub> ensures it has a long-lasting effect on the planet's temperature.
- Radiative Forcing (RF):**
  - The **Intergovernmental Panel on Climate Change (IPCC)** looked at the **radiative forcing (RF)**, which is the change in the Earth's energy balance caused by different factors.
  - CO<sub>2</sub> has the **highest positive radiative forcing**, meaning it causes the most warming of the planet.
  - Between 1750 and 2011**, CO<sub>2</sub> had the largest **warming effect** compared to other gases like methane and HFCs.
- Comparison with Other GHGs:**
  - Other gases like **methane** and **HFCs** can trap heat more powerfully, but they exist in much smaller amounts in the atmosphere than CO<sub>2</sub>.
  - While **methane** is **80 times stronger** than CO<sub>2</sub> in the short term, its levels are much lower. As a result, **CO<sub>2</sub> causes more warming** overall, even though other gases are stronger in the short run.

### Water Vapour: The Most Abundant but Less Impactful GHG

- Water vapour** is the most common GHG in the atmosphere but doesn't have as much impact on warming as CO<sub>2</sub>. This is because water vapour has a **short life cycle** (it stays in the atmosphere for about **10 days**). It **evaporates and condenses** quickly, so it doesn't build up in the atmosphere like CO<sub>2</sub>.
- However, water vapour still plays a role in climate change. As the Earth warms due to CO<sub>2</sub>, more water evaporates into the air. This creates a **feedback loop**, where more water vapour causes even more warming.

### Scientific Evidence for CO<sub>2</sub>'s Dominance

- Global Carbon Project:** India's CO<sub>2</sub> emissions from burning fossil fuels are expected to rise by **4.6% in 2024**, the highest increase among major economies.
- NASA:** A report from NASA shows that CO<sub>2</sub> levels have increased by **50%** since the 18th century. This increase has **directly contributed** to the rise in global temperatures.
- Union of Concerned Scientists (UCS):** According to a UCS report, **40% of CO<sub>2</sub>** stays in the atmosphere for **100 years**, and **20% stays for 1,000 years**. This long-lasting presence of CO<sub>2</sub> ensures it has a major role in ongoing climate change.
- IPCC 2013 Report:** The IPCC found that between **1750 and 2011**, CO<sub>2</sub> had the **largest warming effect** when compared to other gases like methane and HFCs. CO<sub>2</sub> remains the **main driver** of global warming because it is the most **common gas** in the atmosphere, stays in the atmosphere for a **long time**, and has the **largest warming effect**. While gases like methane and HFCs are more powerful in the short term, CO<sub>2</sub>'s higher levels and longer presence in the atmosphere make it the most important cause of climate change. As CO<sub>2</sub> continues to build up due to human activities like burning fossil fuels, global temperatures will keep rising, leading to more severe impacts on the planet.

### 4. First Satellite Tagging of Ganges River Dolphin

- In December 2024, India achieved a remarkable milestone in wildlife conservation with the 1st-ever satellite tagging of the Ganges River Dolphin (*Platanista gangetica*), in Assam.
- This initiative marks significant progress under **Project Dolphin**, a program dedicated to conserving India's National Aquatic Animal.

3. **Objectives:** The tagging aims to collect crucial data to better understand the dolphin's seasonal and migratory patterns, range and distribution, habitat usage, particularly in fragmented or disturbed river systems.
  - a. This data is critical for creating and implementing effective conservation strategies.

### Key Details of the Initiative

1. The project was led by the **Ministry of Environment, Forest and Climate Change (MoEFCC)** and implemented by the **Wildlife Institute of India (WII)** in partnership with the Assam Forest Department.
2. The **National CAMPA Authority** funded the initiative. This authority, established under the **Compensatory Afforestation Fund (CAF) Act, 2016**, manages the **National Compensatory Afforestation Fund** under India's Public Account system.
3. **Lightweight satellite tags** compatible with **Argos systems** were employed to minimize disruption to the dolphin's natural movement.
  - a. These weigh as little as 2 grams and are designed for low-impact tracking on birds, and smaller animals due to their minimal weight.

### Significance of the Initiative

1. **Enhancing Conservation Efforts:** The study of dolphin behaviour and movement will aid in developing a detailed conservation plan.
  - a. It focuses on protecting this apex predator, which is crucial for maintaining the balance and health of river ecosystems.
2. **Understanding Habitat Needs:** The collected data will bridge existing gaps in knowledge about the dolphins' habitat and migratory behaviour.
3. **Promoting Technological Advancements:** The use of satellite tagging represents a significant step forward in wildlife monitoring techniques.
4. **Global Benchmark for Conservation:** This initiative demonstrates India's leadership in wildlife preservation and sets an example for safeguarding endangered species worldwide.
5. **Sustaining River Ecosystems:** It highlights the importance of comprehensive research and innovative technologies to ensure the long-term health of river systems.
  6. **Awareness and Action:** The project reflects growing awareness and proactive efforts to conserve India's aquatic biodiversity.

### About Ganges River Dolphin

1. The Ganges River Dolphin, recognized as **India's National Aquatic Animal** since 2009, is a **rare and endangered species** of freshwater dolphin.
2. Locally known as **Susu**, this species is a vital indicator of river ecosystem health due to its position as a top predator.
3. Found in the **Ganga, Brahmaputra-Meghna, and Karnaphuli-Sangu River systems** across **India, Nepal, and Bangladesh**. Previously widespread, but human activities have fragmented their populations.

### Key Features

1. **Scientific Name:** *Platanista gangetica gangetica*
2. **Physical Traits:** Almost blind, relies on echolocation for navigation and hunting.
3. **Habitat:** Prefers slow-moving rivers with sufficient depth and an abundance of prey.
4. **Diet:** Carnivorous, primarily consuming fish and aquatic invertebrates.
5. **Ecological Significance**
  - a. **Keystone Species:** Essential for maintaining balance within river ecosystems.
  - b. **Indicator Species:** Reflects the health and quality of freshwater ecosystems.
6. **Conservation Status**
  - a. **IUCN:** Endangered
  - b. **CITES:** Listed in Appendix I
  - c. **Indian Wildlife Protection Act, 1972:** Included under Schedule I

### Major Threats

1. **Habitat Degradation:** Pollution from industrial, agricultural, and urban sources. Dams and barrages disrupting habitats and reducing connectivity among populations.
2. **Bycatch and Hunting:** Accidental entrapment in fishing nets. Hunted for oil and meat in some areas.
3. **Water Abstraction:** Excessive withdrawal of water for agriculture and industries reduces river flow.
4. **Riverbed Alteration:** Activities like sand mining and dredging disturb natural habitats.

### Conservation Efforts by the Government

1. **Project Dolphin (2020):** Launched for focusing on the protection of river and marine dolphins.

2. **Protected Areas:** Establishment of sanctuaries such as the **Vikramshila Gangetic Dolphin Sanctuary** in Bihar.
3. **Community Awareness:** Campaigns to educate local populations about sustainable fishing practices and dolphin conservation.
4. **Technological Interventions:** Satellite tagging initiatives to study dolphin migration and habitat requirements.
5. **Legislative Measures:** Enforcing the Wildlife Protection Act strictly and banning harmful activities like sand mining.

2. This is **29th session of the Conference of the Parties** to the United Nations Framework Convention on Climate Change.
  - The first COP meeting of UNFCCC was held in Berlin, Germany, 1995.

**About Conference of the Parties (COP)**

1. COP is the supreme decision-making body of the **United Nations Framework Convention on Climate Change (UNFCCC)**.
2. COPs are **annual conferences** where **UNFCCC member countries** assess progress, negotiate agreements, and refine commitments to address climate change.
  - A key task for the COP is to **review the national communications and emission inventories** (e.g., Nationally Determined Contributions (NDCs)) submitted by Parties.
3. **COP 30** will be held in **Belém, Brazil, in November 2025**.

**5. 29th session of the Conference of the Parties (COP29)**

1. In November 2024, COP29, held in **Baku, Azerbaijan**, concluded with **Baku Climate Unity Pact** and several significant agreements.

**Key Outcomes of COP29**

Themes	Details
<b>New Collective Quantified Goal on Climate Finance (NCQG) or Baku Finance Goal</b>	<ul style="list-style-type: none"> <li>• Sets goals for financing climate action in developing countries:                             <ul style="list-style-type: none"> <li>◦ <b>Triple finance to USD 300 billion annually by 2035</b> (previous goal of USD 100 billion annually).</li> <li>◦ Secure efforts to mobilize <b>\$1.3 trillion per year by 2035</b> from both public and private sources.</li> </ul> </li> </ul>
<b>Carbon Markets and Article 6</b>	<ul style="list-style-type: none"> <li>• <b>Finalized the rules for Article 6</b> of the Paris Agreement.                             <ul style="list-style-type: none"> <li>◦ <b>Article 6 provides mechanisms for international carbon markets</b>, allowing countries to trade carbon credits and finance climate action.</li> </ul> </li> </ul>
<b>Transparency</b>	<ul style="list-style-type: none"> <li>• All <b>transparency negotiating items concluded</b>, including <b>Enhanced Transparency Framework (ETF)</b>.                             <ul style="list-style-type: none"> <li>◦ ETF establishes a system for countries to report on their climate actions, including greenhouse gas emissions, climate mitigation efforts, and adaptation measures.</li> </ul> </li> <li>• <b>1st submissions of Biennial Transparency Reports (BTRs)</b> by 13 countries under the Paris Agreement.                             <ul style="list-style-type: none"> <li>◦ BTRs are the regular reports submitted by countries under ETF.</li> </ul> </li> <li>• <b>Baku Declaration on Global Climate Transparency and Baku Global Climate Transparency Platform</b> were also launched for timely delivery of BTRs and to support the full implementation of the ETF.</li> </ul>
<b>Adaptation</b>	<ul style="list-style-type: none"> <li>• Launched the <b>Baku Adaptation Road Map</b> and <b>Baku High-Level Dialogue on Adaptation</b> to enhance <b>UAE Framework for Global Climate Resilience</b> implementation.                             <ul style="list-style-type: none"> <li>◦ Roadmap will advance the implementation of adaptation action in line with <b>Article 7 of the Paris Agreement</b>.</li> </ul> </li> <li>• Establishment of a <b>support program</b> for implementing <b>National Adaptation Plans (NAPs) for Least Developed Countries (LDCs)</b>.                             <ul style="list-style-type: none"> <li>◦ NAPs are comprehensive documents that outline a country’s medium- and long-term strategies and priorities for adapting to the adverse effects of climate change.</li> </ul> </li> </ul>

<b>Indigenous Peoples and Local Communities</b>	<ul style="list-style-type: none"> <li>● Adopted the <b>Baku Workplan</b> and renewed the <b>mandate of the Facilitative Working Group (FWG)</b> of the Local Communities and Indigenous Peoples Platform (LCIPP). <ul style="list-style-type: none"> <li>○ FWG a constituted body established at COP24 in Katowice to further operationalize the LCIPP.</li> </ul> </li> <li>● Implementation of the Workplan will <b>begin in 2025</b> and it has <b>3 Focus areas</b>: <ul style="list-style-type: none"> <li>○ Promoting knowledge exchange;</li> <li>○ Building capacity for engagement;</li> <li>○ Incorporating diverse values and knowledge systems into climate policies and actions.</li> </ul> </li> </ul>
<b>Gender and climate change</b>	<ul style="list-style-type: none"> <li>● Extension of the enhanced <b>Lima Work Programme on Gender and Climate Change</b> for another 10 years. <ul style="list-style-type: none"> <li>○ In 2014, COP 20 established the Lima Work Programme on Gender <b>to advance gender balance, integrating gender considerations</b> into climate policies under the <b>Convention and Paris Agreement</b>.</li> <li>○ At COP 25 Parties agreed a <b>5-year enhanced Lima work programme on gender and its gender action plan</b> was launched.</li> </ul> </li> </ul>

### Issues persisting in climate negotiations

1. **Inadequate climate finance:** NCQG falls short of the Global projected investment requirement for climate action which is around **\$2.3-2.5 trillion (per year) in emerging markets and developing countries (EMDCs)** other than China. (Raising Ambition and Accelerating Delivery of Climate Finance' Report)
  - a. Due to inadequate funding, developing countries including **India have rejected the climate finance deal** agreed at COP29.
2. **Deadlock on Mitigation Work Programme (MWP):** Due to a **divergence in views on the role of fossil fuels in the future energy mix**.
  - a. The **Global Stocktake**, a comprehensive assessment of global progress towards climate goals, **was a point of contention**.
3. **Limited progress on climate targets:** Progress in ambition and action since the initial NDCs plateaued and countries are still off track to deliver on the globally insufficient mitigation pledges for 2030.
  - a. Global greenhouse gas emissions set a **new record in 2023, with a 1.3% increase from 2022** levels (UNEP's Emissions Gap Report 2024).
4. **Other Issues:**
  - a. **Slow pace of operationalizing the Loss and Damage Fund (LDF)** and concerns over its **inadequate funding**.
  - b. Next round of Nationally Determined Contributions (NDCs) has been **postponed** ahead of COP30.
  - c. **Large disparities** between the current, per capita and historic emissions of major emitters and world regions.

i. **G20 members** accounted for **77% of global emissions**.

d. **Alleged influence of Fossil fuel lobbyists** in negotiations.

### Way Forward

1. **Enhance Climate Diplomacy through regular and constructive dialogue** between countries, especially to address the concerns of developing nations regarding climate finance and mitigation targets.
2. **CBDR-RC:** Decisions should take into consideration historical contribution to climate change and fulfil the principle of **Common but Differentiated Responsibilities and Respective Capabilities (CBDR-RC)**, which mandates that developed nations need to support developing countries in climate action.
3. **Prompt and effective operationalization of LDF:** It can help in providing financial support to vulnerable countries.
4. **Enhance NDCs:** As per Emissions Gap Report 2024, emission cuts of **42% are needed by 2030 and 57% by 2035** to get on track for 1.5Å°C.
  - a. Further, **strengthening reporting mechanisms under the ETF** can hold countries accountable for their commitments.

### India's stance on various aspects at COP29

India clarified its stance regarding climate negotiation at the Plenary Session of the UNFCCC-COP29.

1. **New Collective Quantified Goal (NCQG): Proposed a goal of \$1.3 trillion annually**, with \$600 billion coming from grants or equivalent resources.

2. **Mitigation:**
  - a. **Opposed changes** to the scope of the **Mitigation Work Programme (MWP)** and attempts to **alter temperature goals** in the Paris Agreement.
  - b. Urged recognition of the pre-2020 mitigation gap by developed countries (Annex I Parties).
3. **Just Transition:**
  - a. India asserted that **developed countries should provide financial and technological support** to developing countries for a just transition.
  - b. Just transitions must **respect the right to development and sustainable priorities** of developing countries.
  - c. **India's Initiatives Taken for Just Transition:**
    - i. **Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY):** To ensure certain minimum provisions for development programme by all District Mineral Foundations (DMFs).
    - ii. **DMFs (non-profit trust):** Established under Mines and Minerals (Development and Regulation) Amendment (MMDRA) Act 2015 set up by the State Governments in all mining-affected districts.
    - iii. **Global Collaboration:** Collaboration with Asian Development Bank to develop a Just Transition Worker Support Facility for coal-mining reliant districts and states.
    - iv. **National Clean Energy Fund (NCEF):** funds clean energy ventures through a coal cess.
    - v. **Other initiatives:** Solar cities and parks, National Green Hydrogen Mission, and the Green Energy Corridors, etc.
4. **Global Stocktake (GST):**
  - a. **Opposed follow-up** mechanisms for GST outcomes, citing the Paris Agreement's framework.
  - b. **Criticized the UAE dialogue text** for its lack of connection to finance, imbalance, and mitigation-centric language.

- c. **Proposed specific revisions** to better align the text with finance and emission trends.
5. **Adaptation:**
  - a. India called for **clear indicators to measure progress** on adaptation.
  - b. **Opposed the use of third-party databases** for reporting indicators, advocating for Party-submitted data only.
  - c. **Supported the establishment of the Baku Road Map** to advance work on the Global Goal on Adaptation (GGA).

### India's participation in various Side-events during COP29

1. **Integrating Disaster Resilient Infrastructure into the Adaptation Strategies:**
  - a. Organised by **India and Coalition for Disaster Resilient Infrastructure (CDRI)**.
2. CDRI, launched by **India in 2019**, is an international coalition of countries, UN agencies, multilateral development banks, the private sector, and academic institutions, that aims to promote disaster-resilient infrastructure
  - a. Focused on how to build infrastructure that is resilient to the impacts of climate change.
  - b. **CDRI also announced \$8 million of funding for 12 projects across 17 Small Island Developing States (SIDS)** under its Infrastructure for Resilient Island States initiative.
3. **LeadIT (Leadership Group for Industry Transition) Member Meet**
  - a. Organised by **India and Govt of Sweden**.
  - b. LeadIT is a global initiative that brings together governments and industry leaders to accelerate the transition to a low-carbon economy.
4. **Energy Transitions for the Global South**
  - a. **Organised by India and International Solar Alliance (ISA)**.
  - b. This event **focused on the role of solar energy in the energy transition of developing countries**.

### Key Initiatives/Declarations Launched at COP29

Initiative	Launched by	Aim and other details
<b>Reducing Methane from Organic Waste Declaration</b>	UNEP-convened Climate and Clean Air Coalition (CCAC)	<ul style="list-style-type: none"> <li>● <b>Aim:</b> Set sectoral <b>targets to reduce methane from organic waste</b> and launch policies and roadmaps for these targets.                             <ul style="list-style-type: none"> <li>○ It supports the implementation of the <b>2021 Global Methane Pledge (GMP), launched at COP26</b>.</li> </ul> </li> <li>● <b>Signatories:</b> 35 countries (<b>excluding India</b>), representing 47% of global methane emissions from organic waste.</li> </ul>

<b>Global Energy Storage and Grids Pledge</b>	COP29 Presidency	<ul style="list-style-type: none"> <li>● <b>Aim:</b> Sets targets for 2030: <ul style="list-style-type: none"> <li>○ Deploying <b>1,500 GW of energy storage</b> in the power sector globally (more than six times the level of 2022).</li> <li>○ <b>Global grid deployment goal of adding or refurbishing 25 million kilometres</b> of grids.</li> </ul> </li> </ul>
<b>Green Energy Pledge: Green Energy Zones and Corridors</b>	COP29 Presidency in partnership with UNIDO, UNECE and UNESCAP	<ul style="list-style-type: none"> <li>● <b>Aim:</b> Promoting <b>green energy zones</b> for tackling climate change, promoting economic growth and energy security, and improving the quality of life for local communities. <ul style="list-style-type: none"> <li>○ Green energy zones act as <b>centralized hubs</b>, which combine high-quality variable renewable energy resources, renewable energy infrastructure and storage.</li> </ul> </li> </ul>
<b>Hydrogen Declaration</b>	COP29 Presidency	<ul style="list-style-type: none"> <li>● <b>Aim:</b> To accelerate the production and use of clean hydrogen to decarbonize various sectors and achieve climate goals.</li> <li>● It is a <b>non-legally binding document</b> and does not require any changes to be made to the participating countries' national law.</li> </ul>
<b>Baku Harmoniya Climate Initiative for Farmers</b>	COP29 Presidency in partnership with Food and Agriculture Organization (FAO)	<ul style="list-style-type: none"> <li>● <b>Aim:</b> To acknowledge the fundamental role of farmers as agents of climate action.</li> <li>● It <b>will be hosted by FAO</b> as part of the <b>Food and Agriculture for Sustainable Transformation (FAST)</b> Partnership. <ul style="list-style-type: none"> <li>○ <b>FAST is a multi-stakeholder platform established at COP27 (2022)</b> that works to strengthen the quantity and quality of <b>climate finance in agrifood</b> systems for the most vulnerable.</li> </ul> </li> </ul>
<b>Climate Finance Action Fund (CFAF)</b>	Azerbaijan	<ul style="list-style-type: none"> <li>● <b>Aim: Support climate projects in developing countries</b>, meeting next generation of NDCs to <b>keep 1.5 degree C within reach</b>, and addressing the consequences of natural disasters.</li> <li>● It will be capitalised with <b>contributions from fossil fuel producing countries and companies across oil, gas and coal</b>.</li> <li>● To <b>become operational at the conclusion of the initial fundraising round (\$1 billion)</b>, and when 10 contributing countries committed as shareholders.</li> <li>● <b>Headquarter:</b> Baku, Azerbaijan.</li> </ul>
<b>Baku Initiative for Climate Finance, Investment and Trade (BICFIT) Dialogue</b>	COP29 Presidency, co-facilitated by UN Trade and Development (UNCTAD) and UN Development Program (UNDP)	<ul style="list-style-type: none"> <li>● <b>Aim:</b> Advance national ambitions and actions through the <b>synergistic utilization of climate finance, investment, and trade</b> in accordance with the UNFCCC and the Paris Agreement.</li> </ul>
<b>Global Matchmaking Platform (GMP)</b>	UN Industrial Development Organization (UNIDO) and the Climate Club	<ul style="list-style-type: none"> <li>● <b>Aim:</b> To accelerate the decarbonization of heavy-emitting industries in emerging and developing economies by connecting them with technical and financial solutions.</li> <li>● <b>Function:</b> Connects industries with technical and financial solutions</li> <li>● <b>Role:</b> Single-point gateway for countries to raise decarbonization requests.</li> </ul>

<b>Declaration on Green Digital Action</b>	COP29 Presidency with the Climate Technology Centre & Network, Technology Mechanism, and International Telecommunication	<ul style="list-style-type: none"> <li>● <b>Aim:</b> Harnessing digital technologies to accelerate climate action, promote sustainable development, and bridge the digital divide.</li> </ul>
<b>Continuity Coalition for Climate and Health</b>	COP 29 Presidency with the UAE, Egypt, UK, Brazil, and World Health Organisation (WHO)	<ul style="list-style-type: none"> <li>● <b>Aim:</b> To advance the implementation of health commitments from previous COPs and strengthen the integration of health into climate action.</li> </ul>
<b>Baku Dialogue on Water for Climate Action</b>	COP29 Presidency in partnership with UNEP, UNECE, and WMO	<ul style="list-style-type: none"> <li>● <b>Aim:</b> To build collaboration between COPs on water and its interplay with climate change, biodiversity loss, pollution and desertification.</li> </ul>

### Other Initiatives

- **COP29 Declaration on Enhanced Climate Action in Tourism:** Aims to mobilize the tourism sector to reduce its carbon footprint, enhance climate resilience, and promote sustainable practices.
- **Global Energy Efficiency Alliance:** Launched by UAE to double global energy efficiency rates by 2030 and contribute to significant emission reductions.
- **Hydro4NetZero-LAC initiative:** Aims to develop and modernise sustainable hydropower infrastructure increasing the energy systems' flexibility and resilience.
- **Global Alliance for Pumped Storage (GAPS):** Launched with the support of over 30 governments and international agencies.

### Reports released around COP29

Reports	Details
<b>Special report on climate change and health</b>	<ul style="list-style-type: none"> <li>● <b>Published by:</b> World Health Organization (WHO)</li> <li>● <b>Key Findings:</b> <ul style="list-style-type: none"> <li>○ <b>Noncommunicable diseases (NCD):</b> Climate change and air pollution causes 85% of NCD deaths.</li> <li>○ <b>Heat stress:</b> People faced 50 more days of health threatening heat in 2023, due to climate change.</li> <li>○ <b>Maternal &amp; reproductive health:</b> Preterm birth, low birth weight, maternal death, decreased fertility etc.</li> <li>○ In 2023, 20.3 million people were internally displaced due to weather-related disasters.</li> </ul> </li> </ul>
<b>Global Landscape of Climate Finance 2024</b>	<ul style="list-style-type: none"> <li>● <b>Published by:</b> Climate Policy Initiative (CPI) <ul style="list-style-type: none"> <li>○ CPI is an independent, not-for-profit organization with deep expertise in finance and policy.</li> </ul> </li> <li>● <b>Key Findings:</b> <ul style="list-style-type: none"> <li>○ <b>Climate flows are likely to have surpassed USD 1.5tn in 2023</b>, with key increases in renewable energy (RE) and low-carbon transport.</li> <li>○ <b>Fossil fuel investment and consumer fossil fuel subsidies continued to increase annually since 2020.</b></li> </ul> </li> </ul>

<b>Global Nitrous Oxide Assessment report</b>	<ul style="list-style-type: none"> <li>● <b>Published by:</b> Climate and Clean Air Coalition (CCAC) and FAO <ul style="list-style-type: none"> <li>○ It is <b>first international report focused solely on Nitrous Oxide</b> in more than a decade.</li> </ul> </li> <li>● <b>Key Findings:</b> <ul style="list-style-type: none"> <li>○ If N<sub>2</sub>O emissions <b>continue to increase at their current rate (current share 0.1 ° C)</b>, there is no plausible pathway to limiting global warming to 1.5 ° Celsius.</li> <li>○ Anthropogenic emissions of N<sub>2</sub>O have <b>increased globally by 40% since 1980</b> with ~75% originating from agricultural use of synthetic fertilisers and manure.</li> </ul> </li> </ul>
<b>‘Raising Ambition and Accelerating Delivery of Climate Finance’ Report</b>	<ul style="list-style-type: none"> <li>● <b>Published by:</b> Independent High-Level Expert Group on Climate Finance</li> <li>● <b>Key Findings:</b> <ul style="list-style-type: none"> <li>○ <b>Global Investment Required</b> for climate action is around <b>\$6.3-6.7 trillion per year by 2030.</b></li> </ul> </li> </ul>

### Key Milestones of COP

#### 1. Kyoto Protocol (1997) – COP3:

- a. Established the **Kyoto Protocol** at COP3, which required **industrialized countries** to **reduce emissions**.
- b. The protocol set a **collective target** for industrialized nations to reduce emissions by **4.2% below 1990 levels by 2012**.

#### 2. Copenhagen Accord (2009) – COP15:

- a. At COP15, the **Copenhagen Accord** was introduced, which included:
  - A **2°C** global warming limit to avoid dangerous climate change.
  - A commitment by **developed countries** to **fund climate actions** in developing countries, though it fell short of creating a new binding treaty.

#### 3. Paris Agreement (2015) – COP21:

- a. COP21 saw the adoption of the **Paris Agreement**, a landmark deal with the following goals:
  - Limit global warming to well below 2°C, with a more ambitious target of 1.5°C.
  - Introduced Nationally Determined Contributions (NDCs) where each country sets its own climate goals.
  - Agreed to a global effort to address both **mitigation** (reducing emissions) and **adaptation** to climate impacts.

#### 4. Glasgow Pact (2021) – COP26:

- a. COP26 resulted in the **Glasgow Pact**, which included:
  - Commitments to reduce coal usage.
  - A pledge to phase out inefficient fossil fuel subsidies.
  - This was the **first time** that coal was mentioned in a **UN climate agreement**.

#### 5. Loss and Damage Fund (2023) – COP28:

- a. COP28 led to the establishment of a **Loss and Damage Fund** aimed at providing financial support to countries most affected by climate-related disasters.
- b. This fund responds to longstanding calls for assistance to nations facing the **brunt of climate change** impacts, such as **extreme weather events** and **rising sea levels**.

### Criticisms of COP

#### 1. Failure to Deliver Climate Finance:

- a. **2009 Promise Unfulfilled:** Developed countries pledged at COP15 to provide **\$100 billion annually** to developing nations for climate action, but this target has **not been met**.
- b. A **2021 UN report** projected that developing countries would need **\$6 trillion** per year until **2030** to meet their climate goals, highlighting a **huge funding shortfall**.

#### 2. Insufficient Emission Reductions:

- a. While COP summits have led to **pledges** for emissions reductions, these efforts have been **insufficient** to prevent dangerous climate impacts.
- b. The **International Energy Agency’s COP28 report** indicated that even with the current **emission reduction pledges**, the world is still at risk of exceeding the critical **1.5°C warming threshold**, which is seen as the upper limit to avoid irreversible climate damage.

## 6. Rules for Carbon Trading Paris Agreement finalized

In November 2024, During COP29 (which held in Baku) Rules for carbon trading under Article 6 of the Paris Agreement were finalized after a decade of negotiations.

### About Article 6 of the Paris Agreement

- It details a set of **tools and mechanisms of carbon market**, that allows countries to **voluntarily cooperate** to achieve their **Nationally Determined Contribution (NDC)**.
- It has **3 main mechanisms**: 2 Market-based and 1 Non-market based.

Mechanisms under Article 6		
Market based approaches		Non-Market based approach
Article 6.2	Article 6.4	Article 6.8
<ul style="list-style-type: none"> <li>• <b>Decentralized approach</b> that allows for <b>bilateral cooperation between countries</b></li> <li>• Involves international trading of <b>International Transferred Mitigation outcomes (ITMOs)</b> (emissions reductions that result from mitigation actions)</li> <li>• <b>Corresponding adjustment in NDCs</b> are made on trade of ITMOs.</li> </ul>	<ul style="list-style-type: none"> <li>• <b>Centralized approach</b> under UNFCCC for transfer of ITMOs termed as <b>Paris Agreement Crediting Mechanism (PACM)</b>.</li> <li>• <b>Establishes a global carbon market</b>.</li> <li>• Uses <b>Baseline-and-crediting</b> mechanism similar to <b>Clean Development Mechanism (CDM)</b> of Kyoto Protocol which uses cap-and-trade system.</li> </ul>	<ul style="list-style-type: none"> <li>• Introduces <b>non-market approaches to promote mitigation and adaptation</b> through finance, technology transfer, capacity building etc.</li> <li>• <b>No trading of emission reductions</b> is involved.</li> <li>• Involves <b>more than one participating Party</b>.</li> </ul>

### About Corresponding adjustment (Article 6.2)

1. These are changes made in a countries' emissions levels to reflect the transfer (export) or acquisition (import) of ITMOs.
2. They are made for **3 different cases** based on different types of targets and measures in NDCs:
  - a. **GHG metrics**: E.g., economy-wide annual levels of GHG emissions
  - b. **Non-GHG metrics**: E.g., installed capacity of renewable energy in MW
  - c. **Policies and measures within a country's NDCs**

### About Carbon Market

1. **Carbon markets are trading systems** where entities **buy carbon credits to offset their greenhouse gas emissions** by supporting projects that reduce or remove emissions.
  - a. **One tradable carbon credit generally equals one metric tonne of carbon dioxide** or the equivalent amount of a different greenhouse gas reduced, sequestered or avoided.

Difference between Carbon trading of Kyoto Protocol and Paris Agreement		
Aspect	Kyoto Protocol	Paris Agreement (Article 6)
Scope of Participation	Limited to developed countries (Annex I) with project hosting by developing countries.	Inclusive of all countries.
Adaptation Funding	Share of proceeds from CDM projects directed to the Adaptation Fund.	5% of proceeds from Article 6.4 transactions allocated to the Global Adaptation Fund.
Market Scope	<ul style="list-style-type: none"> <li>• Focused on <b>project-based mechanisms</b> like-                             <ul style="list-style-type: none"> <li>○ <b>Clean Development Mechanism (CDM)</b>: Projects in developing countries.</li> <li>○ <b>Joint Implementation (JI)</b>: Projects in other developed countries.</li> </ul> </li> </ul>	Combines market-based and non-market-based approaches.
Legacy Credits	Allowed use of <b>older credits</b> from inactive projects, causing oversupply concerns.	Restricts legacy credit use; <b>only post-2013</b> credits.

### Significance of Carbon trading

1. **Economic Efficiency:** Carbon trading under Article 6 could cut costs for NDCs by over 50%, potentially saving \$250 billion annually by 2030 (World Bank).
2. **Support developing Countries:** in climate mitigation efforts by mobilizing significant financial resources.
3. **Potential for Broader Impact:** Use of non-market approaches (Article 6.8), such as **capacity-building platforms**, enabling diverse pathways for sustainable development.
4. **Revenues for Governments:** In 2023, carbon pricing revenues reached a **record \$104 billion** (World Bank's **State and Trends of Carbon Pricing 2024** report).

### Issues related to carbon markets

1. **Double Counting:** Countries under Article 6.2 are **not strictly required to fix or avoid inconsistencies in their emission reduction calculations**, creating potential for counting of **same emissions reduction by more than one country**.
2. **Limited coverage and scope:** Only 24% of global emissions are covered under carbon taxes and Emission Trading Systems (ETS). (World bank)
3. **Inadequate Quantification Standards:** The draft rules of Article 6 do not require countries to monitor reversals, such as CO<sub>2</sub>, escaping from failed sequestration projects.
4. **Delayed Operationalization:** E.g., Article 6.4 is unlikely to become operational until 2025-2026.
5. **Carbon Colonialism:** Indigenous rights and local community impacts are not adequately addressed, raising concerns about exploitation under carbon market projects.
6. **Diverging National Interests:** Tensions exist between developed and developing nations on key issues such as transparency, equitable access, and the level of flexibility allowed in carbon market rules.
7. **Other issues:**
  - a. **Lack of clear guidelines** and implementation frameworks for Non-Market Mechanism.
  - b. **Greenwashing concerns**
  - c. **Oversaturation of carbon credit market** with impact on price.

### Way Forward

1. **Implement uniform and binding guidelines** for reporting emission reductions to prevent double counting and ensure reliable carbon accounting.
2. **Independent third-party verification** to ensure credits are genuine and consistent across projects.

3. **Develop and enforce stronger safeguards to address reversal risks**, such as forest fires or changes in land-use that could negate carbon sequestration efforts.
4. **Establish safeguards** to protect the interests of indigenous and local communities.
5. **Implement measures to prevent market oversaturation** by controlling the issuance of carbon credits based on verified demand and quality.

### Carbon Market and Carbon Trading Mechanisms in India

1. **Carbon Credits Trading Scheme (CCTS), 2023:** Introduced through amendments in the Energy Conservation (Amendment) Act, 2022, it establishes **Indian Carbon Market under two mechanisms:**
  - a. **Compliance mechanism:** Mandatory program for the energy-intensive industries where Government will set GHG emission intensity targets.
    - i. Initially includes 9 sectors like **Fertiliser, Iron & Steel, Pulp & Paper, Petrochemicals, Petroleum refinery, etc.**
  - b. **Offset mechanism:** A **voluntary project-based mechanism** for entities not covered under compliance mechanism.
2. **Green Credit Program:** A **market-based voluntary mechanism for trading of Green Credits** to incentivise **environment positive actions** by different stakeholders, **established under the Environment (Protection) Act, 1986.**
  - a. **Eligible Activities** include Tree plantations, Sustainable agriculture practices, etc.
3. **Other Instruments:**
  - a. **Perform, Achieve and Trade (PAT) Scheme:** Mandates large energy-intensive industries to reduce their specific energy consumption.
    - i. Industries that exceed their targets earn **energy saving certificates (ESCerts)**, which can be traded with those who fall short.
    - ii. It will be transitioned gradually to the compliance mechanism under CCTS.
  - b. **Renewable Energy Certificates (REC) Scheme:** A market-based instrument to promote renewable energy and facilitate compliance of **renewable purchase obligations (RPO).**
    - i. Value of REC is equivalent to 1MWh of electricity.

## 7. 16th Conference of the Parties (COP16) in Cali

1. The 16th Conference of the Parties (COP16) to the **UN Convention on Biological Diversity (UNCBD)** took place in **Cali, Colombia**, from **October 21 to November 1, 2024**.
2. The summit aimed to address critical global issues related to **biodiversity conservation and nature protection**.
3. **Theme of COP16: "Peace with Nature,"**
4. It is the **first CoP**, since adoption of **Kunming-Montreal Global Biodiversity Framework (KMGBF)** and served as a **critical platform to assess the progress and address the ongoing challenges to the KMGB framework**.

### Background of the Convention on Biological Diversity (CBD):

1. **Origin and Goals:**
  - a. The **CBD** was adopted at the **1992 Rio Earth Summit** and entered into force on **December 29, 1993**.
  - b. It is a **legally binding international treaty** aimed at ensuring the conservation of biodiversity, the **sustainable use of biological resources, and the fair and equitable sharing of benefits** arising from the use of genetic resources.
  - c. The **CBD** has been ratified by **196 countries**, making it one of the most widely adopted international treaties.
  - d. The **United States** is the **only UN member state that has not ratified the convention**.
2. **COP Meetings:**
  - a. The **Conference of the Parties (COP)** is the **governing body of the CBD**. The COP meets **periodically to assess progress, set new goals, and take decisions on biodiversity issues**.
  - b. **COP15**, held in **Montreal (2022)**, was a pivotal conference where the **Kunming-Montreal Global Biodiversity Framework (KMGBF)** was adopted.
  - c. A key outcome was the **30-by-30 agreement**, which **aims to protect 30% of the world's lands and oceans by 2030**.

### Key Goals of the Kunming-Montreal Global Biodiversity Framework (KMGBF):

The **KMGBF**, adopted at **COP15**, set out **23 global action-oriented targets** to reverse biodiversity loss by **2030**, including:

1. **30-by-30 Protection Goal:** Conserve **30% of the world's land and oceans** by 2030.
2. **Invasive Alien Species:** Reduce the introduction of invasive species by **50%** and mitigate their impact by 2030.
3. **Pollution Control:** Minimize pollution risks to **tolerable levels** by 2030.
4. **Benefit-Sharing Mechanism:** Establish systems for sharing the benefits derived from **Digital Sequence Information (DSI)** and **genetic resources**.
5. **Mainstreaming Biodiversity:** Integrate biodiversity considerations into **policies, regulations, and development planning**.

The goal of **COP16** was to make progress on these targets and implement the **KMGBF**.

### Key Developments and Breakthroughs at COP16

#### Major Outcomes of CoP-16

1. **Financial mechanism for DSI: Operationalisation of Cali Fund** for sharing the benefits from use of DSI on genetic resources in a more fair and equitable way.
  - a. **Companies benefiting commercially from DSI to contribute 1% of their profit** (0.1% of their revenues) to support Indigenous Peoples and local communities.
2. **Recognition of rights of indigenous communities:** Through establishment of **permanent subsidiary body under Article 8(j) of the UNCBD** and **Cali Fund** to enhance participation of indigenous people in all convention processes.
  - a. At least **50% of the Cali Fund** is for self-identified needs of indigenous communities including women and youth.
3. **Finance mobilization: Launch of Kunming Biodiversity Fund (KBF)** under the aegis of **Global Environment Facility (GEF)** to support the goals and targets under KMGBF.
  - a. Earlier at **CoP-15**, **Global Biodiversity Framework Fund (GBFF)** was agreed and established by GEF.

4. **Identification of Ecologically or Biologically Significant Marine Areas (EBSAs):** Agreement on **new and evolved mechanisms** to identify EBSAs and update existing ones.
  - a. Crucial for **30-by-30 Target under KMGBF and Biodiversity Beyond National Jurisdiction (BBNJ) Agreement** (High Seas Treaty).
5. **Thematic Action Plan:** To **address inequity** in capacity-building, technology transfer of developing countries and local communities **in the field of synthetic biology**.
6. **Invasive alien species management: Guidelines for managing** invasive alien species **through new databases, improved cross-border trade regulations, etc. to align with the goals of KMGBF.**
7. **Approved Global Action Plan on Biodiversity and Health:** The strategy embraces **‘One Health’ approach to curb the emergence of zoonotic diseases, prevent non-communicable diseases etc.**

#### Shortcomings of CoP-16

1. **Resource and finance mobilization:** Developed countries lagged on their commitment to provide **\$20 billion annually** in international biodiversity financing by 2025.
  - a. Also, **pledges to GBFF were meagre with only \$163 million** pledged during COP-16.
2. **Monitoring framework for KMGBF:** Decision to **update and complete the Monitoring framework** with its indicators **to track progress in implementing the KMGBF has not been reached.**
3. **Delay in Planning, Monitoring, Reporting, and Review (PMRR) mechanisms:** These mechanisms **establish the procedures for review of global and national progress** on KMGBF Targets.
4. **Submission of NBSAPs:** **Only 44 countries out of 196 member states submitted their updated NBSAPs** aligned with KMGBF, while 119 countries reported on their National Targets (step before construction of NBSAP).
5. **Cali Fund (DSI Fund):** Though operationalized, but **lacks consensus on contributions to the fund and mechanisms** for financial and technical resource allocation.
6. **Disagreements over biodiversity credits and offsets:** KMGBF included these as **‘innovative scheme’ to increase financial resources** for biodiversity protection.

#### Digital Sequence Information (DSI)

In the recently concluded CoP-16 to CBD, **Cali Fund was operationalized to share the benefits arising from uses of DSI of genetic resources** in a more fair and equitable way (**3<sup>rd</sup> objective of CBD**).

#### About DSI

- It is a **policy term** that refers broadly to **genomic sequence data and other related digital data of organisms** used for research in agriculture, pharmaceuticals, biodiversity conservation etc.
- It includes **digital representation of genetic resources/sequencing and biological data**, such as DNA, RNA, and protein sequences etc.
  - There is yet **no consensus as to exact interpretation and scope of the term.**
- It allows **scientists to study the genetic makeup of organisms without actually needing the physical samples** thus enhancing advancements in genetics and conservation efforts.

#### Significance of DSI

Genetic research (e.g. virologists used **SARSCoV-2 DSI to design diagnostic kits during COVID-19**); Agriculture and food security (e.g. **pest-resistant, climate-resilient crop varieties** etc.); Biodiversity conservation; preserving traditional knowledge; etc.

#### Challenges with DSI

**Lack of equitable benefit sharing;** Intellectual Property Rights (IPR) **concerns associated with ownership of traditional knowledge;** absence of efficient benefit-sharing framework, **Lack of accountability;** privacy concerns, **data security risks,** technological constraints, etc.

#### Key Initiatives for DSI

- **Goal-C (Share benefits fairly) and Target-13 of KMGBF:** Promotes **equitable sharing of benefits from utilization of DSI and traditional knowledge** associated with genetic resources etc.
- **‘One Day One Genome’ initiative** by Government of India
- Launched by **Department of Biotechnology (DBT) and Biotechnology Research and Innovation Council (BRIC), Govt. of India (GoI).**
- **Aim:** Publicly release a **fully annotated bacteriological genome**, enhancing scientific knowledge, driving innovation, and making **microbial genomics data accessible to researchers and the community.**

**India's commitment at CoP-16**

1. **India launches Updated National Biodiversity Strategy and Action Plan (NBSAP) 2024-2030:** Comprising of **23 targets**, it adopts a **'Whole of Government'** and **'Whole of Society'** approach aligning itself with KMGBF.
2. **India Advocates** for global conservation through **'Plant4Mother'** Campaign; wildlife conservation through establishment of **International Big Cat Alliance (IBCA)**; increase in **Ramsar sites** from 26 to 85 since 2014 etc.

**Key Highlights of NBSAP 2024-30**

NBSAP provides a **framework for biodiversity conservation**, enables focus on sustainable use of biological resources, and ensures fair and equitable sharing of benefits derived from them.

1. **Background:** First NBSAP was created in 1999. National Biodiversity Action Plan (NBAP) was adopted in 2008, which was updated in 2014 to align with Aichi Biodiversity Targets.
2. **Aligns with KMGBF:** Kunming-Montreal Global Biodiversity Framework (KMGBF) adopted in 2022 aims to **halt and reverse biodiversity loss by 2030**

3. **23 National Biodiversity Targets:** They are focused on **three themes**
  - a. reducing threats to biodiversity,
  - b. ensuring sustainable use of resources, and
  - c. enhancing tools for **implementation**
4. **Implementation:** MoEFCC serves as the central agency (refer to the infographic)
5. **Capacity building:** Efforts may include
  - a. need and gap assessment;
  - b. target group identification;
  - c. identify experts/environment;
  - d. Train for the acquisition of knowledge, skills
6. **Resource mobilization:**
  - a. Recognises **India among the leading** countries for implementation of **Biodiversity Finance Initiative (BIOFIN)** at national level.
    - i. BIOFIN is a global partnership **launched by UNDP** and the **European Commission** to support countries to enhance their financial management of biodiversity and ecosystems.
    - b. **Calls for encouraging private entrepreneurs, business houses, donors, and international agencies** to support initiatives like, Greenbonds, Green Fund, Payment for Ecosystem Services, etc.

**Biological Diversity Act, 2002 (last amended in 2023)**

1. **Aim:** Highlights India's commitment in implementing the provisions of **UNCBD**.
2. **Goals:** Protect and conserve the biological diversity; sustainable use of biological resources; and fair and equitable sharing of benefits arising from its utilization.
3. **Key provision of the Act**
  - **Provides conditions and modalities** for seeking prior approvals for research, commercial utilization etc., so as to ensure fair and equitable sharing of benefits. These are:
4. All **foreign nationals require approval from NBA** for obtaining Biological Resources.
5. **Indian individuals/entities to seek approval before transferring** knowledge/ research and material **to foreigners**.
6. **Prior approval of NBA before applying for any kind of IPR** based on research conducted on biological material and/ or associated knowledge obtained from India.
7. **2023 Amendments**
  - **Exemption has been granted to AYUSH practitioners** and Traditional Knowledge holders **from paying Access and Benefit Sharing (ABS)**.
8. ABS, a type of compensatory amount, typically paid to tribal and other communities who traditionally gather, protect and utilize herbs and medicinal plants crucial to AYUSH industry.
  - **Removes criminal penalties for violations** and replace them with fines.
9. **Institutional structure under the Act:** Three-tier implementation at **National-level** [National Biodiversity Authority (NBA), headquartered at Chennai], at **State-level** [State Biodiversity Boards (SBBs)] and at **Local-level** [Biodiversity Management Committees (BMCs)].
 

*\*SBBs are not constituted for Union Territories (UTs). NBA exercises the powers and performs the functions of a SBB for the UT.*

### Related News: Biological Diversity Rules, 2024

1. **Ministry of Environment, Forest and Climate Change** notified them in accordance with the **Biological Diversity Act of 2002**.
2. New Rules will replace **Biological Diversity Rules, 2004**.
3. Also, these rules will ensure the implementation of the **Biological Diversity (Amendment) Act, 2023**.
  - a. Amendment of 2023 was done to facilitate fast-tracking of processes for research, encouraging Indian system of medicine etc.
4. Rules outline various provisions related with **National Biodiversity Authority (NBA)**, Penalties, etc.
5. **Key Highlights of the Rules**
  - a. **National Biodiversity Authority (NBA):**
    - i. Chairperson shall be appointed by the Central Government, will hold office for a term of **three years'** and shall be **eligible for re-appointment**.
    - ii. **General Functions of the NBA**
      - b. Administering the **National Biodiversity Fund (NBF)**, established under the Act of 2002.
      - c. Granting approvals for **biodiversity-related agreements**.
      - d. Providing **technical guidance** and support to state bodies.
      - e. Developing and maintaining databases related to biological resources and traditional knowledge.
      - f. **Intellectual Property Rights:** Approval of Authority will be required before the actual grant of the IPR.
      - g. **Penalties for Contraventions:** Penalties for violations range from 1 lakh to 50 lakh, with additional fines for repeated violations.
        - i. All penalties collected go to the NBF or relevant state funds, supporting biodiversity initiatives.

### World Coalition for Peace with Nature

At the UN COP16 biodiversity, the “**World Coalition for Peace with Nature: A call for Life**” was launched.

#### More about the coalition

1. **Members:** Countries from **four continents** including **Mexico, Sweden, Uganda and Chile**, although none from **Asia-Pacific**.
2. **Nature:** The coalition is **voluntary** in nature and is **open to countries that agree to a set of principles aimed at changing humanity's relationship with nature**.
3. **Objectives:**
  - a. To change the **nature of relationship between humans and nature** to address environmental challenges in comprehensive manner.
  - b. To **reaffirm rights based approach** of the **Kunming-Montreal Global Biodiversity Framework**.
  - c. To mobilize **money towards conservation and sustainable development** towards preserving nature.
  - d. To mobilize **whole of government, whole of society** to spark collective actions by **empowering local action** for achieving **peace with nature**.

## 8. World Solar Report 2024

1. In November 2024, the **International Solar Alliance (ISA)** released its **World Solar Report 2024**.
2. The **global solar energy capacity** has **grown** significantly, rising from 1.22 GW in 2000 to 1,419 GW in 2023.
3. This represents an impressive **compound annual growth rate (CAGR)** of approximately **36%**. Currently, **solar energy** accounts for about **75% of all new renewable energy capacity globally**.

## Emerging Solar Technologies

1. **Quantum Dot Solar Cells:** These cells have reached a record **efficiency of 18.1%**, showing great promise in **boosting solar energy capture** and enabling **atmospheric water harvesting**.
2. **Self-Healing Solar Panels:** Researchers are developing solar panels that can repair themselves, extending their lifespan and reducing maintenance needs.
3. **Solar-Powered Phyto-Mining:** This innovative technique **uses solar energy to extract valuable metals from the soil** with the help of plants, providing an eco-friendlier alternative to traditional mining.
4. **Solar Paver Blocks and Building-Integrated Photovoltaics (BIPV):** New solar technologies like paver blocks that generate electricity and **transparent solar panels integrated into building designs** are making it possible to incorporate solar power into infrastructure without compromising aesthetics or functionality.
5. **Reducing Reliance on Critical Materials:** The development of these technologies is also aimed at **reducing dependence on rare and essential materials**, such as **lithium and rare earth metals**.
  - a. The solar industry is focusing on **improving the recycling of panels and adopting circular economy practices** to minimize environmental impact.

## Falling Solar Costs and Their Impact

1. **Declining Auction Prices:** The 2024 World Solar Report highlights a consistent decline in auction prices for **utility-scale solar photovoltaic (PV) projects** across all regions.
  - a. The **global average cost** for utility-scale solar PV projects was **\$40/MWh in 2024**.
2. **India's Leadership:** India emerged as a **leader in auctioned solar PV capacity**, achieving a **competitive price of \$34/MWh**.
3. **Rising Investments:** Investments in solar PV within the power sector are projected to **exceed \$500 billion by 2024**, surpassing combined investments in other power generation sources.

## Global Solar Market Insights

1. **China's Dominance:** By 2023, China accounted for **43% (609 GW) of the world's installed solar capacity**.
2. **Key Contributors:** The **U.S. followed with 10%** (137.73 GW), while Japan, Germany, and India each contributed 5–6%. Emerging markets like Brazil, Australia, Italy, and Spain each added about 2%.
3. **Manufacturing Growth:** Global solar PV manufacturing capacity for wafers, cells, and modules almost doubled in 2023. China led with a dominant share, producing 97% of wafers, 89% of cells, and 83% of modules.

## Current Status of India's Solar Sector

1. India ranks as the **3rd-largest energy consumer globally** and holds the **5th position in terms of solar power capacity** (REN21 Renewables 2024 Global Status Report).
2. During **COP26**, India committed to reaching **500 GW of non-fossil fuel-based energy by 2030**, as part of the **Panchamrit initiative**, which represents the world's largest renewable energy expansion effort.
3. **India's solar capacity has grown by 30 times** in the **past nine years**, reaching **89.4 GW by August 2024**.
4. The country's **solar potential** is estimated at **748 GWp**, according to the **National Institute of Solar Energy (NISE)**.
5. India allows **100% Foreign Direct Investment (FDI) through the automatic route** for renewable energy generation and distribution projects, in compliance with the **Electricity Act of 2003**.

## Solar Energy's Influence on Other Sectors

1. **Job Creation:** Employment in the solar PV industry **rose to 7.1 million in 2023**, a significant increase from 4.9 million in 2022.
2. **Agricultural Transformation:** Solar irrigation systems are revolutionizing farming, with the solar pump market **projected to grow at a CAGR of 5.8%** from 2021 to 2027.
  - a. These systems offer a **cost-effective and eco-friendly** alternative to diesel pumps.

3. **Agrivoltaics:** Solar panels are being **installed in pastures for livestock management**, providing shade for animals and generating electricity simultaneously.
4. **Pay-As-You-Go Models:** Flexible financing options like pay-as-you-go systems have made solar adoption more accessible for households and businesses.
5. **Driving Solar Growth Globally:** Technological progress has reduced solar energy costs and expanded its applications.
  - a. To ensure inclusive growth, we must focus on transferring technology and financial support to developing nations and small island states. This will help bridge gaps and make solar energy universally accessible.

### International Solar Alliance (ISA)

1. The International Solar Alliance (ISA) is a **global initiative founded in 2015** during the **United Nations Climate Change Conference (COP21)** in Paris.
2. **Co-founded by India and France**, its main aim is to **promote the use of solar energy and promote cooperation between countries** to tackle climate change.

### Vision and Objectives

1. **Promoting Solar Energy:** Drive the adoption of solar energy as a reliable, affordable, and sustainable source of power.
2. **Enhancing Energy Security:** Reduce reliance on fossil fuels and ensure universal energy access.
3. **Technology and Knowledge Sharing:** Promote collaboration among member countries in research, innovation, and deployment of solar technologies.
4. **Mobilizing Investments:** Attract investments to fund large-scale solar projects globally.

### Membership and Key Initiatives

1. ISA membership is open to 121 countries located between the Tropic of Cancer and the Tropic of Capricorn. However, countries outside this region can also join as partners.
2. As of 2024, 115 countries are full members, with a strong emphasis on developing nations.
3. Armenia became the 104<sup>th</sup> full member in November 2024.

4. **Key Initiatives and Programs:** Affordable Solar Power for All, Scaling Solar Mini-Grids, Solar Solutions for Agriculture, Solar Parks and Infrastructure Development, Global Risk Mitigation Facility

### Future Goals

1. **1,000 GW of Solar Capacity by 2030:** Raise \$1 trillion in investments to meet this ambitious goal.
2. **Equitable Energy Access:** Work to close energy access gaps, especially in least developed countries (LDCs) and small island developing states (SIDS).
3. **Innovation and Collaboration:** Drive innovation in solar technologies and strengthen global partnerships.

## 9. Masali become the 1<sup>st</sup> fully solar-powered border village in India

1. In December 2024, Masali village has become the 1st fully solar-powered border village in India under the **PM Suryaghar Yojana**.
  - a. **Location:** Situated in Banaskantha district, Gujarat. It is approximately 40 km away from the Pakistan border.
2. **Solarisation Initiative:** Under the PM Suryaghar Yojana, 119 houses in the village have been equipped with solar rooftops. These installations collectively produce over **225 kilowatts** of electricity.
  - a. The energy produced exceeds the village's total consumption needs.

### Significance:

1. **India's 1st Solar-Powered Border Village:** Marks a significant milestone in transitioning border areas to renewable energy.
2. **Promotes Renewable Energy:** Encourages sustainability and reduces dependence on conventional energy sources.
3. **Part of a Larger Development Plan:** Falls under the **Border Development Project**, which aims to solarize 11 villages in Vav taluka and six in Suigam taluka.
4. **Strengthens Energy Security:** Enhances energy access and reliability in remote and strategically vital areas.

### PM Surya Ghar Muft Bijli Yojana

1. The PM Surya Ghar Muft Bijli Yojana, launched in 2024, is a government initiative aimed at providing free electricity to Indian households.
2. **Key Features:**
  - a. Households will receive a subsidy to install rooftop solar panels.
  - b. The subsidy covers up to 40% of the solar panel installation cost.
  - c. Beneficiary families can save up to Rs. 18,000 annually by availing 300 free electricity units each month.
  - d. The scheme is projected to save the government Rs. 75,000 crore annually on electricity costs.
3. **Benefits:** Free electricity for eligible households; Reduced electricity expenses for the government; Promotion of renewable energy usage; Lower carbon emissions.
4. **Eligibility Criteria:** Be Indian citizens; Own a house with a roof suitable for installing solar panels; Have a valid electricity connection; Not have received any prior subsidy for solar panels.

2. It focuses on the dangers posed by fossil fuel activities to the Coral Triangle, a region spanning **seven countries** in Southeast Asia and Melanesia:
  - a. **Countries covered:** Indonesia, Malaysia, Papua New Guinea, the Philippines, Singapore, Timor-Leste, and the Solomon Islands.
3. The Coral Triangle is considered one of the **world's most bio-diverse marine regions**.

### Significance of the Coral Triangle

1. **Marine Biodiversity:**
  - a. It hosts **76%** of the world's coral species.
  - b. It is home to over **2,000 coral fish species** and **six of the world's seven marine turtle species**.
2. **Human and Ecological Importance:**
  - a. The region supports 120 million people who depend on it for food and income.
  - b. Its critical habitats, including coral reefs, mangroves, and seagrasses, are vital for marine diversity.
  - c. It is often referred to as **"the Amazon of the Seas"** due to its ecological importance.

## 10. CORAL TRIANGLE



### The Report: 'Coral Triangle at Risk: Fossil Fuel Threats and Impact'

Released at the 16<sup>th</sup> Conference of Parties (CoP16) to the Convention on Biological Diversity (CBD), the report highlights the potential threats posed by fossil fuels to the Coral Triangle.

#### About the Report

1. The report was **released by Earth Insight and SkyTruth**.

### Threats Faced by the Coral Triangle

1. **Oil and Gas Exploration:**
  - Over 100 offshore oil and gas blocks are currently operating in the region.
  - These activities threaten the Coral Triangle's delicate ecosystems, including coral reefs, mangroves, and seagrasses.
2. **Noise Pollution:**
  - Shipping and exploration activities generate man-made noises that harm marine life.
  - Examples include altering animal behaviors, damaging their hearing, or masking their natural sounds.

### Recommendations by the Report

1. **Moratorium on Oil and Gas Development:**
  - Enact a moratorium on new oil and gas development in the Coral Triangle.
  - Gradually phase out existing fossil fuel operations.
2. **Special Protection:**
  - Classify the Coral Triangle as a **Particularly Sensitive Sea Area (PSSA)** to provide it with special protection from harmful maritime activities.



## G. SOCIETY AND CULTURE

### 1. India Is Getting Old Before Getting Rich

1. Recently, the **World Bank** released the **World Development Report 2024**, which states that at India's current economic growth rate, it will take **75 years** to reach a quarter of **America's per capita income**.
2. India's demographic dividend, which emerged after economic liberalization, was expected to drive significant economic growth as India is having large youthful workforce.
  - a. Approximately **75%** of India's population is between the **ages of 15-64**, offering a significant opportunity to drive economic growth.
  - b. However, recent trends suggest that this potential may not be as sustainable as initially hoped.
3. With concerns over a **shrinking fertility rate**, **stagnant manufacturing growth**, and **inadequate job creation**, India faces the risk of falling into the **middle-income trap**.
  - a. The **"middle-income trap"** describes a situation where countries **struggle to attain high-income status**. Currently, there are 108 countries stuck in the "middle-income trap", according to the World Bank.

#### India's Current Demographic Situation

1. **Regional Differences in Ageing:**
  - a. **South India:** States like Kerala, Tamil Nadu, and Karnataka have a **high dependency ratio** (ratio of those in the dependent ages of 0-14 and 65+ to those in the productive age of 15-64) of around **18-20**, indicating an ageing population.
  - b. **Other Regions:** **Punjab, Himachal Pradesh, and West Bengal** have some of the lowest fertility rates, contributing to a higher ageing burden.
2. **Declining Fertility Rate:** India's **Total Fertility Rate (TFR)** has fallen to **1.99**, below the replacement level of **2.1**. This decline is more pronounced in southern states, indicating a potential ageing population in the near future.

- a. Some states, like **Uttar Pradesh** and **Bihar**, have fertility rates above the replacement level.
  - b. **Total fertility rate (TFR)** is the average number of children a woman will have during her lifetime. It's a more direct measure of fertility than birth rate because it refers to births per woman.
3. **Urban vs Rural Fertility Across States:** Urban areas across most states have fertility rates near or below replacement levels (2.1 children per woman), while rural areas in these states show higher fertility.

#### Which Factors are Influencing India's Ageing Population?

1. **Fertility Decline:** The most significant factor contributing to India's ageing population is the decline in fertility rates. As fertility declines, the proportion of children in the population decreases, leading to a higher share of older individuals.
2. **Increased Life Expectancy:** With rising life expectancy, the share of older individuals in the population increases, further accelerating the ageing trend.
3. **Role of Migration:** Migration also influences demographic shifts, but reliable data on migration patterns is limited.
4. **Higher Speed of Ageing:** India is ageing more rapidly than many developed countries.
  - a. For example, it took 120 years for France and 80 years for Sweden to double the share of their population aged 65 and above from **7% to 14%**. In contrast, India is experiencing this shift much more quickly.

#### Demographic Dividend and the Opportunity for economic growth

1. **Old-Age Dependency vs. Child Dependency:** When the old-age dependency ratio exceeds the child dependency ratio, it indicates a **larger older population** relying on the working-age group.

- a. A **child dependency ratio below 30** (fewer than 30 children dependent on 100 working-age people) and an **old-age dependency ratio under 15** creates a window of opportunity for economic growth.
2. **Economic Dividend Window:** This period, with a **large working-age population** and a **small dependent population**, allows for **higher production, savings, and economic growth**.
  - a. India entered this phase in 2005, with the window of opportunity strengthening in 2015 and expected to last until 2061, though it will be **most effective until 2045**.
3. **Faster Ageing and Lost Opportunity:** India is ageing faster than expected, potentially missing out on fully reaping the economic benefits of its demographic dividend.
  - a. Some states will soon fall out of this window, highlighting the urgency of addressing the issue before the opportunity passes.

### What are the Key Challenges India is facing in Managing Aging?

1. **Transition Issues:** India's demographic transition (declining fertility rates) has outpaced its socio-economic transition.
  - a. This means that the country is still dealing with **high maternal and child health burdens and communicable diseases**, while simultaneously dealing with an increasing rise in **non-communicable diseases (NCDs)**.
  - b. This shift puts pressure on both **curative and palliative care** (specialized medical care that focuses on providing relief from pain and other symptoms of a serious illness) systems.
2. **Lack of Social Security:** A large portion of elderly people works in the informal sector and lacks social security support. This adds to the challenge of ensuring proper healthcare and financial security for aging citizens.
3. **Financial Strain:** India completed its fertility transition in just 45 years (from the mid-1970s to 2020), reaching replacement-level fertility.

- a. This transition occurred faster than in most countries, with only China completing it sooner.
- b. However, India's socio-economic transition lagged behind the fertility change, unlike China, where the economic and healthcare improvements preceded the demographic shift.

### India's Strengths

1. **Stronger Family System:** India's **family structure** plays a critical role in elderly care. Many elderly people live with their children, which provides informal caregiving support.
  - a. This is a significant advantage compared to **Western countries**, where family ties are weaker.
2. **Rural Ageing and Feminisation:** As **urbanisation** increases, more young people are migrating to cities for work, leading to a trend of **rural ageing**.
  - a. Additionally, **feminisation of ageing** is occurring as **women's life expectancy** is, on average, **five years higher** than men's which is leading to a greater proportion of elderly women in the population.
3. **Elderly Female Population Growth:** Since the early **1990s**, the **elderly female population** in India has been growing faster than that of men, a trend that continues as women live longer than men.

### What Impact an Urbanisation has made on Fertility and Marriage?

1. **Rising Cost of Living:** As urbanisation increases, the cost of living also rises. Families are hesitant to have more children due to the higher costs of **education, healthcare, and housing**.
  - a. Studies indicate that rising rents contribute to **lower marriage and fertility rates**.
2. **Delayed Marriage and Childbearing:** In many societies, **unemployment** is causing people to delay marriage and childbearing. Individuals are waiting longer to establish their careers and financial security before starting families.
3. **Changing Attitudes Among Women:** More women are pursuing **higher education and career goals**, leading them to delay or forgo childbirth in favour of entering the workforce.

- a. They seek **self-actualisation**, a decent standard of living, and more **personal time**, often prioritising career over family.
4. **Second Demographic Transition:** These shifts mark the onset of the **2<sup>nd</sup> demographic transition**.
  - a. While India is still in the later stages of the **1<sup>st</sup> demographic transition**, future trends may lead to **further declines in fertility rates**, especially as the preference for sons declines, as seen in countries like **South Korea** (with a TFR of just **0.8**).
5. **Difficulty of Incentivising Fertility:** Experts argue that **pro-natalist policies** (incentives to increase birth rates) have had limited success globally.
  - a. For example, the **UK** saw only a slight increase in fertility following such policies, but no country has seen a significant or sustained rise in birth rates through incentives alone.
2. **Manufacturing Sector Growth:** India's **manufacturing sector** has not grown as rapidly as the **service sector**, limiting job creation for a large portion of the working population.
3. **Infrastructure and Policy Barriers:** **High costs** and **regulatory constraints** hinder the growth of the manufacturing sector.
  - a. Challenges like **business licensing**, **customs regulations**, and **land access** make it difficult for manufacturers to operate efficiently.
4. **Education and Skill Gaps:** The workforce lacks the skills needed for higher-productivity jobs, particularly in **manufacturing** and other advanced sectors, making it harder to shift labour from agriculture to industry.

### Demographic Transition

1. Demographic transition is a phenomenon that describes how a society's birth and death rates change from high to low as it develops economically, technologically, and educationally.
2. This transition results in a longer life expectancy and smaller family sizes.
3. In the demographic transition model, the "1<sup>st</sup> demographic transition" refers to the initial stage where death rates decline significantly while birth rates remain high, leading to rapid population growth, usually associated with early industrialization.
4. The "second demographic transition" describes a later stage where birth rates also decline significantly, resulting in a stabilized population growth, often linked to increased urbanization and changing social norms about family size.

### What challenges India is facing in Harnessing the Demographic Dividend?

1. **Employment Sector Stagnation:** A large portion of India's workforce remains stuck in low-productivity sectors like **agriculture**.
  - a. Unlike **China**, which significantly reduced its agricultural workforce after liberalisation, India has seen slower progress in transitioning workers to higher-productivity sectors.

### India Ageing Report 2023

1. The **India Ageing Report 2023**, prepared by the **United Nations Population Fund (UNFPA)** and the **International Institute of Population Sciences (IIPS)**.

### Key Findings

1. **Digital Inclusion Challenges:** Convincing senior citizens to embrace **digital platforms** and providing the necessary training and devices for daily use remains a significant challenge.
2. **Mental Health Stigma:** Conditions like **Dementia** and **Alzheimer's disease** continue to carry a **social stigma**, preventing many seniors from seeking help.
3. **Disability and Caregiving Burden:** As India's population ages, **disability** among seniors is becoming a major concern, leading to an increased **caregiving burden** for families and society.
4. **Poverty and Lack of Social Security:** Issues such as **poverty**, **lack of social security**, **inadequate public health facilities**, **illiteracy**, and **digital ignorance** continue to pose serious challenges for older citizens.
5. **Efforts by Corporates and NGOs:** Various **corporates** and **NGOs** are making efforts to promote **joyful ageing**, provide **social assistance**, and support **old age homes** to improve the welfare of senior citizens.

## 2. Study on Work from Home in the Indian Context

Recently, CII and Faculty of Management Studies (FMS), University of Delhi published a **first-of-its-kind** study titled “**Work-from-Home: Benefits and Costs; An Exploratory Study in the Indian Context**”.

### Key Findings

1. **Sustenance of Work-from-Home (WFH):** 68% of companies reported continuing WFH/remote work practices post-COVID-19.
2. **Hybrid Model of Work:** Almost half of the companies promote hybrid work practices, where employees are expected to work from the office for a limited period each week.
3. **Short-term Gains vs. Long-term Losses:** WFH provides tangible benefits in the short term, such as increased productivity, but may lead to intangible losses, including challenges in forming and maintaining social, emotional, and human capital in the long term.
4. **Effectiveness of Remote Working:** Remote work is less effective at fostering collaboration, communication, and teamwork compared to traditional office-based practices.

### Evolving Nature of Work and the Advent of WFH

1. **COVID-19 Pandemic:** The COVID-19 pandemic forced a shift to remote work due to movement restrictions.
2. **Technological Developments:** Advancements in personal technology and digital connectivity have enabled the shift to remote working.
3. **Work from Anywhere:** The rise of digital connectivity and infrastructure development has led to trends like digital nomads, where employees work from various locations, such as villages or travel destinations.
4. **Rolling Back WFH:** Post-pandemic, many employers globally are rolling back WFH arrangements, with companies like Starbucks, Google, and Amazon instituting return-to-office schedules.

### Benefits of Work-from-Home

1. **For Employees:**
  - a. **Reduced Costs:**
    - o Savings on commuting and residence near the workplace.
  - b. **Increased Productivity:**
    - o Elimination of commuting and more flexibility in work schedules enhances productivity.
2. **For Employers/Corporates:**
  - a. **Reduced Operational Costs:** Savings on office rental, employee compensation, and infrastructure.
  - b. **Flexibility in Hiring:** Access to global talent without geographical constraints.
  - c. **Increased Retention:** Employees on hybrid schedules experience 33% fewer resignations, according to a Stanford study.
3. **Macro Environment:**
  - a. **Sustainable Practices:** Reduced transportation and energy consumption contribute to lower carbon footprints, aiding in Environmental, Social, and Governance (ESG) goals.
  - b. **Work-Life Balance:** Improved work satisfaction due to better work-life balance.
  - c. **Equitable Development:** WFH can promote decentralized development, reducing migration to metropolitan cities.
4. **Family Relationships:**
  - a. **Work-Life Balance:** Flexibility in location and time helps balance work and family commitments, especially for parents of young children.
  - b. **Stress Reduction:** Spending more time at home can help mitigate work-related stress.
  - c. **Gender Equality:** Men’s increased involvement in household chores positively impacts women’s productivity.
5. **Women:**
  - a. **Juggling Duties:** WFH allows women to better manage personal duties like childcare and elder care.
  - b. **Increased Labor Force Participation:** WFH can narrow the motherhood pay gap and improve opportunities for married women in the workforce.

## Challenges Arising from Work-from-Home

### 1. For Employees:

- a. **Blurring Boundaries Between Work and Home:** The lack of a clear distinction between work and home can cause stress and reduce productivity.
- b. **Workspace Constraints:** Inadequate space for focused work at home may reduce productivity and increase reliance on co-working spaces.
- c. **Lack of Rest:** WFH can lead to overwork and a lack of sufficient rest, creating unhealthy work cycles.

### 2. For Employers:

- a. **Intra-Organizational Communication:** Virtual communication may undermine coworker bonding, teamwork, and organizational culture.
- b. **Management Methodologies:** Employee training, mentoring, and innovation can suffer without on-site interactions.
- c. **Professional Isolation:** Remote work may lead to employees feeling isolated, affecting their work quality.
- d. **Privacy Concerns:** WFH presents challenges in safeguarding organizational and client data, especially in countries like India that lack specific cybersecurity laws.
- e. **Ethical Concerns:** High-profile figures like Elon Musk have questioned the fairness of allowing some employees to WFH while others must work on-site.

### 3. For Family Relationships:

- a. **Familial Stress:** Extended indoor confinement can strain familial ties, and issues like domestic violence rose during the pandemic.
- b. **Increased Family Commitments:** Balancing work with responsibilities like childcare or elderly care can increase stress and burden.
- c. **Mental Health Challenges:** The pressure of managing both work and home life can lead to stress, anxiety, and negative impacts on mental health.

### 4. For Women:

- a. **Professional Setbacks:** Remote work can result in less visibility and lower pay for women

compared to male counterparts who are present in the office.

- b. **Double Burden:** Women may face the added challenge of managing both work and traditional gender roles at home.
- c. **Reinforcement of Gender Stereotypes:** Flexible work arrangements for women may be seen as prioritizing family over work, reinforcing patriarchal norms.

## Way Forward

1. **Reformed Work Arrangements:** The evolving nature of work demands changes in management practices, systems, and performance monitoring.
2. **Hybrid Work Ecosystem:** A balanced hybrid approach combining the best practices of traditional and remote work may offer a sustainable solution.
3. **Policy Considerations:** Governments and organizations should develop clear policies that address accountability, privacy, and other critical factors in the new work landscape.
4. **Infrastructure Development:** Strengthening digital connectivity and infrastructure, especially in remote areas, is essential for the success of WFH. Initiatives like “Smart Villages” and Bharatnet are key steps in this direction.

## 3. National Policy On Female Labour Force Participation

The Central Government is planning to bring out a National Policy document on **female labour force participation (FLFP)** with a focus on providing an enabling atmosphere like a **viable care economy structure**.

### Major Highlights:

#### What is the Care economy?

1. **Care economy** is the sector of economic activities related to the **provision of care** (both paid and unpaid) for the present and future populations.
2. It includes:
  - a. **Direct care** such as feeding a baby
  - b. **Indirect care** such as cooking and cleaning, health care, education, and other personal and domestic services.

3. One of the initiatives being explored is a **core skilling package for caregivers** for children. Govt. is also looking to provide **child care facilities for women in the informal sector** such as for workers under the **National Rural Employment Guarantee Scheme**.

- a. The Ministry of Women and Child Development already runs the ‘Palna’ scheme, or the **National Programme on Anganwadi-cum-Crèche**, which provides day-care facilities for children of working parents. A total of 1,000 Anganwadi creches are operational till now as part of this scheme.

### About Female Labour Force Participation

#### (FLFPR) Rate:

1. **Female labour force participation (FLFPR)** rate refers to women (over 15 years) who are either working or looking for a job.
2. **FLFPR Rate in India:** The Periodic Labour Force Survey for 2022-23 highlights that the FLFPR for prime working age group (15 years & above) has increased from 23% in 2017-18 to **37 % in 2022-23**.
  - a. **In Rural areas:** 36.6% of females aged 15 years & above are participating in the labour force, as against 78.2% male in 2021-22.
  - b. **In Urban areas :** 23.8% of females aged 15 years & above are participating in the labour force, as against 74.7% male in 2021-22.
  - c. From 2017 to 2022, women’s LFPR increased relative to men, in rural areas because of the **larger engagement of rural women in agriculture and allied activities**.
  - d. Only four states, namely Assam, Bihar, Haryana, and Delhi, have a FLFPR below 25%, with Delhi recording the lowest rate at 14.8%.
3. As per the recent **World Bank report**:
  - a. Women face a sharp drop in their labour force participation post-marriage in India.
  - b. It is estimated that in India **post-marriage female employment rates drop by 12 percentage points** (about one-third of the female pre-marital employment rate), even in the absence of children.

### Necessitating factors for National Policy on

#### FLFPR in India:

1. **Unpaid care work:** Women have to bear the burden of unpaid care work (taking care of children, elderly family members, and household chores). It is often undervalued and not recognised as work, which limits women’s ability to participate in paid employment.
2. **Societal norms and cultural expectations:** In India, traditional gender division of labour dictate that women should focus on household duties and raising children, while men are the primary breadwinners.
3. **Lack of access to education:** Girls are often denied access to education, or they drop out of school early due to poverty or familial responsibilities. This limits their skill development, employment opportunities and earning potential.

However, presently, more women are pursuing higher education which can delay their entry into the workforce. While education can empower women, societal expectations may still lead them to leave the workforce after education.

- **Health related issues:** Health challenges, especially for older women, impact their productivity and contribute to low FLPR.
- **Limited job opportunities:** Women often face discrimination in the job market, and there are fewer job opportunities available to them compared to men. **For example, the technology and finance sector.**
- **Safety concerns:** Women often face safety concerns and harassment in the workplace and while commuting to and from work which discourages them from seeking employment outside of the home.
- **Lack of supportive policies:** India lacks supportive policies, such as parental leave, and flexible work arrangements (especially in the informal sector), which can enable women to balance work and family responsibilities.

According to the IMF, if the women’s participation in the workforce could match men’s, the **GDP of India could increase by 27%**. Hence, the central government is working towards increasing the FLPR.

## Government initiatives to improve Female Work Participation:

### 1. For Survival and Education of Females:

- a. **Beti Bachao Beti Padhao Scheme:** For creating awareness among the people to educate all girl children in the country. The initiative intends to tackle the issue of the diminishing sex ratio in recent years, raise social awareness, and improve the effectiveness of welfare benefits for girls.
- b. **National Education Policy (NEP), 2020:** The policy prioritises gender equity and envisions ensuring equitable access to quality education to all students, with a special emphasis on Socially and Economically Disadvantaged Groups (SEDGs).

### 2. For Safe and Convenient Accommodation:

- a. **Working Women Hostel:** One of the main difficulties faced by working women is lack of safe and conveniently located accommodation. The objective of the scheme is to promote availability of safe and conveniently located accommodation for working women, with day care facilities for their children, wherever possible, in urban, semi urban, or even rural areas where employment opportunities for women exist.

### 3. For Supporting Women affected by violence

- a. **One Stop Centre (OSC) and Universalisation of Women Helpline:** To provide 24 hours immediate and emergency response to women affected by violence through referral (linking with appropriate authority such as police, One Stop Centre, hospital) and information about women related government schemes programs across the country through a single uniform number.
- b. Women Helpline (WHL) will be integrated with One Stop Centre Scheme (OSC) under which one OSC shall be established in every State/UT to provide integrated support and assistance to women affected by violence, both in private and public spaces under one roof.

### 4. Codification of the Labour Laws for harmonizing the needs of job seekers, workers and employers:

- a. **Labour Codes:** The four Labour Codes namely, the Code on Wages, 2019, the Industrial Relations Code, 2020, the Code on Social Security, 2020 and the Occupational Safety, Health and Working Conditions Code, 2020. Codification of the Labour Laws provides a policy framework for harmonizing the needs of job seekers, workers and employers.
- b. The Labour Codes will, inter-alia, reduce multiplicity of definitions & authorities, facilitate implementation and use of technology in enforcement of labour laws and bring transparency and accountability in enforcement, promote setting up of more enterprises, catalysing the creation of employment opportunities in the country.

### 5. Equal Opportunity and Congenial Work Environment

- a. **Maternity Benefit (Amendment) Act, 2017:** The Act increased the paid maternity leave from 12 weeks to 26 weeks, also made a provision for mandatory crèche facilities in establishments having 50 or more employees, permitting women workers in the night shifts with adequate safety measures, etc.
- b. **The Sexual Harassment of Women at Workplace Act, 2013:** To provide protection against sexual harassment of women at workplace and for the prevention and redressal of complaints of sexual harassment and for matters connected therewith or incidental thereto.

### 6. Promoting Entrepreneurship:

- a. **Female Entrepreneurship:** To promote female entrepreneurship, the Government has initiated schemes like MUDRA, Stand Up India and Mahila e-Haat.
- b. **Rashtriya Mahila Kosh:** Provides micro-credit at concessional terms to poor women for various livelihood and income generating activities.
- c. **Prime Minister's Employment Generation Programme (PMEGP):** Under the scheme, women entrepreneurs are provided 25 per cent and 35 per cent subsidies for the project set up in urban and rural areas respectively.

## Measures to improve Female Work

### Participation:

- a. **Need of National Women's Urban Employment Guarantee Act (WUEGA):** Women should form at least 50% of the programme management staff, with a vision for decentralized management and local community involvement. Includes provisions for childcare at work sites, free public transportation for women, and work availability within a 5-km radius.

**Case study of WUEGA:** Women-led waste management in Karnataka, demonstrates the feasibility and success of women-centric programs: In this initiative women handle end-to-end waste management in gram panchayats of selected districts including collection and driving of the 'Swacch' vehicles.

### Japan's womenomics':

1. Japan was grappling with falling fertility rates, a declining population, and stagnant growth. A series of reforms on "womenomics" were introduced as part of the "Abenomics" era.
2. Women's labour force participation rate (WLFPR) in Japan has grown by ten percentage points, from 64.9 percent in 2013 to 75.2 per cent in 2023.
3. Majority of the "womenomics" reforms have been linked to investments in the care economy and rebalancing gender norms.

1. **Ensure high participation of women in MGNREGS:** Recommendations given by Parliamentary Standing Committee on Rural Development and Panchayati Raj:
  - a. The government must take measures for better promotion of "women-centric works" through creation or linking of existing livelihood projects under the scheme.
  - b. The Ministry of Rural Development needs to bridge the wage disparity among states by notifying a uniform wage rate structure.
2. **Identification of niche sectors:** There is a need for identification of niche sectors like countries like the United States initiative like Girls Who Code in the USA aim to close the gender gap in technology, Japan

and Italy are focusing on the healthcare and social work sectors as areas of potential job growth for women.

3. **Flexible Work Options as like Netherlands:** Promote work models like part-time work, remote work, and parental leave policies, empowers women to manage work-life balance effectively.
4. **Accounting for care work:** There is a need to capture the value of care in the GDP calculation.

These strategies can contribute to meeting goals of SDG 1 (end poverty); SDG 3 (ensure healthy lives); SDG 4 (ensure inclusive and equitable quality education); SDG 5 (achieve gender equality) etc.

## 4. India Skills Report 2025

1. In December 2024, the 12<sup>th</sup> edition of **India Skills Report 2025** was released by **Wheebox**, in collaboration **All India Council for Technical Education (AICTE)**, **Confederation of Indian Industry (CII)**, and **Association of Indian Universities (AIU)**.
  - a. The report's theme "**Global Talent Mobility – India's Decade**"
  - b. The report highlights important data about employability across various states in India.
2. Data was gathered from over **6.5 lakh candidates** participating in the **Global Employability Test (G.E.T.)** across India and selected global regions.
3. Additionally, insights were collected from more than **1,000 corporations** across 15 industries through the **India Hiring Intent Survey 2025 (Early Career Edition)**.
4. It provides insights into the preparedness of India's workforce for future job markets and evaluates candidates from various sectors, highlighting trends in skills demand, employability across industries, and regional disparities.

### Key Highlights of the 2025 Report

1. The report arrives at a time of **economic shifts, technological progress, and workforce evolution**, spotlighting India's role in bridging global skill gaps.
2. India's workforce is positioned to lead in critical industries, including **AI, digital transformation, renewable energy, and healthcare**.

### Global Opportunities for Indian Talent

1. The rise of **digital nomadism** (people who are location-independent and use technology to perform their job, living a nomadic lifestyle) and **hybrid work models** enables Indian professionals to contribute globally without relocating.
2. **Cross-border talent mobility** is projected to add **\$500 billion to the global economy by 2030**, with India playing a central role.
3. **Europe** requires **2 million technology professionals by 2030**.

### Shifting Workforce Trends Worldwide

1. Global labour markets are transforming due to **economic diversification, geopolitical changes, and sustainability goals**, increasing the demand for skilled professionals in technology, healthcare, renewable energy, finance, construction and manufacturing.

### Regional Opportunities for Indian Talent

Key Regions	Regional Opportunities for Indian Talent
Europe	<ul style="list-style-type: none"> <li>• Aging populations and skill shortages drive demand for professionals in <b>IT, healthcare, and green finance</b>.</li> <li>• The region requires:                             <ul style="list-style-type: none"> <li>◦ <b>400,000 fintech professionals</b> by 2030.</li> <li>◦ <b>1.6 million healthcare workers</b>.</li> <li>◦ <b>2 million technology professionals</b> by 2030.</li> </ul> </li> </ul>
Gulf Nations	<ul style="list-style-type: none"> <li>• Initiatives like <i>Vision 2030</i> create demand in <b>construction, healthcare, IT, and finance</b>. For example:                             <ul style="list-style-type: none"> <li>◦ The construction market, valued at <b>\$1.4 trillion</b>, is fuelled by mega-projects like NEOM city.</li> <li>◦ Healthcare spending is set to reach <b>\$243 billion</b> by 2030.</li> </ul> </li> </ul>
Africa	<ul style="list-style-type: none"> <li>• Youth unemployment exceeds <b>60%</b> in some regions, but growing markets in <b>agritech, fintech, and infrastructure</b> create opportunities for Indian talent.</li> </ul>

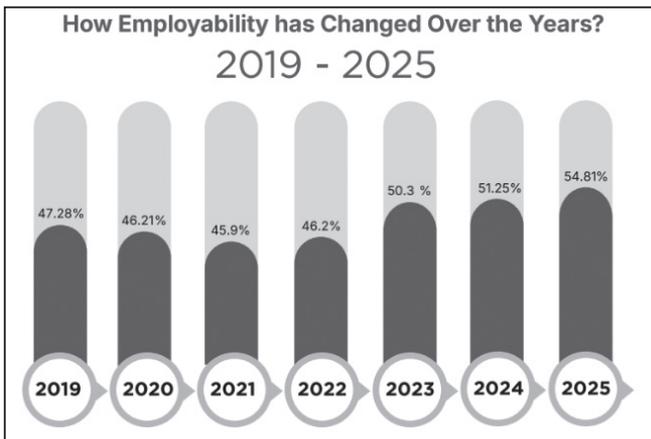
Southeast Asia	<ul style="list-style-type: none"> <li>• Digital economy growth in countries like <b>Indonesia and the Philippines</b> drives <b>demand for IT, e-commerce, and manufacturing expertise</b>.</li> </ul>
Australia	<ul style="list-style-type: none"> <li>• Healthcare and renewable energy initiatives depend on international professionals.</li> </ul>

### Sectors Driving India's Growth

Sector	Key high-growth areas
Information Technology	Advancing AI, machine learning, cloud computing, and cybersecurity. Projected to reach <b>\$350 billion</b> by 2025.
Healthcare & Pharmaceuticals	Expanding roles in biotechnology and analytics.
Renewable Energy	Developing expertise in solar energy and environmental management.
E-commerce & Digital Economy	Boosting digital marketing and data-driven operations.
Manufacturing & Infrastructure	Adopting robotics and automation through Industry 4.0.
FinTech and EdTech	Leading innovations in blockchain, cybersecurity, and digital learning.

### India's Strategic Position in the Global Workforce

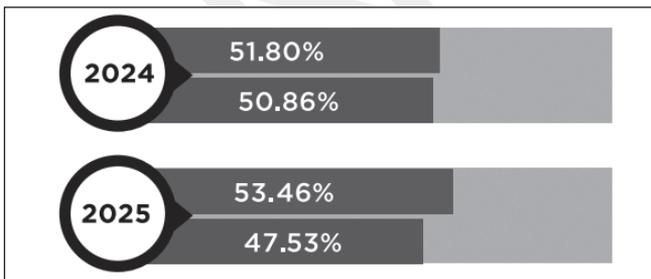
1. India's youthful workforce is a significant asset in meeting global skill shortages. By **2025**, over **50% of secondary and tertiary students** in India are expected to receive vocational training, aligning with global standards.
2. With over **65% of its workforce under 35 years**, India is well-positioned to leverage shifting economic trends, evolving job market expectations, and rapid technological advancements.
3. Projections indicate that **25% of jobs worldwide** will undergo significant changes within the next five years, requiring adaptable, future-ready skills.
4. A global study found an **83 million worker shortage** across 23 countries, emphasizing the critical role of skilled professionals. Bridging this gap could contribute **\$11.5 trillion to global GDP by 2028**.



- India is driving **diversity, equity, and inclusion (DEI)** in the global workforce through:
  - Flexible work arrangements:** Expected to reach 30 million remote workers by 2025.
  - Gig economy growth:** Projected at **\$455 billion by 2023**.
  - Booming startup ecosystem:** Over **7,000 startups in 2023**.

### Unlocking India’s Full Potential

- India’s **demographic dividend**—with **10–12 million youth entering the workforce annually**—positions the country as a key driver of global economic growth. To capitalize on this potential, strategic skill development is essential:
- Skill initiatives like the **Skill India Mission, National Education Policy (NEP), and Digital India** are transforming the workforce.
- India must develop a talent pool that is **multi-skilled, globally agile, and ready for deployment**.

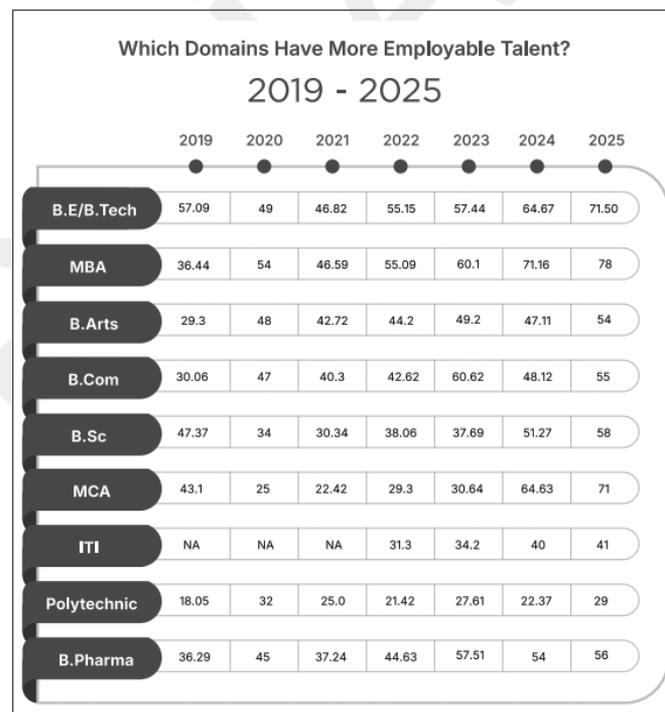


### Men vs Women Employability

### India’s Progress in Workforce Readiness

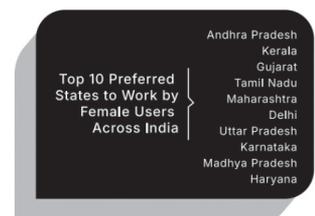
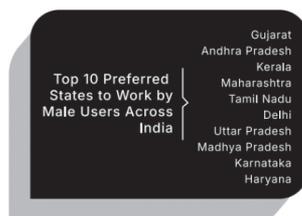
- India’s workforce is abundant and increasingly aligned with global needs.

- Over **50% of Indian graduates** are employable, a significant rise from **33% a decade ago**, showcasing the nation’s commitment to workforce development.
- Focus on **AI, cloud computing, and automation** is transforming job roles and creating new opportunities.
- The **global AI market**, estimated to reach **\$190 billion by 2025**, is reshaping industries. India is prepared to meet this demand with:
  - 416,000 AI-ready professionals** in 2023, expected to grow to **1 million by 2026**.
  - Focus on **edtech innovations and online skill development programs**, ensuring continuous learning for Indian professionals.

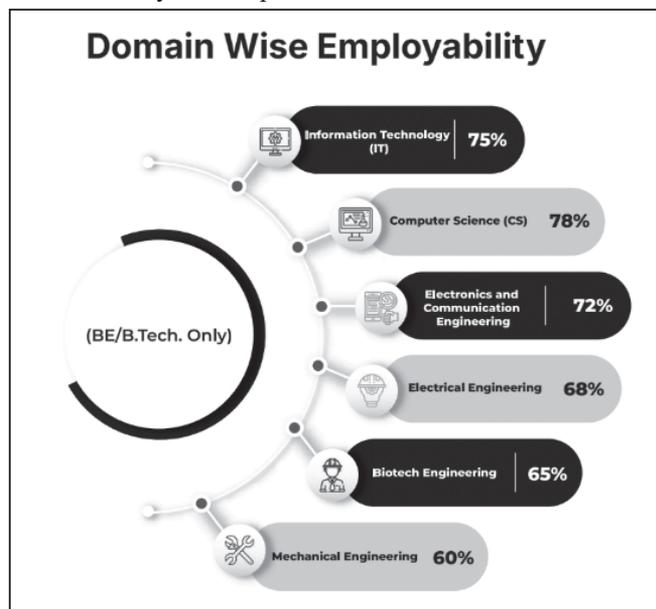


### Contributions to India’s Economy

- India’s skilled workforce significantly boosts the economy through foreign income transfers.
- In 2022, India received **\$111 billion** in foreign remittances, the highest globally.



3. By 2030, this is expected to exceed **\$150 billion**, fuelled by skilled professionals abroad.



### Employability of Indian Talent

Employability	Details
<b>Overall Employability</b>	<ul style="list-style-type: none"> <li>India's overall employability rate is <b>54.81%</b>, showcasing a significant proportion of candidates scoring over 60% on the GET.</li> </ul>
<b>Employability by Educational Domain</b>	<ul style="list-style-type: none"> <li><b>Information Technology (IT)</b> graduates lead with <b>75% scoring above 60%</b>, while <b>Computer Science (CS)</b> graduates perform even better at 78%.</li> <li><b>Engineering graduates</b> show strong employability: Electronics and Communication (72%), Electrical (68%), Mechanical (60%), Biotechnology (65%)</li> <li><b>B.E./B.Tech</b> graduates shows high employability at <b>71.50%</b>, compared to <b>B.A. graduates</b> at 54%.</li> <li><b>MBA graduates</b> lead with an employability rate of 78%, reflecting their alignment with management roles.</li> </ul>

<b>Employability by State</b>	<ul style="list-style-type: none"> <li><b>Maharashtra</b> ranks highest at 84%, followed by: Delhi (78%), Karnataka (75%), Andhra Pradesh (72%), Kerala (71%) and Uttar Pradesh (70%)</li> <li>Tamil Nadu (64.06%) and Gujarat (62%) show potential for growth.</li> </ul>
<b>Employability by City</b>	<ul style="list-style-type: none"> <li><b>Pune</b> leads with 78.32% employability, followed by: Bengaluru (76.48%), Mumbai (72.45%), Delhi (70.22%), Thrissur (72.15%)</li> <li>Hyderabad, Guntur, and Lucknow are emerging talent hubs.</li> </ul>
<b>Skill Availability Across States</b>	<ul style="list-style-type: none"> <li><b>English proficiency</b> is strongest in Maharashtra (67.45%), followed by Karnataka and Uttar Pradesh.</li> <li><b>Numerical skills</b> are highest in Uttar Pradesh, Andhra Pradesh, and Madhya Pradesh.</li> <li><b>Critical thinking</b> skills excel in Uttar Pradesh, Rajasthan, and Madhya Pradesh.</li> <li><b>Computer skills</b> are led by Uttar Pradesh, Kerala, and Maharashtra.</li> </ul>
<b>Employability by Age Group</b>	<ul style="list-style-type: none"> <li><b>18-21 years: Strong employability in Uttar Pradesh (92.20%)</b>, Madhya Pradesh (91.15%), and Karnataka (81.89%).</li> <li><b>22-25 years: Uttar Pradesh leads</b> at 94.29%, followed by Kerala (87.47%) and Punjab (87.5%).</li> <li><b>26-29 years: Gujarat tops</b> with 78.24%, followed by Maharashtra (71.70%) and Uttar Pradesh (62.50%).</li> </ul>
<b>Gender Employability</b>	<ul style="list-style-type: none"> <li><b>Male employability is slightly higher</b> at 53.47%, compared to female employability at 46.53%.</li> <li><b>Top states for male employability:</b> Andhra Pradesh, Karnataka, Maharashtra, and Uttar Pradesh.</li> <li><b>Female employability is highest in Rajasthan</b>, followed by Gujarat and Kerala.</li> </ul>

<p><b>Internship and Work Preferences</b></p>	<ul style="list-style-type: none"> <li>● <b>93.22%</b> of users expressed a strong interest in internships.</li> <li>● Tamil Nadu leads in internship preferences, followed by Uttar Pradesh, Kerala, and Karnataka.</li> <li>● The preferred starting salary range is <b>\$30,000–\$40,000</b> for many users.</li> <li>● <b>Top work preference states:</b> Tamil Nadu, Maharashtra, Kerala, Uttar Pradesh, and Karnataka.</li> <li>● Male users prefer roles in <b>engineering, design, and technical fields.</b></li> <li>● Female users lean towards <b>wellness, fashion, HR, and finance sectors.</b></li> </ul>
<p><b>Key Hiring Trends</b></p>	<ul style="list-style-type: none"> <li>● Freshers’ demand is expected to decline compared to last year, but the need for candidates with <b>1-5 years of experience</b> remains dominant.</li> <li>● <b>Leading sectors: Manufacturing, Automotive, Pharma &amp; Healthcare, BFSI, and IT.</b></li> <li>● Candidates with <b>6-10 years of experience</b> are most in demand in <b>Pharma &amp; Healthcare</b>, followed by <b>IT and BFSI sectors.</b></li> <li>● Companies are strategically focusing on developing young talent while leveraging experienced professionals.</li> </ul>

**A Vision for the Future**

1. The **India Skills Report 2025** lays out a clear roadmap for leveraging India’s vast talent base. It emphasizes collaboration among stakeholders to address evolving job markets and seize global opportunities.
2. By investing in **skill development**, India can lead in innovation, enhance competitiveness, and strengthen its position as a global hub for skilled talent.
3. With the right strategies, India is poised to achieve its ambitious goal of becoming a **\$7 trillion economy by 2030.**

**5. First all women battalion for CISF**

1. In a big move to support **gender equality** and give women more roles in security jobs, the **Ministry of Home Affairs (MHA)** has approved the formation of

**India’s first all-women Central Industrial Security Force (CISF) battalion** in November, 2024.

- a. **Presently, there are 7% women personnel in the CISF, which has a total strength of 1.77 lakh personnel.**
  - b. **A battalion comprises around 1,000 personnel.**
  - c. **The proposal for creation of an all-women battalion in the CISF was initiated in pursuance of the direction of Union Home Minister Amit Shah on the occasion of 53rd CISF Day function.**
  - d. **CISF is going to celebrate its glorious 55th Foundation Day of dedicated and selfless service to the nation on 10 March 2025.**
2. This step shows the growing role of women in India’s security forces.
  3. **Once established, this will be the CISF’s first all-women reserve battalion.**
  4. While the CISF currently has **12 reserve battalions with a mix of male and female personnel**, these units are kept on standby to provide reinforcement for duties like elections and the protection of key installations, including the **Parliament House complex, which was recently added to the force’s responsibilities.**

**What is CISF?**

1. Established in 1969.
2. **CISF (Central Industrial Security Force)** is a security force under the **Ministry of Home Affairs (MHA)**, responsible for protecting India’s most important places, such as airports, metro stations, and power plants.
3. CISF also provides **VIP security** for important people like politicians and leaders.
4. CISF guards more than **300 key locations** across India, including **68 airports** and metros like the **Delhi Metro.**
5. **The CISF also provides counter-terrorism security to various sensitive facilities in the nuclear and aerospace sectors**, as well as private sector operations like those of **Infosys in Bengaluru and Pune, and the Reliance refinery in Jamnagar.**

**6. Bal Vivah Mukh Bharat Campaign**

1. In **November 2024**, Ministry of Women and Child Development launched the **Bal Vivah Mukh Bharat (Child Marriage Free India)** campaign.

- The campaign introduced an **online portal to report child marriage cases, file complaints, and access information on the Child Marriage Prohibition Act.**
  - The campaign launch aligns with the **16 Days of Activism Against Gender-Based Violence**, running from **25th November to 10th December.**

### About the Campaign

- Focus Areas:** In seven States with high burden of child marriages and in nearly 300 high-burden districts.
- Collaborative approach:** Call on every State and Union Territory to devise an action plan aimed at reducing the child marriage rates below 5% by 2029.
- Child Marriage Free Bharat Portal:** An innovative online platform that enables citizens to report child marriage incidents, file complaints, and access information about Child Marriage Prohibition Officers (CMPOs) nationwide.

### Status of Child Marriage in India

- Reduction in Child Marriage:** As per NFHS-5, Child marriage has decreased from 47.4% in 2005–06 to 26.8% in 2015–16.
- Variation by household wealth:** According to NFHS-5, 40% of females in the lowest quintile married before the age of 18, compared to only 8% in the highest quintile.
- Despite efforts to prevent it, **child marriage remains a serious issue, with 1 in 5 girls still getting married before they turn 18.**
- States with high prevalence:** West Bengal, Bihar, Tripura, Jharkhand, Assam, Andhra Pradesh, Rajasthan and Telangana.

Consequences of Child Marriages			
 <p><b>Physical:</b> It can lead to forced sexual activity and exposure to domestic violence.</p>	 <p><b>Developmental:</b> It can result in low education and life skills.</p>	 <p><b>Health:</b> Early and repeated pregnancies damage the reproductive health of girls.</p>	 <p><b>Human Rights Violations:</b> Child marriage violates the right to a free and joyful childhood.</p>

### Steps taken by government

- Prohibition of Child Marriage Act, 2006 (PCMA):** Prohibits child marriages where females are under 18 and males are under 21.

- United Nations Convention on the Rights of the Child:** India is a signatory.
- National Commission for Protection of Child Rights (NCPCR):** Runs awareness programs to fight child marriage.
- Beti Bachao Beti Padhao:** This program helps promote education and gender equality for girls.
- Samagra Shiksha:** This scheme focuses on providing quality education to all children, including girls.
- Sukanya Samridhi Yojana:** A savings scheme to ensure financial security for girls.
- National Education Policy (NEP), 2020:** The policy aims to provide equal educational opportunities to all children, including girls, with special scholarships for disadvantaged groups.
- Programs like **Nari Adalats** (women’s courts) and **gender-sensitive communication guides** are designed to change these attitudes and create safer environments for girls.

### 7. World-first law banning Under-16s From Social media

- In November 2024, Australia passes world-first law banning children under-16s from social media (Online Safety Act was amended).
- As per the legislation, social media companies are liable for fines up to 50 million Australian dollars (Rs 275 crore approx.) if they fail to prevent children under the age of 16 from holding accounts on their platforms.

### Reasons for social media addiction among children

- Exploitation of the brain’s reward circuits by social media:** It creates addictive loops that trigger continuous engagement through dopamine stimulation.
- Lack of authentic emotional connections pushes adolescents to social media as a substitute for genuine interpersonal relationships.**

### Impact of Social media addiction

- Screen Time Displacement:** Digital engagement replaces children’s physical activities with online interactions.
  - It may lead to **erosion of real-life relationships and social skills, FOMO (Fear Of Missing Out).**

2. **Productivity Drain and academic consequences:** It disrupts activities such as school work, sports, study etc.
3. **Psychological Impact:** Constant exposure to idealized images achievement leads to unrealistic expectations.
  - It may lead to instances of **cyberbullying, lack of self-esteem, focus and concentration.**
4. **Heath Impact:** can adversely impact brain development and lead to depression, sleep problems, eating disorders.
5. **Exposure to harmful Content:** such as suicide and self-harm and increased vulnerability to extreme viewpoints.

### Negative effect of ban

1. **May limit positive impacts of social media on children:** E.g. Digital Competence and Social Integration, Creative Expression and Collaborative Learning, Interest-Based Networking Opportunities etc.
2. **May push children to unsafe places on Internet:** E.g. Dark Web

#### Alternative Approach to Ban Social Media

1. **Age Restrictions by Social Media Platforms:** Like Meta, owner of Facebook and Instagram, which has a self-imposed minimum age of 13 years.
2. **Integrate technology-based tools and applications:** to promote productive use of social media.
3. **Adopting Best Practices:** E.g. Digital De-Addiction (D-DAD) centres of Kerala police provide free counselling to kids with digital addiction.

### How India and other Major Countries Regulate Children's social media Access?

1. **India:** While there are **no specific legal restrictions** on protecting children from online harm, India's Digital Personal Data Protection Act, 2023, has a higher level of requirement than age verification for processing children's data online.
  - It requires data fiduciaries to collect **"verifiable parental consent"** from parents of children under the age of 18.

- Recently, the **draft Digital Personal Data Protection (DPDP) Rules** that were released stated that under-18s will now require parental consent to create social media accounts, though **there are no penalties for violations.**
  - The **DPDP** rules seek to operationalize the Digital Personal Data Protection Act, 2023 (DPDP Act), in line with India's commitment to create a robust framework for protecting digital personal data.

2. **China:** In 2023, **China's cyberspace regulator** said children under the **age of 18 should be limited to a maximum of two hours a day** on their smartphones.
3. **United States:** The **Children's Online Privacy Protection Act (COPPA), enacted in 1998**, requires parental consent for websites to collect personal information from **children under 13.**
  - The **Children's Internet Protection Act (CIPA) of 2000** restricted access to inappropriate content in schools and libraries.
4. **European Union (EU):** In the EU, parental consent is required for the processing of personal data for children under the age of 16, though the bloc's 27 member states can lower that limit to 13.
5. **Germany:** Officially, minors between the ages of 13 and 16 are allowed to use social media, if their parents give consent.
  - There are **currently no plans to go further.**

### 8. TULIP: Digital Platform for Craft and Community Empowerment

In November 2024, Ministry of Social Justice and Empowerment has inaugurated 'TULIP' (Traditional Artisans' Upliftment Livelihood Programme) brand - A Digital Platform for Craft and Community Empowerment.

#### About TULIP

- Its goal is to **empower marginalized artisans** (Scheduled Castes, Other Backward Classes, sanitation workers, and persons with disabilities) by providing them with a platform for global exposure and sales of their products through e-marketing.
- TULIP Digital Platform for e-commerce will **provide a platform for economic self-reliance and global exposure** to artisans via an e-marketplace.



## H. ETHICS

### 1. Moral Imperative to Combat Corruption

1. Corruption in India remains a deeply entrenched issue, severely undermining governance and public trust.
2. High-profile scandals such as illegal coal levies in Chhattisgarh, money laundering by IAS officers in states like Jharkhand and Kerala, and corporate malpractices like the **Satyam** scandal and bribery investigations in major private companies highlight the extent of systemic corruption.
3. These events underscore the pervasive abuse of power for personal gain.
4. The ancient wisdom of **Kautilya** in the *Arthashastra* illustrates this deeply embedded issue: “Just as fish moving under water cannot possibly be found out either as drinking or not drinking water, government servants employed in government work cannot be found out while taking money for themselves.”
5. This analogy emphasizes the subtle and widespread nature of corruption, demanding comprehensive action to restore integrity and justice in society.

### Ethical Dimensions of Corruption

1. **Violation of Trust:**
  - a. Corruption betrays public trust by enabling officials to misuse power for personal gain.
  - b. It distorts governance by undermining **accountability, integrity, and justice**, weakening the moral fabric of society.
  - c. Public servants, entrusted with resources to serve society, breach their ethical responsibility when they exploit those resources for personal benefit.
2. **Subversion of Rule of Law:**
  - a. Corruption erodes the **rule of law**, creating a system of selective law enforcement.
  - b. This undermines the integrity of the judicial system and denies citizens access to **fair and impartial** legal protection.

### 3. Unfairness and Inequality:

- a. Corruption fosters inequality by granting unfair advantages to those who can afford bribes, while disadvantaging those who cannot.
- b. This distortion in access to services, economic opportunities, and justice creates a **society of inequity**, where merit and need are sidelined.

### 4. Exploitation of Vulnerability:

- a. Vulnerable groups are often coerced into paying bribes or participating in corrupt practices, further violating principles of **fairness and justice**.
- b. Corruption places a heavy burden on marginalized communities, perpetuating their disadvantage and reinforcing systemic inequality.

### 5. Compromise of Moral Integrity:

- a. Participation in corruption compromises personal **moral integrity**.
- b. Accepting or offering bribes undermines ethical values, eroding the moral standards of individuals and institutions alike.

### 6. Undermines Social Responsibility:

- a. Corruption shifts the focus from **societal welfare** to individual gain, reflecting a disregard for the common good.
- b. It undermines the collective responsibility to build a just and ethical society, weakening social cohesion.

### 7. Impedes Development and Progress:

- a. Corruption stifles economic development by diverting public resources, fostering inefficiency, and deterring investment.
- b. It perpetuates a culture of stagnation, preventing society from achieving its full potential.

### Philosophical Perspectives on Corruption

#### 1. Kautilya's Realpolitik Approach:

- a. Kautilya's approach acknowledged the inevitability of corruption but emphasized **prevention** through vigilance and oversight.

- b. Strategies like regular audits and surprise inspections remain vital in **mitigating corruption**.
2. **Economic Inequality and Corruption:**
    - a. Nobel laureate economist **Joseph Stiglitz** highlights the link between **wealth concentration** and systemic corruption, where policies favor the elite, creating a feedback loop that deepens both corruption and inequality.
  3. **Robert Klitgaard's Corruption Equation:**
    - a. Klitgaard's equation ( $C = M + D - A$ ) explains corruption as a result of **Monopoly (M)**, **Discretion (D)**, and lack of **Accountability (A)**.
    - b. It underscores the need to reduce discretion, limit monopolies, and enhance **accountability** to combat corruption effectively.
  4. **Violation of Social Contract:**
    - a. Corruption violates the **social contract** between citizens and public officials.
    - b. When public servants exploit their power for personal gain, they breach their ethical obligations, weakening public faith in democratic institutions.
  5. **Utilitarian Critique:**
    - a. From a **utilitarian** perspective, corruption harms societal welfare by diverting resources from essential services like healthcare and education.
    - b. It prioritizes private gain over **public good**, violating the principle of promoting **societal happiness** and overall well-being.
  6. **Deontological View:**
    - a. **Deontological ethics** focuses on moral duties, asserting that corruption is unethical because it fails to respect **duty** and **moral obligations**.
    - b. Corruption exploits resources for personal gain, treating people as mere means to an end, violating fundamental ethical principles.
  7. **Virtue Ethics:**
    - a. **Virtue ethics** emphasizes cultivating moral character traits like **honesty**, **selflessness**, and **accountability**.
    - b. Corruption undermines these virtues, replacing them with **greed** and **self-interest**, thus eroding ethical leadership.

## Hindrances in Combating Corruption

1. **Cultural Normalization of Corruption:**
  - a. In many societies, corruption has become culturally accepted, weakening the ethical foundation of governance and public trust.
  - b. When results are prioritized over ethics, **honest officials** are often unfairly stigmatized, while **corrupt practices** are seen as practical solutions.
  - c. This normalization undermines values like **honesty**, **trustworthiness**, and **transparency**.
2. **Lack of Trust in Institutions:**
  - a. Widespread corruption leads to a **loss of faith** in government and law enforcement institutions.
  - b. This undermines efforts to fight corruption, as citizens may either tolerate or participate in corrupt practices, seeing them as inevitable or even beneficial.
3. **Weak Accountability Mechanisms:**
  - a. **Enforcement of anti-corruption laws** is often ineffective due to systemic inefficiencies and political interference.
  - b. **Anti-corruption agencies** must be granted **autonomy** and sufficient resources to function effectively, without fear of political retaliation.
4. **Impunity for Corrupt Actors:**
  - a. Many corrupt individuals, especially those in power, enjoy **impunity** due to their political influence or financial resources.
  - b. Slow and compromised legal systems allow corrupt actors to escape punishment, reinforcing the notion that corruption carries **no risk** and fostering **public disillusionment**.
5. **Lack of Whistleblower Protection:**
  - a. The absence of **whistleblower protection** laws discourages individuals from reporting corruption due to fear of retaliation.
  - b. Without adequate legal safeguards, **whistleblowers** are often silenced, diminishing the system's ability to address corruption.

## Way Forward to Combat Corruption

1. **Second Administrative Reforms Commission (ARC):**

- a. **Anti-corruption agencies** must be given institutional **autonomy**, resources, and protection from political interference.
  - b. Limiting **discretionary powers** of public officials ensures that decisions are made based on established rules, reducing opportunities for corruption.
  - c. Empowering citizens through **social audits** and **citizen charters** will enhance **transparency** and accountability.
2. **World Bank Recommendations:**
- a. **E-governance** should be implemented to increase **transparency**, digitizing public services and reducing human intervention.
  - b. **Public awareness campaigns** are essential to educate citizens on the long-term **consequences of corruption**.
  - c. Recognizing and rewarding **ethical behavior** among public officials through career advancement can foster a **culture of accountability**.
3. **Recommendations by Various Thinkers:**
- a. **Kautilya** stressed the importance of regular **monitoring**, audits, and surprise inspections to prevent corruption.
  - b. **Robert Klitgaard** recommends reducing monopolies of power, limiting discretion, and improving **accountability**.
  - c. **Joseph Stiglitz** advocates for greater **transparency**, addressing **economic inequality**, and strengthening institutions to prevent corruption.

## Conclusion

Combating corruption is a **complex, multifaceted challenge** that demands a comprehensive response. By strengthening legal frameworks, integrating ethical perspectives like “यतो धर्मस्ततो जयः” (**Where there is righteousness, there is victory**) into governance, and fostering societal vigilance, we can mitigate its impact. Restoring **public trust** through transparent and accountable governance is crucial for creating a more equitable and just society. When leaders demonstrate **honesty, accountability, and fairness**, their ethical conduct can influence institutional

practices and inspire integrity throughout organizations. Ultimately, combating corruption is not merely a legal responsibility but a **moral imperative** that requires **collective action**.

## 2. Ethical Challenges in Genetic Engineering and Biotechnology

1. The rapid advancement of **genetic engineering** and **biotechnology** has brought transformative opportunities to address global challenges such as genetic disorders, food insecurity, and environmental crises.
2. Technologies like **CRISPR-Cas9** have pushed the boundaries of what is scientifically possible, making genetic modification a reality.
3. However, these advancements also raise significant ethical questions, ranging from concerns about “**designer babies**” to the **ecological risks posed by genetically modified organisms (GMOs)**.
4. With India’s biotech sector expanding and international controversies, like the gene-edited babies scandal in China, the need to ethically navigate these scientific developments is critical.

### Ethical Concerns Related to Genetic Engineering and Biotechnology

1. **Human Dignity and Identity Challenges:**
  - a. Genetic engineering raises fundamental questions about human **identity** and **individuality**.
  - b. Editing genes risks reducing humans to **programmable entities**, undermining the concept of **personhood** and inherent human value.
  - c. Changes to human characteristics could threaten the uniqueness of individuals.
2. **Consent and Autonomy Dilemmas:**
  - a. Unborn individuals cannot provide consent for genetic modifications, creating **ethical issues** regarding parental control and autonomy.
  - b. These modifications may also impact **future generations**, potentially violating their reproductive autonomy.

### 3. Risk of Genetic Discrimination:

- a. Gene editing could lead to **genetic hierarchies**, where genetically enhanced individuals gain societal advantages.
- b. **Socio-economic disparities** in access to these technologies may exacerbate existing inequalities, creating a divide between genetically modified and non-modified populations.

### 4. Reproductive Ethics and Designer Babies:

- a. The concept of **designer babies** raises concerns about **eugenics**, reinforcing societal biases toward preferred traits.
- b. It could lead to **genetic homogeneity**, where diversity in human characteristics is diminished, eroding the principle of inclusivity.

### 5. Blurred Medical and Therapeutic Boundaries:

- a. Genetic technologies may blur the lines between **treatment** and **enhancement**.
- b. The potential for non-therapeutic applications, such as **performance enhancement**, could misuse genetic interventions, leading to unforeseen health risks or unintended genetic consequences.

### 6. Ecosystem and Biodiversity Concerns:

- a. The release of **GMOs** into natural environments could disrupt **genetic diversity**, threatening ecosystems.
- b. Unregulated genetic modifications can have irreversible ecological impacts, such as the spread of **invasive species**.

### 7. Informed Consent and Transparency:

- a. The complexity of genetic engineering raises challenges around **informed consent**.
- b. Many individuals may not fully understand the implications of genetic interventions, especially given limited long-term data and inadequate regulatory frameworks.

## Philosophical and Socio-Economic Perspectives on Genetic Engineering & Biotechnology

### 1. Philosophical Foundations of Human Intervention:

- a. **Kantian ethics**: Argues against the instrumentalization of life, stating humans should never be used as mere means to an end.

b. **Utilitarian perspective**: Supports genetic engineering if it maximizes societal benefits (e.g., eradicating diseases).

c. **Existential concerns**: Some argue that **human-directed evolution** undermines natural progression and the intrinsic **agency** of humanity.

### 2. Distributive Justice and Access Inequality:

- a. Genetic technologies risk **widening global inequalities**, as wealthier populations may have access to enhancements, while poorer nations may be left behind.
- b. This divide could exacerbate **social disparities** and create a **genetic underclass**.

### 3. Cultural and Religious Perspectives:

- a. Many religious and cultural traditions challenge the morality of **“playing God”** by interfering with natural processes.
- b. Ethical frameworks must respect diverse worldviews on **the sanctity of life** and **natural evolution**.

### 4. Technological Determinism and Its Risks:

- a. Rapid advancements in biotechnology often outpace the development of corresponding **ethical guidelines**, leading to unregulated use of powerful technologies.
- b. **Philosophers warn** against technological determinism, where society accepts scientific advancements without critically assessing their moral implications.

### 5. Tension Between Individual and Collective Rights:

- a. **Individual genetic choices** can have broader societal consequences, such as disrupting **ecosystems** or creating **economic disparities**.
- b. Balancing **personal autonomy** with the **common good** is a key ethical challenge in genetic engineering.

### 6. Global Governance Challenges:

- a. Diverse **cultural, political, and economic contexts** create challenges in creating universal ethical standards for genetic engineering.

- b. Fragmented global governance can lead to **loopholes** and the potential misuse of genetic technologies.

## Regulations on Genetic Engineering and Biotechnology

### India

- Governing Body:** The **Department of Biotechnology (DBT)** under the Ministry of Science and Technology is responsible for **formulating** and **implementing** policies for biotechnology research in India.
- Key Regulatory Framework:**
  - Rules for the Manufacture, Use, Import, Export, and Storage of Hazardous Microorganisms, Genetically Engineered Organisms, or Cells, 1989:** This legal framework governs the safe use of genetically engineered organisms.
  - Genetic Engineering Approval Committee (GEAC):** Under the Ministry of Environment, Forest and Climate Change (MoEFCC), the GEAC grants approval for the large-scale use and commercial release of GMOs.
- Institutional Biosafety Committees (IBSCs):**
  - Every research institution handling GMOs must establish an IBSC to ensure compliance with biosafety guidelines.
- Food Safety and Standards Authority of India (FSSAI):**
  - The FSSAI regulates the approval and labeling of genetically modified foods, ensuring **safety** and compliance with food standards.
- Seed Act, 1966:**
  - This act regulates the **certification**, sale, and **quality control** of GM seeds.

### International Level

- Cartagena Protocol on Biosafety (2000):**
  - An international agreement under the Convention on Biological Diversity that regulates the safe handling and use of **living modified organisms (LMOs)**.

### 2. Codex Alimentarius:

- Developed by WHO and FAO, it provides international standards for **genetically modified foods**, including **scientific risk assessments** and allergen testing.

### 3. Nagoya Protocol (2010):

- An international agreement under the **Convention on Biological Diversity**, regulating the **fair and equitable sharing** of benefits arising from genetic resources.

## Way Forward

- Comprehensive Regulatory Frameworks:** Global bodies like the UN or WHO should lead the creation of international guidelines for genetic research, ensuring **balanced decision-making**.
- Ethical Research and Development Practices:** Research must prioritize **transparency** and consider **diverse ethical perspectives** to address global concerns.
- Promoting Public Education and Awareness:** **Scientific literacy initiatives** will empower citizens to engage in informed discussions about genetic technologies and their ethical implications.
- Adoption of Precautionary Principles:** Caution and restraint should guide the deployment of technologies with irreversible consequences, particularly in **human germline editing**.
- Strengthening Global Collaboration:** Countries must collaborate to create shared **ethical standards** and ensure **equitable access** to genetic technologies.

## Conclusion

Genetic engineering and biotechnology present transformative opportunities but also complex ethical challenges. By balancing **innovation** with **responsibility**, **global cooperation**, and **ethical oversight**, humanity can navigate this frontier in a way that maximizes benefits while minimizing harm. **Inclusive governance** and **precautionary principles** will be key to ensuring that these technologies are applied for the greater good, safeguarding **human dignity** and **societal well-being**.



## I. ESSAY

### 1. Climate Change: When Humans Are the Cause, Humans Must Be the Solution

“We are the first generation to feel the impact of climate change and the last generation who can do something about it”- **Barack Obama**

**Climate change** is the harsh reality of today’s world. Even if some deny its existence, no one can escape its effects. **Climate change**, which refers to long-term changes in **temperature** and **weather patterns**, is causing chaos around the globe. We are seeing **extreme weather events** and **natural disasters**. The year 2022 was recorded as the **warmest year** ever. **Pakistan** experienced devastating **floods**, and the **Horn of Africa** faced a severe **drought**. We are getting closer to **tipping points** where damage could be irreversible. **Ice sheets** are melting, and **permafrost** (frozen ground) is thawing, causing **sea levels** to rise and releasing dangerous gases like **methane**. The big question is: How did we get here? What caused this drastic change in the **climate**?

There are both **natural** and **human-made** causes of climate change, but **human activity** is becoming the major reason. It all started mainly with the **Industrial Revolution**. Humanity began to change nature, and this trend continues in the **Fourth Industrial Revolution**. The **Keeling Curve**, which tracks the rise in **CO2 levels**, shows how **human activity** has led to higher **carbon concentrations** in the atmosphere.

#### The Arctic Tundra: A Dangerous Shift in the Global Carbon Cycle

A particularly worrying issue is happening in the **Arctic**, where, for the first time in thousands of years, the **Arctic tundra** is releasing more **carbon** than it absorbs. This is a big change in its role in the global **carbon cycle**. The **Arctic tundra**, with its **frozen soil** or **permafrost**, has long acted as a **carbon sink**, meaning it stored carbon for millennia. **Arctic soils** hold about **1.6 trillion metric tonnes** of carbon, which is about twice the amount in the entire atmosphere. Normally, **plants** and **animals** decay slowly in the cold, locking away **carbon** in the soil instead of releasing it.

But with **rising temperatures**, the **Arctic** is warming **four times faster** than the global average. The year 2024 saw the **second-warmest surface temperatures** on record

in the region. As the **permafrost** thaws, it releases **carbon dioxide (CO<sub>2</sub>)** and **methane (CH<sub>4</sub>)**, both of which are powerful **greenhouse gases** that warm the planet even more. This creates a dangerous **feedback loop**: thawing **permafrost** releases **carbon**, which warms the atmosphere, leading to more **permafrost** thawing.

In addition, **wildfires** in the Arctic are becoming more **frequent** and **intense**. The **wildfire season** in 2023 was the worst ever, and 2024 followed as the **second-largest year** for wildfire **emissions**. **Wildfires** not only release large amounts of **CO<sub>2</sub>**, but they also speed up **permafrost thawing** due to the intense heat they produce.

Between 2001 and 2020, the **Arctic tundra** changed from being a **carbon sink** to a **carbon emitter** for the first time in thousands of years. This is contributing to **global warming**, making **extreme weather events** more common around the world. It shows just how urgent it is to **reduce greenhouse gas emissions** and stop further warming in the **Arctic**.

#### The Feedback Loop: How Arctic Emissions Make Global Warming Worse

The increasing **carbon emissions** from the **Arctic** are creating a dangerous cycle. As more **CO<sub>2</sub>** and **methane** are released from thawing **permafrost**, they warm the atmosphere, which causes even more **permafrost** to thaw. This **feedback loop** is speeding up **global warming** and leading to **extreme weather events** such as **heatwaves**, **floods**, and **wildfires** in other parts of the world. The **Arctic’s carbon emissions** are now contributing to **global warming** and worsening **climate change** everywhere.

#### Human Activity: Industrialization, Urbanization, and Agriculture

If we look at activities since the **Industrial Revolution**, many of them are harming the environment. **Agriculture**, for example, is a big problem. The widespread use of **chemicals**, excessive **water use**, and planting the same crops year after year (**monocropping**) harm the land. **Fifty-three percent** of **nitrous oxide emissions** come from **fertilizers**, both organic and mineral. **Deforestation** and changes in how **land** is used also make **climate change** worse.

**Urbanization**, or the growth of **cities**, has made **climate change** worse. Activities in **cities** like burning **fossil fuels**

(coal, oil, and gas) and dumping **waste** in open **landfills** (common in cities like **Delhi** and **Chandigarh**) add to **global warming**. **Industrialization**, **urbanization**, and **globalization** have improved our living standards, but at the cost of the environment. The connection between the **standard of living** and the **carbon footprint** is clear when we compare countries like **India** and the **U.S.** For example, the **U.S.** has **17.6 tons** of **CO<sub>2</sub> emissions** per person, while **India** has just **2.5 tons** per person. This pattern is seen all over the world.

As a result of **human activities**, **global temperatures** have already risen by **1.15°C** above the 1850–1900 average. Current policies predict a rise of **2.8°C** by the end of this century. If this continues, the future looks bleak. The big question is: How do we fix this? The answer is simple: **Humanity must act.**

### How We Can Fix This: Global Action Against Climate Change

Nearly 40 years ago, humanity was shocked by a hole in the **ozone layer** above **Antarctica**, caused by chemicals known as **CFCs**. These chemicals were released by **human activities**, but global cooperation led to the **Montreal Protocol**, which worked to reduce these substances. Thanks to collective action, the **ozone hole** is recovering and is expected to fully heal by 2050. This would have been much worse if no action had been taken.

Just as humans were responsible for depleting the **ozone layer**, we are also the solution to **climate change**. If **human activity** is causing **climate change**, it is our responsibility to stop it.

Each year, reports like the **State of the Climate Report** warn us about **climate change** and its consequences. We have made progress since the first global environmental summit in **Stockholm**, but we have often failed to meet our promises. The **Kyoto Protocol** is one example. Although the **Paris Climate Agreement** is hopeful, there is still doubt about whether we will meet the goal of limiting global temperature rise to **1.5°C**. As the **UN Secretary-General** warned, “The era of global boiling has arrived.” To stop things from getting worse, “We must turn a year of burning heat into a year of burning ambition.”

We need to act quickly, and we have very little time left to make a difference.

### What Can Be Done?

**International Level:** Countries must work together to share **technology**. Global initiatives like the **Green Grids**

**Initiative** should be supported. We can also look at the **Great Green Wall project** by the **African Union** for inspiration. Countries should work to build **sustainable cities**, like those with **car-free zones**, in line with **Sustainable Development Goal 11**. **Amsterdam** is a good example of how this can work. **Green market tools** should be strengthened worldwide.

**National Level:** Governments should do a better job of enforcing global agreements. **Laws** and regulations like **Environmental Impact Assessments (EIA)** should be followed strictly, especially after disasters like the **Joshimath incident**. Phasing out **fossil fuels** and moving to **clean energy** sources is essential. We should focus on **electric vehicles** (through initiatives like **FAME**) and **renewable energy**. **India** is a good model for other countries, as shown by its **8th position** in the **Climate Change Performance Index**.

**Community Level:** Local efforts are equally important. **Communities** understand their local environment better and can take actions to help. Programs like **community reserves** and fully **solar-powered villages**, like **Modhera** in **Gujarat**, show the positive impact of local action.

**Individual Level:** Everyone can help too. We need to adopt **sustainable lifestyles**. “**Lifestyle for Environment**” (**LiFE**) will help us become “pro-planet people.” Simple changes, like choosing **eco-friendly products** and reducing private **car use**, can make a big difference.

### The Future of Our Planet: A Shared Responsibility

The future of our planet depends on us. We must remember: “We do not inherit the Earth from our ancestors; we borrow it from our children.” While there are solutions, the fight against **climate change** will not be easy. Balancing **development** with **environmental protection** is still a big challenge. Developing countries often lack the **resources** and **technology** needed to fight **climate change**. Worse, some rich countries practice “green imperialism,” pushing their own solutions without considering the needs of poorer nations. Sometimes, **corporations** engage in **greenwashing**, pretending to be environmentally friendly while still harming the planet. Along with reducing **emissions**, we need to focus on adapting to the changes that are already happening.

Despite these challenges, many countries are making progress. What we need now is to turn our thoughts into **action**. **Humans caused this problem**, and it is our duty to fix it. We must act quickly and make sure every small effort counts. The time to act is now. “The best time to plant a tree was twenty years ago. The second-best time is now.”



## J. SCHEME

### 1. PM-Vidyalaxmi Scheme for Financial Support to Students

1. In November 2024, The Union Cabinet, approved the PM-Vidyalaxmi Scheme.
2. This is a new initiative to help **deserving students** by **offering them financial support so that they can pursue higher education without worrying about money.**
3. It is a new **Central Sector scheme** that seeks to provide financial support to meritorious students for higher studies.
  - It is in line with the National Education Policy, 2020, which had recommended financial assistance to meritorious students in both public and private Higher education institutions.

#### Salient features of the scheme

1. **Objective:** Provide financial support through collateral free, guarantor free loans from banks and financial institutions to cover full amount of tuition fees and other expenses related to the course in higher education.
2. **Eligibility:** Any student who gets admission in Quality Higher Education Institution (QHEIs).
3. **Coverage:** 860 qualifying QHEIs (Based on NIRF ranking), covering more than 22 lakh students.
4. **Benefits:** Loan amounts up to Rs.7.5 lakhs will be provided a 75% credit guarantee by the Government of India.
  - a. 3% interest subvention for loan up to Rs.10 lakhs during moratorium period for eligible students.
5. **Entirely digital system:** Unified portal “PM-Vidyalaxmi” for application of education loan as well as submit request for disbursement of interest subvention.
  - a. Payment of interest subvention will be made through E-voucher and Central Bank Digital Currency (CBDC) wallets.
6. It will supplement Pradhan Mantri Uchchatar Shiksha Protsahan (PM-USP) Scheme.

### About Pradhan Mantri Uchchatar Shiksha Protsahan (PM-USP) Scheme

- **Objective:** To provide financial assistance to meritorious students from poor families to meet a part of their day-to-day expenses while pursuing higher studies.
- **Eligibility:** Based on the results of the Higher Secondary/ Class 12<sup>th</sup> Board Examination.
  - A maximum of 82,000 fresh scholarships per annum.
- **Components:** Central Sector Interest Subsidy (CSIS) and Credit Guarantee Fund Scheme for Education Loans (CGFSEL).

### 2. One Nation One Subscription (ONOS) Scheme

In November, 2024 Union Cabinet approved a budgetary allocation of Rs 6,000 crore for an initiative called ‘**One Nation One Subscription**’ (ONOS) which the Centre hopes **will help India’s higher education institutions** (HEIs) access academic resources for the better.

#### About One Nation One Subscription (ONOS) Scheme

**Objective:** The primary goal of the **ONOS scheme** is to obtain **national licenses** for **e-journal** and **database subscriptions** across **STEM** (Science, Technology, Engineering, and Mathematics) and **social sciences** fields.

#### Key Features:

##### 1. Digital Access:

- Access to ONOS will be managed by **INFLIBNET** (Information and Library Network), an autonomous inter-university center under the University Grants Commission (UGC).
- It will offer a **fully digital process** for all institutions, ensuring seamless access to resources.

##### 2. Monitoring:

- The **Anusandhan National Research Foundation (ANRF)** will be responsible for

periodically reviewing the **usage** and **publications** of Indian authors.

### 3. International Journals:

- ONOS will provide access to **13,000 journals** from **30 leading publishers**, including prestigious names like:
  - **Oxford University Press**
  - **Cambridge University Press**
  - **Elsevier Science Direct** (including **Lancet**)

4. **Financial Allocation:** The government has allocated **₹6,000 crore** for the ONOS scheme, covering the period from **2025 to 2027**, under a new **Central Sector Scheme**.

### 5. Implementation Strategy:

- The **Department of Higher Education (DHE)** will provide a **unified portal** for access.
- Additionally, the DHE will conduct **Information, Education, and Communication (IEC)** campaigns to raise awareness about ONOS.

## What is the need of One Nation One Subscription Scheme?

1. **Profits from Public Funds:** **Academic publishing** is a highly profitable industry, generating **USD 19 billion** in revenue with profit margins up to **40%**.
  - However, these profits are largely derived from **public funds** but are concentrated in a few **private companies**.
2. **Countering Predatory Publishing:** Numerous **low-quality journals** exploit Indian researchers by charging publication fees without proper **peer review**.
  - This undermines the quality of research and leads to the proliferation of **predatory publishing**.
3. **Removing Access Barriers:** **Subscription-based models** create significant access barriers due to high costs.
  - Researchers from smaller institutions face difficulties in accessing research and collaborating globally.
    - For example, **Nature Communications** charges **\$6,790 per paper**, making it unaffordable for many researchers.

4. **Favorable Agreement Clauses:** Indian institutions often sign agreements with publishers that prioritize the publishers' interests.

- These agreements may include **restrictive copyright transfers**, limiting **Indian researchers' control** over their own work.

5. **Reducing Financial Burden:** In **2021**, Indian authors paid **₹380 crore** in **Article Processing Charges (APCs)** for **Gold Open Access journals**.

- This highlights the **financial strain** on researchers, making it increasingly difficult for them to publish their work.

## Significance of One Nation One Subscription Scheme

1. **Alignment with National Goals:** Supports **Viksitbharat@ 2047**, **NEP 2020**, and **ANRF**.
2. **Interdisciplinary Research:** Promotes core and interdisciplinary research by offering diverse journals, all cities, including tier 2 and tier 3 areas.
3. **Cost Efficiency:** It reduces financial burden and ensures affordable access for institutions nationwide.
4. **Collective Bargaining Power:** Leverages over **6,300** institutions to secure better access to resources, which is crucial given the stagnation in research funding.
5. **Research Productivity:** It will enhance India's scientific output, bridging the gap with research leaders like China and South Korea.

## Issues with One Nation One Subscription (ONOS)

1. **Shift to Open Access (OA):** With over 50% of research now freely available, the One Nation One Subscription (ONOS) model may become outdated.
  - For example, the U.S. will require all publicly funded research to be freely accessible by 2026, raising concerns about the sustainability of ONOS beyond 2025.
2. **Limitations of Nationwide Subscription:**
  - a. ONOS may prioritize popular journals, neglecting niche fields.
  - b. This could limit access for smaller communities and reduce research diversity.

**3. Commercial Publisher Dominance:**

- a. ONOS risks favoring Western publishers with high profit margins (up to 40%).
- b. This could undermine publicly funded research, as it continues to support large commercial publishers.

**4. Copyright Issues:**

- a. Researchers often relinquish their copyrights when publishing, allowing publishers to use their work without permission.
- b. For example, Taylor & Francis allowed Microsoft to use its journals for AI training. Since the authors had lost copyright, Microsoft didn't need approval.

**5. Digital Content Preservation:**

- a. Relying on publishers for content preservation is risky, as demonstrated by the 2023 discontinuation of the journal Heterocycles, published by the Japan Institute of Heterocyclic Chemistry.
- b. This led to 17,000 articles becoming inaccessible.

**6. Other Issues:**

- a. Lack of support for Indian journals.
- b. Transparency issues regarding the selection, monitoring, and other processes under ONOS.
- c. Unreliable internet availability in **tier 2 and tier 3 cities**, hindering access to ONOS.

**Anusandhan National Research Foundation (ANRF)**

1. The ANRF was established under the **ANRF 2023 Act**, which also subsumed the **Science and Engineering Research Board (SERB)**.
2. The foundation operates under the **Ministry of Science and Technology**.
3. The primary **objective** of the ANRF is to **seed, grow, and promote research and development (R&D)** in India.
4. It aims to foster a culture of **research and innovation** across India's universities, colleges, research institutions, and R&D laboratories.

**Functions:**

1. Acting as the **apex body**, the ANRF will provide **high-level strategic direction** for scientific research in India, aligning with the recommendations of the **National Education Policy (NEP)**.

2. The foundation will facilitate collaboration between **industry, academia, government departments, and research institutions**.
3. It will create a platform for **industry and State governments** to work with **scientific ministries**.

**Key Initiatives:**

1. **PAIR (Partnerships for Accelerated Innovation and Research) Programme:** The **PAIR Programme** is designed to transform **research and innovation** in Indian universities through a **hub-and-spoke model**.

- **Hubs:**

- In the first phase, hubs will include institutions with **high NIRF rankings** that will guide **emerging institutions (spokes)** in research activities.
- These hubs will provide access to resources and expertise.

- **Spokes:**

- The programme will involve **Central and State Public Universities**, as well as select **NITs and IITs** (with the plan to extend it subsequently).

**Organizational Structure:**

1. **Governing Board:** The **Prime Minister** will serve as the **President** of the Governing Board.
2. **Executive Council:** The President of the Board will establish an **Executive Council**, which will be led by the **Principal Scientific Advisor** to implement the Foundation's goals.

**Way Ahead****1. Negotiating National Licenses:**

- The aim is to achieve a **90-95% reduction in subscription costs**.
- Negotiate **favorable terms**, including **waivers on Article Processing Charges (APCs)** for Indian researchers.

**2. Agreement Clauses:**

- Develop a **common model license agreement** that will protect **institutional interests**.
- Ensure **fair terms** on **Intellectual Property (IP), pricing, and renewals**.

**3. Innovative Services:**

- Build infrastructure to:
  - **Promote resource usage.**
  - Ensure **easy access** to resources.
  - **Monitor trends** in usage and research.
  - Provide **training** and **support** for the sustainability of the system.

**4. Promote Open Access (OA):**

- Encourage the adoption of **Open Access (OA)** and fair use of copyrighted materials.
- Support **OA journals** and provide **funding** for **APCs for young researchers.**

**Conclusion**

The **One Nation One Subscription** scheme will revolutionize access to scholarly research, enhance the research output of Indian institutions, and contribute to achieving the goals set out in the National Education Policy and Viksit Bharat 2047.

**3. National Mission on Natural Farming (NMNF)**

1. The Union Cabinet approved the launch of the **National Mission on Natural Farming (NMNF)** on **November 25, 2024**, under the **Ministry of Agriculture and Farmers' Welfare.**
2. The NMNF is a scheme aimed at **promoting natural farming on a large scale across the country.**
3. Before the NMNF, **there was a similar initiative, the Bhartiya Prakritik Krishi Paddhti (BPKP), launched in 2019 under the NDA government.**
4. This initiative **focused on promoting natural farming practices in select areas.**
5. Additionally, the **Namami Gange** scheme promoted **natural farming along the Ganga River in the 2022-23 financial year.**
6. With the **renewed focus on natural farming after the Lok Sabha elections, the government decided to build on the experiences from these earlier efforts and launch the NMNF.**
7. Finance Minister **Nirmala Sitharaman, in her Budget Speech in July 2024, announced that the government would bring 1 crore farmers into natural farming within the next 2 years.**

8. She also highlighted the establishment of **10,000 bio-input resource centers** to support this transition.
9. Prime Minister **Narendra Modi, in his Independence Day speech, expressed his gratitude to farmers adopting natural farming for their role in environmental conservation.**

**What is Natural Farming?**

1. **Natural Farming is a chemical-free farming system rooted in Indian tradition enriched with modern understanding of ecology, resource recycling and on-farm resource optimization.**
2. It is **considered as agroecology based diversified farming system which integrates crops, trees and livestock with functional biodiversity.**
3. It is largely based on **on-farm biomass recycling with major stress on biomass mulching, use of on-farm cow dung-urine formulations;** maintaining soil aeration and exclusion of all synthetic chemical inputs.
4. Natural farming is **expected to reduce dependency on purchased inputs.**
5. It is considered as a **cost-effective farming practice with scope for increasing employment and rural development.**

1. Andhra Pradesh was the first state in India to introduce Zero Budget Natural Farming (ZBNF) in 2016.
2. Sikkim has become India's first fully organic state by implementing organic practices on around 75,000 hectares of agricultural land.

**Area and Farmer Engagement:**

1. As of 2024, approximately **22 lakh hectares** of land have been brought under natural farming, involving **34 lakh farmers.**
2. This includes **4 lakh hectares** under the BPKP, and **88,000 hectares** under the Namami Gange scheme.
3. Additionally, **17 lakh hectares** are covered by state-level initiatives promoting natural farming.
4. The NMNF aims to expand this effort significantly, targeting **7.5 lakh hectares** of additional area over the next two years.
5. The mission will engage **1 crore farmers in 15,000 clusters** across willing Gram Panchayats.

### Implementation of the Mission

Key Activity	Details
<b>Clusters for Natural Farming (NF)</b>	The NMNF will be implemented in <b>15,000 clusters</b> across willing Gram Panchayats. The clusters will engage <b>1 crore farmers</b> and cover <b>7.5 lakh hectares</b> of land.
<b>Bio-Input Resource Centres (BRCs)</b>	<b>10,000 BRCs</b> will be set up to ensure easy access to ready-to-use natural farming inputs, such as <b>Jeevamrit</b> and <b>Beejamrit</b> . These centres will support farmers in their transition to natural farming.
<b>Model Demonstration Farms</b>	<b>2,000 Model Demonstration Farms</b> will be established at <b>Krishi Vigyan Kendras (KVKs)</b> , <b>Agricultural Universities (AUs)</b> , and farmers' fields to train farmers in natural farming practices.
<b>Farmer Training</b>	<b>18.75 lakh farmers</b> will be trained in natural farming practices through workshops and demonstrations. <b>30,000 Krishi Sakhis/CRPs</b> will help with awareness generation and mobilizing farmers.

### Budget and Financial Support

Financial Details	Amount
<b>Total Budget for NMNF</b>	<b>Rs. 2,481 crore</b>
<b>Central Government Contribution</b>	<b>Rs. 1,584 crore</b>
<b>State Government Contribution</b>	<b>Rs. 897 crore</b>
<b>Time Period</b>	The scheme will run till the <b>15th Finance Commission</b> (2025-26).

### Difference from Earlier Initiatives

Aspect	Earlier Initiatives	NMNF Features
<b>Budget</b>	The <b>BPKP</b> and <b>Namami Gange</b> scheme had a smaller budget.	<b>Higher budget</b> outlay: Rs. 2,481 crore for NMNF.
<b>Target Audience</b>	Earlier schemes targeted specific areas (e.g., Ganga belt) or limited regions.	NMNF aims for <b>nationwide coverage</b> with the goal of reaching <b>1 crore farmers</b> across multiple states.
<b>Farmer Engagement</b>	Engagement was limited to a few areas.	<b>1 crore farmers</b> will be enrolled, and <b>15,000 clusters</b> will be targeted.
<b>Certification and Branding</b>	No unified certification system for natural farming.	NMNF aims to establish <b>scientifically supported standards</b> and a <b>national brand</b> for naturally grown produce.

### Mission Goals and Environmental Impact

Goal	Details
<b>Reducing Fertilizer Usage</b>	The mission aims to reduce the dependence on <b>chemical fertilizers</b> by promoting natural farming practices in districts with high fertilizer consumption.
<b>Soil and Water Health</b>	Natural farming will help rejuvenate <b>soil health</b> , improve <b>soil fertility</b> , and enhance <b>water-use efficiency</b> . It will also build resilience to <b>climate risks</b> like floods, droughts, and waterlogging.
<b>Health and Nutrition</b>	Natural farming practices reduce the exposure of farmers and their families to harmful chemicals and pesticides, providing <b>healthier food</b> for consumption.
<b>Biodiversity</b>	Increased <b>soil microorganisms</b> and enhanced <b>biodiversity</b> in the farming ecosystem through natural practices.

**Targeted Areas**

1. The Ministry of Agriculture has identified **228 districts** across **16 states** where fertilizer consumption exceeds the national average of **138 kg per hectare** (as of 2022-23).
2. These districts will be the primary focus of the NMNF.
3. The states include **Andhra Pradesh, Bihar, Chhattisgarh, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Telangana, Uttar Pradesh, Uttarakhand, and West Bengal.**

<b>Health Benefits</b>	Natural farming practices reduce health risks from exposure to harmful chemicals used in conventional farming, ensuring <b>safer food</b> for consumers.
<b>Future Sustainability</b>	Helps ensure a <b>sustainable future</b> for farming by improving <b>soil quality</b> , increasing <b>water use efficiency</b> , and fostering biodiversity.

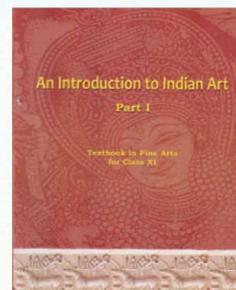
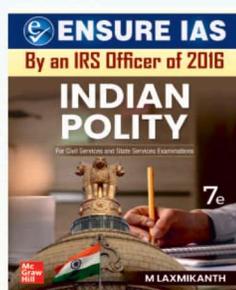
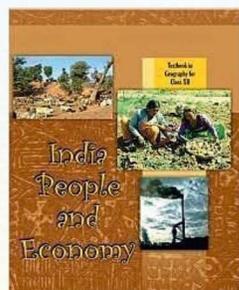
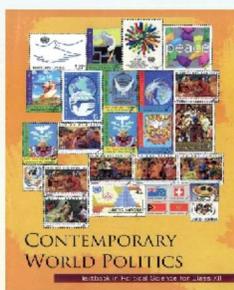
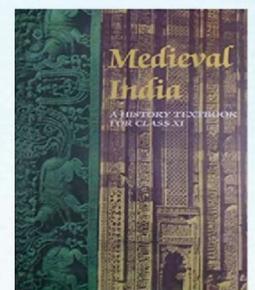
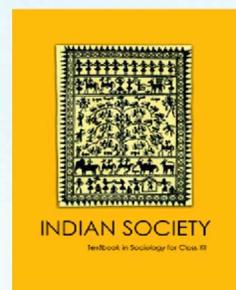
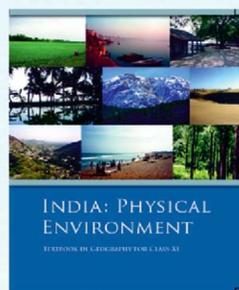
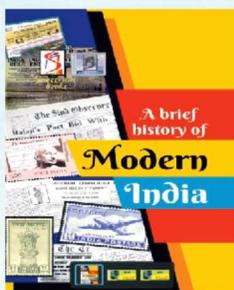
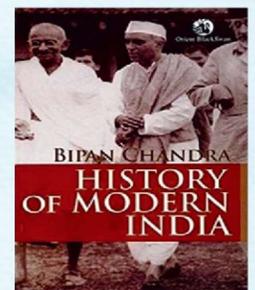
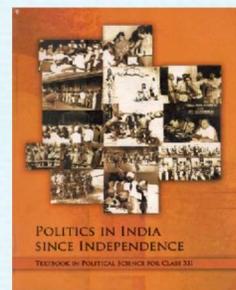
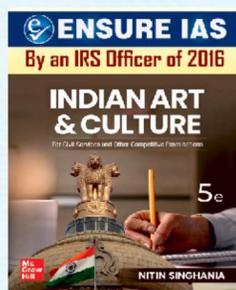
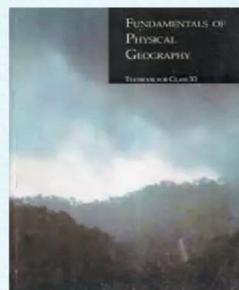
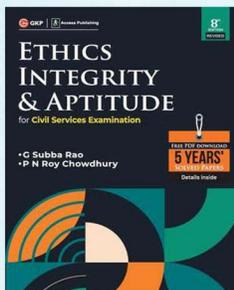
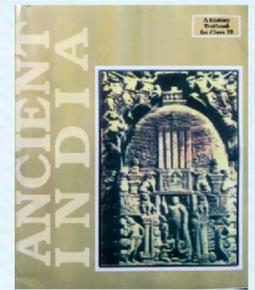
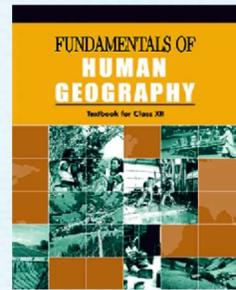
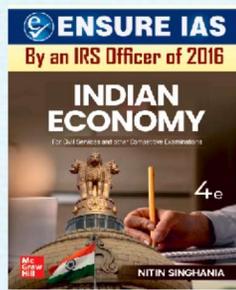
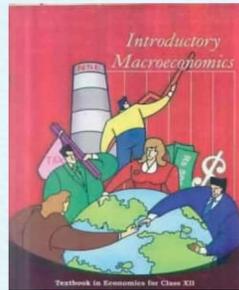
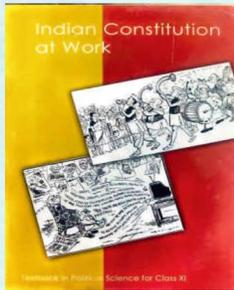
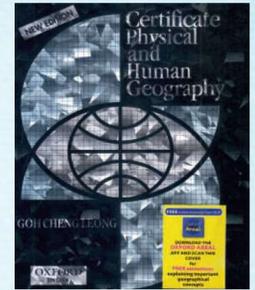
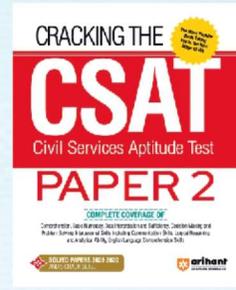
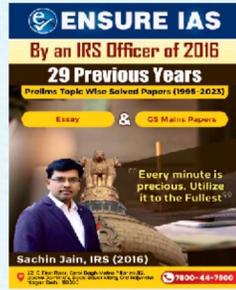
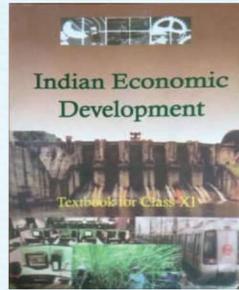
**Why is the Mission Important?**

Key Benefit	Details
<b>Cost Reduction for Farmers</b>	Natural farming reduces the <b>input costs</b> for farmers by reducing dependency on purchased fertilizers and pesticides.
<b>Environmental Conservation</b>	Encourages <b>environmental conservation</b> by promoting sustainable farming practices that are in harmony with nature.

**Conclusion**

The **National Mission on Natural Farming (NMNF)** represents a significant push toward sustainable and chemical-free farming in India. By targeting over **1 crore farmers** and covering **7.5 lakh hectares** of land, the mission aims to shift Indian agriculture towards more eco-friendly and health-conscious practices. With a substantial budget, a comprehensive training program, and support infrastructure like bio-input resource centers, the NMNF seeks to make natural farming a mainstream practice across the country.

# New List of Books to be provided to our classroom students since December 2023



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