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Current Affairs (CONSOLIDATION)

SEPTEMBER 2024 (PART – II)

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Polity and Governance

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Asset Declaration of Judges

Why in News?

Recently, a **Right to Information** reply showed that **details of assets of only 13%** of the total High Court judges are available in the public domain.

➤ Details of assets include **movable and immovable assets** of the judges, their spouses, and dependents, investments in shares, mutual funds, fixed deposits, and liabilities like bank loans.

What are the Key Facts Regarding Asset Declaration by Judges?

➤ **Low Rate of Declarations**: Of the **749 judges** posted across **25 High Courts** in India, only **98 judges** (approximately **13%**) have made their assets available in the public domain. This is a **strikingly low figure**, despite the push for transparency.

➤ **Concentration of Asset Declarations: 80% of the declarations** come from just three High Courts of **Kerala High Court, Punjab and Haryana High Court** and **Delhi High Court.**

➤ **Supreme Court's Partial Disclosure:** The Supreme Court released the names of **27 of its 33 judges** who had declared their assets to the Chief Justice of India, but **asset details were not disclosed**.

➤ **Varied Responses:** The **Allahabad** and **Bombay High Courts** stated that the asset declarations are not covered under the **RTI Act, 2005** as "information."

○ The **Gujarat High Court** expressed that there is **no public interest** in disclosing judges' personal information.

○ The **Andhra Pradesh High Court** and **Telangana High Court** labelled asset declarations as **confidential**, and said they cannot be posted online.

What are the Provisions for Declaration of Assets by Judges?

➤ **All India Services (Conduct) Rules, 1968:** The government draws a **comparison** between **judges and civil servants**, as Judges' salaries are **set in relation to the salaries of civil servants**, especially those at the **Secretary level** in the Government of India.

○ **Rule 16(1) of the rules** mandates that every person who is a member of the service **must submit a return of their assets and liabilities** which should apply to judges too.

➤ **Restatement of Values of Judicial Life 1997:** In 1997, the **Supreme Court** adopted certain **judicial standards** which stated that **every judge** should make a declaration of all assets in the form of **real estate or investment** held in their names, in the name of their spouses or any other person dependent on them, to the **Chief Justice.**

➤ **2009 Resolution:** In 2009, the Supreme Court resolved to declare the **judges' assets** on its official website adding that it was **"purely on a voluntary basis".**

○ In the same year, a resolution was passed by the **Delhi High Court** stating that all the judges have agreed to make their **assets public.**

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- ➢ **Constitutional Authorities:** Other constitutional authorities, such as the <u>**Comptroller and Auditor General (CAG)**</u> and <u>**Council of Ministers**</u>, are already declaring their assets and making them publicly available.
  - ○ This sets a precedent for **judges** to also disclose their assets **regularly and publicly.**
- ➢ **Committee Recommendations:** The <u>**Parliamentary Committee on Personnel, Public Grievances, and Law and Justice**</u> recommended legislation for the **mandatory disclosure** of assets and liabilities of judges of the Supreme Court and High Courts.
- ➢ **Judicial Standards and Accountability Bill**: A bill titled **"The Judicial Standards and Accountability Bill, 2010"** was prepared to address the need for judicial transparency, including **mandatory asset declarations by judges.**
  - ○ The bill, however, lapsed following the dissolution of the <u>**15th Lok Sabha**</u>, and was never reintroduced.

What is the Need for the Declaration of Assets by Judges?

- ➢ **Public Trust and Accountability**: Judges regularly review **legislation, government policies**, and decisions related to awarding tenders, which makes it essential for them to ensure <u>**transparency**</u> regarding their assets.
  - ○ If a **minister** responsible for a tender must disclose their assets, the **judge reviewing** the minister's decisions **should do the same**.
- ➢ **Strengthening Public Confidence:** The **declaration of assets** by judges will help to bolster **public trust** in the judicial system as it demonstrates their commitment to fairness and impartiality.
- ➢ **Transparency:** SC has ruled that the <u>**Office of the Chief Justice of India (CJI)**</u> is a **'public authority'** under the **Right to Information (RTI) Act, 2005** and subject to the provisions of **RTI Act, 2005**. Asset declaration is a progressive move towards **greater transparency** in the judiciary.
- ➢ **Importance of Perception**: In public life, **how people perceive** actions and decisions can significantly **influence opinions and trust**. The judiciary must be perceived to be **transparent** and beyond reproach.
  - ○ The article emphasises that **maintaining secrecy** around judges' assets may **undermine** the **public's trust** in the judiciary.

What Practices do Developed Countries Follow Regarding Judges' Asset Declarations?

- ➢ **United States:** Under the **Ethics in Government Act, 1978** federal judges must disclose the **source and amount of income**.
  - ○ Judges must also disclose the **source, description, and value of gifts** for which the aggregate value is more than a certain minimal amount.
- ➢ **South Korea:** Under the **Public Services Ethics Act, 1993** all high-ranking public officials including **judges and their spouses** must disclose their ownership of r**eal property, intangible property, and shares in non-public business entities**.
- ➢ **Philippines:** Anti-Graft and Corrupt Practices Act, **1960** requires public officials to disclose their assets in the **form of a declaration.**
- ➢ **Russia:** Anti-corruption laws require mandatory **asset and income control of judges** and members of their families and **judge-position applicants.**

What Concerns are Related to Declaration of Assets by Judges?

- ➢ **Privacy and Security**: Public disclosure may expose judges and their families to **risks like harassment or extortion**, raising concerns about their safety and privacy.
- ➢ **Misuse of Information**: Asset details could be misused for **political or personal motives,** leading to unwarranted scrutiny or pressure on judges.
- ➢ **Judicial Independence**: Some argue that mandatory asset declarations may **undermine judicial independence** by subjecting judges to external influences or public criticism.
- ➢ **Voluntary Nature**: Since asset disclosure is voluntary in India, i**nconsistencies in the practice** could lead to a perception of unequal transparency.
- ➢ **Perceived Public Pressure**: Judges might feel **compelled to conform to public opinion** on financial matters, potentially affecting their impartiality in cases involving financial or economic issues.

Reforming Bail Provisions

Why in News?

Recently, the <u>**Supreme Court (SC)**</u> disapproved of using the <u>**Prevention of Money Laundering Act (PMLA),**</u>

2002 "as a tool" to prolong the **incarceration** of an accused.

➢ It ruled that **constitutional courts** will not allow **indefinite pretrial detention** under the anti-money laundering law.

What are the Key Points of SC's Ruling on PMLA and Bail?

➢ **No Arbitrary Detention:** Although there is a *prima facie* **case** against an accused, the court can rule in favour of his release due to the **prolonged detention** without a clear timeline for the trial.
  ○ Stringent provisions of the **PMLA, 2002,** especially **Section 45**, should not result in **arbitrary detention** of the accused.
  ○ According to **Section 45 of the PMLA**, **2002** bail can be granted to an accused in a money laundering case only if two conditions are satisfied.
    ● The person has to prove in court that he or she is **prima facie innocent** of the offence.
    ● The accused should be able to **convince** the judge s/he would **not commit any offence** while on bail.

➢ **Bail Principles Affirmed:** The court reaffirmed the principle that "**bail is the rule, and jail is the exception**" in India's criminal jurisprudence.
  ○ It was noted that the high threshold for bail under PMLA must not lead to an **indefinite loss of personal liberty** for the accused.

➢ **Judicial Concerns on Delayed Trials:** The ruling highlighted the intersection of **delayed trials** and **harsh bail provisions** under special laws like **PMLA, 2002, or UAPA, 1967** and **Narcotic Drugs and Psychotropic Substances Act, 1985 (NDPS).**
  ○ The **expeditious disposal of trials** is necessary and should be integrated into the interpretation of these laws.

➢ **Judicial Authority to Grant Bail:** The SC reiterated that stringent **bail provisions** do not stop constitutional courts from intervening in cases where trials are **excessively delayed.**
  ○ The Supreme Court referenced its **2021 judgement in the *KA Najeeb case*** that recognised inordinate delays in trials as a **ground of bail in UAPA cases**.

➢ **Impact on Fundamental Rights:** Excessive delays in trials could infringe on the **fundamental rights** of individuals under **Article 21** of the Constitution, which guarantees the **right to life and personal liberty**.
  ○ **Prolonged incarceration** without trial can result in unjust deprivation of liberty, highlighting cases where individuals were acquitted after years of detention.

➢ **Potential Claims for Compensation:** The SC suggested that individuals who suffer wrongful imprisonment may have grounds for **compensation** due to violations of their rights under Article 21.

What are the Concerns Regarding India's Bail System?

➢ **High Proportion of Undertrials:** Over **75%** of India's prison population comprises **undertrials** and **overcrowding** in prisons is reported at **118%**.
  ○ This situation reflects systemic inefficiencies in the bail system that need urgent reform.
  ○ The Supreme Court of India, in ***Satender Kumar Antil vs CBI, 2022*** acknowledged the **failings of the country's bail system** in recognizing the issue of **undertrial and granting bail.**

➢ **Undermines Principle of 'Presumption of Innocence'**: Crowding of jails with undertrial prisoners undermines the **principle of 'presumption of innocence'**.
  ○ Presumption of innocence is a legal principle that states that a person shall have the **right to be presumed innocent** until proven guilty according to law.

➢ **Lack of Empirical Evidence:** Information regarding the **demographics of undertrials, category of offences and timelines for bail,** proportion of undertrials applying for bail, the acceptance or rejection rates of bail applications, and the challenges in bail compliance remain is not widely available.

➢ **Lack of Safeguards:** The arrest of a person is justified as **'necessary'** if the police have **'reasons to believe'** that arrest is required to ensure their presence in court.
  ○ Many arrested individuals, particularly from **disadvantaged sections** of society, remain unprotected.

➢ **Challenges in Bail Adjudication:** The power to grant bail is largely based on the c**ourt's discretion** and depends on the **facts of each case.**
  ○ Bail is denied based on the **gravity of the offence, character of the accused and likelihood** of the accused absconding or tampering with evidence.

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- ➤ **Challenges in Bail Compliance:** A large number of undertrials continue to remain in prison despite being granted bail due to challenges in **complying** with bail conditions.
  - ○ Bail conditions in the nature of **cash bonds, surety bond, proof of property ownership and solvency,** make it harder for poors to secure their release.
- ➤ **Flawed Assumptions:** The bail system has flawed assumptions that every arrested person will be **propertied** or have access to **propertied social connections.**
  - ○ It presumes that the **risk of financial loss** is necessary to ensure the presence of the accused in court.

What are Supreme Court judgments Regarding Bail System?

- ➤ *Babu Singh v. State of Uttar Pradesh Case, 1978*: Bail should **generally be granted** unless there are substantial grounds for believing that the accused will abscond or tamper with evidence.
- ➤ *State of Rajasthan v. Balchand Case, 1978*: SC held that **Bail is the rule and Jail is an Exception.**
  - ○ Detention of a person affects his right to life and liberty and the main objective of detention is to ensure easy availability of an accused for trial without any inconvenience.
- ➤ *Parvez NoordinLokhandwalla v. State of Maharashtra Case, 2020*: It was noted that bail conditions should **not be excessive** compared to their intended purpose.
- ➤ *Satender Kumar Antil v CBI Case, 2022*: Courts must ensure that **strict bail conditions** do not disproportionately affect the accused.

SC Warns Against Routine CBI Probe

Why in News?

Recently, the **Supreme Court** has criticised the Calcutta **High Court (HC)** for not providing sufficient reasoning for transferring the investigation from the state police to the **Central Bureau of Investigation (CBI)** underlining that such decisions **should not be routine** but reserved for specific, compelling reasons.

What are the Regulations Regarding Use of CBI in the State?

- ➤ **Background:** Recently, Calcutta HC ordered a **CBI** investigation into alleged irregularities in recruitment within the **Gorkhaland Territorial Administration (GTA)** area which was challenged by the West Bengal government.
- ➤ **Supreme Court Orders:** SC sets aside the Calcutta HC's order for a CBI investigation into the case based on a few reasons.
  - ○ **Exceptional Circumstances:** CBI investigations should **only be ordered in exceptional circumstances** where there is **clear evidence** indicating that the state police cannot conduct a fair investigation.
  - ○ **Judicial Restraint:** The court underscored the importance of judicial restraint, stating that **high courts must provide explicit reasons** for transferring investigations to the CBI.
- ➤ **Related Judgments Regarding Use of CBI:**
  - ○ *CBI vs Rajesh Gandhi Case, 1997*: Supreme court stated that cases should only be entrusted to the CBI when **local police investigations are deemed unsatisfactory**.
    - ● Also, the **accused cannot decide for the** agency to investigate the matter.
  - ○ *Vineet Narain vs. Union of India Case, 1997:* SC ruled on **corruption** and the **CBI's accountability**. It is also called the Jain Hawala scandal case.
    - ● SC **invalidated the 1969 "Single Directive" issued by the Union Government,** which outlined procedures for the CBI to initiate and register cases.
    - ● The Court's ruling **strengthened the independence of investigative agencies by** ensuring they operate without political interference and established guidelines for accountability and transparency in handling high-profile corruption cases.
  - ○ *CBI v. Dr. R.R. Kishore Case, 2023:* SC declared that **Section 6A of the DSPE Act is unconstitutional and void** from the date it was added in 2003.
    - ● This ruling addresses the **retrospective implications of declaring a law unconstitutional.**
  - ○ *CPIO CBI vs. Sanjiv Chaturvedi Case, 2024*: Delhi HC ruled that the **CBI** is not fully exempt from the Section 24 of **Right to Information (RTI) Act**.

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- The court stated that the **CBI must disclose information regarding corruption and human rights violations,** except for "sensitive investigations."

How does the Central Bureau of Investigation (CBI) Functions in India?

➢ **About:**
  ○ The CBI was established through a resolution from the **Ministry of Home Affairs** and was subsequently transferred to the **Ministry of Personnel, Public Grievances, and Pensions**, where it currently operates as an attached office.
  ○ Its establishment was recommended by the **Santhanam Committee on Prevention of Corruption**.
  ○ It derives its power under the **Delhi Special Police Establishment (DSPE) Act, 1946**.
    ● It is **neither a constitutional nor a statutory body**.
  ○ It investigates cases related to **bribery, governmental corruption, breaches of central laws, multi-state organised crime, and multi-agency or international cases.**
  ○ The Director of the CBI is appointed by the Central Government on recommendations from a three-member committee consisting of the **Prime Minister (Chairperson)**, the **Leader of the Opposition** in the Lok Sabha and the **Chief Justice of India (CJI)** or a Supreme Court Judge nominated by the CJI.

➢ **Functioning of CBI:**
  ○ **Provision of Prior Permission:** The **CBI needs prior approval from the Central Government** before investigating offences by officials at the joint secretary level and above.
    ● However, a **2014 Supreme Court** ruling declared this r**equirement invalid,** stating that **Section 6A of the DSPE Act**, which protected these officials from preliminary inquiries in corruption cases, violated **Article 14.**
  ○ **Consent Principle:** The CBI operates under **general and specific type of consent** for conducting investigations.
    ● When a state grants **general consent** under **Section 6 of the Act**, the **CBI does not need to seek fresh approval each time** it enters the state for an investigation.

- However, **if the general consent is revoked**, the **CBI must obtain specific consent** from the concerned state government for each investigation.
- Without specific consent, CBI officials **lack the powers of police personnel** while operating in that state.

India Water Week 2024

Why in News?

Recently, **the President of India** inaugurated the **8ᵗʰ India Water Week (IWW) 2024** in New Delhi, under the aegis of **the Ministry of Jal Shakti**.

➢ This prestigious international forum has gained **significance as a key platform for discussions and collaboration on water resource management**.

What is India Water Week 2024?

➢ **Aim:**
  ○ It aimed to **address critical challenges pertaining to water management** and fostering innovation in water-related technologies and practices.
    ● Since its inception in 2012, IWW has evolved into a crucial platform in **global water diplomacy, facilitating dialogue, innovation, and knowledge exchange on critical water-related challenges.**
➢ **Theme:**
  ○ The theme of IWW 2024, **'Partnerships and Cooperation for Inclusive Water Development and Management'** highlighted the pivotal role of collaborative efforts across sectors and nations in tackling the escalating water challenges of the 21st century.
  ○ It emphasized the need for integrated and holistic approaches to **water conservation, efficient management, and the equitable distribution of water resources.**
  ○ The theme also underscored the critical importance of **international cooperation and multi-stakeholder partnerships** in ensuring sustainable water development and addressing global water security concerns.
➢ **Participants:**
  ○ Nations like **Denmark, Israel, Australia, and Singapore** presented their water-related innovations and experiences.

- **China and Bangladesh did not participate** in the International Water Week events in India.
- ○ Representatives of the <u>World Water Council</u>, <u>World Bank</u> and <u>Asian Development Bank</u> were also present.

India Water Week IWW

Past Themes

2012: Water, Energy, and Food Security: Call for Solutions

2013: Efficient Water Management: Challenges and Opportunities

2015: Water Management for Sustainable Development

2016: Water for All: Striving Together

2017: Water and Energy for Inclusive Growth

2019: Water Cooperation—Coping with 21st Century Challenges

2022: Water Security for Sustainable Development with Equity

- ➢ **International WASH Conference:**
  - ○ **About:**
    - A key highlight of IWW 2024 was the **International Water, Sanitation, and Hygiene (WASH) Conference**, organised by the **Department of Drinking Water and Sanitation (DDWS)** under the Ministry of Jal Shakti.
  - ○ **Aim:**
    - The conference focused on fostering **global cooperation in WASH** to address critical sanitation challenges and promote hygiene standards.
  - ○ **Theme:**
    - It was centered around the theme, **'Sustaining Rural Water Supply'** providing a platform for knowledge exchange, showcasing innovations, and sharing best practices to tackle global WASH issues, with a particular emphasis on achieving <u>Sustainable Development Goal (SDG) 6</u>.
  - ○ **Outcome:**
    - The Conference culminated in significant outcomes, highlighting **India's leadership in rural water management** through initiatives like the **JJM and <u>Swachh Bharat Mission</u>.**

- It emphasized the critical importance of global partnerships, community-driven solutions, and technology-based innovations to address future water and sanitation challenges.
- ➢ **Highlighted Initiatives:**
  - ○ <u>Catch the Rain campaign</u> **(2021)**, advocated for a nationwide, people-centric movement to confront the ongoing water crisis effectively.
  - ○ **National Safe Water Dialogue** focused on the impact of <u>Jal Jeevan Mission (JJM)</u>, discussing topics like water disinfection, community engagement, and impact assessment of JJM.

What is the Current State of Water in India?

- ➢ **Water Scarcity:** As of 2024, India has **18% of the world's population but only 4% of its freshwater resources**, making it one of the most water-stressed countries globally.
- ➢ **Groundwater Depletion:** Groundwater is crucial for 80% of drinking water and two-thirds of irrigation needs.
  - ○ However, **over-extraction has led to severe depletion,** particularly in agricultural states like Punjab, where the water table is falling drastically.
- ➢ **Water Pollution:** Around **70% of India's water is contaminated,** with nearly half of the country's rivers unsafe for drinking or irrigation.
  - ○ This makes **India rank 120th out of 122 countries on a <u>Global Water Quality Index 2024</u>.**
- ➢ **Rural Water Access:** About **163 million Indians lack access to safe drinking water,** and 600 million face high-to-extreme water stress. Many rural areas still rely on unsafe sources.
- ➢ **Climate Vulnerability:** Climate change has exacerbated droughts and floods in India, further impacting water availability. **It is projected that by 2030**, India's water supply may only meet half of its demand.

What are the Factors Related to the Water Crisis in India?

- ➢ **Rapid Population Growth and Urbanisation:** The rising population and accelerating urbanisation have led to increased demand for water, placing immense pressure on existing water resources and infrastructure.
- ➢ **Depleting Groundwater Reserves:** Over-extraction of groundwater, particularly for agricultural use, has

resulted in **alarming rates of groundwater depletion**, especially in states like Punjab, Haryana, and Rajasthan.

➢ **Inefficient Agricultural Practices:** Agriculture, which consumes around 80% of India's freshwater, is heavily dependent on **water-intensive crops and inefficient irrigation techniques**, leading to unsustainable water use.

➢ **Pollution of Water Bodies:** Industrial waste, untreated sewage, and agricultural runoff have severely **polluted rivers, lakes, and groundwater**, further reducing the availability of safe and potable water.

➢ **Climate Change:** Erratic rainfall patterns, increasing frequency of **droughts**, and changing monsoon cycles due to **climate change have disrupted water availability**, exacerbating the crisis in drought-prone and semi-arid regions.

➢ **Unequal Distribution and Access:** Regional imbalances in water availability, with some areas facing acute shortages while others have an abundance of resources, have resulted in unequal access, particularly in rural and marginalised communities.

➢ **Aging Infrastructure and Poor Water Management:** The lack of modern water management systems, combined with aging and **inadequate infrastructure for water storage, distribution, and treatment**, has led to inefficiencies and wastage.

➢ **Over-reliance on Monsoons:** India's heavy reliance on monsoon rainfall for water replenishment makes the country vulnerable to monsoon variability, which impacts both agricultural production and water availability.

➢ **Weak Governance and Policy Implementation:** Inconsistent and fragmented water policies, coupled with **poor governance and weak enforcement of regulations**, have hindered effective water management and conservation efforts.

What are the Government Initiatives Related to Water Management in India?

➢ **National Water Policy, 2012**
➢ **Pradhan Mantri Krishi Sinchayee Yojana**
➢ **Jal Shakti Abhiyan- Catch the Rain Campaign**
➢ **Atal Bhujal Yojana**
➢ **Jal Jeevan Mission (JJM)**
➢ **National Mission for Clean Ganga (NMCG)**

Ensuring Safety of School Children

Why in News?

Recently, the **Supreme Court** directed the implementation of the Centre's 2021 **Guidelines on School Safety and Security** in schools, following the sexual assault of two schoolgirls in Badlapur, Maharashtra.

➢ It also asked the **National Commission for Protection of Child Rights (NCPCR)** to monitor the implementation of the guideline.

What are Guidelines on School Safety and Security 2021?

➢ **About:** The **Ministry of Education (MoE)** has framed the guidelines to ensure **school management** is held **accountable** for the safety of children in schools.

○ It addresses critical issues including **security measures, staff responsibilities, and procedures** to prevent incidents of harm or abuse.

○ It is applicable to **all schools, including private schools**.

➢ **Purpose of the Guidelines:**

○ **Co-creation of a Safe School Environment**: Foster a **collaborative approach** among all stakeholders i.e., **students, parents, teachers, and school management** to create a safe and secure school environment.

○ **Awareness of Existing Acts, Policies, and Guidelines**: Making all stakeholders aware of the various **laws, policies, procedures, and guidelines** related to different aspects of child safety. E.g., **Juvenile Justice Model Rules, 2016**, **Right to Education (RTE) Act, 2009** etc.

○ **Zero Tolerance Policy:** Enforce a **"Zero Tolerance Policy"** against any form of **negligence or misconduct** and the perpetrator must face strict consequences.

➢ **Three-pronged approach:**

○ **Accountability for Child Safety**: In **government and government-aided schools**, the **head of the school, teachers, and education administration** are held accountable for child safety.

● In **private and unaided schools**, the responsibility lies with the school **management, principal, and teachers**.

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○ **Whole School Approach**: The guidelines adopt a "**whole school approach**" by incorporating safety and security aspects into education itself.

● This includes focusing on **health, physical, socio-emotional, psycho-social, and cognitive aspects** of child safety, ensuring a holistic view of student well-being.

○ **Multi-Sectoral Concerns**: It integrates inputs and recommendations from **various ministries and departments** beyond the education sector. E.g., **health and hygiene protocols** by the Ministry of Health and Family Welfare.

➢ **Key Features:**

○ **Teacher and Stakeholder Capacity Building**: It stresses the urgency of **sensitising, orienting, and building the capacity** of teachers, school heads, parents, and students to better manage safety protocols.

● E.g., the **NISHTHA program** for elementary school teachers includes a special module on the educational response to **Covid-19.**

○ **Cybersecurity and Online Education**: It emphasises the importance of **cybersecurity and online safety** for children and teachers to adopt strong digital safety measures.

○ **Compliance with Disaster Management and Safety Policies:** It aligns with the **National Disaster Management Guidelines on School Safety Policy, 2016** regarding **physical infrastructure and disaster preparedness**.

● It also complies with the **National Commission for Protection of Child Rights (NCPCR) guidelines** for residential schools.

○ **Aligned with National Education Policy (NEP), 2020:** The **NEP, 2020** mandates the formation of a **State School Standards Authority (SSSA)** to ensure all schools maintain certain professional and quality standards.

● The policy lays down the safety of students, particularly **girl children**, in residential hostels as a priority.

○ **Complies with International Conventions:** The **Convention on the Rights of the Child** obligates nations to ensure that children are protected from **all forms of violence.**

○ **Fulfilment of SDGs: SDG 4** ensures **inclusive and quality education** for all and the promotion of a culture of peace and non-violence'.

● **SDG 16** addresses **violence against children** and promotes **peaceful and inclusive societies** by reducing violence and ending exploitation, trafficking, and abuse of children.

WHOLE SCHOOL APPROACH — EXAMPLE - FOR SAFETY AND PSYCHOSOCIAL WELLBEING
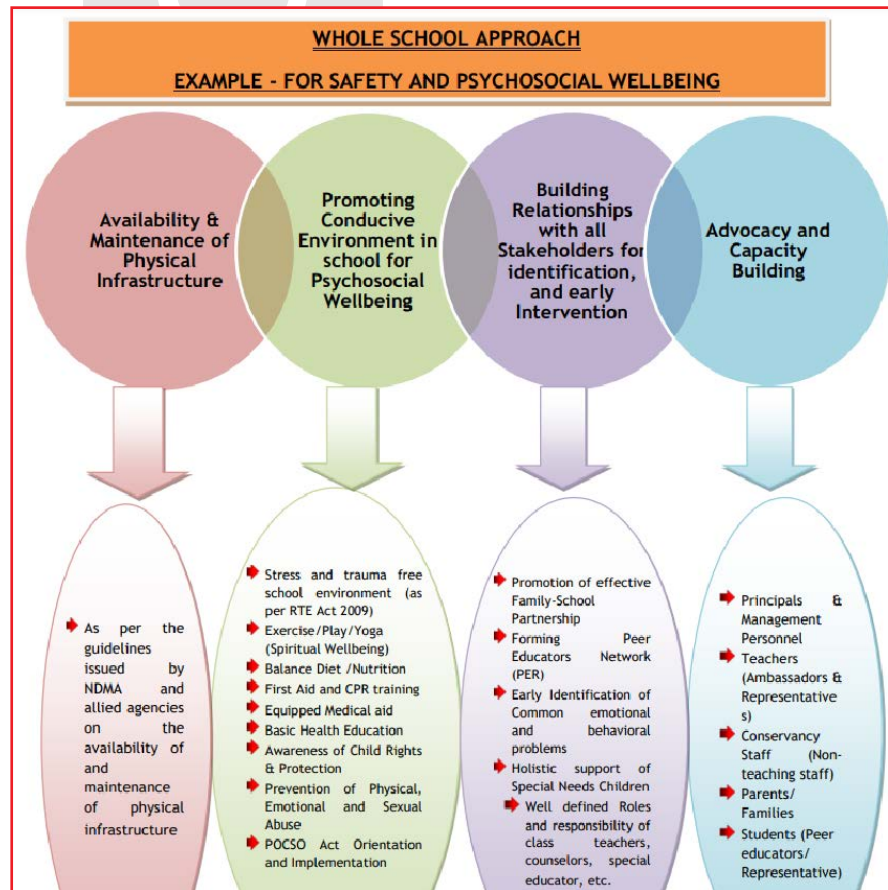
Best Practices:

➢ Nagaland has introduced a **9-month Diploma course in School Counselling** and has been designed and introduced from 2018 with the primary objective **to train teachers** in theory and practice of **School Counselling**.

➢ It **equips** educators and professionals with the necessary **skills and knowledge** to provide effective **counselling support** to students to enhance the **emotional and psychological well-being** of students.

NGOs Working for Children Welfare

➢ **Bachpan Bachao Andolan (BBA):** It is India's **largest anti-trafficking and anti-slavery grassroots movement**. It was founded by **Nobel Peace Laureate Kailash Satyarthi in 1980** with a vision to protect and prevent children from all forms of exploitation.

➢ **CRY (Child Rights and you):** They provide access to **free and quality education,** primary healthcare and **prevent violence, abuse, and exploitation** of children.

➢ **Pratham:** Pratham is an **innovative learning organisation** created to improve the quality of education in India.

➢ **Nanhi Kali:** It provides 360-degree support to **underprivileged girls from Class 1-10**, with the objective of enabling them to complete their schooling with dignity.

What is the Role of NCPCR in Ensuring Child Safety?

➢ **Monitoring Responsibility: NCPCR** and **SCPCRs (State Commissions for Protection of Child Rights)** are responsible for **monitoring the implementation** of the legal aspects of the guidelines related to **school safety and security.**

➢ **E-Baal Nidan:** NCPCR has a dedicated **Online Complaint System, "E-Baal Nidan"**, to ensure **timely redressal** of complaints of various violations and deprivation of child rights.

➢ **POCSO e-Box:** NCPCR has launched the **POCSO e-Box** for **easy and direct reporting** of sexual offences against children as well as timely action against the offenders under the **POCSO Act, 2012.**

➢ **Right to Education (RTE) Act, 2009:** Section 31 and Section 32 of **Right to Education (RTE) Act, 2009** assigns the NCPCR and SCPCRs the task of overseeing the **implementation of the RTE Act, 2009** including ensuring children's right to free and compulsory education.

➢ **Commissions for Protection of Child Rights (CPCR) Act, 2005:** Section 13(1) of **CPCR Act, 2005** entrusts the NCPCR and SCPCR to **inquire into complaints of child rights violations,** monitor the implementation of child protection laws etc.

○ NCPCR and SCPCR can take **suo-moto notice** of matter relating to **deprivation and violation** of child rights.

➢ **Juvenile Justice Act, 2015: Section 109** of the **Juvenile Justice Act, 2015** tasks the commissions with **monitoring the implementation** of the Juvenile Justice Act, 2015 for children safety.

Provisions of the Constitution for the Protection and Safety of Children	
Provision	**Rights**
Article 14	Fundamental right to equality and equal protection of the law
Article 15 (3)	Fundamental right to special provisions
Article 21	Fundamental right to life and personal liberty
Article 21 A	Right to free and compulsory elementary education for all children aged 6-14
Articles 23 and 24	Fundamental right against exploitation
Article 39 (e)	Right to health and freedom from abuse due to economic necessity
Article 39 (f)	Right to development with dignity and guaranteed protection of childhood and youth against exploitation and moral and material abandonment
Article 46	Right of weaker sections to special educational care and protection from social injustice and all forms of exploitation
Article 47	Right to nutrition, standard of living, and improved public health
Article 51A (k)	Duty of parents or guardians to provide opportunities for education

Note:

Need for a Dedicated Witness Protection Law

Why in News?

Recently, the **Supreme Court** expressed concern over the **lack of effective implementation** of the **Witness Protection Scheme, 2018,** highlighting the need for a **dedicated witness protection law.**

➢ The court made its observations while ordering a **CBI** enquiry in a case, in which the petitioner had **denied filing an appeal** and claimed that he had never hired any of the lawyers present in the court.

What are the Key Facts About the Witness Protection Scheme 2018?

➢ **About the Scheme:** It is a legal framework developed by the **Ministry of Home Affairs** to protect witnesses involved in criminal cases.
- ○ It was approved by the **Supreme Court** and became the **first-ever scheme** aimed at safeguarding witnesses from intimidation, threats, or harm.
- ○ Protection measures include **changing the witness's identity, relocation, installing security devices**, and using specially designed courtrooms to safeguard witnesses during trials.

➢ **Definition of a Witness:** A witness is a person who provides **evidence or deposes** before a judicial tribunal.
- ○ Witnesses are crucial for the **criminal justice system** to function smoothly, and they must provide testimony freely and fairly.
- ○ The term **"witness"** is **not specifically defined** in the **Criminal Procedure Code, 1973 (CrPC or Bharatiya Nagarik Suraksha Sanhita)**, but courts can summon anyone as a witness if their evidence is essential for deciding a case.
  - ● SC in *Ritesh Sinha vs State of UP Case* said that **being a witness,** in its ordinary grammatical sense, **means giving oral testimony in court.**

➢ **Categories of Witness:** The scheme identifies **three categories** of witnesses as per the **Threat Analysis Report (TAR)**.
- ○ **Category 'A':** Threat extends to the **life of** a witness or his family members.
- ○ **Category 'B':** Threat extends to **safety, reputation, property** of witness or his family members.

- ○ **Category 'C':** Threat is moderate and extends to **harassment or intimidation** of the witness or his family member's reputation or property.

➢ **Aims and Objectives of the Scheme:** The main objective is to ensure that witnesses are **not intimidated or frightened,** which could prejudice the investigation, prosecution, or trial of criminal offences.
- ○ It aims to promote law enforcement by helping the justice system function without **undue interference or threats** to witnesses.

➢ **Competent Authority for Witness Protection:** The **Competent Authority** is a **Standing Committee** established in each district, chaired by the **District and Sessions Judge,** with the District Police Head and the District Prosecutor as members.
- ○ This committee is responsible for **overseeing witness protection** measures in its jurisdiction.

➢ **State Witness Protection Fund:** A **State Witness Protection Fund** has been established to cover expenses incurred in implementing protection orders.
- ○ Funding sources include budgetary allocations, court fines, donations, and contributions from organisations under **Corporate Social Responsibility (CSR)** initiatives.

➢ **Types of Protection Measures:** Protection measures depend on the **threat level and are reviewed regularly**.
- ○ **Preventing face-to-face contact** between the witness and accused during the investigation or trial.
- ○ **Changing the witness's phone number** or installing **security devices** at their residence.
- ○ Concealing the witness's identity, providing escorts, **in-camera trials**, and holding trials in specially designed courtrooms.
- ○ Other specific protection measures can be requested by the witness or deemed necessary by the **Competent Authority.**

➢ **Review and Recovery of Expenses:** If a witness has lodged a **false complaint**, the State government may **recover the expenses** incurred for their protection.

➢ **Endorsement by the Supreme Court:** The Supreme Court, in *Mahender Chawla & Ors. v. Union of India & Ors. Case, 2018*, endorsed the Witness Protection Scheme and directed that it be **implemented by all States and Union Territories.**
- ○ The court ruled that the scheme should be considered **"law" under Articles 141 and 142 of the Constitution** until formal legislation is enacted.

Note:

- **Article 141** states that the law declared by the Supreme Court shall be **binding on all courts** within the territory of India.
- **Article 142** gives the Supreme Court the **power to pass orders or decrees** to ensure **complete justice** in any case or matter before it.

Why is the Witness Protection Scheme Ineffective?

➢ **Narrow Definition of Protected Offences:** The scheme **limits** protection to witnesses of crimes punishable by **death or life imprisonment** and specific crimes against women.
  ○ It excludes many other crimes that may pose significant risks to witnesses, thereby undermining the scheme's intent.

➢ **Issues with Witness Categorisation: Categorisation** of Witness into Category A (direct threat), Category B (threat to safety), and Category C (moderate threat) **lacks objective criteria** and relies on the subjective judgement of law enforcement officials, which may **not accurately reflect the true level of threat.**

➢ **Threat Assessment Report Concerns:** There is a **disconnect** between the threat perceptions of trained police officers and the **lived realities of ordinary citizens**, which can lead to underestimating the threats faced by witnesses.

➢ **Confidentiality of Witness Information:** The scheme fails to provide an enforcement mechanism to protect against **breaches of confidentiality.** The **porous nature** of the Indian legal system increases the risks of leaks, placing witnesses in precarious situations.

➢ **Comparison with International Standards:** International frameworks, including those by the **United Nations Office on Drugs and Crime (UNODC)**, stress **comprehensive assessments** of witnesses, considering their psychological fitness and the significance of their testimony.
  ○ The Indian scheme's **focus solely on threats** overlooks the critical aspect of risk assessment.

What is the Need of a Dedicated Witness Protection Law?

➢ **Witnesses as the "Eyes and Ears of Justice":** English philosopher and jurist Jeremy Bentham famously remarked that **"witnesses are the eyes and ears of justice"**.

○ The absence of legal obligations on the part of the State to protect witnesses leads to their reluctance in cooperating with the justice system.

➢ **Supreme Court Observations:** In the *State of Gujarat vs. Anirudh Singh case of 1997*, the **Supreme Court** held that it is the statutory duty of every witness who has knowledge of a crime to assist the State by providing evidence.
  ○ In the *Zahira Habibulla H. Shiekh vs. State of Gujarat case 2004*, the SC stated that fair trials are compromised if witnesses are threatened or forced to give false evidence.

➢ **Committee Recommendations:** The **Malimath Committee (2003)** on criminal justice reform reiterated that giving evidence is a **sacred duty**, as it helps the court discover the truth.
  ○ The **4th National Police Commission Report 1980** noted that witnesses often turn hostile under pressure from the accused, highlighting the urgent need for a strong witness protection law to preserve the **integrity of the justice system.**

➢ **Law Commission Reports:** 154th, 178th, and 198th **Law Commission Reports** discussed the witness protection issue and recommended the establishment of formal witness protection programs.
  ○ The 198th Report was specifically dedicated to **Witness Identity Protection and Witness Protection Programs 2006**.

➢ **Insufficient Protection:** Section 195A of the **Indian Penal Code** (**Bharatiya Nyay Sanhita**), **Juvenile Justice Act (2015)**, **POCSO Act (2012)**, and **Whistle Blowers Protection Act, 2011** provide safeguards for witnesses but are proved insufficient over time.

➢ **Extremism and Organised Crime:** The rise of extremism, terrorism, and organised crime has increased the need for witness protection, as their cooperation is crucial for law enforcement.

Bombay HC Strikes Down IT Rules 2023

Why in News?

Recently, The **Bombay High Court** (HC) struck down the **Amended Information Technology Rules, 2023** which empowered the Centre to set up a **Fact Check Unit (FCU)** to identify fake, false and misleading information about the government on social media.

Note:

What was the High Court's Observation Regarding FCU?

➢ The **Information Technology** (Intermediary Guidelines and Digital Media Ethics Code) Amendment **Rules, 2023**, violated **Article 14** (right to equality), **19 (freedom of speech and expression)** and **19(1)(g) (freedom and right to profession)** of the Constitution.

➢ The **definition of fake or misleading news remains ambiguous,** lacking clarity and precision.

➢ In the **absence of a legally established "right to the truth,"** the State is not obligated to ensure that citizens are provided solely with information deemed accurate by the Fact Check Unit (FCU).

➢ Additionally, the **measures fail to meet the standard of proportionality.**

Key Facts About Fake News
➢ According to the **National Crime Records Bureau (NCRB)** data, a total of **1,527 cases of fake news were recorded in 2020**, a 214% increase, against 486 cases in 2019 and 280 cases in 2018. ➢ The Fact Check Unit of the **PIB** has successfully debunked **1,160 instances of false information since its establishment in November 2019.**

What is the Fact Check Unit (FCU)?

➢ **About:** The FCU is an official body to **address and counter the spread of misinformation related to the Indian government**.
   ❍ Its primary function is to identify and verify facts, ensuring the dissemination of accurate information in public discourse.

➢ **Establishment of FCU:** In April 2023, the **MeitY established** the **Fact-Check Unit (FCU)** by amending the **Information Technology Rules, 2021**.

➢ **Legal Issue:** In March 2024, the SC issued a stay on the establishment of **Fact-Check Unit (FCU)** under the Press Information Bureau.
   ❍ The government defended the FCU, as it aimed to prevent the spread of false information and is the least restrictive measure to combat misinformation.

➢ **Compliance and Consequences:** FCU will adjudicate content, and failure by intermediaries to comply with its directives could result in action under **Section 79 of the IT Act, 2000** for violating **safe harbour provisions.**

What is the Information Technology Amendment Rules 2023?

➢ **About:**
   ❍ These rules were established under the powers conferred by **the Information Technology Act, 2000.**
   ❍ The rule **replaced the Information Technology (Intermediaries Guidelines) Rules, 2011.**

➢ **Due Diligence by Intermediaries:**
   ❍ Intermediaries must prominently display **rules, regulations, privacy policies, and user agreements** on their platforms.
   ❍ Intermediaries should take steps to prevent the publishing of unlawful content, including **obscene, defamatory, or misleading information.**
   ❍ **Grievance Redressal Mechanism** must be established by intermediaries to handle user complaints.

➢ **Additional Due Diligence for Significant Intermediaries:**
   ❍ **Significant Social Media Intermediaries** must appoint a **Chief Compliance Officer** and **a Grievance Officer**.
   ❍ These intermediaries must report **monthly compliance** including complaints and actions taken.

➢ **Grievance Redressal Mechanism:**
   ❍ Intermediaries must **acknowledge complaints** within **24 hours** and resolve them within **15 days.**
   ❍ Complaints regarding content that violates privacy or contains harmful material should be addressed within **72 hours**.

➢ **Code of Ethics for Publishers:**
   ❍ Publishers of news and online content must adhere to a **Code of Ethics,** ensuring content does not affect the **sovereignty of India** or violate any existing laws.

➢ **Regulation of Online Games:**
   ❍ Online gaming intermediaries must provide detailed policies about **withdrawals, winnings, and user identity verification.**
   ❍ Real-money online games must be **verified by a self-regulatory body.**
      ● A **self-regulatory body (SRB)** is defined as an organization established to oversee and enforce compliance with ethical standards, guidelines, and best practices for digital media and intermediaries.

Note:

Note:
- **Intermediaries:** Intermediaries are entities that **facilitate the transmission or hosting of content or services** on the internet. They act as **conduits between users and the internet**, allowing the exchange of information. For Example:
  - Social media platforms (e.g., Facebook, Twitter)
  - E-commerce websites (e.g., Amazon, Flipkart)
  - Search engines (e.g., Google)
  - Internet service providers (ISPs)
  - Cloud service providers
- **Significant Intermediaries:** These are a **subset of intermediaries,** defined by their large user base and greater influence on public discourse.
  - Under **IT Rules, 2021**, intermediaries over 5 million users in India are classified as significant intermediaries. Due to their larger reach, significant intermediaries are subject to additional regulatory requirements.

What are the Major Concerns Related to the Amended IT Rules, 2023?

- **Censorship and Freedom of Expression:** The rules are perceived to potentially infringe upon the **fundamental right to freedom of speech and expression** by enabling the government to dictate the removal of content deemed fake, false, or misleading.
- **Ambiguity and Lack of Clarity:** The terms fake, **false, and misleading remain poorly defined,** leading to concerns about arbitrary interpretation and enforcement, which could stifle legitimate discourse and dissent.
- **Excessive Government Control:** The establishment of the FCU under the PIB raises **fears of excessive government oversight** in the domain of information dissemination, undermining the **role of independent media and civil society**.
- **Impact on Intermediaries:** Social media platforms and internet service providers may face **undue pressure to comply with government directives**, risking their safe harbour status if they fail to remove content as mandated, which **could lead to self-censorship.**
- **Erosion of Accountability:** The rules may **diminish accountability mechanisms for the government**, as the FCU could serve as a tool for **silencing criticism rather than providing transparent fact-checking.**

- **Chilling Effect on Content Creators:** Content creators may exercise self-censorship due to fears of **repercussions from the government,** thereby inhibiting creativity and open dialogue.
- **Lack of Judicial Oversight:** The absence of a clear and **independent judicial review** process for decisions made by the FCU may lead to **unchecked authority and abuse of power.**

PM E-DRIVE Excludes Electric Cars

Why in News?

The **PM Electric Drive Revolution in Innovative Vehicle Enhancement (PM E-DRIVE) Scheme** excludes **electric cars** from any direct subsidies.

- The government believes other measures, such as **lower GST** for electric cars are **adequate** to support the sector.

What is the PM E-DRIVE Scheme?

- **About PM E-DRIVE Scheme:** It is aimed at promoting **electric mobility** in India having a financial outlay of **Rs 10,900 crore** over two years.
  - It has been launched to replace **FAME II.**
- **Scope**: It offers fiscal incentives to around **25 lakh electric two-wheelers, 3 lakh electric three-wheelers, and 14,000 electric buses** through demand incentives.
  - **Automakers** can claim reimbursements for eligible **electric vehicle (EV)** sales, similar to the previous FAME-II scheme.
  - However, **electric cars** are notably **excluded** from the subsidy.
- **Other Provisions:** Installation of **Electric vehicle public charging stations (EVPCS)** in selected cities and on selected highways.
  - Test agencies to be modernised to deal with the **new and emerging technologies** to promote **green mobility.**

What was the FAME Scheme?
- The **FAME (Faster Adoption and Manufacturing of Hybrid and Electric Vehicles)** policy aimed to reduce vehicular emissions, decrease fuel consumption, and encourage **sustainable transportation**.   - It was introduced in **2015** under the **National Electric Mobility Mission Plan (NEMMP).**

➤ **Key Phases:**
  ○ **FAME I (2015-2019):** Focused on providing incentives for the **purchase of electric and hybrid vehicles** and supported the development of **charging infrastructure.**
    ● It aimed to promote **cleaner mobility** in public and private sectors.
  ○ **FAME II (2019-2024):** Expanded the scope, providing USD 1.19 billion to encourage the adoption of electric vehicles, particularly in **public transport (e-buses, 2-wheelers, and 3-wheelers).**
    ● It also emphasised building a robust **charging infrastructure** and targeted reducing emissions from **commercial fleets.**

What are Key Facts About Promotion of Electric Cars?

➤ **Impact of Exclusion of Electric Cars in PM E-DRIVE:** The absence of fiscal incentives following the end of FAME-II has led to a **decline in electric car sales.**
  ○ Between April and August 2024, registrations of electric cars **dropped by 9%** compared to the **preceding months** when **FAME-II** was active.

➤ **Inadequate Charging Infrastructure:** According to the **Bureau of Energy Efficiency,** India has approximately **25,000 public charging stations** for its **46 lakh registered EVs.**
  ○ The current ratio of **184 EVs per charging station** is much higher than in other countries actively promoting e-mobility.

➤ **Supporting Measures Beyond Subsidies:**
  ○ **Production Linked Incentive (PLI) Schemes**: The government is supporting the EV sector through **PLI schemes** for auto components and **advanced cell chemistry (ACC) batteries.**
    ● These incentives could help lower production costs by fostering economies of scale, especially in the EV supply chain.
  ○ **Lower GST and State-Level Exemptions**: Electric cars continue to benefit from a **lower Goods and Services Tax (GST)** rate of 5%, compared to **28% on hybrid and CNG vehicles**, and **49% on internal combustion engine vehicles.**

PM Janjatiya Unnat Gram Abhiyan

Recently, the **Union Cabinet** approved **Pradhan Mantri Janjatiya Unnat Gram Abhiyan (PMJUGA)** for improving the socio-economic condition of **tribal communities**.

What are the Key Facts About the PMJUGA?

➤ **About PMJUGA:** It is a **centrally sponsored scheme** for the welfare of tribal families in **tribal-majority villages** and **aspirational districts.**

➤ **Target Areas and Coverage:** It will cover **549 districts and 2,740 blocks** spread across all tribal majority villages across **30 States/UTs.**
  ○ It will cover around **63,000 villages** benefitting more than **5 crore tribal people.**
  ○ According to the **2011 Census**, India has a **Scheduled Tribe (ST) population** of **10.42 crore (8.6%)**, consisting of over **705 tribal communities**.

➤ **Objective:** It envisions fulfilling **critical gaps** in social infrastructure like health, education, livelihood, through **different schemes of Government of India** by convergence and outreach.

➤ **Goals of the Mission:** It comprises **25 interventions** which will be implemented by **17 ministries** through funds allocated to them under the Development **Action Plan for Scheduled Tribes (DAPST)** in the next 5 years to achieve the following goals.
  ○ **Developing Enabling Infrastructure:**
    ● **Pucca house for Eligible Households with Other Entitlements:** Eligible ST households shall have access to **pucca housing** under the **PMAY (Rural)** with availability of **tapped water (Jal Jeevan Mission)** and **electricity supply.** Eligible ST households shall also have access to **Ayushman Bharat Card (PMJAY)**.
    ● **Improving Village Infrastructure:** Ensuring all weather **road connectivity** to ST majority villages **(PMGSY)**, providing access to **mobile connectivity (Bharat Net)** and internet, infrastructure for improving **health, nutrition, and education (National Health Mission, Samagra Shiksha and Poshan Abhiyan).**
  ○ **Promotion of Economic Empowerment:** It focuses on **skill development,** entrepreneurship promotion

and enhanced livelihood (self-employment) through providing access to **training (Skill India Mission)**, marketing support from the **Tribal Multipurpose Marketing Centre (TMMC)** and assistance in agriculture, animal husbandry, and fishery sectors for **Forest Rights Act, 2006 (FRA)** patta holders.

○ **Universalisation of Access to Quality Education:** Efforts will be made to increase the **Gross Enrollment Ratio (GER)** in school and higher education and make quality education affordable and accessible to **ST students (Samagra Shiksha Abhiyan)** by setting up **tribal hostels** in schools at district/block level.

○ **Healthy lives and Dignified Ageing:** It aims to reach towards the national standards in **IMR, MMR** and coverage of **immunisation** through **Mobile Medical Units** in areas where the **sub centre** is more than **10 km in plain areas** and **5 kms in Hilly areas**.

➤ **Mapping and Monitoring:** The tribal villages covered under the mission would be mapped on **PM Gati Shakti Portal** with the **gaps identified** by the concerned ministry for its scheme specific requirements and the **best performing** districts will be awarded.

Note:

➤ The DAPST is a **strategy for tribal development** in India. The **Ministry of Tribal Affairs** and **41 other ministries** and departments **allocate funds** to tribal development projects under **DAPST**.

○ These projects include education, **health, agriculture, irrigation, roads, housing, electrification, and employment**.

What are the Innovative Schemes to Promote Livelihood amongst Tribals under PMJUGA?

➤ **Tribal Home Stay:** To boost **tourism** in tribal areas and provide **alternative livelihoods**, the Ministry of Tourism will promote **1,000 homestays** under the **Swadesh Darshan scheme.**

○ Villages with tourist potential will receive funding for **5-10 homestays**, with each household eligible for **Rs 5 lakh to build two new rooms**, **up to Rs 3 lakh for renovating existing rooms**, and **Rs 5 lakh for community needs**.

➤ **Sustainable Livelihood for Forest Right Holders:** The mission places a special focus on **22 lakh Forest Rights Act, 2006 patta holders** in forest areas. It aims to expedite the **recognition of forest rights**, empower tribal communities, and provide sustainable livelihoods through various governmental schemes.

➤ **Improving infrastructure of Govt residential Schools and Hostels:** The initiative includes improving the infrastructure of **tribal residential schools, hostels, and ashram schools** to enhance local educational resources, promote enrollment, and retain students in these institutions.

➤ **Advanced facilities for diagnosis of Sickle Cell Disease: Centre of Competence (CoC)** would be set up in **AIIMS** and premier Institutes in the States where **Sickle cell disease** is prevalent.

○ CoC shall have the latest facilities, technology, personnel and research capabilities for **prenatal diagnosis**, at a cost of **Rs 6 crore/CoC.**

➤ **Tribal Multipurpose Marketing Centre (TMMCs):** 100 TMMCs will be set up for effective **marketing of tribal products** and for improving marketing infrastructure, awareness, branding, packaging, and transportation facilities.

Scheduled Tribes

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STs constitute **8.6%** of the total population of India (Census 2011).

There are over 730 Scheduled Tribes **notified** under Article 342 of the Constitution of India.

Article 342 of the Indian Constitution outlines the procedures for specifying Scheduled Tribes (STs).

Article **275(1)** of the Constitution of India guarantees grants-in-aid from the Consolidated Fund of India each year for promoting the welfare of Scheduled Tribes.

Particularly Vulnerable Tribal Groups **(PVTGs)** are more vulnerable among the tribal groups. Among the 75 listed PVTGs, the highest number is found in Odisha.

Bhil is the largest tribal group followed by the Gonds.

Madhya Pradesh has the highest tribal population in India (Census 2011).

What is the Need of PMJUGA?

➢ **Poverty:** Tribal communities often live in **poverty**, with limited access to resources. The erstwhile **Planning Commission** estimated that the percentage of ST individuals living below the poverty line was **45.3% (2011-12) in rural areas** and **24.1% (2011-12)** in **urban areas.**

  ○ Under PMJUGA, **Skilling Centers** will be opened in tribal districts for **employment** generation and reduction in poverty.

➢ **Land Rights and Displacement**: Many tribal communities face **displacement** due to development projects, **mining, and deforestation**. The tribal population often lacks formal land titles, leading to insecure tenure and exploitation.

  ○ PMJUGA will issue **22 lakh FRA pattas** under **Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006** in recognition of their **land rights**.

➢ **Low Literacy Rate**: Literacy rates among tribal populations are **significantly lower** than the national average.

  ○ As per **Census 2011**, literacy rate of Scheduled Tribes (STs) was **59%** whereas the **overall literacy rate was 73%** at all India level.

  ○ **1000 hostels** will be constructed under the **Samagra Shiksha Abhiyan (SSA)** for affordable education.

➢ **Health Issues**: As per the recent report of **National Family Health Survey (NFHS-5) 2019-21**, the prevalence of **stunting, wasting and underweight** among tribal children is **40.9%, 23.2% and 39.5% respectively**. It is significantly **higher** than the national average of **35.5%, 19.3% and 32.1%**.

  ○ High incidence of **Sickle Cell Disease (SCD)** is also seen among the tribal people.

  ○ The Ministry of Health and Family Welfare will provide **Mobile Medical Units** under the **National Health Mission**.

➢ **Cultural Erosion and Identity**: Many tribal communities struggle to maintain their **traditional practices** amidst external pressures like **rapid urbanisation** and **globalisation.**

  ○ Under **Pradhan Mantri Adi Adarsh Gram Yojana**, model villages will be created while preserving **cultural identity.**

➢ **Lack of Awareness about Government Schemes:** Despite their poverty, many tribal people are largely **unaware of BPL cards, ration cards, or job cards** for 100-day employment schemes. As a consequence, they **remain deprived** from such benefits.

  ○ The Ministry of Electronics & Information Technology will promote various **Digital India initiatives** for awareness generation.

What are the Other Government Initiatives for Scheduled Tribes?

➢ **PM-Janjati Adivasi Nyaya Maha Abhiyan (PM-JANMAN) Scheme**

➢ **TRIFED**

➢ **Digital Transformation of Tribal Schools**

➢ **Development of Particularly Vulnerable Tribal Groups**

➢ **Pradhan Mantri Van Dhan Yojana**

➢ **Eklavya Model Residential Schools**

Demand for Early Elections to Delhi Assembly

Why in News?

Recently, the Delhi **Chief Minister** has called for **early assembly elections** in Delhi, aligning this request with elections in Maharashtra, where a new assembly must be elected before 26th November 2024.

➢ The current term of the Delhi Assembly is set to conclude on 23th February 2025.

What are the Rules and Provisions for Holding Elections?

➢ **Constitutional Framework:**

  ○ The **Election Commission of India (ECI)** holds the authority to oversee and conduct elections as per **Article 324** of the Constitution.

    ● **Article 324** grants the ECI the power of superintendence, direction, and control of the electoral process, ensuring elections are completed before the term of the existing Assembly ends.

➢ **Representation of the People Act (RPA Act), 1951:**

  ○ According to **section 15(2)** of The RPA, 1951, **elections cannot be notified less than 6 months before the end of the Assembly's term** unless the assembly is dissolved prematurely.

Note:

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❍ This provision emphasizes the importance of adhering to the established timeline for electoral processes.

➢ **Dissolution of the Assembly:**

❍ **Role of the Governor:**

● **Article 174(2)(b)** of the Constitution allows the <u>**Governor**</u> to dissolve the Legislative Assembly **"from time to time."**

● The Chief Minister and the Council of Ministers can recommend the dissolution of the Assembly before its term expires.

● Once the Assembly is dissolved, the ECI is mandated to hold elections within six months.

❍ **Special Case of Delhi**

● In Delhi, the **Government of National Capital Territory of Delhi Act, 1991** governs the dissolution of the Assembly.

● **Section 6(2)(b)** states that the <u>**Lieutenant Governor (LG)**</u> may dissolve the Assembly, but the **final decision lies with the Centre**.

● Therefore, even if the Chief Minister recommends dissolution, it is **ultimately contingent upon the approval of the LG and the Central Government**.

What Factors Does the ECI Consider Before Deciding the Election Schedule?

➢ **Term End Date:** The new Assembly must be in place before the current Assembly's term concludes.

➢ **Logistical Considerations:** The ECI considers weather conditions, availability of security forces, and the need for training election officers.

➢ **Administrative Inputs:** The ECI conducts visits to gather inputs from local administrative and police machinery.

➢ **Clubbing Elections:** The ECI aims to combine elections in states where possible to streamline the electoral process.

What is the Governance Model of Delhi?

➢ **Constitutional Provisions:**

❍ The status of Delhi being a **Union Territory** under **Schedule 1 of the Constitution** but designated as the '**National Capital Territory (NCT)**' under **Article 239AA**.

➢ **Article 239 AA:**

❍ **Article 239 AA** was inserted in the Constitution by **the Constitution (69th Amendment) Act, 1991** to give **Special Status to Delhi** following the recommendations of the **S Balakrishnan Committee** that was set up to look into demands for statehood for Delhi.

❍ **Provisions of Article 239 AA:**

● It says that the NCT of Delhi will have an **Administrator** and a **Legislative Assembly**.

● Subject to the provisions of the Constitution, the Legislative Assembly "shall have power to make laws for the whole or any part of the NCT with respect to any of the matters in the **State List** or **Concurrent List** in so far as any such matter is applicable to Union territories" **except** on the subject of **police, public order, and land.**

● Further LG has to **either act on the aid and advice of the Council of Ministers,** or he is **bound to implement the decision taken by the President** on a reference being made by him.

● It also empowers the LG to **refer a difference of opinion on 'any matter'** with the Council of Ministers **to the President**.

■ Thus, this dual control between LG and the elected government leads to a power tussle.

❍ **Article 239AB** (also added by **Constitution (69th Amendment) Act, 1991**) provides that the **President may by order suspend the operation of any provision of Article 239AA** or of all or any of the provisions of any law made in pursuance of that article.

What is the Election Commission of India?

➢ **About:**

❍ The <u>**Election Commission of India (ECI)**</u> is an **autonomous constitutional authority** responsible for administering **Union and State election processes** in India.

❍ It is **not concerned** with the elections to <u>**Panchayats**</u> and <u>**Municipalities**</u> in the states for which there is a separate <u>**State Election Commission.**</u>

➢ **Constitutional Provisions:**

❍ **Part XV (Article 324-329):** It deals with elections and establishes a commission for these matters.

Note:

○ **Article 324:** Superintendence, direction and control of elections to be vested in an Election Commission.

○ **Article 325:** No person to be ineligible for inclusion in, or to claim to be included in a special, electoral roll-on grounds of religion, race, caste or sex.

○ **Article 326:** Elections to the House of the People and to the Legislative Assemblies of States to be based on adult suffrage.

○ **Article 327:** Power of Parliament to make provision with respect to elections to Legislatures.

○ **Article 328:** Power of Legislature of a State to make provision with respect to elections to such Legislature.

○ **Article 329:** Bar to interference by courts in electoral matters.

➢ **Appointment & Tenure of Commissioners:**

○ The President appoints CEC and Election Commissioners as per **the CEC and Other ECs (Appointment, Conditions of Service and Term of Office) Act, 2023.**

○ They have a **fixed tenure of 6 years,** or **up to the age of 65 yea**rs, whichever is earlier.

○ The salary and conditions of service of the CEC and ECs will be equivalent to that of the **Supreme Court Judge.**

Election Commission of India (ECI)

About
● **Autonomous Constitutional Authority -** Administers Union/state election
  ○ LS, RS, State LA, the offices of the President and VP
● Estd - **25ᵗʰ Jan1950** (National Voters' Day)

Constitutional Provisions
Part XV - Article 324 to 329

Structure
● 1 Chief Election Commissioner and 2 Election Commissioners **appointed by President**
● **Tenure- 6 years, or up to the age of 65 years,** whichever is earlier
● Retiring ECs – **eligible for further appointment by the govt.**
● **Removal of CEC-** Resolution on the **ground of proven misbehaviour or incapacity,** with majority of 2/3rd members present and voting, supported by more than 50% of the total strength of the house

Major Roles and Responsibilities
● Determining Electoral Constituencies
● Preparing/Revising electoral rolls
● Notifying the schedules and dates of elections
● **Registering political parties and granting them the status of national or state parties**
● Issuing the Model Code of Conduct (MCC) for political parties
● Advising the President on **matters concerning the disqualification of MPs**

Challenges
● Truncated Tenure of CEC
● Executive Influence in Appointments
● Dependence on Centre for Finance
● Lack of Independent Staff

Drishti IAS

Note:

Union Cabinet Approved Simultaneous Elections

Why in News?

Recently, the **Union Cabinet** approved a proposal for **simultaneous elections** across the country, aligning polls for the **Lok Sabha**, **state Assemblies**, and **local bodies** across India.

➤ The decision came after a **high-level committee**, chaired by former **President Ram Nath Kovind**, submitted its report on the **'one nation, one election'** plan.

What are Key Recommendations of the Committee on Simultaneous Elections?

➤ **Amending the Constitution:** The Constitution should be amended to enable simultaneous elections in **two bills**.

○ **Bill 1:** Simultaneous elections will be held to **Lok Sabha and State Assemblies**. For this, **no ratification by the states** will be required for the constitutional amendment.

○ **Bill 2:** Elections to **municipalities** and the **panchayats** will be synchronised with elections to Lok Sabha and state Assemblies in such a way that **local body elections** are held **within 100 days** of the elections to Lok Sabha and state Assemblies.

● This will require **ratification** by not less than **one-half of the states**.

➤ **Required Amendments:** For holding simultaneous elections, the committee had recommended **15 amendments to the Constitution of India.** Important amendments include:

○ **Article 82A:** The first Bill recommended by the Kovind committee would begin by inserting a **new Article 82A** into the Constitution.

● **Article 82A** will establish the **process** by which the country will move to a system of **simultaneous elections** for **Lok Sabha and state Assemblies**.

● It has recommended that the power of Parliament under **Article 327** should be expanded to include **"conduct of simultaneous elections"**.

○ **Article 83 and Article 172:** It recommended that under **Articles 83(4)** and **172(4)**, the **Lok Sabha or state Assembly** that replaces the previous one will serve only for the remaining **"unexpired term"** before being dissolved again once simultaneous elections are conducted as scheduled.

○ **Article 324A:** The committee has suggested the inclusion of a new **Article 324A** in the Constitution.

● This new article would empower Parliament to make laws to ensure that **municipality and panchayat elections** are held **simultaneously** with the **Lok Sabha and state Assemblies**.

➤ **Single Electoral Role and Election ID:** The **Election Commission of India** (ECI) can prepare a **single electoral roll and election ID** in consultation with the **State Election Commissions** (SEC) for all the **three tiers of election**.

○ A constitutional amendment will require **ratification** by not less than **one-half of the states** to **shift the power of SECs to ECI** regrading electoral roll and election ID at state level.

➤ **Hung Assembly or Premature Dissolution :** In the event of a **hung House**, a **no-confidence motion**, or any such event, **fresh elections** should be held to constitute the **new Lok Sabha or state Assembly** for the **unexpired term** of the House.

➤ **Meeting logistics requirements:** The Election Commission of India will **plan and estimate in advance**, in consultation with the State Election Commissions, and take steps for the deployment of manpower, polling personnel, security forces, **EVMs/VVPATs**, etc.

➤ **Synchronisation of Elections:** To synchronise the elections, the committee has suggested that the **President,** through a notification issued on the **first sitting of the Lok Sabha** post **general elections,** set an **'Appointed Date'**.

○ This date would mark the beginning of the **new electoral cycle**.

○ Under the proposed **Article 82A**, **all state assemblies** elected in any general election held after the **"appointed date"** will **conclude** at the **end of the Lok Sabha's full term**, regardless of whether they have completed their five-year term or not.

○ **Example:** The next assembly elections in West Bengal (2026) and Karnataka (2028) would conclude these assemblies' terms in May or June 2029, coinciding with the next Lok Sabha's term.

Note:

Upcoming State/UT elections

as of September 16, 2024
State Assembly tenures end in different years for each State

■ 2029 ■ 2026 ■ 2025 ■ 2028 ■ 2027 ■ Sep-Oct. 2024 ■ Nov-Dec. 2024

What are Previous Recommendations on Simultaneous Elections?

➢ **Law Commission:** The **21st Law Commission** set up in 2018 proposed that simultaneous elections would yield **several benefits**, including cost savings for the public, **alleviation of strain on administrative structures** and security forces etc.

Note:

○ In the year **1999,** the Law Commission of India recommended simultaneous elections to **Lok Sabha and State Legislative Assemblies** while examining measures for improving the electoral system in the country.

➤ **Department related Parliamentary Standing committee on Personnel, Public grievances, Law and justice:** In its **79th report**, it had recommended an **alternative and practicable method** of holding simultaneous elections.

➤ **NITI Aayog:** A NITI Aayog's 2017 Paper advocated the idea of conducting simultaneous elections for effective governance by reducing the frequent election cycle.

What are Simultaneous Elections?

➤ **About:** Simultaneous Elections means holding elections to the **House of the People, all the State Legislative Assemblies, and local bodies** i.e., Municipalities and Panchayats, together.

○ It effectively means that a **voter casts his vote** for electing members for all tiers of the Government on a **single day and at the same time**.

○ **Currently**, all these elections are **held independently** of one another, following timelines dictated by the terms of every **individual elected body.**

○ It **does not mean** that voting across the country for Lok Sabha and State Assemblies needs to happen on a **single day**. This can be conducted in a **phase-wise manner.**

○ It is popularly known as **One Nation, One Election.**

➤ **History:** Simultaneous Elections were, by and large, in **vogue** till the **fourth general elections of 1967.**

○ However, as successive central governments used **constitutional provisions** to dismiss state governments before the end of their term, and as **coalition governments** in the states and the Centre kept **collapsing**, it led to the end of simultaneous elections.

○ With the disruption of the **cycle of Simultaneous Elections,** thereafter, the country now faces **five to six elections in a year**.

● If **Municipalities** and **Panchayat** elections are also included, the number of elections will **increase manifold**.

➤ **Need for Simultaneous Elections:** The desirability of simultaneous elections can be discussed from the perspectives of **cost, governance, administrative convenience and social cohesion**.

○ **Cost Reduction:** Holding general elections for the Lok Sabha costs approximately **Rs 4,000 crore** for the Central government. **State assembly** elections also incur **significant costs** based on the size of the State.

● Simultaneous elections could lead to a **reduction** in these overall costs.

○ **Campaign Mode:** Political parties, including Ministers, often remain in a **'permanent campaign' mode** due to frequent state elections, hindering effective policy-making and governance.

○ **Model Code of Conduct:** During election periods, which last **45-60 days,** new schemes or projects cannot be announced by the Central or State governments, due to imposition of **Model Code of Conduct**, further impacting governance.

○ **Impact on Efficiency:** Administrative machinery slows down during elections as the focus shifts to conducting the elections. This includes the withdrawal of **paramilitary forces** from their regular duties to oversee elections.

○ **Social Cohesion:** High-stake elections annually lead to **polarising campaigns,** exacerbated by social media, which can **deepen societal divides** in a multi-religious and multilingual country.

○ **Uncertainty in Economy:** Asynchronous elections cause **uncertainty** and instability, thwarting supply chains, business investments, economic growth and other outcomes.

○ **Impact on Voters:** Frequent elections induce **'voters' fatigue'** and present a significant challenge in ensuring their participation. Simultaneous elections present an opportunity to cast votes in one go.

What Concerns are Associated with Simultaneous Elections?

➤ **Undermine Federal Spirit:** National political parties may gain an advantage over regional parties, which could undermine the **federal spirit**.

○ It could marginalise regional parties that rely on **local issues and grassroots campaigning,** whereas national parties benefit from larger resources and media influence

○ Former Chief Election Commissioner **S.Y. Quraishi** criticised simultaneous elections for **blurring**

Note:

distinctions between national and local issues, thereby weakening federalism.

➢ **Electoral Feedback:** Elections serve as a **feedback mechanism** for governments. Conducting elections only once every five years could disrupt the timely feedback loop necessary for **effective governance**.

➢ **Premature Dissolutions:** If simultaneous elections are conducted and the government loses its majority in the Lok Sabha, it raises the question of whether **new elections** would be required in all the states, even if the ruling party holds an absolute majority in those states.

➢ **Lengthy Constitutional Amendments:** Simultaneous elections would require amendments to **Articles 83, 85, 172, and 174** of the Constitution, which deal with the **duration and dissolution** of Lok Sabha and State Legislative Assemblies.

  ❍ Changes would also need to be made to **Article 356,** which allows for the dissolution of State assemblies under President's rule.

➢ **Voter Engagement:** Regional parties rely on personal methods of voter engagement such as **door-to-door campaigning, local meetings, and small rallies**. In simultaneous elections, voters may be swayed by corporate media influence and large organised rallies.

  ❍ A study found a **77% chance that voters would vote for the same party** in both elections when they are held simultaneously.

How to Address Concerns Associated with Simultaneous Elections?

➢ **Democratic Nature of Indian Governance:** Politicians must seek **re-election** at the end of their term, preventing them from becoming **"permanent members"** of the legislature.

  ❍ This democratic structure of Indian governance ensures that politicians remain **answerable** to their electorate.

➢ **Accountability Mechanisms in Place:** The **Council of Ministers is accountable to the legislature**, and **judicial oversight** plays a role in maintaining political accountability.

  ❍ Therefore, frequent elections are not the only or the most effective means to hold politicians accountable.

➢ **Check on Corruption:** Elections require significant expenditure, and politicians often seek to recover these costs after being elected. This fuels corruption and the growth of the **parallel black economy**.

  ❍ **Simultaneous elections can help in checking corruption to a large extent.**

➢ **International Examples:** Parliamentary democracies like **South Africa, Sweden, and Germany** have fixed tenures for their legislatures.

  ❍ South Africa holds simultaneous **national and provincial elections** every five years.

  ❍ Sweden and Germany elect their **Prime Minister and Chancellor**, respectively, every four years, with mechanisms to handle lack of confidence without early elections.

India Status Report on Road Safety 2024

Why in News?

According to **the India Status Report on Road Safety 2024** of **IIT Delhi** highlights India's **slow progress** toward meeting international goals of **reducing road accident fatalities**.

What are the Key Findings of the Report?

➢ **Methodology of the Report:**

  ❍ The report evaluates road safety in India, utilizing data from **First Information Reports (FIRs)** across six states (Haryana, Jammu & Kashmir and Ladakh, Punjab, Rajasthan, Uttarakhand, and Uttar Pradesh), alongside audits of state compliance with Supreme Court mandates on road safety governance.

➢ **Findings of the Report:**

  ❍ In 2021, road traffic injuries were the 13th leading cause of mortality in India and the 12th leading cause of health loss, as measured by **Disability-Adjusted Life Years (DALYs).**

    ● In the states road traffic injuries ranked among the top 10 contributors to health loss.

➢ **Performance of States in Road Safety:**

  ❍ **Road safety in India exhibits significant regional variation**, with per capita road traffic death rates differing more than threefold across states.

    ● Tamil Nadu (21.9), Telangana (19.2), and Chhattisgarh (17.6) recorded the highest death rates per 1,00,000 people.

Note:

- West Bengal and Bihar had the **lowest rates at 5.9 per 1,00,000 in 2021.**
- Uttar Pradesh, Maharashtra, Madhya Pradesh, Karnataka, Rajasthan, and Tamil Nadu, account for **nearly 50% of all road traffic fatalities.**

○ The report identifies **pedestrians, cyclists, and motorised two-wheeler riders** as the **most vulnerable** road users, while trucks are responsible for the highest proportion of impacting vehicles.

○ Despite the life-saving potential of helmet usage, more than **50% of motorised two-wheeler riders wear helmets in only seven states.**

○ **Only eight states have audited more than half of their National Highway** networks, and even fewer states have extended such audits to State Highways.

○ Basic road safety measures such as **traffic calming, road markings, and signage remain insufficient in most states,** while helmet usage in rural areas is particularly low, and trauma care facilities are inadequate.

○ The report underscores the need for tailored, **state-specific strategies to address the diverse road safety challenges** across India.

➢ **India Performing Globally:**

○ Most Indian states are unlikely to meet the <u>**United Nations Decade of Action for Road Safety**</u> objective, which aims to halve traffic-related deaths by 2030.

○ The report presents a **comparison between India and developed countries** such as Sweden and other Scandinavian nations, which have demonstrated exemplary road safety governance.

- In 1990, the likelihood of an Indian dying in a road accident was 40% higher than in these nations; by **2021, this disparity had escalated to 600%, reflecting a significant surge in road fatalities in India.**

Safety first

In 2021, road traffic injuries were the 13th leading cause of death in India and the 12th leading cause of health loss.

Percentage of road traffic deaths by victims mode of transport in six States

	Chhattisgarh	Chandigarh	Delhi	Haryana	Maharashtra	Uttarakhand
Pedestrian	19	23	44	29	24	28
Bicycle	4	13	3	3	1	3
Motorised two-wheeler	58	51	40	47	58	48
Motorised three-wheeler	1	7	4	3	1	3
Car	4	4	5	8	6	7
Bus	1	1	0	1	1	4
Truck	5	1	2	5	5	4
Farm tractor	6	0	0	2	2	0
Others	0	1	1	1	2	1
Unknown	0	1	1	0	0	1
Total (%)	100	100	100	100	100	100

Percentage of road traffic deaths by type of impacting vehicle in six States

	Chhattisgarh	Chandigarh	Delhi	Haryana	Maharashtra	Uttarakhand
Bicycle	0	0	1	0	1	0
Motorised two-wheeler	13	11	6	10	14	10
Motorised three-wheeler	0	7	2	1	0	1
Car	7	36	14	25	14	21
Bus	3	5	6	4	4	7
Truck	24	12	18	32	27	28
Farm tractor	5	1	1	7	4	6
Others	11	12	5	1	5	2
None	16	9	3	2	16	5
Unknown	18	9	45	17	15	21
Total (%)	100	100	100	100	100	100

Source: India Status Report on Road Safety 2024

Note:

Note:

➢ **Decade of Action for Road Safety 2021-2030:** The UN General Assembly adopted resolution "Improving global road safety " with the ambitious target of preventing at least 50% of road traffic deaths and injuries by 2030.

➢ The Global Plan aligns with the **Stockholm Declaration**, by emphasising the importance of a holistic approach to road safety.

National Strategy for Prevention of Unintentional Injury of the Ministry of Health

➢ **Road traffic crashes (RTCs)** are the largest cause of deaths due to unintentional injuries in India, contributing to **43.7% of fatalities.**

 ○ **Over-speeding** accounts for **75.2%** of these deaths, followed by driving on the **wrong side (5.8%)** and driving under the influence of **alcohol or drugs (2.5%)**.

 ○ **Road traffic injuries (RTIs):**
  - **86%** of RTI fatalities are **males**, **14% are females**.
  - **67.8%** of RTI deaths occur in **rural areas**, **32.2% in urban areas**.

➢ **National highways** (only 2.1% of total road length) are responsible for the **most road fatalities**, accounting for 45 deaths per 100 km in 2022.

Supreme Court Interventions on Road Safety

➢ **The Supreme Court of India** had set up the three-member **Justice K.S. Radhakrishnan panel on road safety in April 2014** which recommended the ban on the **sale of alcohol on highways to restrain drunk driving.**

 ○ It also directed states to **implement laws on wearing helmets.**

 ○ The committee stressed the importance of **creating awareness among people on road safety rules.**

➢ The SC in 2017, issued a number of directives with regard to road safety that, inter alia, included few measures.

 ○ The constitution of a **State Road Safety Council**

 ○ The setting up of **road safety fund**

 ○ Notification of a **road safety action plan**

 ○ The constitution of a **district road safety committee**

 ○ The establishment of **trauma care centres**

 ○ Inclusion of **road safety education** in the academic curriculum of schools

What are the Government Initiatives Related to Road Safety?

➢ **Motor Vehicles Amendment Act, 2019**

➢ **The Carriage by Road Act, 2007**

➢ The Control of **National Highways (Land and Traffic) Act, 2000**

➢ **National Highways Authority of India Act, 1998**

➢ **Third High Level Global Conference on Road Safety for Achieving Global Goals 2030**

Use of Emergency Provisions in Manipur and India's Federal Structure

Why in News?

The recent violence in Manipur has reignited the debate on **Centre-State relations** and the **Centre's role in handling Manipur internal crises**, highlighting the use of **emergency provisions** in such situations.

What are Emergency Provisions for the Centre to Protect State?

➢ **Constitutional Basis**: **Articles 355** and 356, located in **Part XVIII of the Indian Constitution** (from Article 352 to 360) define the roles of the Centre and State governments during emergencies.

 ○ **Article 355**: Mandates that the **Centre protect States from external and internal disturbances (internal crises)** and ensure that State governments operate constitutionally.

 ○ **Article 356**: Allows imposition of **President's rule in a State** when its government is unable to function according to the Constitution, thus enabling the Centre to assume control directly.

Articles Related to Emergency Provisions at a Glance

Article No.	Subject-matter
352.	Proclamation of Emergency
353.	Effect of Proclamation of Emergency
354.	Application of provisions relating to distribution of revenues while a Proclamation of Emergency is in operation
355.	Duty of the Union to protect states against external aggression and internal disturbance
356.	Provisions in case of failure of constitutional machinery in states
357.	Exercise of legislative powers under proclamation issued under Article 356
358.	Suspension of provisions of Article 19 during Emergencies
359.	Suspension of the enforcement of the rights conferred by Part III during Emergencies
359A.	Application of this part to the state of Punjab (Repealed)
360.	Provisions as to Financial Emergency

Note: India is a **federation with governments at the Centre and the States**. The **Seventh Schedule to the Indian Constitution** distributes the power between the Union and the States.

➢ **'Police' and 'Public Order'** are State subjects under the **Seventh Schedule to the Constitution of India,** and therefore, it is the primary duty of the State Governments to prevent, detect, register and investigate crime and prosecute the criminals.

How does the Emergency Provision Apply to the Situation in Manipur?

➢ **Severity of the Crisis**: The widespread violence in Manipur, including attacks on civilians and the looting of police armouries, indicates that the **situation surpasses a typical breakdown of law and order.**

　○ This severity suggests that the circumstances might justify the invocation of emergency provisions.

➢ **Non-Imposition of President's Rule**: Despite the critical nature of the violence, the **President's rule under Article 356 has not been imposed.**

　○ The non-application of Article 356 raises concerns about **whether political factors are affecting the response to the crisis.**

➢ **Application of Article 355**: The Centre has been **taking steps under Article 355,** which requires it to ensure that States are protected and governed constitutionally.

　○ However, critics argue that the actions so far **may not be sufficient to address the scale of the crisis effectively.**

　○ The application of Article 355 in this case highlights the need for more decisive measures to restore order and address the ongoing violence.

What are the Judgements Regarding the Articles 355 and 356?

➢ **Historical Misuse:** Dr. **B.R. Ambedkar**, a key architect of the Indian Constitution, hoped that **Articles 355 and 356 would remain unused and become "dead letters."**

　○ Despite this intention, **Article 356 has been misused on several occasions,** leading to the **dismissal of elected State governments** under various pretexts, including political motivations and law and order issues.

➢ *S R Bommai Case, 1994*: This landmark **Supreme Court of India** judgement significantly restricted the misuse of Article 356. The Court ruled that **President's rule should be imposed only in cases of a breakdown of constitutional machinery,** not merely for law and order issues.

　○ It also established that such impositions are subject to **judicial review, ensuring that Article 356 is not used for political purposes.**

　○ The Supreme Court stated that the breakdown of constitutional machinery meant that **carrying out administration in a state was a genuine impossibility, not a simple hardship.**

➢ **Expansion of Article 355**: While Article 356 faced judicial restrictions, the scope of Article 355 has been expanded. Initially, the Supreme Court's interpretation of Article 355 was narrow, often linking it to the employment of Article 356.

　○ However, in cases like *Naga People's Movement of Human Rights Vs Union of India, 1998, Sarbananda Sonowal Vs Union of India, 2005,* and *H.S. Jain Vs Union of India, 1997,* the Court broadened the interpretation.

　○ The revised view allows the Union to take a wider range of actions to protect States and ensure their governance aligns with constitutional principles.

What are the Recommendations Regarding Article 355 and Article 356?

➢ **Sarkaria Commission (1987)**: This **Commission** headed by Justice Ranjeet Singh Sarkaria recommended that **Article 356 be used very cautiously, only in the**

Note:

rarest of rare scenarios and as a last remedy after exhausting all possible alternatives to resolve and avert any circumstance where the constitutional machinery has collapsed in a state.

➤ **National Commission to Review the Working of the Constitution (2002) and Punchhi Commission (2010):** Have opined that Article 355 imposes a duty on the Union and grants it the power to take necessary actions, and that imposition of the President's rule under Article 356 must be used as a last resort.

○ The **Punchhi commission** proposes **"localising emergency provisions"** under Articles 355 and 356, allowing localised areas, like a district or parts of it, to be placed under Governor's rule instead of the entire state. This localised emergency should **not last more than three months.**

What is the Difference Between President's Rule and National Emergency?

President's Rule (Article 356)	National Emergency (Article 352)
It can be proclaimed when the government of a **state cannot be carried on in accordance with the provisions of the Constitution** due to reasons which may not have any connection with war, external aggression or armed rebellion.	**National Emergency** can be proclaimed **only when the security of India or a part of it is threatened** by war, external aggression or armed rebellion.
During its operation, the **state executive is dismissed** and the **state legislature is either suspended or dissolved.** ➤ The **president administers the state through the governor** and the Parliament makes laws for the state. ➤ In brief, the executive and legislative powers of the state are assumed by the Centre.	During its operation, the **state executive and legislature continue to function** and exercise the powers assigned to them under the Constitution. ➤ Its effect is that the Centre gets concurrent powers of administration and legislation in the state.
Under this, Parliament can delegate law-making power for the state to the President or another specified authority. ➤ Typically, the President makes laws for the state in consultation with its **members of Parliament (MPs).** These laws are called President's Acts.	The Parliament can make laws on State List subjects **only by itself and cannot delegate this power to any other body or authority.**
There is a maximum period prescribed for its operation, that is, **three years.** ➤ Thereafter, it must come to an end and the **normal constitutional machinery must be restored in the state.**	There is **no maximum period prescribed for its operation.** ➤ It can be continued indefinitely with the approval of Parliament for every six months.
Under this, the **relationship of only the state under emergency with the Centre undergoes a modification.**	Under this, the relationship of the Centre with all the states undergoes a modification.
Every resolution of Parliament approving its proclamation or its continuance can be passed only by a **simple majority.**	Every resolution of Parliament approving its proclamation or its continuance must be passed by a **special majority.**
It has **no effect on Fundamental Rights** of the citizens.	It affects fundamental rights of the citizens.
It can be revoked by the President only on his own.	Lok Sabha can pass a resolution for its revocation.

Third National Lok Adalat

Why in News?

In the near past, the **National Legal Services Authority (NALSA)** organised the **3rd National Lok Adalat** of the year 2024 in the Taluks, Districts and High Courts of **27 States/UTs.**

Note:

- ➢ It was organised under the stewardship of **Justice Sanjiv Khanna, Judge of the Supreme Court** of India and Executive Chairman, NALSA.

What are the Key Highlights of the 3ʳᵈ National Lok Adalat 2024?

- ➢ **Number of Cases Settled:** Over **1.14 crore cases** were resolved during the 3ʳᵈ National Lok Adalat 2024. It is a big step towards **reducing** the burgeoning **pendency in courts.**
- ➢ **Breakdown of the Settled Cases:** Of the **1,14,56,529 cases** settled in the Lok Adalat, 94,60,864 were **pre-litigation cases** and 19,95,665 were cases **pending** in various courts.
- ➢ **Types of Cases Settled:** The cases include **criminal compoundable offences**, traffic challans, revenue cases, bank recovery cases, motor accident claims, cheque dishonour cases, labour disputes, **matrimonial disputes (excluding divorce cases)**, land acquisition cases, intellectual property rights, and other civil cases.
- ➢ **Financial Value of Settlement:** The approximate value of the total settlement amount in these cases was Rs 8,482.08 crore.
- ➢ **Positive Public Response:** The event saw **overwhelming participation**, reflecting strong public trust in Lok Adalats. It aligns with the objectives set out in the **Legal Services Authorities Act, 1987**, and the **National Legal Services Authority (Lok Adalats) Regulations, 2009**.

What is Lok Adalat?

- ➢ **About:** Lok Adalat, or People's Court, is a forum designed for settling disputes either **pending in court or at the pre-litigation stage** through **compromise or amicable settlement.**
  - ○ The Supreme Court emphasises that Lok Adalat is an **ancient Indian system** of adjudication that still holds relevance today, rooted in **Gandhian principles**.
  - ○ It forms a part of the **Alternative Dispute Resolution (ADR)** system, which seeks to relieve the burdened Indian courts.
- ➢ **Objective:** Its purpose is to provide **quick, inexpensive justice** without the lengthy and expensive procedures common in regular courts.
  - ○ In Lok Adalat, there are **no victors or losers**, making it a **harmonious approach** to dispute resolution.

- ➢ **Historical Development:** The first Lok Adalat camp in independent India was held in **Gujarat in 1982**, where its success in settling disputes led to its spread nationwide.
- ➢ **Legal Framework:** Initially functioning as a **voluntary institution** without legal authority, the **Legal Services Authorities Act, 1987** provided **statutory status** to Lok Adalats.
  - ○ This Act gave the institution the authority to pass awards with the same effect as a **court decree.**
- ➢ **Organising Agencies:** Lok Adalats can be organised by **NALSA**, **State Legal Services Authority**, **District Legal Services Authority**, **Supreme Court Legal Services Committee**, **High Court Legal Services Committee**, or **Taluk Legal Services Committee** at intervals and places they deem necessary.
- ➢ **Composition**: A Lok Adalat typically includes a **judicial officer (chairman)**, a **lawyer**, and a **social worker**.
- ➢ **Jurisdiction:**
  - ○ Lok Adalat has jurisdiction over disputes including **pending court cases** and **pre-litigation matters** that fall under the jurisdiction of courts.
  - ○ It deals with various cases such as **matrimonial disputes**, **compoundable criminal offences**, **labour disputes**, **bank recovery**, **housing**, and **consumer grievances**.
    - Lok Adalat does **not** have **jurisdiction** over **non-compoundable offences**, such as serious criminal cases, as these cannot be settled through compromise.
- ➢ **Referral of Cases to Lok Adalat:** Cases can be referred to Lok Adalat if
  - ○ the parties thereof agree to **settle the dispute in the Lok Adalat.**
  - ○ **one** of the **parties** thereof makes an **application** to the court **referring** the case to the **Lok Adalat**.
  - ○ the **court is satisfied** that the matter is an **appropriate** one to take cognizance of by the Lok Adalat.
  - ○ **Pre-Litigation Referral:** Pre-litigation disputes can be referred upon receiving an application from any of the parties involved, ensuring that disputes are addressed before they reach the court system.
- ➢ **Powers:** The Lok Adalat shall have the **same powers** as are vested in a **Civil Court** under the **Code of Civil Procedure, 1908** while trying a suit in respect of the following matters.

Note:

- The **summoning** and enforcing the attendance of any witness.
- The discovery and **production of any document.**
- Receiving evidence on affidavits.
- Requisitioning **public records** or documents from courts or offices.

➢ **Proceedings of Lok Adalat:**
- **Self-Determined Procedure:** Lok Adalat can specify its **own procedures** for settling disputes, making the process **flexible and informal** compared to formal courts.
- **Judicial Proceedings**: All Lok Adalat proceedings are deemed **judicial proceedings** under the **Indian Penal Code, 1860 (Bharatiya Nyay Sanhita, 2023)** and have the status of a **Civil Court** under the **Criminal Procedure Code, 1973 (Bharatiya Nagarik Suraksha Sanhita, 2023).**

➢ **Binding Nature of Awards:**
- **Decree of Civil Court:** Awards made by Lok Adalat have the status of a decree of a civil court and are **final and binding** on the parties.
- **Non-Appealable:** Awards **cannot be appealed** in any court, ensuring the **quick resolution** of disputes without the delays caused by lengthy appeals.

What are the Benefits of Lok Adalat?

➢ **No Court Fees**: Lok Adalat does **not charge court fees**, and any fees paid are refunded if the dispute is settled in Lok Adalat.

➢ **Procedural Flexibility**: The procedures are **simple** and not bound by technical rules of evidence or civil procedure, allowing for a **speedy trial** of disputes.

➢ **Direct Interaction**: The parties to the dispute can **directly interact with the judge** through their counsel which is not possible in regular courts of law.

➢ **Final and Binding Awards**: The award by the Lok Adalat is binding on the parties and it has the status of a decree of a civil court and it is **non-appealable**, which does not cause the delay in the settlement of disputes finally.

➢ **Less Time-Consuming**: Lok Adalat provides **quicker resolutions**, avoiding the long delays of formal court proceedings.

➢ **Harmonious Judgement**: Lok Adalat fosters a spirit of cooperation where neither party feels like they have lost, and the relationship between disputing parties is often restored.

What are the challenges in Functioning Lok Adalat?

➢ **Voluntary Nature of Participation**: While Lok Adalats aim for amicable dispute resolution, both parties **must voluntarily agree** to participate. If either party is unwilling, the case cannot proceed.

➢ **Judicial Caution on Speedy Proceedings:** The higher judiciary has emphasised that the speed in Lok Adalat proceedings should **not compromise the rights of any party** and fair representation.

➢ **Limited Scope**: Lok Adalats' authority is **restricted to civil and compoundable criminal cases**, limiting their ability to address a broader range of legal issues.

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➤ **Absence of Appeal**: Once a case is resolved in a Lok Adalat, the decision is final with no provision for appeal. It may deter litigants from opting for this route, **especially if they feel dissatisfied with the outcome**.

➤ **Reluctance of Parties:** People, at times, insist on sticking to the **formal court procedures**, fearing that an out-of-court settlement may not serve their interests fully.

India's Digital Public Infrastructure

Why in News?

During its **G20 presidency**, India advanced **Digital Public Infrastructure (DPI)** as a pivotal tool for fostering inclusive and **sustainable development** through technological innovation.

➤ The defining features of **DPI (openness, interoperability, and scalability)** highlight its significance not merely as a technological framework but as an essential enabler for **enhancing public and private service delivery.**

What is Digital Public Infrastructure (DPI)?

➤ **About: DPI** refers to the foundational digital systems and services provided by the public sector to support and enhance the functioning of a digital economy and society.

○ **Digital Identity Systems:** Platforms for verifying and managing individuals' identities online**, such as Aadhaar**.

○ **Digital Payment Systems:** Infrastructure that supports secure financial transactions, including **digital wallets, payment gateways,** and banking platforms.

○ **Public Digital Services:** Online services provided by the government, such as **e-governance portals, public health information, and digital education platforms.**

○ **Data Infrastructure:** Systems for storing, managing, and sharing data securely, ensuring data sovereignty and privacy, **such as Digilocker.**

○ **Cybersecurity Frameworks:** Measures and protocols to protect digital assets and personal information from cyber threats. For examle, **Information Security Management System (ISMS),**

○ **Broadband and Connectivity:** Infrastructure ensuring widespread and equitable access to high-speed internet across regions.

➤ **It can be broadly categorised into two groups.**

○ **Foundational DPIs:** The initiatives are designed to **establish resilient digital frameworks,** encompassing the realms of digital identity systems, payment infrastructures, and data exchange platforms.

● Such as **Aadhaar, UPI** and **Data Empowerment and Protection Architecture (DEPA).**

○ **Sectoral DPIs:** These **provide specialised services** tailored to the needs of specific sectors.

● Such as the **Ayushman Bharat Digital Mission.**

➤ **Impact of DPIs:**

○ Aadhaar-based authentication was used to facilitate the administration of over 2.2 billion Covid-19 vaccines under **the CoWIN platform.**

○ Over **1.3 billion Aadhaar enrolments and over 10 billion UPI transactions monthly** DPIs have had a transformative impact.

○ G**overnance** has improved in areas such as **credit, e-commerce, education, health, and urban governance.**

Note: Observations of **the National Association of Software and Service Companies (Nasscom)** about **DPI**.

➤ Digital public infrastructure could help **India become a USD 8 trillion economy by 2030**.

➤ The economic value added by DPI could increase to between **2.9% and 4.2% of Gross Domestic Product (GDP)** by 2030, from 0.9% in 2022.

➤ The **Ayushman Bharat Digital Mission (ABDM),** envisioned to strengthen India's digital health infrastructure, is expected to significantly contribute to the rise in value.

➤ The **Open Network for Digital Commerce (ONDC),** an open e-commerce platform established by the Department for Promotion of Industry and Internal Trade, is anticipated to significantly enhance retail spending.

What are the Challenges Related to India's DPI?

➤ **Data Privacy and Security Concerns:** The extensive collection and use of personal data by DPIs raise significant concerns regarding **data privacy, security, and the potential misuse of sensitive information.**

- ➢ **Digital Divide:** Despite India's rapid digital advancement there is still **limited access to digital infrastructure,** including internet connectivity, smartphones, and digital literacy.
  - ○ As of 2024, India's **internet penetration rate** is expected to be **52%**, which means that more than half of the country's 1.4 billion people have internet access.
- ➢ **Regulatory Gaps and Fragmentation:** The evolving nature of digital technologies necessitates dynamic and coherent regulatory frameworks.
  - ○ Existing regulatory mechanisms are **inadequate for addressing emerging issues such as platform monopolies**, data monopolisation, and cross-border data flows.
  - ○ **For example,** the **Reserve Bank of India**'s mandate for storing payment data locally has led to compliance complexities for international payment providers.
- ➢ **Cybersecurity Threats:** The increased reliance on digital infrastructure exposes India to a growing range of cybersecurity threats, including **cyberattacks, ransomware, and state-sponsored hacking**. Strengthening the resilience of critical DPIs against such threats is essential for **safeguarding national security.**
  - ○ As of 2021, **Maharashtra** was the most targeted state in India — facing **42%** of all **ransomware attacks.**
- ➢ **Monopolization of Digital Infrastructure:** The risk of **monopolistic practices** poses challenges such as **profit erosion of smaller private entities** due to their inability to upgrade themselves.
  - ○ For example, **the National Payments Corporation of India (NPCI)** operates most of the instant payment systems.
- ➢ **Sustainability of Digital Infrastructure:** Maintaining the long-term sustainability of DPIs in terms of financial viability, technical upkeep, and scalability is a persistent challenge requiring continuous innovation and investment.

What Steps can be Taken to Increase the Resilience of India's DPI?

- ➢ **Strengthening Data Protection and Privacy Frameworks:** Implementing a comprehensive and robust **data protection law is crucial to safeguard citizens' data and ensure privacy.**
  - ○ This should include **stringent norms for data collection, storage, and usage**, along with clear guidelines on consent, accountability, and recourse mechanisms for data breaches.
- ➢ **Bridging the Digital Divide:** Expanding digital infrastructure is essential to ensure equitable access. This requires initiatives focused on **improving digital literacy, enabling all sections of society** to participate in the digital economy.
- ➢ **Developing Adaptive Regulatory Mechanisms:** Establishing dynamic and forward-looking regulatory frameworks is **critical to address emerging challenges** such as platform monopolies, data monopolisation, and cross-border data governance.
  - ○ These frameworks must be flexible enough to adapt to the rapid evolution of digital technologies and markets.
- ➢ **Enhancing Cybersecurity Measures:** Regular audits, simulations, and real-time monitoring should be institutionalised to mitigate cyber risks.
- ➢ **Fostering Public-Private Partnerships (PPPs):** Encouraging collaboration between the government and private sector is essential to leverage technical know-how, innovation, and resources.
  - ○ PPPs can accelerate the deployment of digital infrastructure, foster innovation, and address challenges in scaling up digital services.
- ➢ **Need for Soft Law:** While rigid legal frameworks may hinder DPI growth, soft law instruments **promoting best practices (data encryption, access restrictions)** could safeguard public interest.
  - ○ Segregating aspects of DPIs under statutory, contractual, and soft law frameworks can help manage both innovation and regulation effectively.

What are the Key Developments in India's Digital Public Infrastructure?

- ➢ **Unified Payments Interface (UPI)**
- ➢ **Aadhaar Ecosystem**
- ➢ **Open Network for Digital Commerce (ONDC)**
- ➢ **Account Aggregator Framework**
- ➢ **Ayushman Bharat Digital Mission**
- ➢ **eSanjeevani**
- ➢ **Digital India BHASHINI**
- ➢ **Digital Rupee**
- ➢ **Government e-Marketplace (GeM)**

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New Standards for Preventive Detention

Why in News?

Recently, in the *Jaseela Shaji vs the Union of India case, 2024*, the **Supreme Court (SC)** set up **new standards** for **preventive detention**.

➤ The ruling came in response to a preventive detention order under the **Conservation of Foreign Exchange and Prevention of Smuggling Activities (COFEPOSA) Act, 1974**, upheld by the **Kerala high court**.

What are the New Standards for Preventive Detention?

➤ **Fair and Effective Opportunity:** SC held that the **detaining authority** must provide the detainee with **copies of all documents** relied upon for detention, and **failure** to do so **invalidates** the detention.

➤ **Constitutional Right:** SC stressed that **personal liberty** is a paramount **constitutional right.** Failure to provide all relevant documents and information to challenge the detention effectively would constitute a violation of the fundamental right under **Article 22(5)** of the Constitution.

➤ **Non-arbitrary Actions:** Authorities are required to guard against **arbitrary actions** and ensure detainees' rights are respected at all stages.
  ❍ It includes furnishing documents in a **language the detainee can understand.**

➤ **Avoiding Undue Delay**: Authorities must ensure **timely communication** related to detention, using available technology to **avoid unnecessary delays.**

What are the Key Facts About Protection Against Arrest and Detention?

➤ **Constitutional Basis: Article 22** of the Indian Constitution grants **protections** to individuals who are **arrested or detained**.
  ❍ These provisions ensure **fundamental rights** are protected under different circumstances of arrest or detention.

➤ **Types of Detention:** There are **two types** of detention.
  ❍ **Punitive Detention**: Punishes a person **after trial and conviction** in court for an offence they committed. It follows **due process of law.**

  ❍ **Preventive Detention**: Involves detaining a person **without trial or conviction**, aiming to **prevent a future offence.** This detention is based on **suspicion** and serves as a **precautionary measure** to avoid potential harm.

➤ **Parts of Article 22:** There are **two parts** of Article 22.
  ❍ **First Part:** The first part deals with rights under **ordinary law** i.e., laws not related to preventive detention. Rights include (**Except** enemy aliens or individuals detained under preventive detention laws).
    ● **Right to be Informed**: A person must be told the **grounds of their arrest**.
    ● **Right to Legal Representation**: The arrested individual has the **right to consult** and be defended by a **legal practitioner.**
    ● **Right to Prompt Judicial Review**: They must be presented before a magistrate within **24 hours of arrest**.
    ● **Right against Prolonged Detention**: They must be **released after 24 hours** unless a magistrate authorises further detention.
  ❍ **Second Part:** It deals specifically with protections under **preventive detention laws**, which apply to **both citizens and non-citizens.**
    ● **Maximum Detention without Review**: The detention of a person cannot exceed **three months** unless the advisory board reports sufficient cause for extended detention. The board is to consist of **judges of a high court.**
    ● **Communication of Detention Grounds**: The **grounds of detention** should be communicated to the **detenu**. However, the facts considered to be against the **public interest** need not be disclosed.
    ● **Right to Representation:** The detenu should be afforded an **opportunity** to make representation against the **detention order.**

➤ **Legislative Power on Preventive Detention:** The Parliament has **exclusive authority** to make a law of preventive detention for reasons connected with **defence, foreign affairs and the security of India**.
  ❍ Both the **Parliament** as well as the **state legislatures** can **concurrently** make a law of preventive detention for reasons connected with the **security of a state**, the maintenance of **public order** and the

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maintenance of **supplies and services essential to the community**.

➢ **Parliament's Power to Extend Detention:** Article 22 authorises the **Parliament** to prescribe:

○ the **circumstances and the classes** of cases in which a person can be detained for **more than three months** under a preventive detention law without obtaining the opinion of an advisory board;

○ the **maximum period** for which a person can be **detained** in any classes of cases under a preventive detention law; and

○ the **procedure** to be followed by an **advisory board** in an inquiry.

➢ **Key Amendments:** The **44ᵗʰ Amendment Act, 1978** has reduced the period of detention without obtaining the opinion of an advisory board from **three to two months**.

○ However, this provision has **not yet been brought into force,** hence, the original period of **three months still continues**.

➢ **Preventive Detention Laws in India:** Several preventive detention laws have been enacted by Parliament to maintain national security, and public order, and prevent crime**s. Examples.**

○ Maintenance of Internal Security Act (MISA), 1971 **(Repealed in 1978)**

○ Conservation of Foreign Exchange and Prevention of Smuggling Activities Act (COFEPOSA), 1974

○ **National Security Act (NASA), 1980**

○ Terrorist and Disruptive Activities (Prevention) Act (TADA), 1985 **(Repealed in 1995).**

○ Prevention of Terrorism Act (POTA), 2002 **(Repealed in 2004)**

○ **Unlawful Activities (Prevention) Act (UAPA), 1967** (Amended several times, including in 2004, 2008, 2012, and 2019).

➢ **Criticism of Preventive Detention in India:** No **democratic country** in the world has made preventive detention an **integral part of the Constitution** as has been done in India.

○ It is unknown in the United States.

○ It was used in Britain only during the **First** and **Second World Wars**.

○ In India, preventive detention existed even during **British rule**. For example, the **Bengal State Prisoners Regulation, 1818** and the **Defence of India Act, 1939** provided for preventive detention.

What are the Issues with the Preventive Detention Law?

➢ **Misuse of Law**: Preventive detention **coexists** with **fundamental rights** in the Indian Constitution, but its misuse for political gains or **controlling free speech** has raised concerns.

○ Cases in Uttar Pradesh, where preventive detention was invoked for trivial issues like **local cricket disputes**, show potential for abuse.

➢ **Lack of Checks and Balances**: The **broad powers to detain** with limited judicial oversight raise the risk of misuse of authority.

○ The scope for **judicial scrutiny** is confined to ensuring that **procedural safeguards** are followed, but **not the merits of the detention**.

➢ **Lack of Transparency**: The frequent use of detention to curb dissent shows a need for greater **accountability** in its application.

➢ **Colonial-Era Laws**: Some preventive detention laws date back to **colonial times** and do not align with modern **human rights** standards.

What are Important Judicial Cases Related to Preventive Detention?

➢ *Shibban Lal v. State of Uttar Pradesh Case, 1954*: The SC held that courts are **not competent** to inquire into the veracity of facts that form the basis for detention.

○ This indicates a **limited role for judicial intervention** in preventive detention cases.

➢ *Khudiram v. State of West Bengal Case, 1975*: The SC ruled that it **lacks the power** to assess the validity of the grounds for detention under the **Maintenance of Internal Security Act, 1971 (MISA)**.

○ SC emphasised that the **detaining authority's decision is final,** with courts unable to substitute their judgement.

➢ *Nand Lal Bajaj v. The State of Punjab and Anr Case, 1981*: The Supreme Court acknowledged that preventive detention laws are **inconsistent** with the principles of a **parliamentary system**.

○ However, it ruled that the issue is **political in nature**, making it the responsibility of the **legislature**, not the judiciary.

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- ➢ *Rekha v. State Of Tamil Nadu Case, 2011*: The Supreme Court called preventive detention **"repugnant to democratic ideas"** and urged its application within narrow limits to avoid violating **Article 21** (Right to Life and Liberty).

- ➢ *Mariappan vs the District Collector And Others Case, 2014*: The Madras High Court reiterated that preventive detention is meant to **prevent harm to the state, not to punish the detainee.**
   - ○ The decision to detain is based on the **subjective satisfaction** of the authority, within criteria such as **state security, public order, foreign affairs, and community services.**

- ➢ *Prem Narayan v. Union of India Case, 2019*: the Allahabad High Court stated that preventive detention is an **infringement upon the personal freedom** of an individual and it can't be imposed casually.

- ➢ *Abhayraj Gupta v. Superintendent, Central Jail, Bareilly Case, 2021*: The Allahabad High Court held that preventive detention should not be used when a person is already detained.
   - ○ The court observed that if a detained person's actions **did not cause widespread public disorder or disrupt societal peace**, there was no valid basis to detain him under preventive detention laws.

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Economic Scenario

Highlights

- *Make in India Celebrates 10 Years*
- *State of Sugar Industry in India*
- *India's Proposed Shipbuilding Mission*
- *Periodic Labour Force Survey (PLFS) Report 2023-24*
- *White Revolution 2.0*
- *Need of Reforms in Diamond Sector*
- *US Federal Reserve's Rate Cut and Implications*
- *FATF Mutual Evaluation Report on India*
- *Relative Economic Performance of Indian States Report*

- *Steel Sector Decarbonization*
- *Food Banks in GHG Reduction*
- *Need of Reforms in Tea Industry*
- *Widening Skills Gap in the Job Market*
- *20th Maritime State Development Council*
- *Need for Reforms in the Jute Industry*
- *Semicon India 2024 and ITSI Fund*
- *Transforming Fisheries Sector*

Make in India Celebrates 10 Years

Why in News?

The **'Make in India' initiative**, launched on **25th September 2014**, completes a landmark decade of empowering India to become a global manufacturing hub.

What is the 'Make in India' Initiative?

➢ **About:** The campaign was launched to **facilitate investment, foster innovation, enhance skill development,** protect intellectual property & build best-in-class manufacturing infrastructure.

➢ **Objectives:**
  ❍ **Increase** the growth rate of the **manufacturing sector to 12-14% per annum**.
  ❍ Create **100 million additional manufacturing jobs** by 2022 (revised to 2025).
  ❍ Increase the **manufacturing sector's contribution to GDP to 25% by 2025.**

➢ **Pillars of 'Make in India':**
  ❍ **New Processes:** Recognized **'ease of doing business'** as vital for entrepreneurship, implementing **measures to improve the business environment for startups** and established enterprises.
  ❍ **New Infrastructure:** The government **prioritised developing industrial corridors and smart cities** to create world-class infrastructure.

- It also enhanced innovation and research through streamlined registration systems and improved **intellectual property rights (IPR)** infrastructure.
  ❍ **New Sectors: Foreign Direct Investment (FDI)** was significantly opened up in various sectors including **Defence Production, Insurance, Medical Devices, Construction, and Railway infrastructure.**
  ❍ **New Mindset:** The government **embraced a role as a facilitator rather than a regulator**, partnering with industry to drive the country's economic development.

➢ **Make in India 2.0:** The ongoing **"Make in India 2.0" phase**, encompassing 27 sectors, continues to propel the program forward, consolidating India's role as a significant player in the global manufacturing arena.

Made in China 2025
➢ This initiative aims to transform China's economy **from a low-cost manufacturing base to a producer of high-value products and services.** The plan's goals include: ❍ Increasing the **share of core materials** sourced domestically from **40% in 2020 to 70% in 2025.**   ❍ Achieving **technological breakthroughs in 10 key sectors**, including semiconductors, aerospace, and robotics.   ❍ Reducing energy and resource consumption.   ❍ Developing globally competitive firms and industrial centres.

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What are the Major Initiatives Taken to Enable Make in India?

➢ **Production Linked Incentive (PLI) Schemes**: The **PLI Schemes** aim to **enhance domestic manufacturing and boost exports** by covering 14 key sectors.

　❍ **Progress as of July 2024:** Total investment reached Rs 1.23 lakh crore and approximately 8 lakh jobs have been generated.

➢ **PM GatiShakti:** It was **launched** with the aim of achieving a **USD 5 trillion economy by 2025.**

　❍ The initiative focuses on **establishing multimodal and last-mile connectivity infrastructure** to enhance economic growth.

　❍ The **initiative operates through seven primary engines**: Railways, Roads, Ports, Waterways, Airports, Mass Transport, and Logistics Infrastructure.

➢ **Semiconductor Ecosystem Development:** The **Semicon India Programme was approved in 2021** to develop a sustainable semiconductor and display ecosystem.

➢ **National Logistics Policy (NLP):** It was **launched** to focus on **enhancing India's logistics sector through advanced technology,** improved processes, and skilled manpower.

　❍ Its goals include reducing logistics costs, **boosting India's Logistics Performance Index (LPI) ranking to be in the top 25 by 2030**, and developing a data-driven decision support system.

➢ **Industrialization and Urbanization:** The **National Industrial Corridor Development Programme** is India's flagship infrastructure initiative, **aimed at developing "Smart Cities"** and advanced industrial hubs.

➢ **Startup India:** It was **launched** to support entrepreneurs, build a robust startup ecosystem, and transform India into a nation of job creators rather than job seekers.

　❍ As of September 2024, India has the **third-largest startup ecosystem globally,** with 148,931 DPIIT Recognized Startups that have generated over 15.5 lakh direct jobs.

➢ **Tax Reforms: Goods and Services Tax (GST)** marked a significant reform in India's tax system.

➢ **Unified Payments Interface:** **UPI processes 46% of global real-time payment transactions**, emphasizing its critical role in digital finance.

　❍ From April to July 2024, UPI facilitated nearly Rs 81 lakh crore in transactions, reflecting its robustness and increasing consumer trust.

What are the Major Achievements under Make in India?

➢ **Global Supply of Vaccination:** India achieved record **Covid-19 vaccination coverage**, powered by indigenous vaccines, and emerged as a leading exporter, **supplying nearly 60% of the world's vaccines.**

➢ **Vande Bharat Trains:** It is **India's first indigenous semi-high-speed trains**, exemplifying the 'Make in India' initiative.

　❍ Currently, 102 services (51 trains) are operational, enhancing connectivity and showcasing advancements in rail technology.

➢ **Defence Production Milestones:** The launch of **INS Vikrant**, **India's first domestically produced aircraft carrier,** signifies progress in self-reliance in defence.

　❍ In 2023-24, defence production reached Rs. 1.27 lakh crore, with exports to over 90 countries.

➢ **Electronics Sector Growth:** India's electronics sector has **expanded to USD 155 billion in FY23, with production nearly doubling since FY17**. Mobile phones account for 43% of this production, establishing India as the second-largest mobile manufacturer globally.

➢ **Export:**

　❍ **Merchandise:** It amounted to USD 437.06 billion in FY 2023-24.

　❍ **Defence Footwear:** **'Made in Bihar' boots** have been **incorporated into the Russian Army's equipment**.

　❍ **Kashmir Willow Bats:** These have gained international popularity, demonstrating **India's craftsmanship and influence in cricket.**

　❍ **Amul's International Expansion:** Amul has **launched its dairy products in the US**, underscoring the global appeal of Indian dairy.

➢ **Textile Industry Employment:** The **textile sector has created approximately 14.5 crore jobs**, significantly contributing to the employment landscape.

➢ **Toy Production:** India produces around 400 million toys annually, innovating with 10 new toys developed every second.

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What are the Challenges Related to the Make in India Programme?

➢ **Global Manufacturing Index:** As of 2023, **India ranked 5th in the Global Manufacturing Index,** trailing behind countries like China and the USA, indicating the need for enhanced competitiveness.

➢ **Manufacturing Contribution to GDP:** The **manufacturing sector contributed approximately 17% to India's GDP in FY 2022-23**, highlighting the necessity for policies that stimulate growth in this area.

  ○ However, **to reach the goal of 25% contribution by 2025, substantial reforms are essential.**

➢ **Skill Development Deficiencies: The India Skills Report 2024,** indicate that around **60% of the workforce in India lacks relevant skills for manufacturing jobs**, which hampers the potential growth of the sector.

➢ **Supply Chain Challenges:** The Covid-19 pandemic exposed **vulnerabilities in global supply chains**, which continue to affect India's manufacturing landscape.

  ○ A shift towards localizing supply chains is necessary but remains underdeveloped.

➢ **Investment Targets:** The government set a target to attract USD 100 billion in manufacturing investment by 2025.

  ○ As of 2023, only about USD 23 billion has been achieved, **underscoring the gap between goals and reality.**

➢ **Innovation and R&D:** India's research and development **(R&D) expenditure-GDP ratio of 0.7%** is very low when compared to **major economies and is much below the world average of 1.8%.**

State of Sugar Industry in India

Why in News?

The sugar sector in India is experiencing a notable **recovery** after a prolonged period of uncertainty.

➢ Recent revisions in **production estimates** for the current season, coupled with a **positive outlook for the upcoming season** beginning in October, have contributed to a **more favourable supply situation** in the industry.

What is the State of the Sugar Industry in India?

➢ **Production and Consumption Data:**

  ○ **Production:** Indian Sugar Mills Association (ISMA) projects **gross sugar production** at **34.0 million MT**, with net production at 32.3 million MT for **Sugar Year (SY) 2024** after ethanol diversion and a ban on exports.

    ● According to the US Department of Agriculture, **Brazil is the world's top sugar producer** for 2023-24, with a production of **45.54 million MT**, accounting for about **25% of global output**.

    ● India is the **largest consumer** and the **second-largest producer of sugar in the world** contributing around 19% of global sugar production.

  ○ **Consumption and Stocks:** Domestic consumption is estimated at **28.5 million MT,** leading to a **closing stock of 9.4 million MT** by September 2024, up from 5.6 million MT last year.

  ○ **Ethanol Production:** A target of 320 crore liters for the first half of Ethanol Supply Year (ESY) 2024 was set, with 224 crore liters supplied by March 2024, achieving an **11.96% blending ratio**.

➢ **Distribution of Sugar Industries:** The sugar industry is broadly distributed over two major areas of production:

  ○ Uttar Pradesh, Bihar, Haryana and Punjab in the north and Maharashtra, Karnataka, Tamil Nadu and Andhra Pradesh in the south.

  ○ **South India** has tropical climate which is suitable for **higher sucrose content** giving **higher yield per unit area** as compared to north India.

➢ **Geographical Conditions for the Growth of Sugar:**

  ○ **Temperature:** Between 21-27°C with hot and humid climate.

  ○ **Rainfall**: Around 75-100 cm.

  ○ **Soil Type:** Deep rich loamy soil.

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➢ **Sugar Exports:**

CHART 1
INDIA'S SUGAR EXPORTS IN VALUE

- $ Million
- ₹ Crore

Year	$ Million	₹ Crore
2017-18	810.9	5,225.6
2018-19	1,360.29	9,523.14
2019-20	1,966.44	13,981.56
2020-21	2,789.91	20,668.57
2021-22	4,602.65	34,344.69
2021-22*	3,570.34	26,545.76
2022-23*	4,689.97	37,397.86

April to January

CHART 2
INDIA'S SUGAR EXPORTS IN LAKH TONNES

Sugar Year	Raw Sugar	White Sugar***	Total
2016-17	0	0.46	0.46
2017-18	0.47	5.73	6.2
2018-19	13.13	24.87	38
2019-20	17.84	41.56	59.4
2020-21	28.16	43.74	71.9
2021-22	56.29	53.71	110
2022-23**	19.13	30.91	50.04

Note: Sugar Year is from Oct-Sept   **As on March 15; ***Includes refined sugar*

What is the Significance of the Sugar Industry in India?

➢ **Employment Generation:** The sugar sector is **highly labor-intensive,** providing **livelihoods for approximately 50 million farmers** and their families.

- ❍ It offers **direct employment to over 500,000 skilled workers**, along with numerous semi-skilled laborers engaged in sugar mills and related industries, particularly in states like Uttar Pradesh, Maharashtra, Tamil Nadu, and Karnataka.

➢ **Value-Chain Linkages:** The industry spans the **entire value chain,** from sugarcane cultivation to the production of **sugar and alcohol** which supports various sectors and promotes economic development at the local and national levels.

➢ **Economic Contributions from Byproducts:** The sugar industry generates several byproducts, including **ethanol, molasses, and bagasse**, which further enhance economic growth.

- ❍ It has emerged as a **multi-product crop**, serving as a raw material for not only sugar and ethanol but also for **paper** and **electricity generation.**

➢ **Livestock Feeding and Nutrition**: **Molasses**, a byproduct of sugar production, is **highly nutritious** and used for both **livestock feeding and alcohol production,** contributing to the agricultural economy.

➢ **Biofuel Production**: The majority of **ethanol** in India is **produced from sugarcane molasses,** which plays a crucial role in **reducing reliance on crude oil imports** through **ethanol-blended fuels**.

➢ **Utilisation of Bagasse:** Bagasse, the **fibrous residue a**fter sugar extraction, serves as a **fuel source** and is an essential raw material for the **paper industry**. It contributes about **30% of the cellulose requirements from agricultural residues**.

What are the Challenges Associated With the Sugar Industry in India?

➢ **Water-Intensive Crop:** Sugarcane is a **highly water-intensive crop,** yet it is predominantly grown in **monsoon-dependent states** like Maharashtra and Karnataka which exacerbates water scarcity issues in these areas.

➢ **Seasonal Nature of Sugarcane:** The seasonal availability of sugarcane poses a challenge, as **delays in crushing beyond 24 hours** after harvest result in **sucrose loss.**

➢ **Low Sugar Recovery Rate:** The sugar recovery rate in Indian sugar mills has remained stagnant at **9.5-10%,** much **lower than the 13-14% seen in some other countries**. This is largely due to a lack of major advancements in developing better sugarcane varieties and improving crop yields.

➢ **Uncertain Production Output:** Sugarcane cultivation **competes with other food and cash crops** like cotton, oilseeds, and rice, leading to supply fluctuations and price volatility, especially during surplus periods when prices fall.

➢ **Low Investment and Outdated Technology:** Many sugar mills, particularly in states like Uttar Pradesh and Bihar, are **old and operate with outdated machinery** which **hampers productivity.**

➢ **Competition from Gur Production:** While gur has higher nutritional value, it has a **lower sugar recovery rate compared to sugar** leading to a **net loss for the country when sugarcane is diverted to gur production**.

- ❍ Also, gur factories often procure sugarcane at a lower price than sugar mills, incentivising farmers to sell to them, further impacting sugar production.

What are the Government Initiatives for the Sugar Industry?

➢ **Rangarajan Committee (2012):** It was established to provide recommendations for reforming the sugar industry.

Note:

- ○ **Replacing quantitative controls on sugar** imports and exports with **appropriate tariffs** and ending outright bans on sugar exports.
- ○ **Reviewing the 15 km minimum radial distance between sugar mills**, which can create monopolies and give mills undue power over farmers.
- ○ **Allowing market-determined prices** for by-products and encouraging states to reform policies, enabling mills to generate power from bagasse.
- ○ **Lifting restrictions on the sale of non-levy sugar** to improve the financial health of mills, ensuring timely payments to farmers and reducing cane arrears.

➢ **Fair and Remunerative Price (FRP):** On the recommendations of **Commission for Agricultural Costs and Prices (CACP)** a hybrid approach for fixing sugarcane prices, incorporating the **Fair and Remunerative Price (FRP)** was suggested.

➢ **Ethanol Blending with Petrol (EBP) Programme:** Under **EEP** initiative, ethanol production capacity in molasses/sugar-based distilleries has expanded to 605 crore litres annually, with ongoing efforts to achieve the 20% ethanol blending target by 2025.

➢ **Legislations Measures:**
- ○ **Essential Commodities Act (ECA), 1955**: **ECA,1955** regulates sugar and sugarcane, giving powers to control the sugar sector.
- ○ **Sugarcane (Control) Order, 1966**: Fixes the FRP for sugarcane and ensures timely payments to farmers.
- ○ **Sugar (Control) Order, 1966**: Regulates the production, sale, packaging, and international trade of sugar.
- ○ **Sugar Price Control Order, 2018**: Establishes the **Minimum Selling Price (MSP)** for sugar and allows inspections of sugar mills and storage facilities.

Note:
➢ **Fair and Remunerative Price (FRP):** FRP is the **minimum price sugar mills are mandated to pay farmers for sugarcane.** It is determined by the Central Government, based on the **recommendations of the CACP**, in consultation with state governments and other stakeholders.
➢ **State Advised Price (SAP):** While FRP is set by the central government, **state governments can set their own SAP,** which sugar mills must pay farmers if higher than the FRP.

India's Proposed Shipbuilding Mission

Why in News?

Recently, the **Minister for ports, shipping, and waterways** is preparing a **Shipbuilding Mission** to create a robust **global shipbuilding industry** by 2047, driven by the **Make in India** initiative.

➢ The government is preparing a **comprehensive strategy** to place India among the top maritime powers.

What are the Key Features of the Proposed Shipbuilding Mission?

➢ **Global Market Position:** The government wants to position India among the top **shipbuilding industry and a global maritime hub** by **2047**.
- ○ India currently holds **less than 1%** of the global market share in shipping-related activities.

➢ **Comprehensive Strategy:** The mission has **identified twelve areas** for action including **financing, insurance,** ship ownership and leasing, chartering, shipbuilding, **ship repair, ship recycling,** flagging and registration, operations, technical management, staffing and crewing, and **arbitration**.

➢ **Development of Shipbuilding Parks:** It aims to establish **mega shipbuilding parks** along both coasts of India. The government has invited **South Korea and Japan** to explore foreign investment opportunities.
- ○ They will be established in **Maharashtra, Kerala, Andhra Pradesh, Odisha, and Gujarat.**

➢ **Changing Current Trade Dynamics:** Presently, approximately **95% of India's trade** relies on foreign vessels, resulting in an annual **outflow of USD 110 billion.** The initiative aims to change this dynamic significantly.

➢ **Maritime Development Fund:** The government plans to establish a **Maritime Development Fund** with a corpus of around **Rs 25,000 crore** to provide long-term financing for maritime initiatives.
- ○ It may be set up on the lines of **National Bank For Financing Infrastructure And Development (NaBFID).**

➢ **Allied Missions: Two more missions** are set to launch soon in line with this focused approach.

Note:

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○ **Cruise India Mission:** It will enhance **port infrastructure** and **build exclusive cruise terminals** to accommodate large cruise ships.

○ **Repair and Recycling:** Beyond shipbuilding, India is gearing up to launch a **Ship Repair and Recycling Mission**.

- Kochi, Mumbai, Chennai, Kolkata, and Vadinar (Gujarat) will be further developed to become **major repair hubs**.

➢ **Centre of Excellence:** A Centre of Excellence in Shipbuilding and Repair will be established to **foster innovation** in these sectors.

➢ **Free Trade Depot:** A Free Trade Depot will be set up at shipyards to provide **customs exemptions on imported materials** for vessel repairs.

➢ **International Maritime Dispute Resolution Centre (IIMDRC):** **IIMDRC** has been launched to **resolve maritime disputes** domestically, reducing reliance on global hubs like **Dubai and Singapore**. The IIMDRC provides **merit-based and industry-governed solutions**, positioning India as a global hub for arbitration.

➢ **Domestic Protection and Indemnity Entity:** The Ministry is exploring the establishment of the **India Club,** a domestic entity to **provide third-party maritime insuranc**e for **coastal shipping** and **inland waterways**. It aims to mitigate exposure to international sanctions and pressures. E.g.,US, UK and European Union sanctioned Russian shipping companies due to the **Ukraine war.**

What are the Recent Developments in India's Maritime Sector?

➢ **Port Infrastructure:** India has **ambitious plans** for mega ports across the country, including the recently approved Rs 76,220 crore port at **Vadhavan** in Maharashtra.

○ A mega port has been proposed at **Galathea Bay in the Andaman & Nicobar Islands** to capture **transhipment cargo** currently handled outside India.

➢ **Target of 40 Million TEUs:** The ministry projects that **container handling capacity** in India will reach **40 million TEUs (twenty-foot equivalent units)** in the next five years.

○ **Jawaharlal Nehru Port** will increase its handling capacity from the current 6.6 million TEUs to **10 million TEUs**, positioning itself as the **first Indian port** to achieve this milestone.

➢ **Hydrogen Manufacturing Hubs:** A total of **3,900 acres** of land has been allotted in **Deendayal Port Authority (DPA), Kandla** and **VO Chidambaranar Port Trust (formerly Tuticorin Port Trust)** for setting up **hydrogen manufacturing hubs**.

➢ **Global Expansion: India Ports Global Ltd (IPGL)** took over the operations of terminals at various international ports in **Sri Lanka, Myanmar, and Bangladesh**.

○ Also, India has successfully operationalised its contract for **Chabahar port**.

➢ **Trade Corridors:** The proposed 4,800 km **India-Middle East-Europe Economic Corridor (IMEC)** will link Indian ports with countries like **Saudi Arabia and the United Arab Emirates (UAE)** and eventually extend to Europe.

➢ **MAITRI Platform:** MAITRI (**Master Application for International Trade and Regulatory Interface**) integrates multiple Indian operational portals with those of the UAE, streamlining cross-border trade processes.

○ It is designed as the backbone of the **Virtual Trade Corridor (VTC)** of IMEC which will facilitate secure and efficient **sharing of trade data** between countries.

What are the Key Facts Related to the Shipbuilding Industry?

➢ **About Shipbuilding:** Shipbuilding refers to the **construction, repair, and maintenance** of vessels used for transportation, defence, and trade.

○ Specialised facilities called **shipyards** handle large-scale projects and **complex ship assembly processes**.

➢ **Global Shipbuilding Market Overview:** The global shipbuilding market was valued at **USD 207.15 billion in 2023** and is expected to grow to USD 220.52 billion in 2024.

○ Major shipbuilding countries include **China, South Korea, Japan, India, Germany, and the USA.**

○ **China, South Korea, and Japan** collectively control **85%** of the market.

➢ **India's Share in Shipbuilding Market:** India holds **0.06%** of the global shipbuilding market. India **ranks 12th with USD 1.12 billion i**n shipbuilding exports while **China** leads with **USD 25 billion exports**.

➢ **India's Shipbuilding Market Growth:** In 2022, India's shipbuilding industry was valued at **USD 90 million** and is projected to reach **USD 8,120 million by 2033.**

Note:

○ The Indian shipbuilding market could unlock an opportunity worth over **USD 237 billion by 2047** due to government support, **strategic location,** labour cost advantages.

➤ **India's Top Shipbuilding Companies:**

○ **Mazagon Dock Limited (MDL):** Known for constructing **warships** for the Indian Navy and Coast Guard.

○ **Cochin Shipyard Limited (CSL):** CSL specialises in **offshore vessels, oil tankers, aircraft carriers**. It is the largest shipbuilder in India and country's largest ship-repair facility.

○ **Adani Group Initiative:** In 2024, Adani Group announced a major shipbuilding initiative at **Mundra Port in Gujarat**, with a Rs 45,000 crore investment.

● It aims to position India as a global shipbuilding hub, targeting a **USD 62 billion market by 2047.**

What is Maritime India Vision 2030?

➤ **Maritime India Vision 2030** is a strategic initiative launched to **strengthen the country's maritime sector.**

➤ It has set a bold target to **elevate India's global ranking** in shipbuilding and **ship repair** from over 20th place to the top 10 by 2030 and an ambitious goal has been set for the **top-five position by 2047**.

➤ As of **February 2023**, it estimated an investment to the tune of **Rs 1,00,000 to 1,25,000 crore** for capacity augmentation and development of world-class infrastructure at Indian ports.

Periodic Labour Force Survey (PLFS) Report 2023-24

Why in News?

Recently, the **National Statistical Office (NSO)** released the annual **Periodic Labour Force Survey (PLFS) report 2023-24,** showing the unemployment rate **stagnated at 3.2%** that raises concerns about the inability to **generate enough formal jobs.**

What are the Key Highlights of the PLFS report 2023-24?

➤ **Stagnant Unemployment Rate:** The **unemployment rate for 2023-24** remained unchanged at **3.2%**, the same as in 2022-23.

○ This marks the **first time** since the inception of the PLFS in **2017-18** that the unemployment rate has **not shown a year-on-year decline**.

➤ **Labour Force Participation Rate (LFPR):** It showed a **significant increase** in LFPR to **60.1% in 2023-24 from 57.9% in 2022-23** at national level.

○ The **rural LFPR rose to 63.7%**, while the **urban LFPR increased to 52%.** It suggests more people are seeking work in rural areas, possibly due to **reverse migration** or limited urban job opportunities during and after the pandemic.

● LFPR represents the share of people **either working or seeking work** in the population.

➤ **Increasing Trend in Worker Population Ratio (WPR):** WPR was **58.2% in** the year 2023-2024. The same for **male and female** was **76.3% and 40.3%** respectively.

○ WPR is defined as the percentage of employed persons in the population.

➤ **Marginal Improvement in Job Quality:** There was a marginal improvement in job **quality**, with the share of **salaried or regular wage workers** increasing by **0.8** percentage points to **21.7%**.

➤ **Urban and Rural Divergence:** The unemployment rate in rural areas showed a slight increase, rising to **2.5%** in 2023-24 from **2.4%** in 2022-23.

○ In contrast, the **urban unemployment rate** improved, falling to **5.1%** from **5.4%.**

➤ **Gender Disparity:** The **unemployment rate** for **women rose to 3.2%** (up from 2.9% in 2022-23), while for **men,** it slightly **decreased to 3.2%** from 3.3%.

➤ **Increase in Self-Employment and Unpaid Work:** The share of people engaged in self-employment, including unpaid household work and small businesses, increased to **58.4%** from **57.3%** in 2022-23.

○ Self-employment includes both **entrepreneurial ventures and precarious informal work**, making it a mixed indicator of job quality.

➤ **Challenges in Creating Decent Jobs:** The inability of the economy to generate enough **decent jobs** is pushing more people into **self-employment**, often in the informal sector or unpaid family roles.

○ The share of **wage employment** remains significantly lower than in the pre-pandemic period, highlighting the difficulty in creating formal and secure jobs.

Note:

What are Key Facts About the PLFS Report?

➤ **About:** It is conducted by the NSO under the **Ministry of Statistics and Programme Implementation (MoSPI)** to measure the employment and unemployment situation in India.

  ❍ It was developed to address the limitations of earlier labour force surveys conducted by the **National Sample Survey Office (NSSO).**

➤ **Two Primary Objectives of PLFS:** It was designed with **two major objectives** for measuring employment and unemployment:

  ❍ **First Objective**: To measure the **dynamics of labour force participation and employment status** at short intervals (every three months) for **urban areas** using the **Current Weekly Status (CWS)** approach.

  ❍ **Second Objective**: To measure **labour force estimates** for both **rural and urban areas** using the **Usual Status** and **CWS** parameters.

➤ **Innovations in Sampling Design and Data Collection:** The PLFS introduced **changes in the sampling design** and the **structure of the schedule of inquiry** compared to the previous quinquennial surveys conducted by the NSSO.

  ❍ The PLFS also included **additional data,** such as the **number of hours worked**, which was not collected in the earlier **quinquennial** rounds of the NSSO.

What are Government's Initiatives Related to Employment?

➤ **Support for Marginalised Individuals for Livelihood and Enterprise (SMILE)**

➤ **PM-DAKSH (Pradhan Mantri Dakshta Aur Kushalta Sampann Hitgrahi)**

➤ **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA)**

➤ **Pradhan Mantri Kaushal Vikas Yojana (PMKVY)**

➤ **Start-Up India Scheme**

➤ **Rozgar Mela**

Why India Struggles to Generate Enough Formal Jobs?

➤ **Increasing Informalisation in Employment:** The rise in employment in **agriculture, and construction** is tied to increased informalisation.

  ❍ As these are generally **unprotected by labour laws**, with no access to social security, or job security.

➤ **Technological Advancements:** The introduction of **AI** and **IoT** threatens job prospects for even **skilled workers**, further complicating the employment scenario. There is growing concern that **automation and digitisation** will reduce labour demand.

  ❍ Examples, such as layoffs in IT firms shows **automation** can reduce job opportunities, even for skilled workers.

➤ **Growing Jobseekers:** The **increase in educated job seekers**, particularly those with graduate degrees, raises concerns about the **availability of suitable jobs**, as the demand for such employment appears to be **shrinking.**

➤ **Policy Missteps:** Policy like **demonetization** in 2016 and the poorly implemented **Goods and Services Tax (GST) in 2017** have adversely affected **MSMEs,** leading to a further decline in job creation which employs most of **India's workforce.**

➤ **Stagnant Service Sector:** The output share of sectors like **transport, storage, communication, and financial services** remained steady but their employment share dropped from **6% to 5%, with financial services falling below 1%.**

➤ **Skill Mismatch:** Despite the government's focus on skilling, the share of workers in skilled jobs fell from **18% in 2018-19 to 14% in 2022-23**.

  ❍ This, along with **widening inequality** and a **declining worker-to-population ratio** highlights the growing unemployment challenges.

White Revolution 2.0

Why in News?

Recently, the Ministry of Cooperation unveiled **standard operating procedure (SOPs) for White Revolution 2.0,** aimed at **empowering women farmers** and creating job opportunities.

What are the Key Facts About White Revolution 2.0?

➤ **About White Revolution 2.0:** It is an initiative to **increase milk production** along with empowerment of women and the fight against **malnutrition**.

Note:

○ It is in line with **White Revolution** launched in **1970 by Dr. Verghese Kurien** that transformed the dairy-deficient nation into the global leader in milk production.

○ White Revolution is also known as **'Operation Flood'.**

➢ **Target under White Revolution 2.0:** Dairy cooperatives are projected to **procure 100 million kilograms** of milk daily by the end of the **5th year** of the initiative.

○ It aims to **increase procuremen**t led by cooperatives from the present **660 lakh litres per day to 1,000 lakh litres.**

➢ **Launch of Margdarshika (SOPs):** Margdarshika (SOPs) has been launched to **form 200,000 new multipurpose primary agricultural cooperatives (MPACs).**

○ It will foster new cooperatives in **panchayats** that don't have one for agricultural, fisheries and dairy-related activities.

○ It has been prepared by the **Ministry of cooperation** in collaboration with **NABARD,** and **National Dairy Development Board (NDDB).**

➢ **Women Empowerment:** Maximum women are engaged in the dairy sector, generating business worth **Rs 60,000 crore** in Gujarat alone.

○ The initiative will empower women by absorbing them in **formal employment** as the money will be deposited in their **bank accounts.**

➢ **Tackling Malnutrition:** With the increase in **availability of milk**, the biggest benefit will pass on to the **poor and malnourished children**.

○ It will strengthen the fight against **malnutrition** by ensuring adequate **nutrition** for children.

➢ **Integration with Existing and Upcoming Schemes:** The plan will build on existing government schemes such as the **Dairy Processing and Infrastructure Development Fund (DIDF)** and the **National Programme for Dairy Development (NPDD)**.

○ A new phase, **NPDD 2.0,** is also proposed under the Department of Animal Husbandry and Dairying to further the **cooperative agenda.**

➢ **Expansion of 'Cooperation Among Cooperatives' Initiative:** The government launched the **nationwide expansion** of the **'Cooperation among Cooperatives'** initiative, which was piloted successfully in **Gujarat.**

○ It allows dairy farmers to access **interest-free cash credit** via **RuPay Kisan Credit Cards** and will distribute **micro-ATMs** to bring financial services to rural areas.

➢ **PACS Computerisation: Standard operating procedures (SOPs)** for the computerisation of **Primary Agriculture Credit Societies (PACS)** was launched to **modernise PACS**, ensuring more efficient and transparent operations.

What is the Current Status of Milk Production in India?

➢ **Global Ranking:** India is the **world's top milk producer**, with production having reached **231 million tonnes during 2022-23**.

○ In **1951-52**, the country produced just **17 million tonnes** of milk.

➢ **Top Milk-Producing States:** As per the Basic Animal Husbandry Statistics (BAHS) 2023, the **top five** milk producing states are **UP (15.72%), Rajasthan (14.44%), Madhya Pradesh (8.73%), Gujarat (7.49%), and Andhra Pradesh (6.70%)**, which together contribute 53.08% of the country's total milk production.

➢ **Per Capita Availability of Milk:** The national per capita availability of milk is **459 grams/ day**, which is higher than the global average of **323 g/day.**

○ However, it varies from **329 g in Maharashtra** to **1,283 g in Punjab.**

➢ **Milk Production by Animal Type:** Almost **31.94%** of the total milk production comes from **indigenous buffaloes**, followed by **29.81% from crossbred cattle**. The share of goat milk is 3.30%, and that of exotic cows, 1.86%.

➢ **Contribution of Dairy to the Agriculture and Livestock Sector:** The **milk group** (milk, ghee, butter, and lassi) contributed approximately **40%** of the **total output value** from agriculture, livestock, forestry, and fishing sectors in 2022-23.

○ This amounted to **Rs 11.16 lakh crore**, making it a much larger contributor than cereals to the agricultural sector.

What is the Need of White Revolution 2.0?

➢ **To Increase Milk Productivity:** The **average yield** is only **8.55 kg per animal per day for exotic/crossbred animals**, and **3.44 kg/animal/day for indigenous animals**.

○ The yield in Punjab is **13.49 kg/ animal/ day (exotic/ crossbreed)**, but only **6.30 kg/ animal/ day in West Bengal**.

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- ➤ **Reversing the Decline in Annual Growth Rate of Milk Production:** The growth rate decreased from **6.47%** in 2018-19 to **3.83%** in 2022-23, indicating a **deceleration** in the rate of increase in milk production.

- ➤ **Formalisation of Milk Consumption Pattern:** About **63%** of the total milk production comes to the **market**; the remaining is kept by producers for their **own consumption.**
  - ○ About **two-thirds** of the marketable milk is in the **unorganised sector**.
  - ○ In the **organised sector**, cooperatives account for the major share.

- ➤ **Milk as the Top Food Expenditure in India:** In **rural India**, the average monthly expenditure on milk per person was **Rs 314**, surpassing other food items like vegetables, cereals, and eggs.
  - ○ Similarly, in **urban India**, milk expenditure was **Rs 466**, higher than fruits, vegetables, cereals, and meat.

- ➤ **Checking Rising Milk Prices:** The **all-India modal price** of milk increased from **Rs 42 to Rs 60 per litre** over the past five years due to **rising input costs**, including fodder and feed.
  - ○ There is concern that further price increases may lead to **demand destruction**, as consumers may find milk **unaffordable.**

- ➤ **Methane Emissions:** Livestock emissions from manure and gastroenteric releases account for roughly **32% of human-caused methane emissions** which is a major cause of global warming.

How can Milk Production be Increased Under White Revolution 2.0?

- ➤ **Genetic Improvement:** The introduction of **sex-sorted (SS) semen** can increase the probability of **female calves with higher milk productivity, such as Kankrej and Gir, being born to 90%,** thereby boosting the number of future milk-producing cows.
  - ○ Sex-sorted (SS) semen allows for the production of offspring of a **desired sex** e.g., only female calves.

- ➤ **Embryo Transfer (ET) Technology:** **ET technology** can further enhance the productivity of **high-genetic-merit (HGM) cows** by allowing **multiple embryos** to be produced and implanted into different **surrogate cows**.
  - ○ Through this method, a single HGM cow can potentially produce **12 calves per year**, compared to 5-7 calves over its lifetime through normal breeding.

- ➤ **In Vitro Fertilisation (IVF) Technology:** In **IVF technology**, immature ova are extracted, **fertilised in a lab**, and then implanted in surrogate cows.
  - ○ It can produce **33-35 calves per donor cow per year**, allowing for a **quicker scaling** of the cow population with **high milk yields.**

- ➤ **Nutrition and Feed Intervention at Low Cost:** Along with genetic improvement, interventions in **animal nutrition** are essential to reduce feed costs.
  - ○ **Amul** is setting up a **Total Mixed Ration (TMR)** plant in Gujarat, which will produce **affordable ready-to-eat fodder** mixes consisting of maize, jowar, and oat grass for animals.
  - ○ TMR is a feeding method that combines forages, grains, proteins, minerals, vitamins, and additives into a single nutrient-rich feed for cows.

- ➤ **Improved Diet Quality:** Providing easily digestible forages like **legumes and grains** reduces fermentation time, lowering methane production.
  - ○ **Specific feed additives** can directly **inhibit the microbes** responsible for methane production.
  - ○ Released methane can be further used for **biogas production.**

What are the Related Schemes for the Livestock Sector?

- ➤ **Animal Husbandry Infrastructure Development Fund (AHIDF)**
- ➤ **National Animal Disease Control Programme**
- ➤ **Rashtriya Gokul Mission**
- ➤ **National Artificial Insemination Programme**
- ➤ **National Livestock Mission**

Need of Reforms in Diamond Sector

Why in News?

According to the think tank **Global Trade Research Initiative (GTRI)**, India's **diamond** sector is experiencing a major downturn, marked by significant **declines in imports and exports** over the past **three years.**

- ➤ It has led to defaults, factory closures, and widespread job losses for which reforms in the diamond sector are needed.

Note:

What is the Current State of Crisis in India's Diamond Industry?

➢ **Sharp Decline in Diamond Imports and Exports:** Rough diamond imports **fell by 24.5%**, from **USD 18.5 billion** in FY 2021-22 to **USD 14 billion** in FY 2023-24.

  ❍ **Exports** of cut and polished diamonds dropped by **34.6%,** from **USD 24.4 billion** in FY 2022 to **USD 13.1 billion** in FY 2024.

➢ **High Inventory of Unprocessed Rough Diamonds:** The **gap** between net imports of rough diamonds and net exports of cut and polished diamonds has **widened significantly**, from **USD 1.6 billion** in FY 2022 to **USD 4.4 billion** in FY 2024.

  ❍ **Rough Diamonds refer to** diamonds which are still in their **natural state** after being removed from the earth and **before being shaped and polished.**

➢ **Increased Returns of Unsold Diamonds:** The percentage of **unsold diamonds** **returned** to India rose from **35% to 45.6%** during the period from FY 2022 to FY 2024.

➢ **Impact on Employment and Factory Closures:** The industry, which provides direct employment to **1.3 million workers**, has been hit hard leading to joblessness and suicides.

What is the Importance of Gems and Jewellery Industry for India?

➢ **Contribution to India's Economy:** As of January 2022, the gold and diamond trade accounted for approximately **7%** of India's **Gross Domestic Product (GDP)**, showcasing its **significant role** in the national economy.

➢ **Employment:** The gems and jewellery sector **employs** around **5 million people**, making it a crucial industry for job creation in India.

  ❍ The Indian diamond industry comprises **over 7,000 companies**, mainly **small and medium enterprises (SMEs)**, concentrated in Surat in Gujarat, and Mumbai in Maharashtra.

  ❍ **Surat, Mumbai, Jaipur, Thrichor, Nellore, Delhi, Hyderabad and Kolkata** are the major hubs for gems and jewellery in India.

  ❍ **Surat** alone employs about **800,000 workers** in diamond cutting and polishing.

➢ **FDI Policy:** The Government has allowed **100% Foreign Direct Investment (FDI)** in the gems and jewellery sector under the **automatic route**.

  ❍ Between April 2000 and March 2024, **cumulative FDI inflows** into India's diamond and gold ornaments sector totaled **USD 1,276.52 million**.

➢ **Growth and Export Performance:** In FY2021, the size of India's gems and jewellery market stood at **USD 78.50 billion**.

  ❍ In FY24, India's gems and jewellery **exports** were at **USD 22.27 billion**, reflecting the sector's resilience despite global challenges.

What are the Reasons for the Crisis in India's Diamond Industry?

➢ **Economic Uncertainty: Demand** for polished diamonds has **dropped** sharply in key markets like the **US, China, and Europe** due to **economic uncertainty, inflation, and geopolitical tensions,** leading to reduced consumer spending on luxury goods, including diamonds.

➢ **Russia-Ukraine Conflict:** The **Russia-Ukraine conflict** has also disrupted the **global diamond supply chain**, with sanctions on **Russia**, a major rough diamond producer.

  ❍ It further complicated trade and slowed down the global diamond trade.

➢ **Fluctuations in Prices:** Fluctuations in global diamond prices have caused uncertainty, with buyers **hesitant** to purchase rough diamonds in anticipation of **further price drops**.

➢ **Preferences to Lab-Grown Diamonds:** Consumer preferences are shifting toward **lab-grown diamonds**, which are more **affordable, ethical, and sustainable**. It is also impacting the demand for **natural diamonds**.

  ❍ Lab grown diamonds are **man made diamonds** that are **chemically and optically identical** to natural mined diamonds.

➢ **Rising Operational Costs:** Rising **operational costs** (high labour, energy, and materials cost) and **reduced profit margins** in the global diamond trade, have made it difficult for many polishing units to remain **viable.**

  ❍ It has led to shop closures and layoffs, especially in Surat.

➢ **Tighter Credit Conditions:** The diamond industry is heavily dependent on **financing**, but tighter credit conditions like **higher interest rates** and **reduced lending** from banks have made it difficult for companies to purchase rough diamonds, stalling production further.

➢ **Regulatory Issues:** India's **high corporate tax** regime on foreign suppliers of rough diamonds has led to more

Note:

rough diamonds being **re-exported from UAE,** rather than India thus weakening India's **Special Notified Zones (SNZs)** in Mumbai and Surat.

  ○ UAE imports rough diamonds from **Botswana, Angola, South Africa, Russia** and re-exports these to India.

  ○ As a result, **UAE's share** in India's rough diamond imports has **surged,** from **36.3% in FY 2020 to 64.5%** in the f**irst quarter of FY 2024**, while **Belgium's share fell** from **37.9% to 17.6%** during the same period.

    ● UAE enjoys **zero tariff on cut and polished diamonds** exported to India under the **India-UAE Comprehensive Economic Partnership Agreement (CEPA).**

➢ **Complex Customs Procedures:** A significant portion of cut and polished diamonds exported from India are being **returned due to quality issues**, overstocking by buyers etc.

  ○ Handling these returns is **costly and time-consuming** due to **complex customs procedures**, putting further strain on exporters.

What can be Done to Address the Crisis in India's Diamond Industry?

➢ **Extend Export Credit Terms:** The **Reserve Bank of India (RBI)** could extend the export credit period for cut and polished diamond exporters from **6 to 12 months**, as buyers demand longer credit terms.

  ○ The **export credit period** refers to the duration for which credit is extended to exporters to finance their export operations.

➢ **Exempt Foreign Diamond Sellers from Corporate Tax:** GTRI suggests exempting foreign sellers of rough diamonds from corporate tax in India, as the current tax structure pushes sellers to **re-routing** it through the UAE.

➢ **Regulate the Lab-Grown Diamond Industry:** The rising demand for **lab-grown diamonds** requires **regulation** to ensure a fair and sustainable market for natural diamonds.

➢ **Reconsider Zero Tariff Import from Dubai:** The **zero tariff** on cut and polished diamonds imported from UAE under the India-UAE trade pact needs to be reconsidered to protect the domestic diamond industry.

➢ **Shift towards Organised Players:** Large retailers and organised players can offer a wider variety of designs and products and help in expanding India's gems market both domestically and internationally.

US Federal Reserve's Rate Cut and Implications

Why in News?

Recently, the **United States (US) Federal Reserve** cut its benchmark **interest rates by 50 basis points**, marking its first significant reduction since the onset of the **Covid-19 pandemic.** This move signals a strategic approach to combat inflation while promoting economic growth.

> **Note:** The US Federal Reserve conducts the nation's **monetary policy to promote maximum employment, stable prices**, and moderate long-term interest rates in the US economy.

Why Did the US Federal Reserve Cut Interest Rates?

➢ **Economic Recovery Post-Pandemic:** Following the Covid-19 pandemic, the Federal Reserve initially slashed interest rates to stimulate the economy. However, as **inflation** surged due to various factors, including **global supply chain disruptions (due to Russia-Ukraine Conflict),** the Federal Reserve raised rates to combat rising prices.

➢ **Moderation of Inflation:** By mid-2023, inflation had started to stabilise, moving closer to the **Federal Reserve's target of 2%.**

  ○ Recent jobs data showed that **high interest rates were negatively impacting employment,** with **U.S. unemployment rising to 4.2% in August 2024.** This raised concerns about a **potential recession,** prompting the Federal Reserve to prioritize job creation alongside price stability.

➢ **Dual Mandate**: The Federal Reserve operates under a **dual mandate of maintaining stable prices and achieving maximum employment.** As the economic landscape evolved, it became clear that a **rate cut would help balance these objectives.**

➢ **Implications for US:**

  ○ By cutting rates, the US hopes to balance inflationary pressures. Although inflation has moderated, the central bank is focused on maintaining its **target rate of around 2%,** seeking a "soft landing" for the economy.

Note:

- Lower interest rates typically make loans cheaper for both individuals and businesses. With unemployment rising, the Fed is prioritising job creation alongside price stability.
- The rate cut could help **reduce borrowing costs for businesses, potentially leading to increased hiring** and economic expansion.

How Inflation and Unemployment are Related?

➢ **Inverse Correlation:** Generally, inflation and unemployment are inversely related—when one rises, the other falls.
  ○ During **periods of low unemployment, wage inflation tends to rise** as employers offer higher wages to attract workers, eventually pushing prices higher.
    - Conversely, **in times of high unemployment,** wage growth remains stagnant, **leading to lower inflation.**

➢ **Phillips Curve**: The **Phillips Curve** is an economic theory that explains the inverse relationship between an **economy's unemployment rate and inflation rate,** as initially suggested by A.W. Phillips in the 1950s.
  ○ The Phillips curve suggests that **higher demand for labour during low unemployment periods leads to higher wages,** which, in turn, drives inflation.
    - This model has been widely used in monetary policy, particularly in balancing inflation and employment levels.

How will India be Affected by the Federal Reserve Rate Cut?

➢ **Impact on Emerging Markets:** The US plays a significant role in the global economy. A lower US interest rate makes **investing in countries like India more appealing through carry trades.**
  ○ Carry trade is a strategy where **investors(Foreign Institutional investors) borrow money in the US (where rates are low)** and invest it where rates are higher, making a profit on the difference.

➢ **Limited Impact:** Chief Economic Adviser of India noted that while the **rate cut could lower the dollar cost of capital and increase liquidity,** it cannot be viewed as a standalone solution for boosting the global economy.

➢ **Increased Foreign Investment**: Lower US interest rates may incentivize global investors to borrow in the US and invest in India. This influx could take the form of **Foreign Direct Investment (FDI), or debt**

from the US, providing much-needed capital for the Indian economy.

➢ **Stock Market Sentiment:** The rate cut has attracted **considerable investor interest in the Indian stock market,** indicating a positive sentiment among investors despite global uncertainties.

➢ **Crude Oil Prices:** When the US dollar weakens, **oil becomes cheaper for holders of other currencies**, leading to increased demand and potentially higher prices.
  ○ Increased oil prices may **increase India's energy import costs** and potentially reigniting inflation in India.

➢ **Impact on Currency Exchange Rates**: A weakening US dollar against other currencies, including the Indian rupee, could adversely affect **Indian exporters while benefiting importers**.

➢ **RBI's Response**: The **Reserve Bank of India (RBI)** faces pressure to cut interest rates, but it operates **under different inflation targets** and economic mandates compared to the Federal Reserve.
  ○ The RBI is more focused on **Gross Domestic Product (GDP)** growth and is not as heavily influenced by US unemployment data.

Federal Tapering

➢ Federal tapering refers to the process by which the Federal Reserve gradually reduces **its large-scale asset purchases**, a monetary policy tool often employed during economic crises.
  ○ This strategy, commonly **associated with quantitative easing (QE),** aims to **stimulate the economy by lowering interest rates** and **increasing liquidity in financial markets.**
  ○ Tapering is intended to withdraw some of the economic stimulus provided during crises, transitioning towards a more normalised monetary policy.

India's Repo Rate

➢ The **RBI**, at the **50th Monetary Policy Committee (MPC) meeting**, decided to keep the policy **repo rate unchanged at 6.50%**.
  ○ This decision reflects the committee's approach to managing inflation while supporting economic growth.
  ○ The MPC's primary objective is to **align inflation with the target rate of 4.0%** with a tolerance band of **+/- 2% points.**

Note:

FATF Mutual Evaluation Report on India

Why in News?

Recently, the **Financial Action Task Force (FATF)** released its **Mutual Evaluation Report on India**, highlighting the country's significant progress in combating illicit finance.

> **Note:** The **FATF plenary held in Singapore in June 2024** adopted the **Mutual Evaluation Report for India,** stating that it had achieved **"high level of technical compliance"** with the requirements of the global money laundering watchdog.
>
> ➢ The FATF had placed India in the **"regular follow-up" category**, the highest rating category by FATF becoming the only major economy with a **federal structure** to achieve this status.
>
>   ○ UK, France and Italy are among the only **G-20 countries** which have been placed in this category apart from India.

What are the Key Highlights of the FATF Mutual Evaluation Report on India?

➢ **Areas Requiring Improvement:** India was found partially compliant in three areas.

  ○ **Non-Profit Organisations (NPOs):** NPOs registered as charitable organizations and enjoying **tax exemptions** could be vulnerable to **terror funding.**

    ● The system requires better measures to address risks associated with these organisations.

  ○ **Politically Exposed Persons (PEPs):** Ambiguities exist regarding the source of wealth, source of funds, and beneficial ownership for domestic PEPs. The government needs to address these ambiguities.

  ○ **Designated Non-Financial Businesses and Professions (DNFBPs):** Gaps exist in the regulation and supervision of DNFBPs, especially regarding money laundering and terror financing.

    ● DNFBPs contribute significantly to **India's Gross Domestic Product (GDP)**, with precious metals and stones accounting for 7% and real estate 5%.

➢ **Money Laundering Risks:** Illegal activities within India are the **primary sources of money laundering risks**, including fraud, **cyber fraud**, **corruption**, and **drug trafficking.**

➢ **PMS Vulnerable to Money Laundering:** Precious metals and stones (PMS) can be **used to move large amounts of funds** without leaving an ownership trail.

  ○ The size of India's PMS market contributes to its vulnerability to money laundering and terrorist financing. The **sector includes approximately 1,75,000 dealers, but only 9,500 are registered** with the **Gems and Jewellery Export Promotion Council (GJEPC).**

  ○ The FATF report noted that **criminal networks operating cross-border in the PMS sector may be under-investigated** by law enforcement.

  ○ Given India's global role as a major consumer and producer of refined diamonds and gems, **fraud and smuggling techniques** need to be continuously monitored to prevent money laundering activities.

    ● There is a need for **better risk understanding and deeper qualitative and quantitative data** on the ML/TF risks associated with gold and diamond smuggling.

➢ **Terrorist Financing Threats:** India faces significant terrorism threats, particularly from **Islamic State of Iraq and the Levant (ISIL) and Al-Qaeda-**linked groups active in and around Jammu and Kashmir.

  ○ **Regional insurgencies in the Northeast** and **Left-Wing Extremist groups** also pose terrorism risks.

  ○ While the country emphasizes **prevention and disruption of terrorist financing,** more effort is required to conclude prosecutions and convict terrorist financiers.

➢ **Financial Inclusion:** India has significantly enhanced financial inclusion, with a sharp **rise in bank account holders and the increased use of digital payment systems.**

  ○ Simplified due diligence for small accounts has supported financial transparency and contributed to AML/CFT efforts.

  ○ Acknowledged the **Jan Dhan-Aadhaar-Mobile (JAM) initiative** for promoting digital payments.

  ○ Appreciated the implementation of **Goods and Services Tax (GST),** e-invoices, and e-bills for increasing supply chain transparency.

➢ **Action Against Terror Financing:** Acknowledged effective action against terror financing by the **National Investigation Agency (NIA)** and the **Enforcement Directorate.**

Note:

➢ **FATF's Recommendations:**
  ❍ **Pending Trials**: India needs to expedite the conclusion of **pending money laundering trials** and improve its handling of crimes like **human trafficking** and drug-related offences.
  ❍ **Targeted financial sanctions:** India must improve its framework to ensure the freezing of funds and assets without delay and streamline communication regarding sanctions.
  ❍ **Domestic PEPs:** India needs to define domestic PEPs under its anti-money laundering laws and implement risk-based enhanced measures for them.

What are the Implications of FATF's Mutual Evaluation for India?

➢ **International Collaboration and Asset Recovery:** India's recognition from FATF enhances its ability to cooperate with other nations in **tracking and recovering illicit assets**, including those related to **fugitive offenders** like **Vijay Mallya and Nirav Modi.**
  ❍ Improved collaboration with global financial watchdogs aids in **counter-terror financing efforts**.
➢ **Improved Access to Global Financial Systems:** FATF ratings improve India's access to **global financial markets**, enabling **easier borrowing** and investments from international institutions.
  ❍ The recognition supports the **global expansion** of India's **Unified Payments Interface (UPI)**, making it a preferred choice for **cross-border digital payments**.
➢ **Strengthening Investor Confidence:** Positive evaluation enhances **India's credibility** and boosts **foreign investor confidence** in financial markets, making India a more attractive destination for **foreign direct investments (FDI)**.

Relative Economic Performance of Indian States Report

Why in News?

The **Economic Advisory Council to the Prime Minister (EAC-PM)** recently released a report titled **'Relative Economic Performance of Indian States: 1960-61 to 2023-24'**.

➢ The report highlighted a significant disparity in the **economic performance of Indian state**s from 1960-61 to 2023-24.

What are the Key Findings of the EAC-PM Report?

➢ **Economic Performance:**
  ❍ **Southern States' Growth:** Southern states **(Karnataka, Andhra Pradesh, Telangana, Kerala, Tamil Nadu)** have emerged as **major contributors to India's GDP,** accounting for **30%** by March 2024.
    ● Their growth **accelerated post-liberalization**, with significant advancements in sectors like technology and industry.
  ❍ **West Bengal's Economic Decline:** West Bengal's **GDP** contribution has **decreased** from **10.5% in 1960-61 to 5.6% in 2024**.
    ● West Bengal's **per capita income** fell from **127.5% of the national average in the 1960s** to **83.7% in 2024**, now behind Rajasthan and Odisha.
    ● **West Bengal's decline is due to policy stagnation**, industrial decline, political instability, and the migration of skilled talent, all of which have hindered growth and discouraged investment.
  ❍ **Maharashtra** remains the largest GDP contributor at **13.3%**, but its share has declined from over 15%.
➢ **Per Capita Income Data:**
  ❍ **Delhi, Telangana, Karnataka, and Haryana** had the **highest relative per capita income** in 2023-24.
    ● Delhi's per capital income is at 250.8% of the national average.
  ❍ **Gujarat (160.7%** of the national average) and **Maharashtra (150.7%** of the national average) have maintained above-average incomes since the 1960s.
  ❍ Odisha **per capita income** improved significantly, rising from 55.8% in 2000-01 to 88.5% in 2023-24.
  ❍ **Punjab vs. Haryana: Punjab** has seen **stagnation in economic growth since 1991**, with per capita income falling to 106% of the national average.
    ● In contrast, **Haryana has experienced substantial growth,** with per capita income rising to 176.8%.

Note:

○ **Among Smaller States:** Sikkim's per capita income **rose** from 93% of the national average in 1990-91 to **319% in 2023-24,** while **Goa's increased** from 144% in 1970-71 to **290%**. Both are now India's richest states by per capita income.

RICHEST INDIAN STATES
BY RELATIVE PER CAPITA INCOME — INDIA TODAY

STATE	1960–61	2023–24
DELHI	218.30%	250.80%
TELANGANA	–	193.60%
KARNATAKA	96.70%	180.70%
HARYANA	106.90%	176.80%
TAMIL NADU	109.20%	171.10%

➤ **Challenges for Poorest States:** States like Uttar Pradesh and Bihar struggle to keep pace, with **Uttar Pradesh contributing only 9.5% of GDP** and **Bihar just 4.3%**.

○ Despite some improvements in states like Odisha, Bihar remains significantly behind in economic growth.

POOREST INDIAN STATES
BY RELATIVE PER CAPITA INCOME — INDIA TODAY

STATE	1960–61	2023–24
BIHAR	70.30%	32.80%
JHARKHAND	–	57.20%
UP	82.40%	50.80%
MANIPUR	50.30%	66%
ASSAM	102.90%	73.70%

➤ **Need for Policy Investigation:** The report highlights the **need for deeper investigation into the policies** and factors influencing state-level economic growth, particularly to address the widening regional disparities in India.

Table : Relative per capita income

State\UT	1960-61	1970-71	1980-81	1990-91	2000-01	2010-11	2020-21	2023-24
Large states								
Andhra Pradesh^	89.9	92.4	75.4	79.9	100.9	.	.	.
Andhra Pradesh	.	.	.	.	.	108.7	132.1	131.6
Telangana	.	.	.	.	.	123.9	177.4	193.6
Assam	102.9	84.5	70.2	75.5	64.7	61.2	68.3	73.7
Bihar^	70.3	63.5	50.1	46.9	.	.	.	.
Bihar	.	.	.	.	31.2	35.4	33.1	32.8
Jharkhand	.	.	.	.	52.8	64.3	55.0	57.2
Madhya Pradesh^	82.4	76.5	74.2	71.4	.	.	.	.
Madhya Pradesh	.	.	.	.	65.1	60.1	80.2	77.4
Chhattisgarh	.	.	.	.	59.9	76.2	83.4	80.0
Gujarat	118.3	131.0	106.0	103.9	108.4	143.4	162.9	160.7*
Haryana	106.9	138.5	129.5	132.4	140.2	173.7	176.5	176.8
Karnataka	96.7	101.3	83.1	81.1	107.6	115.2	174.3	180.7
Kerala	84.6	93.8	82.4	74.1	121.5	129.5	152.8	152.5
Maharashtra	133.7	123.7	133.0	131.2	132.2	157.1	144.4	150.7
Odisha	70.9	75.5	71.8	54.3	55.8	73.2	81.1	88.5
Punjab	119.6	169.0	146.1	146.7	146.2	128.8	118.4	106.7
Rajasthan	92.8	102.8	66.8	73.9	75.6	82.6	90.3	91.2
Tamil Nadu	109.2	91.8	81.8	87.9	122.9	145.3	164.7	171.1
Uttar Pradesh^	82.4	76.8	69.8	63.3	.	.	.	.
Uttar Pradesh	.	.	.	.	55.3	49.4	48.6	50.8
Uttarakhand	.	.	.	.	77.7	136.6	137.2	141.3
West Bengal	127.5	114.1	96.9	82.4	97.5	87.5	82.6	83.7
Delhi	218.3	189.4	220.2	195.0	256.8	268.7	253.3	250.8
Small States								
Arunachal Pradesh	.	55.9	85.8	95.2	88.8	112.8	142.7	118.0*
Goa	.	144.7	171.8	155.1	300.2	311.0	332.5	290.7*
Himachal Pradesh	.	107.1	93.1	86.6	120.4	126.4	136.1	127.7
Manipur	50.3	60.2	77.5	70.1	66.8	52.5	59.6	66.0*
Meghalaya	.	74.4	77.1	88.4	81.0	71.3	74.3	
Mizoram	.	.	70.4	78.9	111.7	94.3	136.4	126.9*
Nagaland	.	75.5	74.4	88.0	106.5	102.9	94.1	85.9*
Sikkim	.	.	85.8	93.5	99.7	201.7	326.2	319.1
Tripura	81.4	79.3	71.4	59.4	92.1	85.2	93.1	96.5
Andaman & Nicobar Islands	.	.	142.8	98.6	147.5	149.1	161.4	152.3*
Chandigarh	.	.	.	.	268.9	234.4	228.3	235.8*
Jammu & Kashmir	87.9	86.6	97.0	67.3	77.2	74.2	79.9	77.2
Puducherry	.	130.3	152.7	117.8	212.6	187.1	164.1	142.3

What are the Reasons for Steady Growth in West and South States?

➤ **Robust Industrial Base:** Gujarat and Maharashtra have a strong, diverse **manufacturing base in sectors like textiles, chemicals, and engineering**.

○ Their investment-friendly policies have **created a business-friendly environment, attracting significant domestic and foreign investments**.

➤ **Thriving Service Sector:** Southern states like Karnataka and Tamil Nadu have experienced **rapid urbanisation and improved infrastructure**, **boosting their IT and services sectors**.

○ A strong focus on **education and skill development** has created a **skilled workforce,** enhancing productivity and economic growth.

➤ **Agricultural Advancements:** Maharashtra and Kerala have adopted sustainable agricultural practices such as **organic farming**, **crop diversification**, **water-efficient irrigation techniques**, **agroforestry** and diversified outputs, boosting productivity and food security.

○ Government support in **irrigation, market access, and technology** has further enhanced agricultural performance and economic growth.

➢ **Strong Regional Connectivity:** The Western and Southern regions have **strong transport and logistics networks,** with Gujarat's ports and Tamil Nadu's roadways enhancing trade.

  ○ **Proximity to major markets** boosts local demand, driving economic growth in these states.

Economic Advisory Council to the Prime Minister (EAC-PM)
➢ It is an **non-constitutional, non-statutory, independent** body constituted to give **advice on economic and related issues** to the Government of India, specifically to the **Prime Minister.** ➢ The council serves to **highlight key economic issues** to the government of India from a neutral viewpoint.   ○ It **advises the Prime Minister** on economic issues like **Inflation, Microfinance,** and **Industrial output.** ➢ **NITI Aayog** serves as the Nodal Agency for the EAC-PM for administrative, logistic, planning and budgeting. ➢ **Periodic Reports:** Annual Economic Outlook, Review of the Economy.

What Measures Can be Taken to Enhance the Economic Performance of the States?

➢ **Decentralised Planning and Governance:** Empower local governments to formulate and implement **development plans tailored to regional needs, involving local communities** in decision-making processes to ensure inclusivity.

➢ **Infrastructure Development:** Prioritise investments in roads, railways, ports, and digital connectivity through **Public-Private Partnerships (PPP)** to enhance **trade and mobility, ensuring timely execution** and resource mobilisation.

➢ **Sectoral Focus and Diversification:** Enhance agricultural productivity through **technology adoption** and better irrigation while **promoting agro-based industries.**

  ○ Encourage **sector-specific policies** that boost manufacturing (e.g., textiles, electronics) and services (e.g., IT, tourism) based on regional advantages.

➢ **Skill Development and Human Capital:** Implement **vocational training programs aligned with industry needs** to enhance employability while **improving education quality** by focusing on critical thinking and access to higher education.

➢ **Innovation and Entrepreneurship:** Foster a culture of innovation by **supporting startups** through incubators and funding, and **encourage collaboration between academia, industry, and government** for research initiatives that lead to technological advancements.

➢ **Digital Transformation:** Implement digital solutions for governance to **ensure transparency and efficiency** in public service delivery, while promoting digital literacy programs to equip citizens with necessary skills.

➢ **Collaborative Governance:** Foster **collaboration between states to share best practices** and resources, ensuring **effective coordination between central and state** governments to align policies and resources for development.

Steel Sector Decarbonization

Why in News?

The **Ministry of Steel** is actively considering **funding strategies to support decarbonization initiatives in the steel sector,** in response to increasing environmental concerns and the push for sustainable industry practices.

What Options are Being Considered for Steel Sector Decarbonisation?

➢ **Performance-Linked Incentives (PLI):** The Steel Ministry is contemplating using **PLI schemes** to fund decarbonisation projects. Discussions are in the initial stages, and the exact mechanisms are yet to be finalised.

  ○ A Steel Ministry report estimates that nearly **USD 300 billion will be needed for comprehensive decarbonisation.** This includes over **USD 13 billion for technology upgrades at small steel mills** and an additional USD 150 billion for advanced technologies like **direct reduction of iron** and **carbon capture.**

    ● Direct reduction of iron is the r**emoval of oxygen from iron ore or other iron bearing materials in the solid state,** i.e. without melting, as in the **blast furnace.**

  ○ **India's Green Steel Policy** is in the works, with several PLI schemes being discussed for decarbonisation activities in the sector, though still in initial stages.

➢ **Natural Gas:** **Natural gas** is being considered as a potential substitute for coal or coke in blast furnaces to reduce emissions.

Note:

drishti

- Energy consumption in most Indian steel plants is **6-6.5 Gigacalorie (Gcal)/tonne, higher than 4.5-5 Gcal/tonne in foreign plants,** due to coal use and older technologies.
    - India's steel industry **carbon dioxide (CO_2)** intensity is projected to reduce from 3.1 T/tcs((tonne / tonne of crude steel produced) in 2005 to 2.64 T/tcs by 2020, with a goal of 2.4 T/tcs by 2030 (1% annual reduction).

➤ **Import Duties and Protection Measures:** Discussions are underway to protect the **domestic industry from foreign imports through mechanisms such as price adjustments, increased import duties** (potentially from 7.5% to 10-12%), and safeguard duties.

- The **goal is to balance import and export trends,** as India has shifted from being a net exporter to a net importer of steel in fiscal 2024, with a trade deficit of 1.1 million tonnes.
- These measures are part of the broader strategy to support the steel sector **decarbonisation efforts while addressing competitive pressures from international markets.**

What is Decarbonisation of the Steel Sector?

➤ **About:** Decarbonisation of the Steel Sector refers to the process of **reducing carbon dioxide (CO_2) emissions** and overall carbon footprint in steel production and producing **Green Steel.** This is crucial for mitigating climate change and sustainability.

➤ **India's Steel Industry Overview:** India is the **second-largest crude steel producer,** with 179.5 million tonnes capacity and the largest **sponge iron production** at 55 million tonnes (FY 2023-24).

- India's per capita **steel consumption is 97.7 kg (FY 2024), below the global average of 221.8 kg (2022).** The **National Steel Policy 2017** aims to raise consumption to 160 kg by 2030, with rapid growth expected beyond.
- India remains a net importer of steel, with a **25% increase in imports compared to the previous year**, and a 40% decrease in exports for the April to August (FY25) period of the fiscal.

➤ **India's Climate Commitment**: India is committed to **low-carbon development despite contributing only 4% to global Greenhouse Gas (GHG) accumulation** while housing 17% of the global population.

- Revised **Nationally Determined Contributions (NDCs)** focus on **renewable energy** and greening the industrial sectors.
- To meet the **2070 net-zero target,** India's industrial **sector, including steel,** must decarbonize.

➤ **Significance of Decarbonization of Steel:** The steel industry accounts for **10-12% of India's total emissions,** making its decarbonisation crucial for meeting the country's climate goals.

- The Ministry of Steel has formed 14 task forces to address decarbonization, focusing on incentivizing green steel, enabling decarbonization levers, and supporting the transition.

➤ **Green Steel:** It refers to the manufacturing of **steel without fossil fuels. Green hydrogen,** produced via **electrolysis** using renewable electricity, and **blue hydrogen,** produced from fossil fuels with **carbon capture**, are solutions to reduce the steel industry's carbon footprint.

- Accelerating the transition to green steel is crucial for reducing the steel sector's carbon footprint.

What are the Unique Challenges to Decarbonizing India's Steel Sector?

➤ **Scrap and Pellet Usage:** Developed countries rely more on scrap, have higher pellet uptake, and access low-carbon fuels, while **India lacks sufficient scrap and has expensive natural gas.**

➤ **Energy Sources:** India uses **low-grade coal and iron ore,** increasing emissions and energy consumption.

- **Emission intensity of Indian steel: 2.54 tonne of CO_2/tonne of crude steel (tCO2/tcs), higher than the global average of 1.91.**
- Integrated steel plants in India use coal-based captive power plants, leading to **higher emissions compared to cleaner grids elsewhere.**

➤ **Research, Development, and Demonstration (RD&D):** RD&D is critical to achieving sustainability in the steel industry, with emerging technologies like **hydrogen-based DRI production** playing a key role.

- India's RD&D expenditure is **relatively low compared to global standards, with only 0.64% of Gross Domestic Product (GDP) allocated**, and only 36% of this coming from the private sector.
- There is a lack of coordinated efforts and consortiums in RD&D, driven by concerns like sharing intellectual property rights.

Note:

➢ **Finance:** Decarbonizing the steel sector requires massive financial investments. The global cost to make the sector net-zero is **estimated between USD 5.2-USD 6.1 trillion.**
  ○ **Indian** steel plants alone will need around **283 billion to transition to green technologies.**
  ○ Barriers to finance include the **complexity of steel production processes, high capital costs, and lack of knowledge regarding low-carbon technologies.**

➢ **CO_2 Emissions Monitoring:** Integrated Steel Plants (ISPs) in India use the **World Steel Association (WSA)** methodology for emissions disclosure. Challenges in this process include **complex supply chains, unreliable and fragmented data, inadequate measurement infrastructure,** and a shortage of skilled experts for carbon management, hindering **effective CO_2 emissions monitoring across the sector.**

What are the Government Initiatives for Promoting Decarbonisation in the Indian Steel Industry?

➢ **Task Forces and Roadmap**: 14 Task Forces were formed under the Ministry of Steel to explore and recommend strategies for decarbonizing the steel sector.

➢ **Steel Scrap Recycling Policy, 2019**: This policy promotes **circular economy and green transition** by enhancing the availability of domestically generated scrap.
  ○ It provides a framework for establishing metal scrapping centres and includes guidelines for scrap processing and the **scrapping of End-of-Life Vehicles (ELVs).**

➢ **National Green Hydrogen Mission**: Launched by the Ministry of New and Renewable Energy (MNRE), this mission focuses on **green hydrogen production and usage**, with the steel industry being a stakeholder.

➢ **Motor Vehicles Scrapping Rules, 2021**: These rules increase the availability of scrap for the steel sector by establishing a framework for vehicle scrapping.

➢ **National Solar Mission**: Launched in January 2010, this mission promotes **solar energy use,** contributing to emission reductions in the steel industry.

➢ **Perform, Achieve, and Trade (PAT) Scheme**: Under the **National Mission for Enhanced Energy Efficiency,** this scheme incentivizes energy savings in the steel sector.
  ○ By the end of **PAT Cycle –III**, the sector had saved **5.583 Million Tonnes of Oil Equivalent (MTOE) of energy,** leading to a reduction of **20.52 million tonnes of CO_2 emissions.**

➢ **Carbon Credit Trading Scheme (CCTS)**: Established in June 2023, this scheme provides a framework for **trading carbon credits** to reduce greenhouse gas emissions. It aims to help both public and private sector companies reduce their emission costs.

What are Decarbonisation Strategies to Reduce Carbon Emissions in the Indian Steel Industry?

➢ **Energy Efficiency (EE):** The **PAT (Perform, Achieve, and Trade) scheme** has driven significant energy savings, with the **sector achieving 6.137 million tonnes of oil equivalent (Mtoe) in savings, surpassing the target.**
  ○ Further reductions in energy intensity are possible by adopting **Best Available Technologies (BATs)**. However, penetration rates are currently low, and challenges include retrofitting constraints and high capital costs.

➢ **Material Efficiency:** Enhancing beneficiation and pelletisation processes of Iron Ore can improve productivity and **reduce coke consumption.** The Ministry of Steel is considering incentives and support for these technologies.

➢ **Green Hydrogen:** Green hydrogen can substitute fossil fuels in blast and shaft furnaces and is being explored for **100% hydrogen-based direct reduced iron (DRI)**. Research is underway, with Tata Steel and JSW leading efforts in India.
  ○ Hydrogen injection can reduce coke consumption and CO2 emissions. If **green hydrogen costs decrease to around USD 1/kg, consumption could rise significantly.**

➢ **Carbon Capture, Utilisation, and Storage (CCUS):** CCUS is crucial for achieving deep decarbonisation in the steel sector, **potentially mitigating 56% of emissions from existing technologies.**
  ○ India has some experience with CCUS, including a few pilot projects. However, **high costs and the need for high-purity CO_2 are significant obstacles**. The Ministry of Steel is exploring non-green hydrogen-based CCU applications and new technologies like carbon recycling.

➢ **Biochar:** It is produced from **biomass** such as crop residues, bamboo, forest residues, and bagasse, which can significantly reduce carbon emissions in the iron and steel sector.
  ○ It offers comparable **metallurgical properties to coal and coke** and has the potential to partially or fully substitute these fossil fuels.

Note:

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- ○ **Biochar** can be used in various processes, including iron ore sintering, pellet making, coke production, and in electric arc furnaces. It has an **emission reduction potential of up to 1.19 tonnes of CO2 per tonne of steel.**
- ○ **Challenges** include inadequate **biomass supply chains, lack of mechanisation, absence of storage infrastructure**, and limited scientific data.
  - The Ministry of Steel is exploring measures to support the development of biochar technologies, including R&D support, blending mandates, and market mechanisms.

Food Banks in GHG Reduction

Why in News?

According to recent estimates based on a new methodology termed **Food Recovery to Avoid Methane Emissions (FRAME), food banks** play a crucial role in mitigating **climate change** by significantly reducing **greenhouse gas (GHG) emissions**.

- ➢ Each food bank can prevent emissions equivalent to taking 900 gasoline-powered cars off the road for a year.

Note:
- ➢ **FRAME** is a tool designed to **quantify and mitigate the environmental impact of food loss and waste (FLW)** through **food recovery and redistribution**.
  - ○ The FRAME pilot project in Mexico and Ecuador analysed six community-led food banks, finding that they **collectively prevented 816 metric tonnes of methane emissions** in a year, averaging 136 MT per food bank.
  - ○ This methodology helps food banks **track emissions from food recovery** reducing **greenhouse gases** while **improving food security** addressing both **environmental and social challenges.**

How Effective are Food Banks in Addressing Food Waste?

- ➢ **Food Banks:**
  - ○ A food bank is a **non-profit organisation** that **provides food to people** who struggle to afford enough food to avoid hunger.
  - ○ It usually **works through other organisations** like **food pantries and soup kitchens**, though some food banks directly distribute food themselves.

- ○ They also **recover surplus food** from across the food supply chain and distribute it to people facing hunger through community organisations.
- ➢ **Global Impact of Food Banks:**
  - ○ **Emissions Reduction:** Each food bank is estimated to avoid **emissions equivalent to 906 gasoline-powered cars** annually, or the **carbon storage** equivalent of nearly **63,000 tree seedlings** grown for a decade.
    - In 2019, food banks collectively **avoided over 12 million tonnes of CO2 equivalent emissions** and saved 75 million tonnes of nutritious food from landfills.
  - ○ **Food Security:** The food banks **served over 66 million people** facing hunger within their networks.
    - By recovering and redistributing food, these organisations not only reduce environmental impacts but also enhance food security for vulnerable populations.
  - ○ **Alignment with UN Goals:** FRAME supports the **UN's Target 12.3**, which aims to halve global food waste at retail and consumer levels by 2030.

What is the Current State of Food Waste?

- ➢ The **Food and Agriculture Organization (FAO)** estimates that **31% of food is lost globally,** with **14% lost post-harvest** and an additional **17% wasted at retail and consumer levels**.
- ➢ According to UN report estimates, **Indian households waste 40% of their food**, amounting to **78.2 million tonnes annually**, with a financial loss of nearly **Rs 92,000 crore per year.**
  - ○ India's **per capita food waste is 55 kg/year,** with **rural areas wasting less** than urban areas.
  - ○ In South Asia, **Bhutan has the lowest per capita food waste at 19 kg/year**, while Pakistan has the highest at 130 kg/year.
- ➢ **Implications of Food Wastage:**
  - ○ This leads to **exacerbated hunger** and **greenhouse gas emissions**.
    - **Food waste in landfills generates methane**, a potent **greenhouse gas** that traps over **80 times more heat than CO2** in the first 20 years.
  - ○ In 2017, emissions from food loss and waste reached up to **9.3 gigatonnes of CO2 equivalent (GtCO2e)**.

- Food systems are responsible for about **one-third of global GHG emissions,** with food loss and waste accounting for half of this figure.

> **Note:**
> ➤ The **Food Waste Index Report** is tracking country-level progress to **halve food waste by 2030 (SDG 12.3).** **SDG 12** aims to ensure sustainable consumption and production patterns.

Need of Reforms in Tea Industry

Why in News?

Recently, the tea industry has seen a **rise in price of around 13%** for the Assam and West Bengal teas due to a **drop in tea production** in 2024.

➤ **Extreme weather events** and **climate change** are being held **responsible** for causing production losses and **reforms** are needed for its **sustainable development**.

What is the Current State of the Tea Industry in India?

➤ **Recent Trends:**
  ○ **Drop in Tea Production:** Tea production has dropped in **West Bengal and Assam** by around **21% and 11%** respectively in 2024 which has led to a **13% increase in domestic prices**.
  ○ **Loss of Premium Products:** The lost crop primarily belongs to the **first and second shower** of monsoon, considered the **best quality teas** of the year, further affecting the industry's **profitability** and cash flows.
  ○ **Export Market Decline:** Export prices have fallen by **4%** this year, which is a discouraging trend.
  ○ **Pending Subsidies from the Tea Board:** The industry has been **waiting for due subsidies** from the **Tea Board** for developmental work carried out in recent years. The **non-receipt of subsidies** has added to the financial burden, especially during a year of reduced production.
➤ **Other Facts Related to Tea Industry:**
  ○ **Global Standing:** India is the **second-largest producer** of tea globally after China. India ranks among the **top 5 tea exporters** globally, contributing approximately **10%** of the total global tea exports.

- From April 2023-February 2024, the total value of tea exports from India stood at **USD 752.85 million.**
○ **Tea Consumption in India:** India accounted for **19%** of global tea consumption.
  - India consumes approximately **81%** of its total tea production domestically, in contrast to countries like **Kenya and Sri Lanka** which export the majority of their production.
○ **Producer States:** Major tea growing states are **Assam, West Bengal, Tamil Nadu, and Kerala** that account for **97%** of India's total tea production.
○ **Major Export Types:** Majority of the tea exported out of India is **black tea** which makes up about **96% of the total exports**. **Assam, Darjeeling, and Nilgiri tea** are considered one of the **finest** in the world.

What are the Key Challenges in the Tea Industry in India?

➤ **Weather-Driven Decline:** India's tea production has been significantly impacted by extreme weather events, particularly **excessive heat in May 2024** followed by **flooding** in Assam.
  ○ In May 2024, Indian tea production dropped to **90.92 million kgs** from **130.56 million kgs** in May 2023, marking the **lowest May output** in more than **10 years**.
➤ **Expected Rise in Tea Prices:** The average price of tea is expected to **rise by up to 20%** as a result of production disruptions.
  ○ In July 2024, the price of tea represented a **47% increase** since the start of 2024.
➤ **Ban on Pesticides:** The Indian government banned **20 pesticides** that have contributed to higher tea prices due to **costly alternatives** to pesticides.
  ○ However, after the pesticide ban, **demand for Indian tea has risen again**, particularly among **Russia, Ukraine, Belarus, Azerbaijan, and Kazakhstan**, which are key buyers of Indian tea.
  ○ Although the ban on pesticides has increased demand, it has also led to **production challenges**, as tea growers scramble to find **alternative pest management** solutions.
➤ **Stagnant Internal Consumption:** With **internal consumption** nearly **stagnant** and the **exports scenario depressed**, excess tea continues to flood the market, further straining price realisation.

Note:

- ➢ **Impact on Small Tea Growers (STGs):** STGs, which operate on holdings of **less than one hectare**, account for over **55% of India's total tea production** and **65% of West Bengal's tea** output.
  - ○ Loss of production and decline in export price **disproportionately impact** them.
- ➢ **Negative Ripple Effect:** It would have a **negative impact** on the **bought leaf factories (BLFs)**, as STGs provide raw material for these factories.
  - ○ BLFs are tea factories that buy tea leaves from other growers and process them into **finished tea**.
- ➢ **Garden Closures in North Bengal:** Approximately **13 to 14 tea gardens** in the **Dooars, Terai, and Darjeeling** regions have closed down, affecting more than **11,000 workers**.
  - ○ North Bengal produces approximately **400 million kg** of tea annually from around **300 gardens**.

Global Tea Statistics

- ➢ **Global Production and Consumption:** In 2022, the total **global tea production** was **6,478 million kg**, while **global tea consumption** amounted to **6,209 million kg**.
- ➢ **Exports:** Total tea exports from producing countries in 2022 amounted to **1,831 million kg**.
- ➢ **Major Producers:** China, India, Kenya, and Sri Lanka are the leading tea producers and exporters. These countries account for **82%** of global tea production and **73%** of global tea exports.

Tea Board of India

- ➢ **Establishment:** It was established in **1953** and is headquartered in **Kolkata**. It has **17 offices** across India.
- ➢ **Statutory Body:** It was set up under **section 4 of the Tea Act, 1953**.
- ➢ **Regulatory Authority:** It **regulates** various entities including **tea producers, manufacturers, exporters, tea brokers**, auction organisers, and warehouse keepers.
- ➢ **Functions:** It conducts **market surveys**, analyses, identifies, tracks consumer behaviour, and provides relevant and accurate information to importers and exporters.

How Climate Change Affects the Tea Industry Globally?

- ➢ **Excessive Rainfall:** While tea plants depend on rainwater, **excessive rainfall** can cause **water logging, soil erosion** and **slope damage**, reducing available plantation area.
- ➢ **Drought Effects:** Droughts can lead to **dust accumulation** on tea plants and block sunlight, impacting production in countries like **India and China**.
- ➢ **Frost Damage: Frost** is particularly harmful in places like **Rwanda** and **China**, where frozen **leaves break** under weight, leading to **leaf loss**.
- ➢ **Melting of Glaciers**: **Permafrost regions** may experience **ground instability**, increasing risks of **rock avalanches** and **landslides**.
  - ○ **Rock avalanches** and landslides may adversely impact tea plantations that requires **hill slopes** for its growth
- ➢ **Impact on Tea Production and Quality: Global warming** will make producing quality tea **harder and more expensive**.
  - ○ Both **quality and quantity** of tea will decline, leading to **higher prices** for consumers.

Widening Skills Gap in the Job Market

Why in News?

India's job market is **experiencing an increasing divide between low-skilled and high-skilled employment**. Over the past two decades, the **services sector**—particularly IT, banking, and finance—**has been a major driver of economic growth**. In contrast, **traditional industries** such as apparel and footwear, which provide low-skilled jobs, are **stagnating.**

What are the Current Trends of India's Manufacturing & Service Sector?

- ➢ **Service Sector:**
  - ○ **Contribution to GDP and Employment**: India's services sector contributes over **50% to the Gross Domestic Product (GDP)** and **employs approximately 30.7% of the population** while serving as a global hub for software services.

Note:

○ **Recovery & Growth:** The services sector made a remarkable recovery in FY 2022-23, posting a Year-Over-Year (YoY) growth rate of 8.4%.

- The Indian **IT outsourcing market** is projected to **grow** by **6–8%** between 2021 and 2024.

○ **GII Ranking:** In September 2023, India maintained its **40th position in the Global Innovation Index (GII)**, driven by advancements in technologically dynamic, internationally tradable services.

○ **FDI:** The service sector also attracted the **highest Foreign Direct investment (FDI)**, receiving USD 109.5 billion from April 2000 to March 2024.

➢ **Manufacturing Sector:**

○ **Manufacturing Stagnation:** Manufacturing remains at **around 14% of GDP, below** the **targeted 25%**, widening the gap between high-skilled and low-skilled jobs.

○ **Lagging in Manufacturing:** India's manufacturing sector lags behind competitors such as Bangladesh, Thailand, and Vietnam, affecting low-skilled job creation.

- Economists stress that **India cannot rely solely on the services sector** due to its large population of 1.4 billion.

○ **Job Creation Needs:** The **Economic Survey 2023-24's estimate of needing 7.85 million non-farm jobs** annually highlights the broader requirement for creating jobs across various sectors to accommodate the growing workforce.

- The national unemployment rate increased from **7% to 9% in June 2024** as per the **Centre for Monitoring Indian Economy (CMIE)**.

What are the Factors Contributing in the Decline in Employment in the Manufacturing Sector?

➢ **Manufacturing Stagnation:** Stagnation in manufacturing (contributing mere **14% of GDP**) has hindered job creation in labour-intensive sectors.

○ India's **services exports make up 4.3%** of global commercial services exports, while its **goods exports account for only 1.8% of the global goods market.** This imbalance contributes to **low job creation in India's manufacturing sector**.

➢ **Shift Towards High-Skill Industries:** The rise of **Global Capability Centres (GCCs)** bypassing the manufacturing sector has led to **increased job opportunities for high-skilled IT professionals**, but this shift has not translated into sufficient low-skilled job creation.

○ GCCs have proliferated in India, with nearly 1,600 established by multinational companies, focusing on **data analytics** and **software development.**

➢ **Declining Export-Related Jobs:** A **World Bank** report noted that **export-related jobs** in India have **decreased from 9.5%** of total domestic employment in 2012 to **6.5% in 2020**.

○ This decline is attributed to the **dominance of India's service sector and high-skill manufacturing** in its export basket, which are **less effective at creating jobs for the broader workforce**, leading to reduced job creation through trade.

**JOBS CREATED BY EXPORTS-RELATED ACTIVITIES IN INDIA, 2000-2020**
(% of domestic employment)
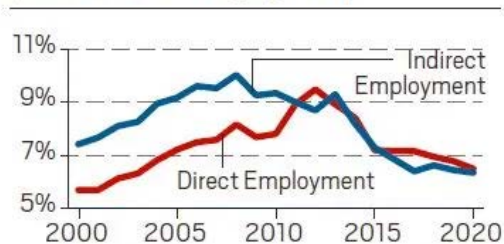
The World Bank indicates that while high-skilled jobs generated through manufacturing exports are rising, trade-related low-skilled job opportunities are rapidly moving to Vietnam and Bangladesh
Source: OECD Trade in employment 2023

INDIA'S HIGH & LOW SKILL-INTENSIVE MANUFACTURING
(% of total manufacturing exports)
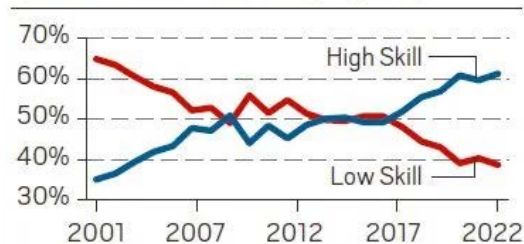
Employment generation in trade has declined despite a decrease in China's participation in low-skill manufacturing due to rising wages, according to the World Bank
Source: UN Comtrade, World Bank staff calculations

Note:

- ➢ **Limited Participation in Global Value Chains (GVCs):** India's declining participation in **GVCs** has limited job creation, despite GVCs driving 70% of global trade.
  - ○ Challenges like raw material shortages and high transport costs have reduced India's trade involvement, according to the World Bank.
- ➢ **High Tariff:** High tariffs on intermediate goods have **increased production costs for Indian manufacturers,** reducing their global competitiveness.
  - ○ India's **average tariff rose to 18.1% in 2022, up from 13% in 2014,** making it harder to compete with countries like Vietnam and Thailand and worsening the decline in low-skilled job opportunities.
- ➢ **India's Missed Opportunity in Low-Skill Manufacturing:** India has struggled to seize the opportunity presented by **China's exit from low-skill manufacturing between 2015 and 2022**.
  - ○ Despite China's reduced presence in industries like apparel, leather, textiles, and footwear, countries like Bangladesh, Vietnam, and even advanced economies like Germany and the Netherlands have benefited from China's shrinking market share.
- ➢ **Lack of Skill Development:** Only **16% of India's labour force has received skill training**, resulting in low employability due to insufficient vocational skills and education. The **India Skills Report** indicates that **only 45% of graduates** are considered employable.

What Initiatives Have Been Taken to Boost the Manufacturing Sector in India?

- ➢ **PM MITRA Parks:** In 2023, the government approved the establishment of 7 **PM Mega Integrated Textile Region and Apparel (PM MITRA) Parks** with an investment of Rs 4,445 crores to **develop world-class infrastructure in the textile sector**.
- ➢ **National Industrial Corridor Development Programme:** The Cabinet Committee on Economic Affairs approved setting up **12 industrial smart cities** with an estimated investment of Rs 28,602 crores, aimed at **enhancing manufacturing capabilities**.
- ➢ **Tariff Reductions:** The **Union Budget 2024-25** announced **tariff cuts on various items**, including medical equipment and textiles, aiming to reduce production costs and enhance competitiveness.

- ➢ **Prime Minister's Employment Generation Programme (PMEGP):** This scheme **supports entrepreneurs in establishing non-farm units,** aiming to create jobs for traditional artisans and unemployed youth in rural and urban areas.
  - ○ From 2018-19 to January 30, 2024, the program has generated an estimated 37.46 lakh jobs.
- ➢ **Pradhan Mantri Mudra Yojana (PMMY):** It provides collateral-free loans up to Rs 10 lakh to individuals and micro/small businesses to promote self-employment.
  - ○ As of March 29, 2024, approximately 47.7 crore loans have been sanctioned under the scheme.

20th Maritime State Development Council

Why in News?

The **20th Maritime State Development Council (MSDC)** concluded recently in Goa with significant advancements in India's maritime sector.

- ➢ This event brought together stakeholders from the Central Government, States, and Union Territories to resolve over 80 issues, focusing on port modernisation, maritime infrastructure, connectivity, and regulatory frameworks.

What are the Key Highlights of the 20th MSDC?

- ➢ **New Initiatives Launched:**
  - ○ The MSDC launched the **National Safety in Ports Committee (NSPC) application** on the National Single Window System platform to streamline regulatory processes, improve efficiency, and reduce costs for maritime sector stakeholders through real-time performance monitoring and enhanced information sharing.
  - ○ **Indian International Maritime Dispute Resolution Centre (IIMDRC)** was launched to resolve multi-modal and international maritime disputes, reinforcing the **"Resolve in India" initiative.**
  - ○ **Indian Maritime Centre (IMC)**, a think tank focused on fostering collaboration and innovation among maritime stakeholders was launched.
- ➢ **Port and State Ranking Systems**: The council discussed the implementation of a **state ranking framework**

Note:

and a port ranking system to promote competition and improve performance in the maritime sector.

➢ **Heritage Initiatives**: The **National Maritime Heritage Complex (NMHC)** at Lothal, Gujarat was highlighted as an international tourist destination, showcasing India's rich maritime heritage through advanced technology.

➢ **Focus on Seafarers**: **Seafarers** were recognised as essential workers, improving their working conditions and access to shore leave.

➢ **Major Port Projects**: India's 13th Major Port at **Vadhavan in Maharashtra** and the designation of **Galathea Bay in the Andaman & Nicobar Islands as a 'Major Port'** were highlighted.

  ○ The key highlight of the event was the keel laying ceremony for **India's largest dredger, a 12,000 Cu. M. Trailer Suction Hopper Dredger (TSHD)**, at **Cochin Shipyard Limited**, marks a significant achievement for India's maritime infrastructure and capabilities.

➢ **Mega Shipbuilding Park:** Discussions were held on establishing a Mega Shipbuilding Park across multiple states to consolidate shipbuilding capabilities and drive innovation.

➢ **Radioactive Detection Equipment (RDE):** Plans were made to install **Radioactive** Detection Equipment at ports for enhanced security. Discussions included setting up **places of refuge for ships in distress.**

What are the Other Initiatives Related to India's Maritime Sector?

➢ **Maritime India Vision 2030**
➢ **Sagarmala program**
➢ **Maritime AmritKaal Vision 2047**
➢ **National Waterways**

Maritime State Development Council

➢ The MSDC, established in 1997, serves as the **apex advisory body for the development of India's maritime sector.** Its primary aim is to promote the integrated growth of Major and Non-Major ports in close coordination with State governments.

➢ MSDC monitors the **development of minor, captive, and private ports** in Maritime States to ensure their integrated development with Major Ports and assess infrastructure requirements, making recommendations to the concerned Ministers.

Need for Reforms in the Jute Industry

Why in News?

Recently, **jute cultivation** and the challenges faced by the sector was highlighted by the **Indian Jute Mills Association** and called for reforms in this sector.

What are the Key Facts About Jute?

➢ **About Jute:** Jute is a **natural fibre** under the category of bast fibres like **flax, hemp, kenaf and ramie**.

  ○ It has been traditionally grown in the **eastern part** of the Indian subcontinent, which make up the present day **West Bengal** of India and plains of **Bangladesh**.

  ○ The first jute mill in India was set up in the year **1855 at Rishra, near Kolkata**.

➢ **Ideal Condition:** Jute can grow in a wide range of soil but **fertile loamy alluvial soil** is better suitable.

  ○ Relative humidity between **40-90%** and temperature between **17°C and 41°C**, along with well-distributed rainfall **over 120 cm** is ideal for **cultivation** and **growth** of jute.

➢ **Species:** Normally, two species namely **Tossa and White jute** respectively are produced on a **commercial scale**.

  ○ Another bast fibre crop commonly known as **Mesta** has two cultivated species – *Hibiscus cannabinus and Hibiscus Sabdariffa.*

➢ **Harvesting Techniques:** The bast fibre crop can be harvested at **any stage** after a certain period of vegetative growth, usually **between 100 and 150 days**.

  ○ Harvesting of jute crop at the **pre-bud or bud stage** gives the **best quality fibre**, however, the **yields are low.**

  ○ **Older crops** yield **more quantity** but the fibre becomes **coarse** and the stem **does not ret properly**.

    • The retting process is a method that uses **moisture and microorganisms** to separate plant **fibres from the stem.**

  ○ Hence, as a **compromise** between **quality and quantity**, the early **pod formation stage** has been found best for harvesting.

➢ **Retting Process:** The bundles of jute stems are kept in water and later placed side by side, usually in layers and tied together.

Note:

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○ They are covered with **water hyacinth** or any other weed that does not release **tannin and iron**.

○ Retting is best done in **slow-moving clean water**. The optimum temperature is around **34 degrees Celsius**.

○ Once the fibre comes out easily from the wood, retting is considered complete.

➢ **Versatility:** Jute is a **tall, hardy grass** having height up to **2.5 metres** and each part of it has several uses.

○ The **outer layer** of the stem produces the **fibre** that goes into making jute products.

○ The **leaves** can be **cooked.** People prepare soups, stews, curries, and vegetable dishes using leaves.

○ The inner **woody stems** can be used to manufacture **paper.**

○ The **roots,** which are left in the ground after harvest, **improve the yield** of subsequent crops.

➢ **Production: West Bengal, Assam, and Bihar** are the major jute-growing states in the country and are mainly cultivated by **marginal and small farmers**.

➢ **Employment:** Jute is a **labour-intensive crop** and provides huge employment opportunities and benefits to local farmers.

○ Raw jute farming and trade make up the livelihood of about **14 million people**.

➢ **Importance:** Jute, known as the **golden fibre,** is the second most important cash crop in India after cotton in terms of cultivation and usage.

○ **India** is the **largest producer** of jute in the world.

What are the Benefits of Using Jute Fibers?

➢ **Biodegradable Alternatives**: Many countries are trying to reduce the use of plastic commodities, especially **plastic bags**.

○ Jute bags are **biodegradable** and environment-friendly alternatives to plastic bags.

➢ **Value-Added Products**: Along with traditional usage, jute can contribute in the production of value-added products such as **paper, pulp, composites, textiles, wall coverings, flooring, garments**, and other materials.

➢ **Doubling Farmers' Income:** An acre of land produces approximately **nine quintals** of fibre. While the **fibre** is sold for **Rs 3,500-4,000 per quintal**.

○ The **woody stalk** and the leaves fetch approximately **Rs 9,000.** The earning per acre is approximately **Rs 35,000-40,000.**

➢ **Sustainability:** Jute requires only **half the land and time**, uses less than **one-fifth of the water in irrigation**, and needs far fewer chemicals compared to cotton.

○ It is largely **pest-resistant**, and its rapid growth spurt ensures that weeds don't stand a chance.

➢ **Carbon Neutral Crop:** The carbon dioxide emission from jute is **carbon-neutral** in nature since the product is from plant-source and can be considered as a **biomass.**

➢ **Carbon Sequestration**: Jute can **sequester** up to **1.5 tons of carbon dioxide per hectare per year**.

○ This is a significant amount of carbon, and it can help mitigate **climate change**.

○ Jute is a fast-growing plant, allowing it to absorb a lot of carbon dioxide in a short period of time.

What Challenges are Involved in Jute Farming?

➢ **Low Availability of Natural Water:** Historically, annual river **flooding** would **inundate the fields,** allowing bundled jute stalks to be submerged directly in the fields. It simplified the retting process.

○ Current practices involve **transporting jute** to artificial ponds for retting process due to **reduced flooding**.

➢ **Unrealised Potential:** The jute industry is operating at **55% capacity**, affecting over **50,000 workers**. The demand for jute bags is projected to drop to **30 lakh bales** for 2024-25.

➢ **Outdated Technology**: According to the Jute Commissioner's Office, many jute mills in India use machinery that is **over 30 years old.** This leads to reduced operational efficiency and higher production costs.

➢ **Lack of Product Diversification:** Jute is a versatile fibre with potential applications **insulation (replacing glass wool), geotextiles**, activated carbon powder, wall coverings etc.

○ The lack of products in these high-growth areas means that a significant portion of jute remains underutilised, affecting overall industry growth and sustainability.

➢ **Concentration of Jute Mills:** There are about **70 jute mills** in the country, of which about **60** are in **West Bengal** along both the banks of **river Hooghly.**

○ It can result in **bottlenecks** and inefficiencies in the distribution of raw materials and finished products.

○ Jute cultivation located outside this region, particularly in **northeastern India,** faces challenges in accessing resources and markets.

Note:

➢ **Inadequate Support:** Despite the <u>Jute Packaging Materials (Compulsory Use in Packing Commodities) Act, 1987</u> the jute sector faces challenges in policy implementation and support.

What are the Government Schemes Related to Jute Industry?

➢ <u>Jute Packaging Materials (Compulsory Use in Packing Commodities) Act, 1987</u>
➢ <u>Technical Textiles Mission</u>
➢ **Minimum Support Price for Jute**
➢ **National Jute Policy 2005**
➢ **Jute Technology Mission (JTM)**
➢ **Jute SMART**

Semicon India 2024 and ITSI Fund

Why in News?

Recently, the Prime Minister of India inaugurated the **Semicon India industry conference** and highlighted **India's growing partnerships with** countries like the **US, Japan and Singapore.**

➢ In another development, the US and India collaborated under the **International Technology Security and Innovation (ITSI) Fund** to promote the development of a **secure global semiconductor supply chain and telecommunications networks.**

What is the Semicon India Conference?
➢ Semicon India 2024 was co-located with electronica and productronica India, creating the **largest single event for electronics manufacturing in South Asia.**   ❍ Electronica and Productronica India are **South Asia's leading trade fair** for electronic components, systems, applications and solutions. ➢ It offered **comprehensive exhibitions, insightful programs, and unmatched networking opportunities.**

What is India's Vision for the Semiconductor Industry?

➢ India is poised to play a **pivotal role in shaping the global semiconductor industry** and spearheading efforts to establish a robust and resilient global supply chain.

➢ India aspires to **expand its electronics sector from the current USD 150 billion to over USD 500 billion by the end of the decade,** with the goal of generating over 6 million employment opportunities in the process.

➢ **India has become the eighth nation globally** to **host a congregation of the international semiconductor industry**, marking a significant milestone in the country's growing prominence in this strategic sector.

➢ India's strength is anchored in its threefold power which is a **reform-oriented government, a growing manufacturing sector, and a technology-driven**, aspirational society and **market.**

➢ India, with its **talent pool, growing research investments, rising data centre demand**, and green transition efforts is set to become a **global semiconductor powerhouse.**
  ❍ It **aims to train 85,000 engineers and technicians** over the next decade through **strategic partnerships with 113 educational and research institutions.**
  ❍ **Uttar Pradesh is emerging as a semiconductor design hub** and a leader in consumer electronics.

What is the ITSI Fund?

➢ The US is collaborating with the Government of India to expand and diversify the global semiconductor ecosystem through <u>the International Technology Security and Innovation Fund (ITSI).</u>
  ❍ The **CHIPS Act** created the ITSI Fund to secure and develop the global semiconductor supply chain and telecommunications networks.

➢ The initial phase involves a comprehensive review of India's semiconductor sector, focusing on **Assembly, Testing, and Packaging (ATP).**

➢ US-India cooperation aims to **advance the global semiconductor supply chain and support digital transformation.**
  ❍ The partnership will also address supply chain logistics and align technological goals with shared democratic values to ensure equitable benefits of digital advancements.

Government's Initiatives for the Semiconductor Sector
➢ <u>Production Linked Incentive Scheme (PLI)</u> ➢ <u>Digital RISC-V (DIR-V) program</u> **for the production of microprocessors.** ➢ <u>Modified Special Incentive Package Scheme (M-SIPS) for Semiconductors.</u> ➢ <u>Chips to Startup (C2S) Programme</u> **to train high-quality engineers.**

Note:

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Transforming Fisheries Sector

Why in News?

Recently, the **Ministry of Fisheries, Animal Husbandry & Dairying** unveiled a series of initiatives to transform the **fisheries sector** and strengthen India's **blue economy** at the 4th Anniversary of **Pradhan Mantri Matsya Sampada Yojna (PMMSY).**

What Important Initiatives Have Been Launched?

➢ **National Fisheries Development Program (NFDP) Portal:** It serves as a **central hub** for the registration of **fisheries stakeholders**, providing access to information, services, and support related to the sector.

➢ **PM-MKSSY Guidelines:** Operational guidelines for **PM-Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)** were launched to provide a structured approach to the scheme's implementation.

➢ **Rangeen Machhli App:** It is designed to meet the growing needs of the **ornamental fisheries sector** by providing crucial knowledge resources for **hobbyists, aquarium shop owners, and fish farmers**.

➢ **Amrit Catla:** It is a **genetically improved variety of Catla fish** (Labeo catla) to ensure its **wider distribution** and availability for farmers across the country.

➢ **Standard Operating Procedure (SOP)**: It focuses on **three specialised clusters** for **Pearl cultivation, Ornamental fisheries, and Seaweed cultivation.**

➢ **Climate Resilient Coastal Fishermen Villages (CRCFVs):** Guidelines for developing **100 coastal villages** into CRCFVs were released.

➢ **Pilot Project on Drone Technology**: Use of drones for **fish transportation** and **monitoring inland fisheries** to improve efficiency and sustainability.

➢ **Centres of Excellence:** Mandapam Regional Centre of the **Central Marine Fisheries Research Institute (ICAR-CMFRI)** as a Centre of Excellence for promoting **seaweed farming** and research.

➢ **Nucleus Breeding Centres (NBCs):** For enhancing **seed quality** through genetic enhancement of economically important marine and inland species.

➢ **Integrated Aqua Parks**: Five parks in Assam, Chhattisgarh, Madhya Pradesh, Tripura, and Nagaland.

What is PM-Matsya Kisan Samridhi Sah-Yojana (PM-MKSSY)?

➢ **About:** It is a Central Sector Sub-scheme that falls under the **Pradhan Mantri Matsya Sampada Yojana (PMMSY).**

  ○ It aims to formalise the fisheries sector, provide support to micro and small enterprises, and boost the overall fisheries value chain.

➢ **Major Components:**

  ○ **Formalization of the Fisheries Sector:** NFDP to provide work-based digital identities for 40 lakh small and micro-enterprises.

  ○ **Support for Microenterprises**: Financial assistance to 6.4 lakh micro-enterprises and 5,500 fisheries cooperatives.

  ○ **Insurance Coverage for Aquaculture**: Incentive upto Rs 25,000 per hectare for farm sizes of up to 4 hectares.

  ○ **Improving Fisheries Sector Value-Chain Efficiency:** Performance grants **upto 25%** of total investment or **Rs 35 lakh for General Category** and **35% or Rs 45 lakh** for **SCs, STs**, and women-owned enterprises.

  ○ **Adoption of Safety and Quality Assurance Systems:** Incentivizing small enterprises to adopt safety and quality assurance systems.

➢ **Investment**: It is supported by an investment of **Rs 6,000 crore** over a four-year period **(FY 2023-24 to FY 2026-27)** across all Indian states and Union Territories.

➢ **Intended Beneficiaries:**

  ○ **Direct Beneficiaries**: Fishers, fish farmers, fish workers, and fish vendors involved in the fisheries value chain.

  ○ **Micro & Small Enterprises**: Proprietary firms, partnerships, companies, cooperatives, **Self-Help Groups (SHGs), Fish Farmers Producer Organizations (FFPOs),** and startups engaged in the fisheries sector.

▄▄▄

Note:

International Relations

Highlights

- Call for Reforming UN Security Council
- India's Stance on Fisheries Subsidies
- Global Cybersecurity Index (GCI) 2024
- UN Summit of the Future and the Reform in UN Institutions
- 6th Quad Summit 2024
- India-China Disengagement along the LAC

Call for Reforming UN Security Council

Why in News?

As the **United Nations (UN)** approaches its **80th anniversary in 2025**, the **G4** countries (**India, Brazil, Germany, and Japan**) have reiterated their calls for urgent reforms of the **UN Security Council (UNSC)**.

➢ This was supported by other plurilateral groupings such as the **L69** and **C-10.**

➢ Also, India addressed the **79th UNGA** summit, sharing its perspectives and recommendations on global development and reforms.

What are G4, L69 and C-10 Groups?

➢ **L69 Group:**
  ❍ The L69 Group consists of **42 developing nations, including India,** from **Asia, Africa, Latin America, the Caribbean, and the Pacific.**
  ❍ It **advocates for expanding both permanent and non-permanent UNSC membership** to reflect current global realities and enhance accountability and representation.
    ● The Group advocates for a review of the permanent membership composition every 15 years to ensure it reflects evolving global realities.
  ❍ The group is named after the "**L.69" draft document** introduced in 2007-08, which initiated the **Intergovernmental Negotiation (IGN)** process.

➢ **C-10 Grouping:**
  ❍ The **Committee of Ten (C-10)** Heads of State and Government of the African Union consists of **10 African nations**.

❍ It aims to **reform the UNSC** by advocating for **improved representation of Africa** and promoting the **Common African Position,** which is based on the **Ezulwini Consensus** and the **Sirte Declaration**.
  ● The **Ezulwini Consensus**, agreed by the African Union in 2005, seeks to reform the UNSC by providing **Africa with 2 permanent seats** with **veto power** and **5 non-permanent seats**, aiming for **enhanced representation** and democracy.
  ● The **Sirte Declaration (1999)** was the resolution adopted to establish the African Union and address **peace and security issues across the African** continent.

➢ **G-4 Grouping:**
  ❍ The **G4** is a grouping of **Brazil, Germany, India and Japan** which are **aspiring to become permanent members of the UNSC.**
  ❍ It was created in 2004 and has been promoting **UN Security Council** Reforms.
  ❍ The G4 countries are **backing each other's efforts for permanent UNSC membership** and typically hold meetings during the **annual high-level UN General Assembly (UNGA) session.**

Intergovernmental Negotiations (IGN)

➢ IGN is a **group of nation-states** working **(informally)** within the UN to further **reform of the United Nations Security Council (UNSC)**

➢ The IGN is composed of several different international organisations.
  ❍ **African Union**
  ❍ **G4 nations**
  ❍ **Uniting for Consensus Group (UfC)**
  ❍ **L.69 Group of Developing Countries**
  ❍ **Arab League**
  ❍ **Caribbean Community** (CARICOM).

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UN Security Council (UNSC)

The UN Charter vests the primary responsibility for maintaining international peace and security to the UNSC

About
One of the **6 principal organs** of UN; established in **1945 by UN Charter**

Headquarters
New York City

First Session
17 January 1946 at Church House, Westminster, **London**

Membership
- 15 members - 5 Permanent Members **(P5)**, **10 Non-Permanent Members** elected for **two-year terms** (5 elected each year)
- P5 - the **US**, the **UK**, **Russia**, **France** and **China**

Presidency
- **Rotates every month** among the 15 members
- **India's** Presidency for year **2022 - December**

Voting Powers
- 1 member = 1 vote
- P5 have **veto power**
- Members of UN sans membership of UNSC **participate without vote**

UNSC Committees/Resolutions

Terrorism
- **Resolution 1373** (Counter Terrorism Committee)
- **Resolution 1267** (Da'esh and Al Qaeda Committee)

Non-Proliferation Committee
- **Resolution 1540** (against nuclear, chemical and biological weapons)

India and UNSC
- Served **7 times** as non-permanent member; elected for the **8th time** for 2021-22; **advocates for a permanent seat**
- Arguments for a permanent seat:
  - **43 peacekeeping missions**
  - Active participation in **formulating Human Rights Declaration (UDHR)**
  - India's **population, territorial size, GDP, economic potential, cultural diversity, political system** etc.

G4
Group of **4 countries** (Brazil, Germany, India and Japan) which advocate each other's bids for permanent seats in the UNSC

Uniting for Consensus (UfC) Movement
- Informally known as the **Coffee Club**
- Countries **oppose the expansion Permanent Seats** of UNSC
- **Prime movers of the club** - Italy, Spain, Australia, Canada, South Korea, Argentina and Pakistan
- Italy and Spain are opposed to Germany's bid; Pakistan - India's bid; Argentina - Brazil's bid and Australia - Japan's bid

Major Challenges in UNSC
- Usual UN rules don't apply to UNSC deliberations; **no records of meetings kept**
- Powerplay in UNSC; **anachronistic veto powers** of P5
- **Deep polarisation** among P5; frequent divisions end up blocking key decisions
- **Inadequate representation** of many regions among of the world

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Procedure for UN Security Council Reforms

➤ Reforming the UN Security Council requires **amending** the **United Nations Charter,** following a 2-stage process outlined in **Article 108**.

➤ **First Stage:** The General Assembly must **approve the reform with a two-thirds majority**, or at least 128 out of 193 member states. This stage **does not permit a veto,** as per **Article 27**.

➤ **Second Stage:** After the first stage approval, the **UN Charter is treated as an international treaty and is amended.**

  ○ The amended Charter needs to be **ratified by at least two-thirds of the member states, including all P5 members,** following their national procedures.

  ○ During this stage, the **ratification can be influenced by the Parliaments of the P5 members,** which may impact when the amended Charter takes effect.

Note:

What are Key Highlights of the External Affairs Minister Speech at the 79th UN General Assembly (UNGA)?

➢ **Reform of Multilateralism:** India supported the theme of the 79th UNGA, **"Leaving no one behind"** by calling for **reforming international systems** and highlighting the **need for equitable contributions and restoring trust** to ensure global peace and prosperity.

➢ **India's Initiatives:** India shared its initiatives such as

  ○ **Focus on vulnerable groups** (women, farmers, youth) through targeted policies.

  ○ Expansion of **employment and entrepreneurship opportunities**.

  ○ Creation of **replicable governance models** and **digital infrastructure.**

  ○ Convening **Global South Summits** to amplify shared concerns.

➢ **Call for Unity**: India called the member states to come together, share resources, and strengthen resolve to create positive change in the world.

➢ **Condemnation of Terrorism:** India condemned **Pakistan's radicalization and ties to terrorism**, emphasising that the central issue is Pakistan's occupation of Indian territory and its long-standing support for terrorism.

  ○ India underscored the need for the **United Nations (UN)** to **sanction terrorists without political interference**, hinting at China's role in blocking such actions.

➢ **Economic Practices and Sovereignty**: India criticised **unfair economic practices** and **infrastructure projects**, particularly the **China-Pakistan Economic Corridor (CPEC)**, stating that connectivity that undermines sovereignty must be approached with caution.

➢ **Calls for Global Solutions:** India urged the international community to seek **urgent resolutions to ongoing conflicts** such as the **Russia-Ukraine War** and **Gaza conflict,** avoiding a fatalistic mindset.

  Read More: UN Summit of the Future and the Reform in UN Institutions

India's Stance on Fisheries Subsidies

Why in News?

India's proposals at the **World Trade Organization (WTO)** advocating for the establishment of regulations on fisheries subsidies have garnered substantial backing from numerous developing nations and least developed countries (LDCs).

➢ Efforts are currently underway to finalize the second phase of the **Fisheries Subsidies Agreement (FSA)** which aims to establish regulations on subsidies that contribute to overcapacity and overfishing, thereby promoting sustainable fishing practices.

What is the Fisheries Subsidies Agreement (FSA)?

➢ **About:**

  ○ It **prohibits subsidies** from being provided for **Illegal, Unreported and Unregulated (IUU) fishing** and overfished stocks.

  ○ The agreement proposed in **WTO's 12th Ministerial Conference** also **prohibits providing subsidies for fishing on high seas**, which are outside the jurisdiction of coastal countries and Regional Fisheries Management Organizations/ Arrangements.

➢ **Transition Period Allowance:**

  ○ Under the **Special and Differential Treatment (S&DT), Developing Countries and Least Developed Countries (LDCs)** have been allowed a transition period of two years from the date of entry into force of this Agreement.

  ○ They will have no obligation to implement disciplines for the specified period.

➢ **Exempted Areas:**

  ○ No prohibition has been imposed on a WTO Member regarding granting or maintaining subsidy to its vessel or operator as long as it is not carrying out IUU.

  ○ No prohibition on providing subsidies has been imposed for fishing regarding overfished stocks as long as such subsidies are implemented to rebuild the stock to a biologically sustainable level.

Note:

- Negotiations on this issue have been going on in the second phase of FSA.
- **Benefits:**
  - It will **check large-scale IUU fishing which deprives coastal countries like India of fisheries resources**, thereby significantly impacting the livelihoods of our fishing communities.

What are the Concerns Regarding the Fisheries Subsidies Agreement?

- **Concerns of Small fishermen and Developing Countries and LDCs:**
  - Large-scale **commercial fishing operations often deplete fish stocks**, leading to reduced catches for small fishermen.
    - Large fishing **corporations often receive substantial government subsidies that small fishermen do not**, creating an uneven playing field.
  - The sustainability exemption clause in FSA is problematic as it **permits advanced fishing nations, which have better monitoring capabilities**, to evade commitments to reduce harmful subsidies, thereby disadvantage poorer countries that may fish sustainably but lack similar capacities.
  - Globally, an estimated **37.7% of fish stocks are overfished, a significant rise from 10% in 1974**, underscoring the urgent need for effective regulatory interventions.
    - As per WTO data, government funding for fisheries amounts to USD 35 billion globally, of which approximately USD 22 billion is directed towards subsidies that **increase the capacity for unsustainable fishing.**

Note:

Status of Countries Subsidising Fisheries:

- The **top five countries** subsidizing fishing are **China, the European Union, the US, South Korea, and Japan**, collectively **accounting for 58% of total global fishing subsidies.**
- **China** stands out as a significant subsidiser, with approximately **two-thirds of its subsidies classified as capacity-enhancing**, which includes investments in larger vessels and equipment designed to exploit marine resources extensively.

What is India's Stand on the FSA?

- India's submissions to the WTO on fisheries subsidies emphasize **critical gaps that could perpetuate unsustainable fishing practices,** particularly among large-scale industrial fishing nations.
  - India's stand is that it is **one of the lowest fisheries subsidisers despite such a large population** and one of the disciplined nations in sustainably harnessing the fisheries resources.
- India advocates for the **application of the "polluter pays principle" and "common but differentiated responsibilities"** to ensure that countries with higher subsidies and industrial fishing practices bear greater obligations in prohibiting harmful subsidies.

Status of India's Fisheries Sector

- India ranks as the **third-largest fish-producing country globally (after China and Indonesia),** accounting for 8% of total global fish production.
  - In the fiscal year 2022-23, India produced approximately 17.54 million metric tons (MMT) of fish.
- **Initiatives Related to Fisheries Sector:**
  - **Pradhan Mantri Matsya Sampada Yojana (PMMSY)**
  - **Blue Revolution (Neel Kranti Mission)**
  - **Extension of the KCC facility to fisheries**
  - **Marine Fisheries Bill, 2021**
  - **National Fisheries Policy**

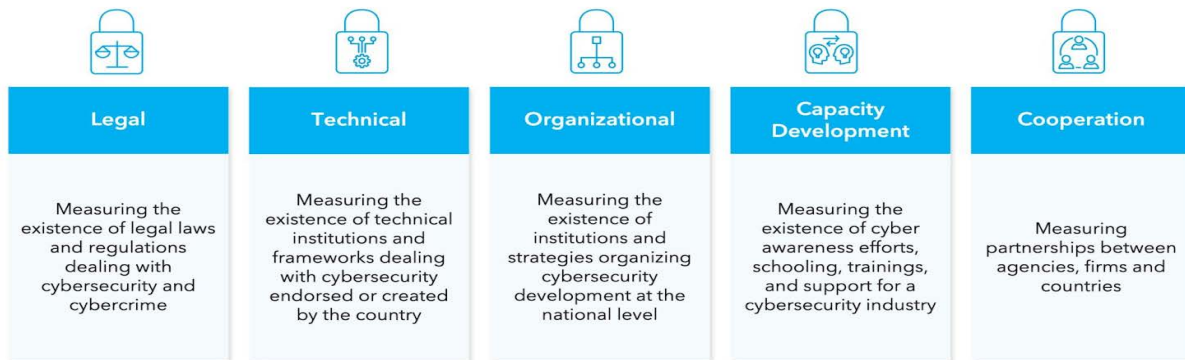# Global Cybersecurity Index (GCI) 2024

Why in News?

Recently, India has achieved a major milestone in cybersecurity by securing **Tier 1 status** in the **5th edition of Global Cybersecurity Index (GCI) 2024**, published by the **International Telecommunication Union (ITU)**.

- The 4th edition of the GCI report was published in 2020.

Global Cybersecurity Index 2024

5 pillars for measuring the commitment of countries to cybersecurity

Legal	Technical	Organizational	Capacity Development	Cooperation
Measuring the existence of legal laws and regulations dealing with cybersecurity and cybercrime	Measuring the existence of technical institutions and frameworks dealing with cybersecurity endorsed or created by the country	Measuring the existence of institutions and strategies organizing cybersecurity development at the national level	Measuring the existence of cyber awareness efforts, schooling, trainings, and support for a cybersecurity industry	Measuring partnerships between agencies, firms and countries

Source: ITU, *Global Cybersecurity Index 2024*

What is the Global Cybersecurity Index (GCI)?

➤ **About:**

○ GCI, **launched in 2015** by ITU **measures the** comprehensive development and **commitment** to cybersecurity **at a global level.**

○ The GCI utilises a **multi-stakeholder approach** and leverages the capacity and expertise of **different organisations**.

➤ **Aim:**

○ It aims to **improve the quality of the survey,** foster international cooperation, promote knowledge exchange and **raise awareness** of the importance and different dimensions of **cybersecurity.**

➤ **Pillars of Assessment:**

○ The assessment is based on **5 pillars: Legal Measures, Technical Measures, Organisational Measures, Capacity Development**, and **Cooperation**.

○ The index aggregates the assessment into an **overall score** for each country.

➤ **5- Tier Analysis:** Countries are categorised into five tiers based on their cybersecurity efforts, with Tier 1 representing the highest level.

○ Tier 1- Role-modelling (score of 95–100)

○ Tier 2- Advancing (score of 85–95)

○ Tier 3- Establishing (score of 55–85)

○ Tier 4- Evolving (score of 20–55)

○ Tier 5- Building (score of 0–20).

➤ **Key Highlights of GCI 2024:** The GCI 2024 evaluated 194 countries and highlighted threats such as **ransomware attacks, breaches in critical industries, system outages**, and **privacy violations.**

○ **Global:** Since 2021, countries have increasingly prioritised cybersecurity, raising the global average score to 65.7/100.

● GCI 2024 placed **46 countries in Tier 1,** compared to 30 in the previous edition.

● **Most countries (105) are ranked in Tiers 3 and 4**, reflecting progress in expanding digital services but also **highlighting the need for stronger cybersecurity measures** in their digital transformation strategies.

○ **India's Performance in GCI 2024**

● **India ranks in Tier 1** with countries like the US, Japan and Australia.

● India scored **98.49/100**, an improvement from 97.5 in the 2020 edition due to its **robust legal framework like the Information Technology Act (2000)**, the **Digital Personal Data Protection Act (2023)**.

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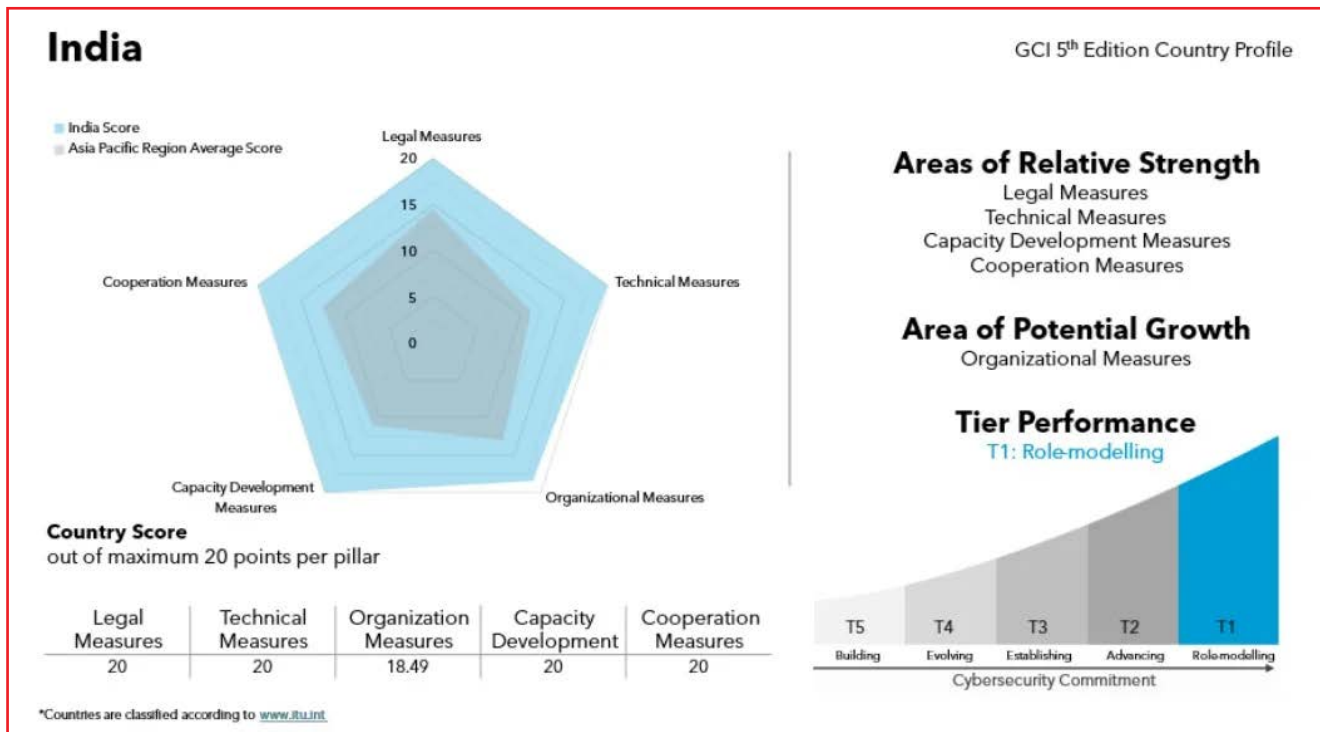
- ○ **Key Issues Highlighted in Report:**
  - ● **Worrisome Threats:** Increasing ransomware attacks, cyber breaches in critical industries, and costly system outages.
  - ● **Cyber Capacity Gap**: Persistent limitations in skills, staffing, equipment, and funding for cybersecurity.
  - ● **Implementation Challenges:** Difficulty in operationalising cybersecurity agreements effectively.
- ○ **Key Recommendations:**
  - ● **National Cybersecurity Strategy:** Develop and regularly update a comprehensive national cybersecurity framework.
  - ● **Capacity Building:** Enhance training for cybersecurity professionals, youth, and vulnerable groups.
  - ● **Cooperation:** Strengthen both domestic and international collaboration on information sharing, training, and cybersecurity initiatives.

What is ITU?
➢ It is the **United Nations** (UN) specialised agency for **Information and Communication Technologies (ICT)s**.
➢ It was **founded in 1865 t**o **facilitate international connectivity in communications** networks.
➢ It is headquartered in **Geneva, Switzerland.**
➢ It allocates **global radio spectrum and satellite orbits**, develops the **technical standards** that ensure networks and technologies seamlessly interconnect, and strives to improve access to ICTs to underserved communities worldwide.
➢ ITU currently has a membership of **193 countries** and over 900 private-sector entities and academic institutions.
○ India has been a member of ITU since 1869 and has been a member of the **ITU Governing Council** since its inception in 1952.

Note:

CYBER SECURITY

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

CYBER SECURITY ATTACKS

Man in The Middle Attack, Password Attacks, Brute Force Attack, Spyware and Keylogger, Cross-Site Scripting

Phishing Attack, Dos / DDos, Vishing Attack, Viruses, Malware Attack, SQL Injection Attack
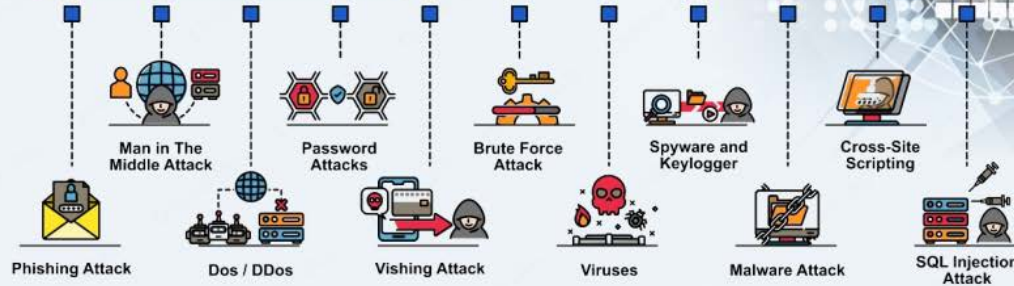
'Crime in India' Report 2022 (NCRB) highlighted 24.4% surge in cybercrimes in India since 2021.

Common Cybersecurity Myths

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

Cyber Warfare

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

CYBER THREAT ACTORS

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

Types of Cybersecurity

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

Recent Major Cyber Attacks

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

Regulations & Initiatives

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

Steps Needed for Cyber Security

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

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UN Summit of the Future and the Reform in UN Institutions

Why in News?

The United Nations (UN) Secretary-General, Antonio Guterres, recently addressed the UN Summit of the Future 2024, and called for urgent reforms to outdated UN institutions related to global peace, security, and finance. The Prime Minister of India also participated in the summit.

What are the Key Highlights of the UN Summit of the Future?

➢ **About:** The UN Summit of the Future is aimed at reforming and strengthening international governance. The summit seeks to address contemporary global challenges and secure a sustainable future for upcoming generations.

  ○ This summit builds on recent UN efforts such as the 2022 UN Environment Stockholm+50 conference and the High Seas Treaty.

  ○ The theme of the Summit is 'Multilateral Solutions for a Better Tomorrow'.

  ○ The Summit concluded with the adoption of an outcome document - A Pact for the Future, along with two annexes, Global Digital Compact and A Declaration on Future Generations.

➢ **Pact for the Future**: It is aimed at accelerating Sustainable Development Goals (SDGs) and the Paris Agreement for climate action. Includes commitments to a just transition from fossil fuels and ensuring a sustainable and peaceful future.

  ○ The Global Digital Compact promotes equitable access to technology, ensuring it benefits everyone.

  ○ Introduced the first universal agreement on Artificial Intelligence (AI) governance, advocating for establishment of a multidisciplinary Independent International Scientific Panel on AI within the UN, ensuring balanced geographic representation to enhance scientific understanding through evidence-based assessments of impact, risks, and opportunities, leveraging existing initiatives and research networks (SDG 17).

  ○ The "Declaration on Future Generations" focuses on long-term thinking by urging current decision-makers to consider the interests of future generations.

  ● It commits to nuclear disarmament, regulating autonomous weapons, and preventing an arms race in outer space, representing the first multilateral support for nuclear disarmament in over a decade.

➢ **India's Stance at the Summit:** India calls for reforms in the UN and Security Council to ensure relevance, advocating for expanded permanent membership, including itself and African nations.

  ○ The Prime Minister of India highlighted cyber, maritime, and space as new conflict arenas, urging global frameworks to ensure security. Advocated for global digital governance while offering India's digital public infrastructure for global cooperation.

  ○ India backed the UN's Pact for the Future and initiatives on AI governance, and digital cooperation.

Why is UN Reform Needed Now?

➢ **Outdated Structure:** The UN was established in 1945 when there were only 51 member states, compared to the current 193.

  ○ The global economy is now over twelve times larger than it was in 1945, and the international financial system was designed during colonial times.

➢ **Global Disparities:** Developing nations face mounting debts and inequalities that hinder sustainable development, making it clear that current global systems do not serve the needs of today's world.

➢ **Technological and Geopolitical Shifts:** Modern technological advancements and shifting global power dynamics highlight the inadequacies of post-World War II institutions in addressing current global challenges, such as climate action, sustainable development, and economic inequalities.

➢ **Legitimacy and Credibility Issues:** The legitimacy and credibility of the Security Council are increasingly questioned. To effectively maintain international peace and security, the Council must reflect the general will of all member states, rather than being dominated by a select few permanent members.

  ○ Reform is essential to enhance the legitimacy of the Council's decisions and actions, as its current permanent membership does not adequately represent today's geopolitical realities.

➢ **Inequitable Representation:** Regions such as Asia, Africa, and Latin America are underrepresented in the current Security Council structure.

Note:

○ This imbalance raises concerns about the **equity of representation and undermines the effectiveness of the Council's decision-making processes**.

○ An equitable distribution of non-permanent seats is essential to address these disparities.

➢ **Financial and Administrative Reform:** The financial sustainability of the UN is paramount, especially as it faces increasing demands for peacekeeping and development initiatives.

○ Japan's proposal to reform emphasises **aligning financial obligations with member states' responsibilities,** ensuring fair and proportional contributions.

➢ **Global Security Challenges:** The current international security environment faces complex challenges, including **regional conflicts, terrorism, and humanitarian crises.**

○ An effective Security Council is essential to address these issues effectively. Reform would enhance the **UN's ability to implement preventive diplomacy** and peace-building strategies.

What Reforms did the UN Secretary General Propose?

➢ **Security Council Reform**: The UN Security Council no longer reflects current geopolitical realities and risks losing credibility without reform.

○ Guterres called for changes in the council's composition and working methods to address the **under-representation of regions like Africa, Asia-Pacific, and Latin America.**

➢ **Strengthening Global Financial Architecture**: The international financial system including the **International Monetary Fund,** the **World Bank Group** and **World Trade Organization,** must better support debt-stricken developing nations struggling to achieve SDGs.

○ The UN Summit of the Future introduced reforms to make financial institutions more representative and capable of addressing global economic challenges.

How will UN Reforms Impact Global Governance?

➢ **Enhanced Inclusivity:** The reforms aim to make global governance more inclusive by giving a **stronger voice to developing countries** and underrepresented regions like Africa, Latin America.

○ This could lead to **more equitable decision-making processes.**

➢ **Increased Agility**: The reforms will establish a more agile **Peacebuilding Commission** and revise peace operations, enabling a quicker response to emerging global challenges.

➢ **Strengthened Financial Architecture**: Reforms in the international financial system **will better assist developing countries facing significant debt,** facilitating their progress towards SDGs.

➢ **Digital Governance:** The Global Digital Compact, part of the Pact for the Future, aims to regulate artificial intelligence and digital technologies to ensure they contribute to sustainable development and human rights.

○ This includes addressing issues like the **digital divide and cybersecurity.**

➢ **Youth Engagement**: The Pact for the Future emphasises including young people in decision-making processes, ensuring that future generations' interests are considered.

➢ **Conflict Resolution:** The reforms call for new norms and accountability mechanisms to strengthen the multilateral system and manage geopolitical competition. This could help in preventing and resolving conflicts more effectively.

How does India Critique the United Nations?

➢ **Ineffectiveness in Crisis Management:** India stated that the UN Charter has failed to address critical challenges such as the **Covid-19 pandemic,** the **Russia-Ukraine Conflict,** terrorism, and **climate change.**

○ The Indian ambassador called for urgent reforms to make the UN more relevant and responsive to today's geopolitical realities.

➢ **Veto Power Concerns:** India criticised the veto power held by the **P-5 nations (the U.S., U.K., France, Russia, and China)**, questioning the fairness of a system that grants disproportionate influence to a select few.

○ Many nations, including India, have expressed concerns about the lack of representation for regions such as Africa, South America, and Asia in the Security Council.

➢ **Charter Review:** India has called for a comprehensive review of the **UN Charter,** highlighting its outdated references to former entities like the **"Union of Soviet**

Note:

Socialist Republics" and designations of certain countries, including Japan, as **"enemy states,"** despite their current roles in the international order.

❍ It emphasises the need to rectify these failures and update the Charter to reflect modern geopolitical realities.

➢ **Slow Reform Process:** India's concerns stem from the sluggish pace of the **Intergovernmental Negotiations (IGN) process on UN reform,** which began in **2008** but has yet to yield significant progress. India has stressed that this issue must remain a global priority.

UN Security Council (UNSC)

The UN Charter vests the primary responsibility for maintaining international peace and security to the UNSC

About

One of the **6 principal organs** of UN; established in **1945** by **UN Charter**

Headquarters

New York City

First Session

17 January 1946 at Church House, Westminster, **London**

Membership

- 15 members - 5 Permanent Members (**P5**), **10 Non-Permanent Members** elected for **two-year terms** (5 elected each year)
- P5 - the **US**, the **UK, Russia, France and China**

Presidency

- **Rotates every month** among the 15 members
- **India's** Presidency for year **2022** - **December**

Voting Powers

- 1 member = 1 vote
- P5 have **veto power**
- Members of UN sans membership of UNSC **participate without vote**

UNSC Committees/Resolutions

Terrorism

- **Resolution 1373** (Counter Terrorism Committee)
- **Resolution 1267** (Da'esh and Al Qaeda Committee)

Non-Proliferation Committee

- **Resolution 1540** (against nuclear, chemical and biological weapons)

India and UNSC

- Served **7 times** as non-permanent member; elected for the **8th time** for 2021-22; **advocates for a permanent seat**
- Arguments for a permanent seat:
  - **43 peacekeeping missions**
  - Active participation in **formulating Human Rights Declaration (UDHR)**
  - India's **population, territorial size, GDP, economic potential, cultural diversity, political system** etc.

G4

Group of **4 countries** (Brazil, Germany, India and Japan) which advocate each other's bids for permanent seats in the UNSC

Uniting for Consensus (UfC) Movement

- Informally known as the **Coffee Club**
- Countries **oppose the expansion Permanent Seats** of UNSC
- **Prime movers of the club** - Italy, Spain, Australia, Canada, South Korea, Argentina and Pakistan
- Italy and Spain are opposed to Germany's bid; Pakistan - India's bid; Argentina - Brazil's bid and Australia - Japan's bid

Major Challenges in UNSC

- Usual UN rules don't apply to UNSC deliberations; **no records of meetings kept**
- Powerplay in UNSC; **anachronistic veto powers** of P5
- **Deep polarisation** among P5; frequent divisions end up blocking key decisions
- **Inadequate representation** of many regions among of the world

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6th Quad Summit 2024

Why in News?

Recently, the **6th Quad Summit** was held at **Delaware in the United States**. It was the 4th **in-person Quad Leaders' Summit**.

Note:

➢ The Quad is leading **ambitious projects** to help partners address **pandemics** and disease, confront the threat of **climate change**, bolster **cybersecurity** among others.

What are the Key Highlights of the 6ᵗʰ Quad Summit?

➢ **Health:**
  ○ **Quad Health Security Partnership (QHSP):** QHSP was launched by Quad in **2023** to enhance **health security coordination** in the Indo-Pacific region.
    ● New initiatives like the **Quad Cancer Moonshot**, has been announced for treatment of **cervical cancer.**
  ○ **Pandemic Preparedness:** The United States has pledged over **USD 84.5 million** to enhance infectious disease **prevention and response** capabilities across **fourteen Indo-Pacific nations**.

➢ **Maritime Security:**
  ○ **MAITRI:** The Quad has introduced the **Maritime Initiative for Training in the Indo-Pacific (MAITRI)** to enhance regional maritime security capabilities.
    ● The **Indo-Pacific Partnership for Maritime Domain Awareness (IPMDA)** was launched in **2022** to improve **maritime security** and monitor illegal activities.
  ○ **Indo-Pacific Logistics Network:** The Quad has initiated a logistics network to improve **airlift capacity** for **rapid disaster response** across the Indo-Pacific, aiming for efficiency in civilian responses.
  ○ **Coast Guard Cooperation:** A first-ever **Quad-at-Sea Ship Observer Mission** is planned for 2025, to enhance interoperability.

➢ **Quality Infrastructure Development:**
  ○ **Digital Infrastructure Principles:** The Quad has established principles for the development of **digital public infrastructure**, focusing on security and inclusivity.
  ○ **Quad Ports of the Future Partnership:** It aims to support resilient **port infrastructure development** and enhance regional connectivity across the Indo-Pacific region.
    ● In 2025, Quad partners intend to hold the inaugural **Regional Ports and Transportation Conference** in **Mumbai.**

○ **Undersea Cables and Digital Connectivity:** Quad partners have committed over USD 140 million to **undersea cable projects**, aiming for primary telecommunication connectivity for all **Pacific island** countries by 2025.
    ● For this, **Australia** launched the **Cable Connectivity and Resilience Centre** in July 2024.
○ **Quad Infrastructure Fellowship:** It aims to **improve capacity and deepen professional networks** across the region to design, manage, and attract investment in **infrastructure projects.**

➢ **Critical and Emerging Technology:**
  ○ **Open Radio Access Network (RAN) and 5G:** In 2023, the Quad initiated its first **Open RAN** deployment in Palau, aiming to build a secure telecommunications ecosystem, with an investment of approximately **USD 20 million.**
    ● The Quad intends to support ongoin**g Open RAN** trials and the Asia Open RAN Academy in the Philippines.
  ○ **AI-ENGAGE Initiative (2023)**: Through the **Advancing Innovations for Empowering NextGen Agriculture (AI-ENGAGE)**, Quad governments are deepening leading-edge collaborative research to harness artificial intelligence and robotics to empower next-generation agriculture.
  ○ **BioExplore Initiative**: It aims to utilise AI in studying biological ecosystems to innovate in **disease diagnosis, crop resilience, and clean energy solutions**.
  ○ **Semiconductors:** The Quad leaders finalised **Memorandum of Cooperation** to facilitate collaboration in addressing semiconductor supply chain risks.
  ○ **Quantum Technology:** The **Quad Investors Network (QUIN)**, a nonprofit initiative, highlighted ways in which Quad country's **Quantum ecosystems** can **work together** to collectively **leverage capital and expertise.**

➢ **Climate and Clean Energy:**
  ○ **Enhanced Early Warning Systems**: The US will provide **3D-printed weather stations** to help Pacific Island countries while Australia and Japan are enhancing regional disaster risk reduction efforts.
    ● **Japan** is also enhancing cooperation with Pacific Island countries under its **Pacific Climate Resilience Initiative**.

Note:

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- ○ **Quad Clean Energy Supply Chain Diversification Program (2023):** It aims to support the development of secure and diversified **clean energy supply chains** in the Indo-Pacific region.
  - India committed to invest **USD 2 million** in new solar projects in Fiji, Comoros, Madagascar, and Seychelles.
- ➤ **Cybersecurity:** The Quad has developed the **Quad Action Plan** to protect **commercial undersea telecommunications cables**, to advance the Quad's shared vision for future digital connectivity, global commerce, and prosperity.
  - ○ The Quad is working together to foster a **resilient information environment** through its **Countering Disinformation Working Group**, by supporting **media freedom** and addressing **foreign information manipulation** and interference.
- ➤ **Space:** Quad partners intend to share expertise and experience in **space situational awareness (SSA)**, contributing to long-term sustainability of the space environment.
- ➤ **Countering Terrorism:** Quad leaders discussed counter **terrorism threats, Quad counter terrorism good practices**, and ways the Quad can work together to mitigate acts of terrorism through information sharing and strategic messaging.
  - ○ The **Quad Counter Terrorism Working Group (CTWG)** currently focuses on countering the use of **unmanned aerial systems (C-UAS)**, **chemical, biological, radiological and nuclear devices (CBRN),** and the internet for terrorist purposes.
- ➤ **People-to-People Initiatives:** India announces a new initiative to award **fifty Quad scholarships, worth USD 500,000**, to students from the **Indo-Pacific** to pursue a **4-year undergraduate engineering program** at a Government of India-funded technical institution.

What are Quad Principles for Development and Deployment of Digital Public Infrastructure?

- ➤ **About the Principles:** It was announced by the **Quad countries** that outline a framework for **building and using digital infrastructure** that is inclusive, transparent, and respects democratic values.
- ➤ **About Digital public infrastructure (DPI):** It is described as a set of **shared digital systems** that are secure, reliable and interoperable.

- ○ They are built and leveraged by the public and private sector to provide **equitable access** and improve public service delivery at a large scale.
- ➤ **Quad Principles for DPI:** Quad affirmed the **following principles** for the development and deployment of DPI among others.
  - ○ **Inclusivity**: Eliminate barriers to empower end-users and ensure **last-mile access,** avoiding algorithmic bias.
  - ○ **Interoperability**: Use open standards for **interoperability** while considering legal and technical constraints.
  - ○ **Scalability**: Design systems flexibly to manage **unexpected demand** increases or expansions.
  - ○ **Security and Privacy**: Integrate privacy-enhancing technologies and security features to protect individual data and resilience.
  - ○ **Governance for Public Benefit**: Ensure systems are **safe, trusted, transparent,** and promote competition, inclusion, and data protection.
  - ○ **Sustainability**: Ensure continuous operations through **adequate financing** and technological support.
  - ○ **Intellectual Property Protection**: Protect intellectual property rights based on existing legal frameworks.
  - ○ **Sustainable Development**: Align systems with the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs).

What is Quad?

- ➤ **About:** Quad, or Quadrilateral Security Dialogue, is a **diplomatic partnership** among Australia, India, Japan, and the US.
  - ○ It focuses on stability and prosperity in the **Indo-Pacific region**, promoting an open, stable, and resilient environment.
- ➤ **Objectives of Quad:** The Quad aims to address pressing regional challenges, including **health security, climate change, infrastructure, technology, cybersecurity**, humanitarian assistance, maritime security, countering disinformation, and counter-terrorism.
- ➤ **Origins of Quad:** The Quad originated in response to the **2004 Indian Ocean tsunami,** where the four nations provided humanitarian assistance.

Note:

○ Formally established in **2007** by the Japanese Prime Minister Shinzo Abe, the group went dormant due to concerns over **China's reactions,** particularly after Australia withdrew in 2008.

○ It was revived in **2017 a**mid shifting regional attitudes toward China's influence, culminating in its **first formal summit in 2021.**

➤ **Expansion Potential:** "**Quad-plus**" meetings have included nations like **South Korea, New Zealand, and Vietnam,** indicating potential for future expansion.
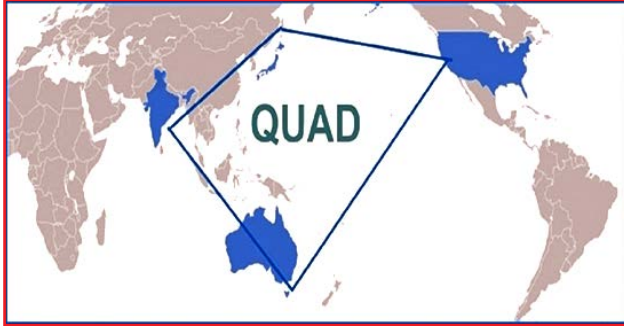
India-China Disengagement along the LAC

Why in News?

Recently, India's External Affairs Minister said that about **75%** of the **"disengagement problems"** with China have been **"sorted out"** along the **Line of Actual Control (LAC)** in Ladakh.

➤ However, **Demchok and Depsang plains** have seen **no progress** towards their resolution in the past two years.

What are the Recent Developments on India-China Disengagement along the LAC?

➤ **Verified Disengagement:** Both India and China have **mutually agreed** on and verified disengagement from **five friction points**, including **Galwan Valley, Pangong Tso, and Gogra-Hot Springs.**

○ However, **Demchok and Depsang remain unresolved.**

➤ **Reasons for Disengagement:** Recent high level diplomatic interactions has led to the disengagement along the **LAC.**

○ India's **National Security Advisor** Ajit Doval met **Chinese Foreign Minister** Wang Yi on the sidelines of the meeting of **BRICS** **NSAs** in St Petersburg, Russia.

○ The recent optimism for further disengagement is linked to the upcoming **BRICS Summit** in October in **Kazan, Russia**, where leaders from both nations will meet.

➤ **Significance of Disengagement:** The 31st meeting of **Working Mechanism for Consultation & Coordination on India-China Border Affairs (WMCC)** was described as **"frank, constructive, and forward-looking,"** and urged parties to **"narrow down the differences"** and **"find early resolution of the outstanding issues".**

○ The expression "narrow down the differences" had been **used for the first time** in the bilateral talks on the border standoff and indicated hope for further disengagement.

➤ **Challenges in Disengagement:**

○ **Stalled Negotiations:** Despite multiple rounds of talks, agreements on Demchok and Depsang have not materialised.

○ **Military Build-Up:** Both India and China have continued significant **infrastructure development** and **troop deployments** along the **3,488 km-long LAC.**

● Both nations have approximately **50,000-60,000 troops** stationed along the LAC.

○ **Vulnerable to Escalation:** China's massive build-up of infrastructure and **new weaponry** has fundamentally altered the status quo. India has responded with similar infrastructure and capability enhancements.

● It may lead to a **military escalation** in case of any miscalculation.

What is the Strategic Significance of Depsang Plains and Demchok?

➤ **Depsang Plains:** The Depsang Plains is a **strategically important** territory, because the PLA's control threatens India's control over the **Siachen Glacier,** encircling the Indian Army from both **China and Pakistan**.

○ A **two-pronged attack** by China and Pakistan will leave **India's military position** on the Siachen Glacier **highly vulnerable**.

○ It is identified as the **most vulnerable region** in Ladakh by the Indian Army due to its **flat terrain,** which is suitable for **mechanised warfare** and provides direct access to **Aksai Chin**.

Note:

> **Demchok:** Demchok allows for **effective surveillance** of Chinese movements and activities in the **Aksai Chin region**.

  ○ It supports **road and communication links** that are essential for **rapid military mobilisation** and logistical support.
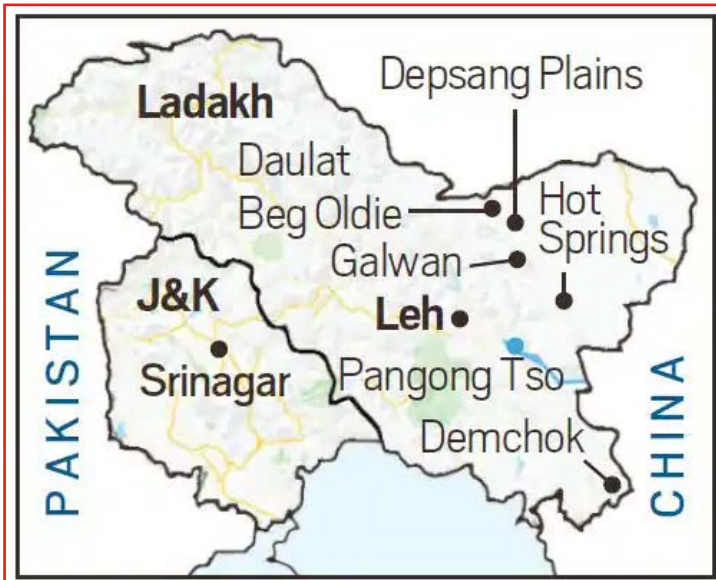
What are the Key Areas in the India-China Standoff?

> **Pangong Lake Region:** This region frequently witnesses **cross-paths between patrols** of India and China.

  ○ The north bank of the lake is divided into **8 fingers. India** has claimed its territory **till Finger 8** and **China** disputes its claims till **Finger 4.**

  ● The mountain spurs jutting into the lake are referred to as 'Fingers' in military parlance.

> **Demchok Region:** It reported Chinese activity and **heavy equipment movement** in the region.

> **Galwan River Basin:** Satellite images showed **Chinese tents** near the road close to the Galwan River basin, indicating **Chinese incursions** into areas traditionally held by Indian forces.

> **Gogra Post:** Chinese military build-up near the **Gogra post** heightened the tensions.

> **Daulat Beg Oldie (DBO):** Chinese encroached in the **Daulat Beg Oldie (DBO) sector** lying on the Indian side.

  ○ The **DBO airstrip**, crucial for winter operations and reinforcements, is accessible by the 255 km-long **Darbuk-Shyok-DBO road** for India.

WHY LAC OFTEN FLARES UP 23 "disputed and sensitive" areas along the unresolved 3,488-km-long LAC witness aggressive patrolling & face-offs between troops from the two sides

FLASHPOINTS INCLUDE:

Ladakh: Demchok, Trig Heights, Dumchele, Pangong Tso, Chumar & Spanggur Gap

Arunachal: Namkha Chu, Sumdorong Chu, Asaphila, Longju, Dichu, Yangtse, Fish Tail-1 & 2 in Dibang Valley

Himachal: Kaurik, Shipki La

Uttarakhand: Barahoti & Pulan Sunda

Note:

What triggered China's Aggression Along LAC?

- **Infrastructure Sensitivity:** China's aggressive stance might be driven by **India's recent infrastructure developments**, which could be perceived as a threat or a move to **pre-emptively counter** India's strategic improvements.

- **Element of Coercion:** China's actions might be intended to **exert pressure** on India.
  - Historically, the red lines for both nations were well-defined, but current **multiple intrusions** suggest a strategy to test and pressurise India.

- **Wolf-Warrior Diplomacy:** China's aggressive diplomatic stance, known as **"wolf-warrior diplomacy,"** might be mirrored in their **military approach** along the LAC.
  - It is a **confrontational form of public diplomacy** adopted by Chinese diplomats.

- **Leverage Tactics:** The activation of border areas might be part of China's broader strategy to **gain leverage** over India in bilateral relations and other issues like **G20** and BRICS.

- **Economic and Diplomatic Pressures:** China's actions could be influenced by the need to **demonstrate strength** amid economic difficulties and strained international relations due to the **Covid-19 pandemic** and its origin in Wuhan.

What can be done to manage the China-India Border Dispute?

- **Clarification of LAC:** Efforts should resume to **clarify the LAC**. It will **avoid potential clashes** in overlapping claim areas.

- **Buffer Zones:** Consider making existing **buffer zones permanent and creating new ones** in areas with frequent standoffs. Both sides should be willing to **defend** these buffer zones to their **domestic audiences**.

- **Abiding by Agreements:** Continue to adhere to existing **bilateral agreements**, including bans on firearms, and make joint public statements to reaffirm commitments.

- **No-Patrol Zones:** Establish **no-patrol zones** in frequently contested areas.

- **Drones Usage:** Agree on parameters for the **use of drones** for intelligence gathering, surveillance, and reconnaissance.

- **Mutual Security Agreement:** Attempt to reach an understanding on **acceptable levels of forces, arms, and facilities** near the border based on the "principle of mutual and equal security."

- **Impact of Third-Party Relations:** Both sides should be sensitive to how their relations with **third parties (e.g., US for India, Pakistan for China)** might influence the other's perceptions and actions.

■■■

Note:

Social Issues

Highlights

- *India's First Comprehensive Cancer Multi-Omics Data Portal*
- *Disproportionate Burden on Working Women*
- *Report on Atrocities Against SCs and STs*
- *Strengthening POCSO Act 2012*
- *Rising Rape Crimes in India*

India's First Comprehensive Cancer Multi-Omics Data Portal

Why in News?

Recently, the **Indian Cancer Genome Atlas (ICGA)** has launched **India's first comprehensive cancer multi-omics data portal** as a repository for the country's cancer genomics.

➤ This will provide **open access to clinically correlated data** from **Indian cancer patients**.

Indian Cancer Genome Atlas (ICGA)

➤ It is a national initiative **mapping cancer genomics, transcriptomics, and proteomics** in India, operating as a **not-for-profit organisation** supported by **public, private, and philanthropic collaboration.**

➤ It engages over 50 clinicians, researchers, and data analysts to enhance cancer diagnosis and treatment in India while contributing to the global understanding of cancer biology.

What are the Key Features of Comprehensive Cancer Multi-omics Data Portal?

➤ **Objective:**
  ○ The goal is **to create Indian-specific cancer datasets** to enable personalised cancer treatment protocols tailored to Indian populations, addressing **molecular-level differences between Indian and Western cancer patients**.

➤ **Key Features of the Portal:**
  ○ **Multi-Omics Data:** It provides **genomic, transcriptomic, and proteomic data** for **breast cancer**, starting with 50 patients and plans to expand to over 500.
  - It will offer data that includes **Deoxyribonucleic Acid (DNA), Ribonucleic Acid (RNA),** and **protein profiles** of **breast cancer** patients, integrated with clinical outcomes.
  - Later, the dataset will be expanded to **lung cancer** patients and other cancers as well.

  ○ **cBioPortal Integration:** It is built on the internationally recognised **cBioPortal** platform facilitating **seamless integration with global cancer research efforts**.
  - It also invites researchers worldwide to contribute and expand the platform, fostering collaborative cancer research.

  ○ **Free Access:** It offers ethical data-sharing practices under **Biotech-PRIDE (Promotion of Research and Innovation through Data Exchange) guidelines**, promoting collaboration within the scientific community.

Multi-omics

➤ **Multi-omics** is a holistic approach to biology that combines data from multiple "omics" fields to gain a more comprehensive understanding of biological processes.

➤ **These fields include:**
  ○ **Genomics:** Study of the complete set of **DNA** (including all of its genes).
  ○ **Transcriptomics:** Study of a complete set of **RNA** molecules expressed in a cell, tissue, or organism.
  ○ **Epigenomics:** Study of epigenetic changes, or changes in gene expression that don't alter the DNA sequence
  ○ **Proteomics**: Study of the interactions, function, composition, and structures of proteins and their cellular activities

Note:

State of Cancer Burden in India
➢ Globally, in 2022, there were an **estimated 20 million new cancer cases** and **9.7 million deaths**.
➢ In 2022, India recorded 1,413,316 new cancer cases, with a slight majority of female patients.
❍ **Breast cancer** was the most prevalent, representing **13.6% of all cases** and **over 26% among women**.
❍ Other significant cancers included **lip and oral cavity cancers**, **cervical** and **uterine cancers, lung cancer,** and **esophageal cancers.**

RISING BURDEN OF CANCER IN INDIA

	Incidence		Mortality
2020	13.92 lakh	▬	7,70,230
2021	14.26 lakh	▬	7,89,202
2022	14.61 lakh	▬	8,08,558
2025*	15.69 lakh	▬	

*Source: National Cancer Registry data presented in Parliament, ICMR National Centre for Disease Informatics and Research study; *Estimated*

ESTIMATED INCIDENCE IN 2020 (PER 100,000)   **94.1** Male   **103.6** Female

COMMON SITES

- Lung, mouth, prostate, tongue, and stomach (36% of all cancers)
- Breast, cervix, ovary, uterus, lung (53% of all cancers)

Read More: Rising Cancer Concerns.

Disproportionate Burden on Working Women

Why in News?

The recent tragic death of a 26-year-old female Chartered Accountant at Ernst & Young (EY), has reignited discussions about the **excessive workload** and stress faced by **young women professionals (white- collars) in India.**

What is the State of Working Women in India?

➢ **Work Hours and Stress Levels:**
   ❍ According to the **International Labour Organisation (ILO)** report, young **professional Indian women work** an average of **55 hours per week, with 9-11 hours daily,** leaving **only 7-10 hours for rest** due to household responsibilities.
     ● Compared globally, in **Germany** women in IT and media work for 32 hours, and in **Russia**, for 40 hours.

➢ **The Younger Professional Women Work More:**
   ❍ Women aged **15-24 in ICT/media** roles worked approximately **57 hours weekly**, while those in **professional, scientific and technical activities logged about 55 hours**.
     ● This data suggests that as age decreases, the number of hours worked increases, highlighting a concerning trend for younger women entering the workforce.

➢ **Gender Imbalance in Professional Roles:**
   ❍ Only **8.5% of women hold professional scientific and technical jobs**, and **20% are in ICT sectors**.
     ● India ranks **15th lowest among 145 countries** in women's representation in professional scientific and technical roles.

Note:

Chart 2 shows the mean weekly hours of across various ages in 2023.

■ 15-24   ■ 25-54   ■ 55-64

Information and communication

56.9
56.6

Professional, scientific and technical activities

54.8
53.8
45.7

(x-axis: 0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60)
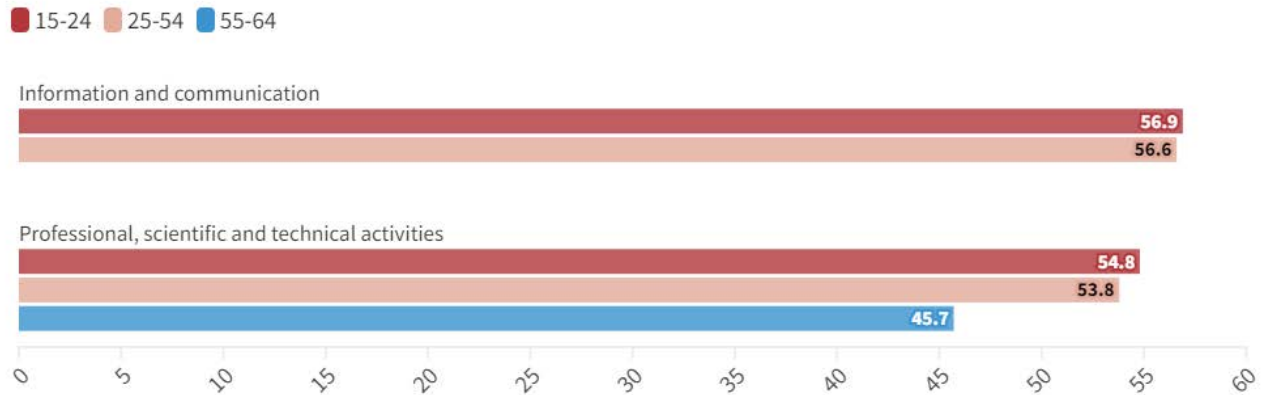
➤ **Women Leading in Unpaid Domestic Work:**

○ As per **National Family Health Survey (2019-21) data**, in 2019, women not in the labour force spent 7.5 hours daily on unpaid domestic and care work.

○ Employed women spent an average of 5.8 hours daily on unpaid domestic work.

● Unemployed men contributed 3.5 hours, while employed men spent only 2.7 hours daily on domestic work.

Chart 1 | Average minutes spent per day in 2019 on unpaid domestic and care activities across employment groups

■ Male ■ Female

(y-axis: Unpaid work in minutes)

Group	Male	Female
Employed	166	348
Unemployed	213	376
In Labour force	167	349
Not in labour force	214	457

➤ **Regional Variations:**

○ About 85% of women aged 15-59 do unpaid domestic work, showing little difference between urban and rural areas.

○ Male participation is below 50% in many areas, in states like Haryana and Rajasthan as per **NFHS (2019-21) data.**

The table shows the % of men/women aged 15-59 who participated in select activities in 2019

Area	Gender	Employment and related activities	Unpaid domestic services
Rural	Male	69.7%	29.2%
Rural	Female	22.5%	93.2%
Urban	Male	73%	22.5%
Urban	Female	19.9%	88.8%
Total	Male	70.7%	27%
Total	Female	21.7%	91.8%

What is the Scenario for the White-Collar Jobs in India?

➤ **Current Situation of Regulation:**

○ **White-Collar Worker** refers to a salaried professional, typically performing administrative or managerial tasks.

○ Currently, several central legislations, such as the **Industrial Disputes Act, 1947,** the **Shops and Establishments Act, 1954**, and the **Factories Act, 1948,** govern the rights of private employees.

○ The **lack of standard contract templates** leads to differences between companies, **causing inconsistencies in employee rights** and **complicating regulations.**

➤ **Need for Regulation:**

○ A 2023 **ASSOCHAM** study found that **42% of Indian white-collar workers** exceed the legal limit of 48 working hours per week.

Note:

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○ Additionally, a 2022 TeamLease survey (India-based HR company) revealed that 68% of professionals struggle with work-life balance, affecting their mental health and personal relationships.

○ The **rise of the gig economy further complicates** matters, as many freelancers lack access to essential benefits like paid leave and health insurance.

➤ **Concerns Against Stricter Labour Laws:**

○ **Impact on Innovation and Adaptability:** Stricter regulations may hinder the flexibility and rapid response essential for dynamic sectors like IT.

○ **Employer-Employee Relationships:** Open communication and mutual trust are considered more effective for achieving work-life balance than rigid regulations.

○ **Effect on Job Creation:** Increased compliance costs could lead to reduced hiring or layoffs, negatively affecting the employment landscape.

What are the Challenges to Women's Participation in the Labor Force?

➤ **Patriarchal Social Norms:** Deep-rooted **patriarchal norms and traditional gender roles** restrict women's access to education and employment. Societal expectations often prioritise their roles as caregivers and homemakers, discouraging active participation in the workforce.

➤ **Gender Wage Gap:** Women in India face significant wage disparities compared to men. According to the **World Inequality Report 2022,** men earn **82%** of labour income, while women capture only 18%. This wage gap discourages women from pursuing formal employment.

➤ **Safety Concern:** Women often face **safety concerns in the workplace,** including harassment and violence, which deter their participation in the labour force.

➤ **Underrepresentation in Leadership Roles:** Women are often underrepresented in leadership and decision-making positions which perpetuate gender biases in organisational policies and **hinder the advancement of other women** in the workforce.

What Can be Done to Improve Working Conditions for Women in White-Collar Roles?

➤ **Focus on Women's Inclusion and Support:** Policies ensuring **gender equality,** including **paid maternity leave,** flexible hours, and safe workplace environments, are essential to improving conditions for women in white-collar jobs.

○ Companies should work to **eliminate gender bias in hiring, promotion, and pay** to foster equal opportunities.

➤ **Cultural Transformation:** Promoting employee well-being through CSR initiatives like arrangements **for women's mental health support, and discouraging excessive work hours** can enhance work-life balance and reduce burnout.

➤ **Legal Reforms and Enforcement:** Strict enforcement of existing **labour laws** is crucial, along with **updating regulations** to address **gig and freelance work**. This includes ensuring **minimum wage**, **addressing safety concern** of women, social security benefits, and efficient dispute resolution mechanisms for non-traditional workers.

➤ **Government Policies and Awareness**: Governments should create policies that **encourage flexible work environments**, ensure **health coverage**, and promote **diversity**.

○ **Awareness campaigns** on employee(including women) rights and employer responsibilities can also help in maintaining fair working conditions.

Report on Atrocities Against SCs and STs

Why in News?

Recently, the union government has released a report under the **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989** highlighting the status of atrocities against Scheduled Castes in 2022.

What are the Key Findings of the Report on Atrocities Against SCs and STs?

➤ **Case Statistics:** In 2022, there were 51,656 cases of atrocities against **Scheduled Castes(SCs)** and 9,735 against **Scheduled Tribes (STs)**. Notably, 97.7% of SC cases and 98.91% of ST cases were concentrated in just 13 states.

➤ **States with Highest Incidents:**

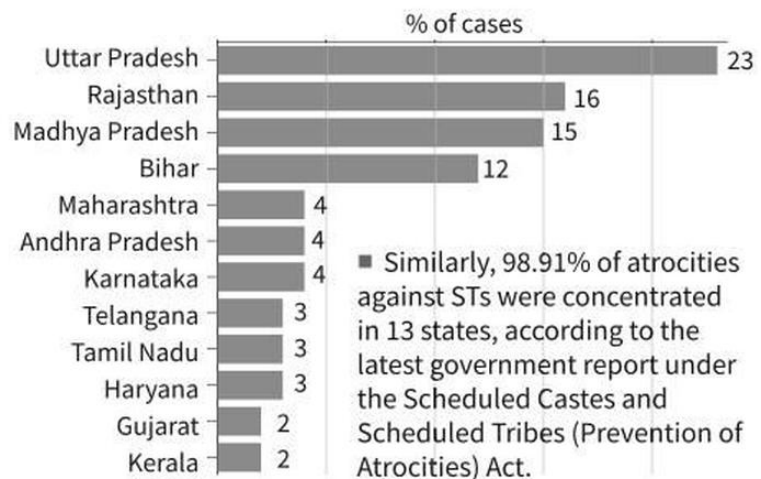○ **For SCs:** Following **6 States** accounted for nearly **81%** of the total cases.

- **Uttar Pradesh**: 12,287 cases (23.78%)
- **Rajasthan:** 8,651 cases (16.75%)
- **Madhya Pradesh:** 7,732 cases (14.97%)
- **Other States: Bihar** with 6,799 (13.16%), **Odisha** with 3,576 (6.93%), and **Maharashtra** with 2,706 (5.24%).
  - ○ **For STs:**
    - **Madhya Pradesh**: 2,979 cases (30.61%)
    - **Rajasthan**: 2,498 cases (25.66%)
    - **Odisha:** 773 cases (7.94%).
    - Other States: **Maharashtra** with 691 (7.10%) and **Andhra Pradesh** with 499 (5.13%).
- ➤ **Charge Sheets and Investigations:**
  - ○ **SC-related Cases**: Charge sheets were filed in **60.38% of the SC-related cases**, while **14.78% were concluded with final reports** due to reasons such as false claims or lack of evidence.
  - ○ **ST-related Cases:** Charge sheets were filed in **63.32%** of ST-related cases while **14.71%** were concluded with final reports.

  - ○ By the end of 2022, 17,166 cases involving SCs and 2,702 cases involving STs were **still under investigation.**
- ➤ **Conviction Rates:**
  - ○ The conviction rate under the Act has **declined from 39.2% in 2020** to **32.4% in 2022**, indicating a troubling trend in judicial outcomes.
- ➤ **Infrastructure Deficiencies:**
  - ○ Only 194 out of 498 districts in 14 states have established **special courts to expedite trials** for atrocities against SCs and STs.
  - ○ Specific districts prone to atrocities have **not been adequately identified,** with **Uttar Pradesh reporting no identified atrocity-prone areas** despite having the highest number of cases.
- ➤ **Protection Cells:**
  - ○ **SC/ST protection cells** have been established in various states and union territories, including Andhra Pradesh, Assam, Bihar, Gujarat, Tamil Nadu, and others, as well as union territories like Delhi, Jammu and Kashmir, and Puducherry.

Atrocities on Dalits, tribal people

The chart shows the States accounting for 97.7% of total cases of atrocities against members of Scheduled Castes during the year 2022.

State	% of cases
Uttar Pradesh	23
Rajasthan	16
Madhya Pradesh	15
Bihar	12
Maharashtra	4
Andhra Pradesh	4
Karnataka	4
Telangana	3
Tamil Nadu	3
Haryana	3
Gujarat	2
Kerala	2

■ Similarly, 98.91% of atrocities against STs were concentrated in 13 states, according to the latest government report under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act.

Source: Ministry of Social Justice and Empowerment

What are the Reasons for Crime Against SC and ST Communities?

- ➤ **Caste Prejudice and Untouchability:** Deep-rooted caste hierarchies perpetuate **discriminatory practices**, where SC/ST communities are often deemed **"lower"** and subjected to **social exclusion and violence** due to their **birth-based caste identity**.
- ➤ **Land Disputes and Alienation:** Historically deprived of land ownership, SC/ST communities face **constant conflict over land access,** leading to disputes with dominant castes.

Note:

➤ **Economic Marginalisation:** Limited access to **education, employment, and economic resources** heightens the vulnerability of SC/ST groups, leaving them **more susceptible to exploitation and violence** by dominant communities.

➤ **Social and Political Power Imbalance**: Dominant upper castes often wield **disproportionate political and social influence**, enabling them to uphold discriminatory practices without fear of legal consequences.

➤ **Inadequate Implementation of Laws:** Although laws like the SC/ST (Prevention of Atrocities) Act exist to protect these communities, **weak enforcement, coupled with police and bureaucratic bias**, often hinders justice for victims of caste-based violence.

➤ **Political Opportunism:** Caste tensions are sometimes exacerbated by political actors who exploit them for electoral gains, leading to further polarisation and conflict between communities.

What is the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989?

➤ **About:**
  ○ It was enacted to **protect SCs and STs** from **caste-based violence** and discrimination.

➤ **Objective:**
  ○ The Act aims to protect **Article 15** and **Article 17** of the Constitution, seeks to safeguard disadvantaged communities, and addresses the shortcomings of previous legislation, such as the **Protection of Civil Rights Act, 1955.**

➤ **Rules and Implementation:**
  ○ The Act empowers the **Central Government to establish rules** for its enforcement, while **State Governments and Union Territories** are responsible **for its administration** with central support.

➤ **Key Provisions:**
  ○ **Offences:** It **defines various offences against SC/ST** members, including **physical violence, harassment, and social discrimination**, categorising them as **atrocities** and prescribing **stricter punishments** than those in the **Indian Penal Code, 1860** (**BNS, 2023)**.
  ○ **Anticipatory Bail Provisions:** Section 18 of the Act excludes the application of Section 438 of the **Code of Criminal Procedure 1973** (**Bharatiya Nagrik Suraksha Sanhita, 2023**), which provides **for anticipatory bail.**

○ **Special Courts:** The Act mandates the establishment of **Special Courts** for **speedy trial** and **SC/ST Protection Cells** at the state level, led by senior police officers, to oversee the implementation of the Act.

○ **Investigations:** Investigations into offences under the Act must be **conducted by officers not below the rank of Deputy Superintendent of Police** (DSP) and must be completed within a stipulated time frame.

○ **Relief and Compensation**: The Act provides for relief and rehabilitation of victims, including financial compensation, legal aid, and support services.

➤ **Exclusions**:
  ○ The Act **does not apply to offences between SCs and STs**, nor can they invoke the Act against one another.

➤ **Recent Amendments:**
  ○ **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Amendment Act, 2015:**
    ● This amendment **expanded the definition of offences**, including acts like **forcing manual scavenging, social ostracism, sexual exploitation**, and **dedicating SC/ST women as devadasis**.
    ● Public servants who fail to perform duties concerning SCs and STs can also face imprisonment.
  ○ **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Amendment Act, 2018:** This removed the requirement for approval from a Senior Superintendent of Police before arresting an accused, **allowing immediate arrests without prior clearance**.

Judgments Related to SC and ST (Prevention of Atrocities) Act, 1989

➤ *Kanubhai M. Parmar v. State of Gujarat Case, 2000:* The Gujarat High Court ruled that the **Act does not apply to crimes between members of SCs or STs**, as its intent is to protect these communities from atrocities committed by outsiders.

➤ *Raj Mal v. Ratan Singh Case, 1988:* The Punjab & Haryana High Court clarified that **Special Courts** under the SC and ST Act are **exclusively designated** for trying offenses under the Act, distinguishing them from regular magistrate or session courts.

➢ ***Arumugam Servai v. State of Tamil Nadu Case, 2011***: The Supreme Court ruled that insulting a member of an SC/ST community constitutes an offense under the Act.

➢ ***Subhash Kashinath Mahajan v. State of Maharashtra Case, 2018:*** The Supreme Court clarified that the **bar on anticipatory bail under Section 18** of the Act is **not absolute**, **allowing courts to grant bail in cases** where the **allegations appear baseless.**

➢ ***Shajan Skaria v. The State of Kerala Case, 2024:*** In this the Supreme Court ruled that **not every insult or intimidating remark directed at an individual belonging** to a SC or ST constitutes an offence under the Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act of 1989.

Strengthening POCSO Act 2012

Why in News?

Recently, the **Supreme Court** ruled that **watching or possessing** sexually explicit material involving **minors** is **illegal** under the **Protection of Children from Sexual Offences (POCSO) Act, 2012.**

➢ It constitutes a punishable offence under the **POCSO Act, 2012** regardless of whether the material is **further shared or transmitted.**

➢ It **overturned** a prior ruling by the **Madras High Court**, which had determined that **private viewing** of child pornography **did not amount to an offence** without further distribution.

What are Key Highlights of the Supreme Court Ruling?

➢ **Redefinition of Terminology:** The Supreme Court (SC) has urged the Union government to **replace** the term **"child pornography"** with **"child sexual exploitative and abuse material" (CSEAM)**.

○ This change is significant because the term **"pornography"** often implies **consensual adult conduct,** failing to accurately represent **abuse and exploitation.**

➢ **Expansion of Section 15 of the POCSO Act, 2012**: The SC provided a **stricter interpretation** of the term **"storage of child pornography"** under **Section 15** of the POCSO Act, 2012. Previously, this provision primarily addressed **storage for commercial purposes**. The court's interpretation of Section 15 introduces **three key offences.**

○ **Possession Without Reporting**: A person who **stores or possesses** child pornography **must delete, destroy, or report it** to the designated authority. Failure to do so can be punishable under **Section 15(1).**

○ **Intent to Transmit or Distribute**: Individuals who possess child pornography **intending to transmit or display** it in any manner, except for the purpose of reporting, can face charges under **Section 15(2).**

○ **Commercial Possession**: Storing child pornography for **commercial purposes** falls under **Section 15(3),** which outlines the most severe penalties.

➢ **Concept of Inchoate Offences:** The ruling classifies the offences under **Section 15 as "inchoate" offences**, meaning they are **preparatory actions** taken toward committing further crimes.

➢ **Redefinition of Possession:** The court expanded the definition of **"possession"** in child pornography cases. It now includes **"constructive possession,"** which refers to situations where an individual may **not physically hold** the material but has the **ability to control it** and knowledge of that control.

○ **E.g., Watching** child pornography **online** without downloading it can still be considered in **possession**.

○ If an individual receives a **link** to child pornography but closes it without reporting, they may be **held accountable** if they do not inform authorities, even if they **do not retain physical possession** after closing the link.

➢ **Educational Reforms:** The court urged the government to promote **comprehensive sex education** in schools and society, countering misconceptions that often **stigmatised** discussions about **sexual health**.

○ This education should include topics such as **consent, healthy relationships, gender equality, and respect for diversity**.

➢ **Awareness About Pocso Act, 2012: Sections 43 and 44 of the POCSO Act, 2012** require **central and state governments**, along with the **National Commission for Protection of Child Rights (NCPCR)**, to promote widespread awareness of the Act.

➢ **Formation of an Expert Committee:** An expert committee should be tasked with **devising comprehensive**

Note:

programs for health and sex education and increasing awareness of the **POCSO Act, 2012** among children.

➢ **Victim Support and Awareness:** The judgement underscored the need for **robust support systems for victims of CSEAM**, including **psychological counselling, therapeutic interventions, and educational support**.

  ○ Programmes like **cognitive behavioural therapy (CBT)** may help address the **cognitive distortions** that fuel such behaviour among **offenders.**

What is the Status of Crimes Against Children?

➢ **Booming Market:** According to the **US-based National Centre for Missing and Exploited Children (NCMEC)**, India now accounts for the maximum number of **online child sexual abuse imagery** in the world, followed by Thailand.

  ○ NCMEC estimates that Indian users have **uploaded 25,000 images or videos** between April and August 2024.

➢ **Geographical Distribution: Delhi** tops the list for the maximum uploads of child porn, followed by **Maharashtra, Gujarat, Uttar Pradesh and West Bengal**.

➢ **Increased Circulation:** According to the **National Crime Records Bureau (NCRB)** report 2023, **781 cases** of creating or storing child porn were recorded in **2018**. In **2017**, there were **331 cases.**

  ○ The dissemination of inappropriate content featuring children accounted for **1,171 cases in 2022.**

What is the POCSO Act?

➢ **About:** The law aims to address **offences of sexual exploitation and sexual abuse** of children. The Act defines a child as any person **below the age of 18 years.**

  ○ It was enacted in consequence to India's ratification of the **UN Convention on the Rights of the Child in 1992.**

➢ **Features:**

  ○ **Gender-Neutral Nature:** The Act recognises that **both girls and boys** can be victims of **sexual abuse** and that such abuse is a crime regardless of the gender of the victim.

  ○ **Confidentiality of Victim's Identity: Section 23** of the POCSO Act, 2012 mandates that the identity of child victims **must be kept confidential.** Media reports cannot disclose any details that could reveal the victim's identity, including their name, address, and family information.

  ○ **Mandatory Reporting of Child Abuse Cases: Sections 19 to 22** compel individuals who have knowledge or reasonable suspicion of such offenses to **report them** to concerned authorities..

➢ **Gaps in Implementation of the POCSO Act, 2012:**

  ○ **Lack of Support Persons**: A critical gap identified in the implementation of the POCSO Act, 2012 is the **absence of "support persons" for victims**. The Supreme Court found that in **96% of POCSO cases**, victims were not provided with the necessary support throughout the legal process.

    ● A support person may be a **person or organisation** working in the field of **child rights or child protection.**

  ○ **Insufficient Designation of POCSO Courts**: Not all districts have designated **POCSO courts**. As of 2022, only **408 POCSO courts** were established across 28 states as part of the **Fast Track Special Court's Scheme**.

  ○ **Shortage of Special Public Prosecutors**: There is a lack of **Special Public Prosecutors** specifically trained to handle POCSO cases.

Rising Rape Crimes in India

Why in News?

The **surge in rape crimes** across India has reignited demands for **comprehensive legal reforms and changes in societal behaviour** to address sexual violence.

➢ These incidents have fueled calls for harsher punishments, including the death penalty for rape, and urgent action to create a safer environment for women.

What are the Legal Framework Regarding Rape in India?

➢ **About:** Rape, according to the **Bharatiya Nyaya Sanhita (BNS), 2023** occurs when a **man has sexual intercourse with a woman without her consent,** against **her will,** through **coercion, deception, or when the woman is under 18 or unable to consent.**

➢ **Types of Rape in India:**

  ○ **Aggravated Rape**: Rape committed by someone in a position of authority or trust over the victim (e.g., police officers, hospital staff, or guardians).

Note:

- ○ **Rape and Murder**: When rape leads to the victim's death or a vegetative state.
- ○ **Gang Rape**: When a woman is raped by multiple individuals simultaneously.
- ○ **Marital rape:** The term **'marital rape'** refers to forceful sexual intercourse between husband and wife **without the consent of either party.**

➢ **Laws Governing Rape in India:**

- ○ **Bharatiya Nyaya Sanhita (BNS), 2023:** The newly enacted BNS, 2023, which replaces the colonial-era **Indian Penal Code (IPC), 1860** introduces significant changes in the treatment of sexual offences.
  - The BNS further defines aggravated forms of rape, including **gang rape.** It imposes harsher punishments for the **gang rape of minors under 18**, including life imprisonment or the death penalty.
- ○ **Criminal Law (Amendment) Act, 2013**: In 2012, the **Nirbhaya rape case** in Delhi led to the introduction of the **Criminal Amendment Act 2013**, which increased the **minimum sentence for rape from seven to ten years.**
  - For cases resulting in the **victim's death or vegetative state, the minimum sentence was increased to twenty years.**
  - Further, the **Criminal Law (Amendment) Act, 2018** was enacted to prescribe even more stringent penal provisions including the death penalty for the rape of a girl below the age of 12 years.
- ○ **Protection of Children from Sexual Offences (POCSO) Act, 2012**: Protect children from sexual assault, harassment, and pornography.

➢ **Rights of Rape Victims in India:**

- ○ **Right to Zero FIR**: Victims can file a **Zero First Information Report (FIR)** at any police station, regardless of jurisdiction. The FIR will be transferred to the appropriate station for investigation.
- ○ **Free Medical Treatment**: Under Section 357C of the **Code of Criminal Procedure (CrPC),1973 (now replaced as Bharatiya Nagarik Suraksha Sanhita (BNSS), 2023),** all hospitals must provide free medical treatment to rape victims.
- ○ **No Two-Finger Test**: No doctor shall possess the right to do **two finger tests** while doing the medical examination, which was deemed a violation of the survivor's dignity.

- ○ **Harassment-Free and Time-Bound Investigation**: The statement shall be recorded by a women police officer or any other officer at a time and place convenient to the victim.
  - The statement shall be recorded in the presence of the victim's parents or guardian. If the victim is dumb or mentally disabled, an Analyzer Educator social interpreter will be present to understand the sign.
- ○ **Right to Compensation**: Section 357A of the CrPC mandates compensation for victims, guided by the **National Legal Services Authority's compensation scheme.**
- ○ **Trial with Dignity and Protection**: Trials should be conducted on camera, with no invasive questions about the victim's sexual history, and by a female judge if possible.

Why is there an Increase in Rape Cases in India?

➢ **Normalisation of Rape:** It refers to a sociological environment where **sexual violence is normalised and excused leading to Increased rape cases**. It thrives on a range of behaviours and attitudes.

- ○ **Rape Jokes:** Humorous remarks about sexual violence that trivialise the severity of such crimes.
- ○ **Sexist Behaviour**: Actions and attitudes that undermine or demean women, often perpetuate harmful stereotypes.
- ○ **Victim Blaming**: Holding survivors responsible for the violence they experienced, instead of focusing on the perpetrators.
  - Cultural attitudes persist in blaming victims for their attire, with 68% of judges surveyed in India holding this view. This harmful perspective reinforces a **culture of victim-blaming.**
- ○ Victims are often shamed and blamed, which **worsens their trauma and discourages them from reporting the crime.** This lack of reporting **contributes to an increase in rape incidents.**
  - This culture not only diminishes their personal freedom but also restricts their opportunities and social standing.

➢ **Alcoholism:** Alcohol consumption is a significant factor contributing to **higher rape rates.** It impairs judgement and can lead to more aggressive and violent behavior.

Note:

- ➤ **Misogynistic Representation in Media**: Movies and shows in India often **objectify women, presenting them as mere objects of desire.** This portrayal reinforces harmful stereotypes and behaviors that contribute to rape culture.

- ➤ **Sex Ratio Imbalance**: A higher number of **men compared to women** in a population is associated with **increased rape rates.**
  - ❍ According to the **2011 Census,** the country's sex ratio was 943 females for every 1,000 males. This **gender imbalance creates a demographic environment where the incidence of sexual violence is higher.**

- ➤ **Insufficient Female Police Representation:** India's police force had **11.75% female officers in 2022.** This low percentage means that **women who are victims of sexual assault may struggle to report their cases to female officers,** who are often preferred for handling such sensitive issues.

- ➤ **Acceptance of Domestic Abuse:** This normalisation of **domestic violence** extends to a **broader tolerance for sexual violence,** reinforcing harmful behavior patterns and reducing the likelihood of victims seeking help or receiving adequate support.

- ➤ **Blaming Victims for Immoral Behaviour:** Women engaging in behaviours deemed "immoral" (such as drinking or late-night outings) **are unjustly blamed for their assaults,** reflecting broader societal issues.
  - ❍ This blame **perpetuates a culture that fails to protect women adequately**, **contributing to an increase in rape crimes.**
  - ❍ Some individuals believe that sexual harassment and violence can be avoided by women simply by **modifying their behavior, which shifts the blame onto victims rather than addressing systemic issues.**

- ➤ **Advising Silence**: Victims are frequently advised against reporting their assaults, due to fears of societal judgement and personal embarrassment. This silence protects offenders and **perpetuates the cycle of abuse.**

Why are Rape Conviction Rates So Low in India?

- ➤ **Low Conviction Rates:** The number of reported rapes remains alarmingly high, with annual reports **consistently exceeding 30,000 cases since 2012,** except for a decline during the **Covid-19 pandemic** in 2020.

- ❍ In 2022, over 31,000 rape cases were reported, reflecting the ongoing severity of the issue. Despite tougher laws, **conviction rates for rape have remained low, fluctuating between 27%-28% from 2018 to 2022 according to National Crime Records Bureau data.**

- ➤ **Systemic Issues:** **Corruption** within the legal and law enforcement systems can undermine efforts to address rape cases. **Bribery and misconduct** can result in cases being mishandled or dismissed.
  - ❍ Many incidents of rape are not reported due to fear of retaliation, lack of trust in the system, or perceived inefficacy of the legal process.

- ➤ **Socio-Cultural Factors:** Societal attitudes often place undue scrutiny on survivors, leading to victim-blaming and discouraging them from pursuing justice.
  - ❍ The **fear of societal rejection and stigma can lead survivors to withdraw from the legal process.**

- ➤ **Inconsistent Law Enforcement:** The effectiveness of rape laws in India is frequently undermined by inconsistent application, hampering equitable enforcement.
  - ❍ The **BNS, 2023** does not adequately address **sexual crimes against men and transgender persons reflecting a significant gap** in the legal framework and the challenge of ensuring consistent and inclusive law enforcement across the country.
  - ❍ **Marital rape remains non-criminalised in India**, supported by outdated notions of marriage sanctity. This legal loophole perpetuates a culture where **consent within marriage is often ignored,** contributing to the broader problem of rape culture.

- ➤ **Poor Evidence Collection:** Inadequate or poor evidence collection and investigation can weaken cases, making it difficult to secure convictions.
  - ❍ **Corruption and inefficiency within the police force** can exacerbate these issues, leading to poorly handled investigations.
  - ❍ **Example:** The **Hathras case of 2020** revealed serious lapses in policing, including delayed action and mishandling of evidence, highlighting the systemic issues within investigative processes.

- ➤ **Ineffective Legal Support:** Many survivors of rape do not receive adequate psychological, legal, or medical support, which can impact their ability to pursue justice effectively.

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○ The absence of robust support systems **can make the process of seeking justice more daunting** and less likely to result in a conviction.

➢ **Judicial System Overload:** The Indian judicial system often faces an overwhelming number of cases, which can lead to delays and **compromises in the quality of justice delivered.**

○ Overburdened courts may struggle to give each case the attention it requires, impacting overall case outcomes.

○ The slow pace of judicial proceedings contributes to prolonged delays in delivering justice. Delays in trials can lead to a weakening of evidence and witness testimonies, which impacts the chances of securing a conviction.

○ **Example**: The **Nirbhaya case,** despite being fast-tracked, took over **seven years to reach a conclusion,** demonstrating inefficiencies in the legal system.

What are the Implications of Rising Rape Cases?

➢ **Restrictions and Safety Concerns:** Women already face significant restrictions on their movement and independence due to societal norms and safety concerns.

○ The rising number of **rape cases further limits their freedom, as fear of violence constrains** their ability to travel and participate in public life.

➢ **Impact on Workplace Dynamics:** Increasing sexual offences in workplaces can deter women from pursuing or remaining in careers, impacting gender diversity in companies.

○ Companies may face difficulties in **recruiting and retaining female employees** if workplace safety and harassment issues are not adequately addressed.

○ Survivors of rape may face challenges in maintaining employment or pursuing career opportunities due to trauma or stigma.

➢ **Economic Consequences:** The need for medical treatment and psychological support for survivors **adds to healthcare costs.**

○ These expenses can strain **public health resources** and affect the economic stability of individuals and families.

○ The economic impact of sexual violence can extend to families and communities, **affecting overall productivity.**

➢ **Erosion of Trust:** The prevalence of rape can **erode public trust in law enforcement and the justice system,** leading to a sense of insecurity and disillusionment.

➢ **Reinforcement of Gender stereotypes:** Rising rape cases can reinforce harmful gender stereotypes and discriminatory attitudes, perpetuating gender inequality and limiting women's opportunities.

■■■

Note:

Science & Technology

Highlights

- *Nanotechnology*
- *Telescope in Cosmic World*
- *Proposed Cellular Functionality Beyond Mortality*
- *Pager, Walkie-Talkie Blasts in Lebanon*
- *Bhartiya Antriksh Station, Moon & Venus Mission and NGLV*
- *Night Light Pollution Linked to Alzheimer's Risk*

Nanotechnology

Telescope in Cosmic World

Why in News?

An **Extremely Large Telescope (ELT)** is under construction atop the **Cerro Armazones Mountain** in the **Atacama Desert** in **Chile.**

What are Telescopes?

➢ **About:** A telescope is an **instrument** that astronomers use to observe faraway objects.

  ○ It is a common **misconception** that telescopes are designed to make astronomical objects **appear larger**. Instead their primary function is to **enhance the brightness** of celestial objects, measured by their **light-gathering power.**

    ● The **aperture** size determines how much light can be gathered. A **small reflecting telescope** (0.07m aperture) gathers **118.5 times more light** than the human eye.

➢ **Types of Telescopes:**

  ○ **Reflecting Telescope**: It uses **concave mirrors** to focus incoming light, creating **real, inverted, and smaller images**. Most modern telescopes are reflectors, with **parabolic mirrors** to avoid image blurring.

  ○ **Refracting Telescope**: A refracting telescope is a telescope that uses **lenses** and refraction to **redirect light** in order to magnify distant objects.

    ● The **maximum practicable lens** size in a refracting telescope is around **1 metre.**

    ● The world's largest refracting telescope is at **Yerkes Observatory** in the US, with a **1.02-m lens.**

➢ **Measuring Brightness: Apparent magnitude** quantifies the **brightness** of celestial objects in a logarithmic scale.

Note:

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○ **Lower values** represent **brighter objects** (e.g., Sun at -26.78, Venus at -4.92), while higher values represent dimmer objects (e.g., Andromeda Galaxy at +3.44).

➤ **Resolution of Telescopes:** The **human eye** with 20/20 vision can see details as small as **60 arcseconds (**1 arcsecond = 1/3600th of a degree).

  ○ A **toy telescope**, with an optimal resolving power of about **1.47 arcseconds**, can see over **40 times more detail** than the human eye.

  ○ **Resolution** defines the ability of telescopes to distinguish fine details between two close objects.

➤ **Examples of Largest and Advanced Telescopes:**

  ○ **Large Binocular Telescope (LBT)**: It is the **largest telescope** to date which has two **8.4-m-wide mirrors** and an effective combined aperture of **11.9 m.**

    ● It is located at the **Mount Graham International Observatory in Arizona**, **US.**

  ○ **Extremely Large Telescope (ELT)**: It is under construction atop the **Cerro Armazones mountains** in the Atacama Desert in Chile, as part of the **European Southern Observatory.**

    ● It has **five mirrors** and a combined aperture of **39.3 m.**

  ○ **Subaru Telescope**: It is an **8.2-m-wide** Japanese telescope located at the **Mauna Kea Observatory in Hawaii.**

  ○ **International Liquid Mirror Telescope:** It is **India's and Asia's largest** telescope located at **Devasthal in Uttarakhand**. It employs a **4-metre-diameter rotating mirror** made up of a thin layer of **liquid mercury**.

Why are Telescopes Placed on Mountains?

➤ The Earth's **atmosphere** causes **turbulence**, affecting the clarity of starlight and reducing telescope resolution.

  ○ **Higher altitudes** like mountains offer **less atmospheric disturbance**.

  ○ **Space telescopes,** like the **Hubble Space Telescope**, avoid these disturbances entirely, offering 10-times better resolution than ground-based telescopes.

➤ In recent years, Scientists create **artificial stars with lasers** to analyse atmospheric fluctuations. An advanced method, **tomography**, examines air segments to **eliminate aberrations** for clearer images.

Proposed Cellular Functionality Beyond Mortality

Why in News?

Recent research suggests the existence of a **"third state" that challenges conventional definitions of life and death,** proposing that **some cells and tissues can function after an organism's death,** opening up new questions about cellular capabilities and their implications for biology and medicine.

What is the Proposed 'Third State'?

➤ **About:** The concept of a **"third state" refers to a condition where cells and tissues exhibit characteristics** that challenge the traditional definitions of life and death. Instead of viewing **death as a complete cessation of biological functions,** research indicates that certain cells can continue to operate and adapt after the organism's death.

➤ **Examples of Cellular Functionality after Mortality:**

  ○ **Xenobots:** Skin cells from deceased frog embryos were observed to spontaneously form new multicellular structures, known as **xenobots.**

    ● These xenobots displayed behaviours beyond their **original biological functions,** using their **cilia (tiny hair-like projections) to navigate and move,** unlike in living frog embryos where cilia are used to propel mucus.

    ● Xenobots can undergo **kinematic self-replication,** allowing them to **duplicate their form and functions** without traditional growth. This process **differs from familiar replication methods,** which involve growth within or on the organism.

  ○ **Anthrobots:** Studies have shown that **individual human lung cells can spontaneously form tiny, multicellular entities** called **anthrobots.**

    ● Anthrobots made from human tracheal (part of the respiratory system) cells, these bio-robots exhibit unique behaviours, allowing them to move, self-repair, and restore nearby damaged neuron cells.

➤ **Implications of the Third State:** The notion of a third state prompts a re-evaluation of life and death, suggesting biological systems may not be bound to linear life cycles.

Note:

➢ Understanding how cells function after death **could lead to breakthroughs in organ preservation and transplantation,** improving the viability of donor organs and patient outcomes.

How Do Cells Survive After Death?

➢ **Cellular Longevity**: Various cells exhibit different survival durations after an organism's death.
- ○ **White Blood Cells**: Typically perish within 60 to 86 hours post-mortem.
- ○ **Skeletal Muscle Cells**: In mice, these can be regenerated for up to 14 days.
- ○ **Fibroblast Cells**: Sheep and goat cells can be cultured for approximately one month after death.

➢ **Influencing Factors**: Environmental conditions (Temperature, oxygen levels), metabolic activity, and preservation techniques like **Cryopreservation (storing biological samples at low temperatures)** influence post-mortem cell and tissue survival.

Read more: Hayflick limit

Pager, Walkie-Talkie Blasts in Lebanon

Why in News?

Recently, several people were killed and hundreds **injured in Lebanon following explosions** of hand-held radios like **walkie-talkies** and **pagers** used by Hezbollah at multiple locations.

➢ These pagers, chosen by Hezbollah **to evade detection through cell phones**, were covertly **modified with Pentaerythritol tetranitrate (PETN)**.

What are Walkie-Talkies?

➢ **About:**
- ○ It is also known as a **handheld two-way radio** with a **microphone and speaker**.
- ○ These are **portable communication devices** that utilize **radio waves** to **transmit and receive messages** on **specific frequency bands.**

➢ **History and Invention:**
- ○ These were **first used by the military in the 1930s** and played an important role in wars of the 20th century.
- ○ **Its invention is attributed to Don Hings in 1937**, initially created for **pilots** and known as wireless sets, pack sets, and **two-way field radios.**

➢ **Components and Operation:**
- ○ It comprises a **transmitter-receiver unit**, an **antenna**, a **loudspeaker-microphone** combination, and a **push-to-talk button**.
- ○ The device operates on a **single frequency band**, allowing it to transmit and receive signals.
- ○ To communicate, users press the push-to-talk button, converting their **voice into radio waves** that are transmitted and received by other devices on the **same channel.**

➢ **Applications:**
- ○ Walkie-talkies are extensively used in **emergency services, security, military operations,** and various industries like **construction and hospitality**.
- ○ Their ability to **function without a mobile network** makes them invaluable in areas with poor signal reception.
- ○ Modern-day walkie-talkies are much more advanced and now include features such as **flashlights, hands-free technology, SOS signals**, and **weather alerts,** in addition to basic communication.

➢ **Limitations:**
- ○ Common issues with walkie-talkies include **losing coverage due to battery depletion**, **excessive background noise, privacy concerns**, and **static during transmission**.

Transmission Types:

➢ **Simplex:** Communication is **unidirectional**; only one party can transmit at a time. Example: Computer to printers, **Pagers**.

➢ **Half Duplex:** Communication is **bidirectional but not simultaneous**; only one party can talk at a time. Example: **Walkie talkies.**

➢ **Full Duplex:** Communication is **bidirectional and simultaneous**; both parties can talk and listen at the same time. Example: Telephones.

Note:

What are Pagers?

➢ **About:**
  ○ Pagers, also known as **beepers**, are **wireless devices** that **receive and display messages.**
  ○ They were widely used in the 1980s but are still relied upon by specific groups like healthcare and emergency services due to their reliability in low-signal areas.

➢ **Working:**
  ○ Pagers operate using **radio signals** transmitted by **towers** that can **penetrate areas where cellular signals may be weak**.

➢ **Types of Pager:**
  ○ **One-way pagers:** Receive messages from a central transmitter but cannot reply. They alert users through beeps or vibrations.
  ○ **Two-way pagers:** Allow users to send and receive messages, though they are still less functional than smartphones.

➢ **Pagers Application in Covert Operations:**
  ○ **Low Susceptibility to Surveillance:** Their **lack of Global Positioning System(GPS) and internet** connectivity reduces the risk of location tracking.
  ○ **Difficult to Intercept:** The use of radio frequencies makes them harder to monitor than cellular or internet-based devices.
  ○ **Modifiable for Covert Use:** Pagers can be modified to trigger signals for **remote detonation** or alerts without drawing attention.
    ● Remote detonators, including pagers and other consumer electronics, have been used in various conflicts.
    ● Armed groups have utilized **Radio Controlled Improvised Explosive Devices (RCIEDs)** to target police stations and government buildings, employing devices that emit weak signals to avoid detection.
    ● RCIED is **explosive material integrated with a wireless radio or device** that triggers upon receipt of a signal from a second wireless handheld device.

TECHNOLOGY
How do pagers work?
Pagers are small wireless communication devices that receive and display short messages or alerts via radio signals.

- Signal: rely on radio frequencies to receive messages
- Traceability: one-way pagers do not send signals making them hard to track
- Network: does not connect to the internet or cellular towers
- Popularity: commonly used in the 1980s and 90s before mobile phones
- Usage: still used in certain industries such as hospitals and emergency services
- Battery: can run up to a few weeks

What is Hezbollah?

➢ Hezbollah, meaning **"Party of God,"** is a **Shia militia-cum-political party in Lebanon** and one of the world's **most heavily armed non-state actors**, according to the **Center for Strategic and International Studies (CSIS)**.

➢ It was formed during the **Lebanese Civil War (1975-1990),** largely in response to **Israeli invasions of southern Lebanon** in 1978 and 1982.

➢ Inspired by **Iran's 1979 Islamic revolution,** it has received substantial support from Iran and the **Islamic Revolutionary Guard Corps (IRGC).**

➢ It has been **designated as a terrorist organisation** by countries like the **US and Israel.**

Lebanon
➢ Lebanon is a country in the **Levant region** (a region in the eastern Mediterranean Basin) of West Asia.
➢ Its capital and largest city is **Beirut.**
➢ It is bordered by **Syria** to the north and east, by **Israel** to the south, and by the **Mediterranean Sea** to the west.
➢ Cyprus island lies a short distance away from the country's coastline.

Note:

Bhartiya Antriksh Station, Moon & Venus Mission and NGLV

Why in News?

Recently, the **Union Cabinet** approved **four space projects** to be undertaken by **Indian Space Research Organisation (ISRO).**

➤ Newly approved space projects include **Chandrayaan-4, Venus Orbiter Mission (VOM), Bhartiya Antriksh Station (BAS)** and **Next Generation Launch Vehicle (NGLV).**

What are the Newly Approved Space Projects?

➤ **Chandrayaan-4:** The mission is designed to **land on the lunar surface, collect samples,** store them in a vacuum container, and **bring them back** to earth.

  ○ It will involve spacecraft development, two different **Launch Vehicle Mk III** launches, deep space network support, and special tests.

  ○ It will also see **docking and undocking** — two spacecraft aligning and coming together in orbit — that India hasn't attempted so far.

    ● It will help India become **self-sufficient** in technologies for **manned missions.** India plans to send humans to the moon by 2040.

➤ **Venus Orbiter Mission (VOM):** It aims to orbit **Venus** to study the planet's surface, subsurface, atmospheric processes, and the Sun's impact on its atmosphere by probing its thick atmosphere.

○ Studying **Venus** is important because it is believed to **have once been habitable like Earth.**

○ The mission is scheduled to launch in **March 2028** when Earth and Venus are at their closest.

○ This will be **India's second interplanetary mission,** after the **Mars Orbiter Mission** in 2014.

➤ **Bhartiya Antriksh Station (BAS): BAS** will be India's **own space station** for scientific research.

○ India will launch its own space station by **2028,** plans to operationalise it by **2035** and achieve a **crewed lunar mission by 2040.**

○ Currently, the only two functioning space stations are the **International Space Station** and **China's Tiangong.**

➤ **Next Generation Launch Vehicle (NGLV):** The government also approved the development of a **next-generation launch vehicle (NGLV).**

○ NGLV will offer three times the current payload capacity of the **LVM3, at 1.5 times the cost.**

○ It is designed to carry up to **30 tonnes** to **Low Earth Orbit (LEO).**

○ India's existing launch vehicles, including **SSLV, PSLV, GSLV and LVM3** which have **payload capacity** ranging from **500 kg** to **10,000 kg to LEO** and **4,000 kg** to **Geo-Synchronous Transfer Orbit (GTO).**

Note: The Union Cabinet also approved the **continuation** of the **Gaganyaan mission.**

➤ It will have **eight missions,** including **four** needed to build the **space station.**

➤ This will be in addition to the **two uncrewed and one crewed missions** that have already been approved for the first **human spaceflight** under the Gaganyaan mission.

How will the Space Station Benefit India?

➤ **Microgravity Experiments:** A space station would provide a platform for conducting unique scientific experiments in **microgravity,** which could lead to breakthroughs in **materials science, biology, and medicine.**

➤ **Innovation:** Developing and operating a **space station** would drive technological advancements and foster innovation in areas such as **life support systems, robotics, and space habitats.**

○ **Chinese cabbage** grown on the **ISS** in the **Veggie growth system** showed reduced **biomass.**

Note:

➢ **Leadership and Prestige**: Having its own space station would enhance India's position as a **global leader** in space exploration, showcasing its **technological prowess** and strengthening international partnerships.

  ❍ It will provide Indian companies larger access to **satellite manufacturing, servicing** and boost the **aerospace sector**.

➢ **Human Spaceflight Experience**: Building on the success of the **Gaganyaan mission**, a space station would offer extended opportunities for Indian astronauts to gain experience and contribute to **long-duration missions.**

What are the Challenges in Building and Operating Space Stations?

➢ **Design and Engineering**: Space stations require **advanced engineering** to ensure they can support life in a **harsh environment.** Challenges include ensuring structural integrity, radiation protection, and maintaining a stable environment for scientific experiments.

➢ **Life Support Systems**: Developing reliable systems for **air, water, and waste management** is crucial. These systems must function autonomously for extended periods, which is technically demanding.

➢ **Affordability for India**: Building a space station involves substantial **financial investment.** Costs include the construction of modules, launch expenses, and the development of life support and scientific equipment.

  ❍ For instance, the **ISS**, shared by multiple countries, has cost over **USD 150 billion.** A smaller, national space station could cost between **USD 10-30 billion.**

  ❍ **ISRO's budget** for 2024-25 is about **USD 1.95 billion**. In contrast, NASA operates with a much larger budget of around **USD 25 billion.**

  ❍ **The USSR** abandoned its **Mir space station** because the costs of operating and maintaining it became increasingly unsustainable.

➢ **Space Race**: Engaging with **established space powers** for collaboration could be **complicated** by **competition for leadership** in space technology, particularly with countries like the **US, Russia, and China**.

➢ **Crew Health and Safety**: Ensuring the physical and psychological well-being of astronauts is critical. Prolonged exposure to **microgravity and isolation** can have adverse effects on health.

  ❍ **Prolonged exposure** to microgravity can cause astronauts to **lose up to 1% of bone mass per month**.

  ❍ Changes in **fluid distribution in the body** can lead to **increased intracranial pressure**, causing **vision-related issues.**

➢ **Supply Chain Management**: Regular resupply missions are essential for maintaining the station, including delivering food, equipment, and scientific samples. This requires meticulous planning and coordination.

  ❍ E.g., India lacks a fleet of reusable rockets which can be used multiple times for **transporting supplies** to a space station.

Night Light Pollution Linked to Alzheimer's Risk

Why in News?

According to a **recent study published in Frontiers in Neuroscience**, there is a correlation between night-time light pollution and the incidence of Alzheimer's disease.

➢ Exposure to light at night **disrupts natural circadian rhythms and impairs sleep**, thereby increasing susceptibility to the disease.

Light Pollution:
➢ Light Pollution refers to the **excessive or inappropriate use of artificial lighting**, which poses significant environmental threats to human health, wildlife, and the climate.

What is Alzheimer's Disease?

➢ **About:**

  ❍ Alzheimer's disease is a **progressive neurodegenerative disorder** that affects the

brain, leading to **memory loss, cognitive decline,** behavioral changes, problems with words in speaking or writing, poor judgment, changes in mood and personality, confusion with time or place, etc.

- ○ It involves the **formation of plaques and tangles in the brain**, and the accelerated aging of certain neurons concerned with storage and processing of memory.

- ○ Alzheimer's disease is the most **common cause of dementia**, accounting for **60-80% of dementia cases.**

- ➤ **Causes and Risk Factors:** Currently the causes of Alzheimer is not fully known, still factors that may contribute to Alzheimer's include:

  - ○ **Age:** Advancing age is the primary risk factor, with the **majority of cases occurring in individuals over 65.**

  - ○ **Genetics:** Certain gene mutations can increase the risk of developing Alzheimer's.

  - ○ **Amyloid Protein:** Alzheimer's disease is thought to be caused by the abnormal build-up of proteins in and around brain cells.

    - ● One of the proteins involved is called amyloid, d**eposits of which form plaques around brain cells**.

  - ○ **Lifestyle Factors:** Chronic conditions like cardiovascular disease, diabetes, obesity, smoking, and a sedentary lifestyle may contribute to the risk.

- ➤ **Diagnosis:**

  - ○ Cognitive and neuropsychological tests to assess memory, thinking, and problem-solving abilities.

  - ○ Imaging techniques (MRI, PET scans) to identify brain changes.

  - ○ **Biomarker tests (cerebrospinal fluid analysis, amyloid PET)** to detect amyloid plaques.

- ➤ **Treatment and Management:**

  - ○ There's currently **no cure for Alzheimer's disease.** But there is medicine and supportive therapies available that can temporarily reduce the symptoms.

- ➤ **Prevalence:**

  - ○ According to **WHO** estimates from 2023, over **55 million individuals globally are affected by dementia**, with **Alzheimer's accounting for approximately 75%** of these cases.

  - ○ **In India, an estimated 3 to 9 million people** are believed to be affected by the condition, a figure expected to rise as the nation's population ages.

Note:

- ➤ **Dementia:** It is **a syndrome** – usually of a chronic or progressive nature – that leads to **deterioration in cognitive function** (i.e. the ability to process thought) beyond what might be expected from the **usual consequences of biological aging.**

  - ○ It **affects** memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgment. However, the **consciousness is not affected.**

4th Global Renewable Energy Investors Meet and Expo (RE-INVEST)

Recently, the Prime Minister inaugurated the **4th Global Renewable Energy Investors Meet and Expo (RE-INVEST)** in Gandhinagar, Gujarat.

- ➤ It brings together key players in the renewable energy sector like **government officials, industry leaders, investors, researchers, and policymakers**.

- ➤ It was organised by the **Ministry of New and Renewable Energy** in collaboration with the **Confederation of Indian Industry (CII).**

What are the Key Highlights of the RE-INVEST?

- ➤ **Financial Commitments for Green Projects**: Banks and financial institutions **committed Rs 32.45 trillion** for financing green projects.

  - ○ This financial backing reflects India's growing emphasis on **renewable energy** development and the robust support from financial sectors.

  - ○ **Top lenders** are **Reliance (Rs 6 trillion)**, **Indian Renewable Energy Development Agency Ltd (Rs 5 trillion)**, **State Bank of India (Rs 5 trillion), Power Finance Corporation (Rs 3 trillion)** and **National Bank for Financing Infrastructure and Development (Rs 1.86 trillion)**.

- ➤ **Support from Developers and Manufacturers**: The **manufacturers** have committed additional manufacturing capacities of **340 GW** in solar modules, **240 GW** in solar cells, **22 GW** in wind turbines and **10 GW** in electrolysers.

  - ○ **Other stakeholders** except manufacturers have committed an additional **570 GW of capacity addition.**

  - ○ **Invitation to Investors**: India **invited global stakeholders** to invest in India's rapidly growing renewable energy sector. The government is focused on meeting increasing energy demand sustainably through renewable energy.

Note:

➢ **Reduction in Solar Tariffs**: India announced a significant **76% decrease in tariffs for grid-connected solar power plants**, making solar energy more affordable and attractive for developers and consumers alike.

➢ **Other Achievements Highlighted**:

   ❍ **Growth in Installed Capacity**: India's installed renewable energy capacity has increased from **75.52 GW in March 2014 to more than 207.7 GW in 2024.**

   ❍ **Renewable Energy Generation Increase**: India's **total renewable energy generation** in India has increased by **86%** from **193.50 billion units** in 2014 to **360 billion units (BU)** in 2024.

What are the Major Commitments from Key Industry Players in Renewable Energy Capacity Development?

➢ **Reliance Industries** committed to installing **100 GW of renewable energy capacity by 2030**.

➢ **NTPC** pledged **41.3 GW** and **Torrent Power Ltd** committed to **10 GW** by **2030.**

➢ **ReNew Power** committed to installing **40 GW** by **2030**. Currently, it has a commissioned capacity of **10 GW**, equally divided between solar and wind.
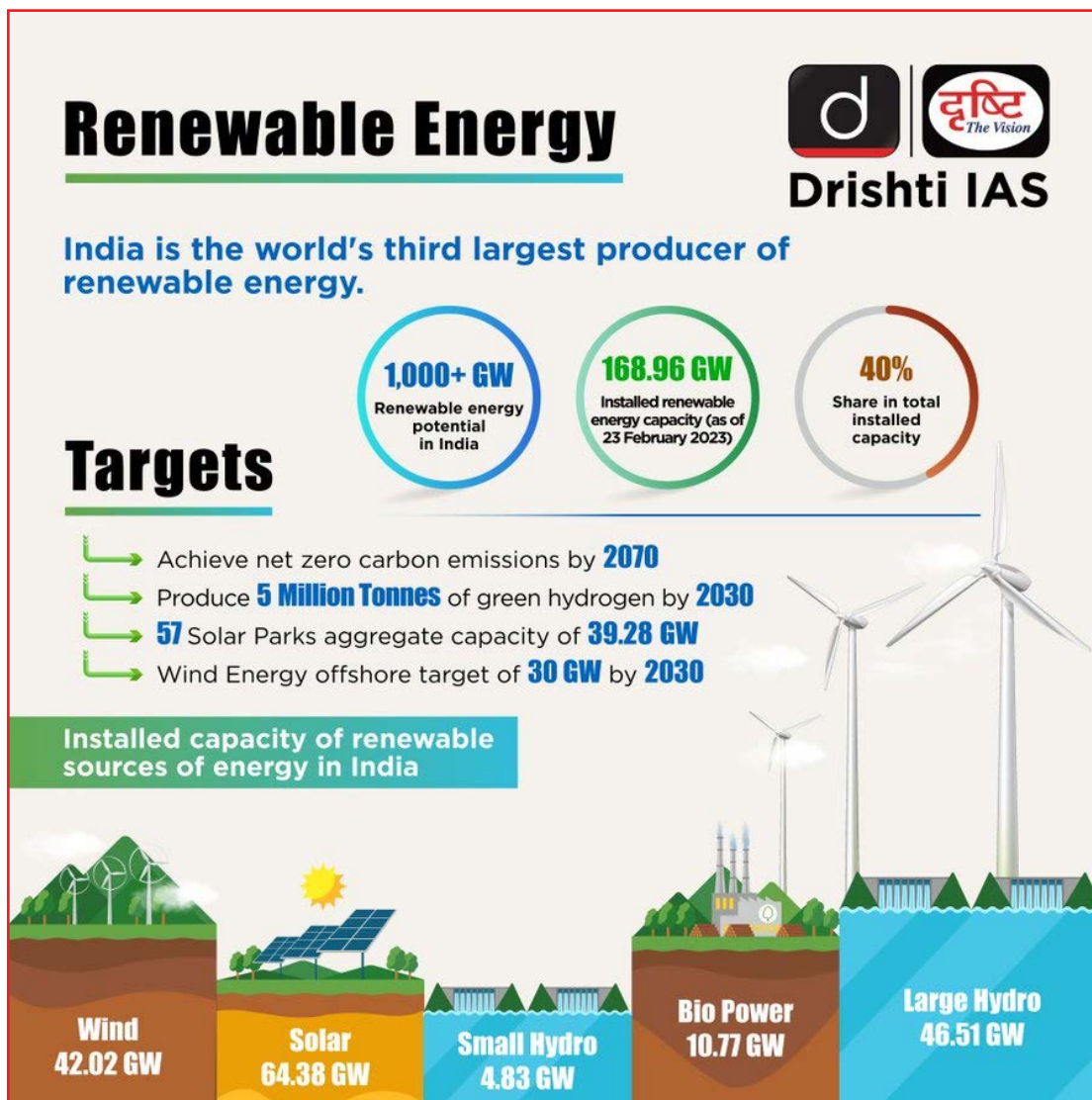
Rising investments in Renewable Energy - IN NEWS | Drishti IAS

■ ■ ■

Note:

Environment and Ecology

Highlights

- UNFCCC
- World's Oceans Approaching Critical Acidification Level
- Plastic Waste Crisis in the Himalayan Region
- Integrated Development of Wildlife Habitats
- Methane Emissions and Global Warming

- International Big Cat Alliance
- Salt Pans Land
- GCF to Help Vulnerable Nations
- Reduction in CO2 from Transport Sector by 2050
- Delhi's Winter Plan to Curb Air Pollution

UNFCCC
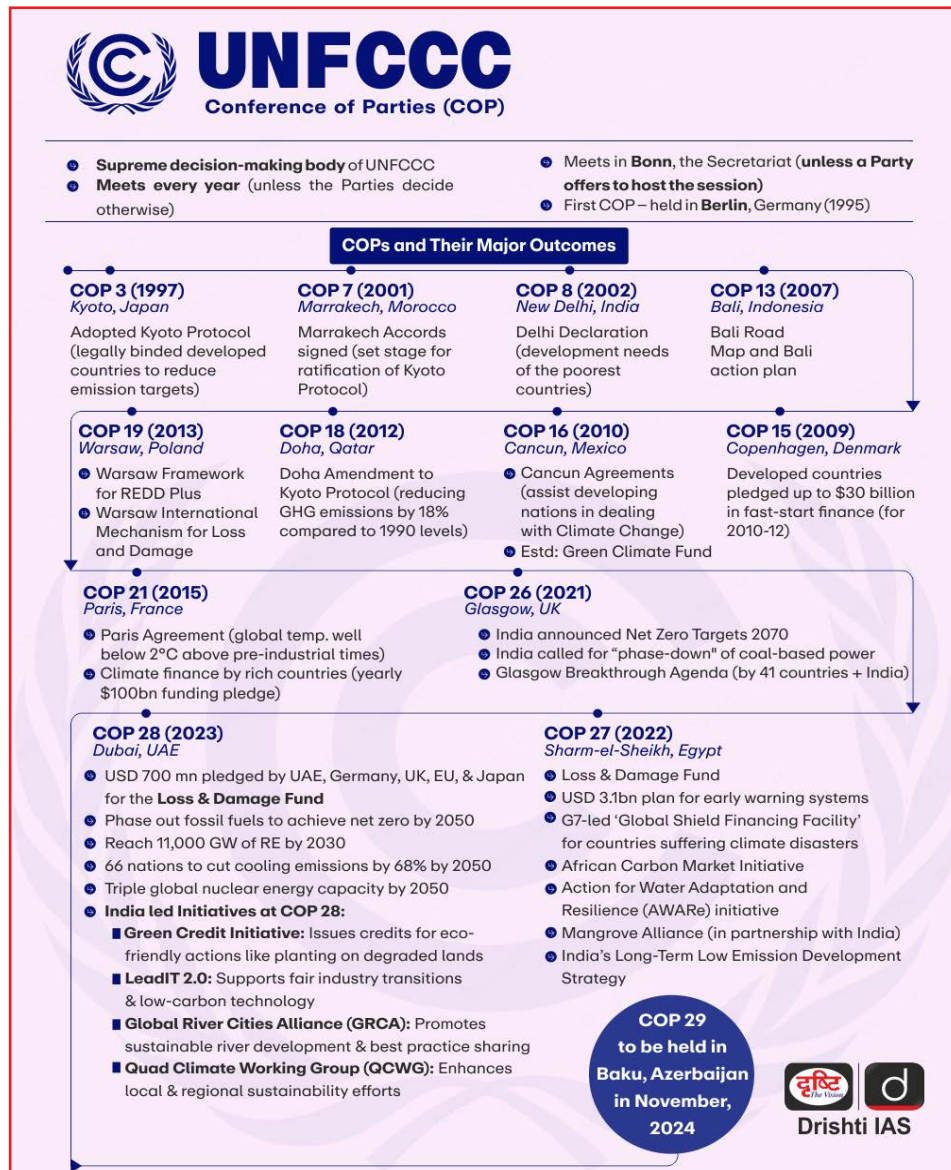
World's Oceans Approaching Critical Acidification Level

Why in News?

Recently, a recent report released by the **Potsdam Institute for Climate Impact Research (PIK),** Germany highlighted an alarming trend regarding **ocean acidification.**

➤ It indicated that the world's oceans are **nearing a critical threshold** that could **severely impact marine life** and **climate stability.**

What are the Key Findings of the Report?

➤ **Planetary Boundaries: Six** of **nine** critical Earth systems, including climate change, biodiversity loss, and pollution, **have been breached**.

➤ **Ocean Acidification:** Rising CO_2 emissions are set to **exceed sustainable levels** of ocean acidification.

➤ **Tipping Points and Potential Recovery:** Crossing ecological tipping points threatens irreversible ecosystem damage and impacts billions. Although the ozone layer is recovering, urgent action is required on other environmental boundaries to prevent further degradation.

Planetary Boundaries

➤ **About:**

○ The planetary boundaries framework, introduced by **Johan Rockström and 28 scientists in 2009,** outlines earth's environmental limits to ensure stability and biodiversity for humanity's safe operation.

➤ **Nine Planetary Boundaries:**

○ **Climate change.**

○ Change in biosphere integrity (biodiversity loss and species extinction)

○ Stratospheric **ozone depletion.**

○ **Ocean acidification.**

○ Biogeochemical flows (phosphorus and nitrogen cycles).

○ Land-system change (for example deforestation).

○ Freshwater use (alterations across the entire water cycle over land).

○ Atmospheric **aerosol l**oading (microscopic particles in the atmosphere that affect climate and living organisms).

○ Introduction of novel entities(consisting of microplastics, endocrine disruptors, and organic pollutants).

The Nine Planetary Boundaries
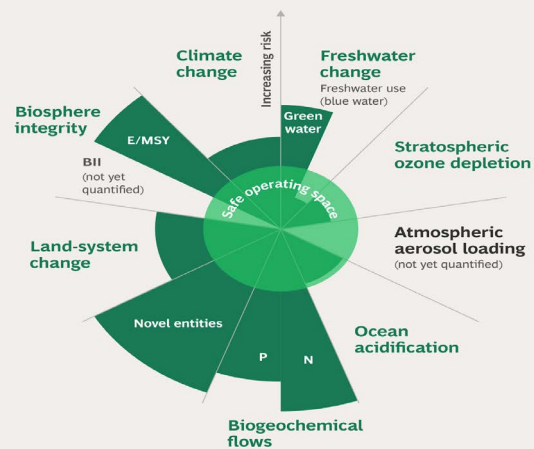
Source: Stockholm Resilience Centre.

➤ **Breaching Planetary Boundaries:**

○ Breaching planetary boundaries doesn't signal an immediate disaster but increases the risk of irreversible environmental shifts, potentially making Earth uninhabitable for our current way of life.

What is Ocean Acidification?

➤ **About:**

○ It refers to the process by which the **pH levels of the ocean decrease** due to the **absorption of excess atmospheric CO_2.**

○ As CO_2 **levels rise, more of it dissolves in seawater,** forming **carbonic acid,** which lowers the pH.

➤ **Ocean Acidification Process:**

○ When CO2 is absorbed by seawater, it triggers chemical reactions that raise **hydrogen ions (H+)** concentrations.

○ CO2 dissolves and **forms carbonic acid (H2CO$_3$),** which breaks down into hydrogen ions (H+) and bicarbonate ions (**HCO$_3$**-).

- ○ The rise in H+ increases the acidity of seawater, reducing the availability of carbonate ions.
- ➤ **Climate Change Accelerating Ocean Acidification:**
  - ○ Oceans naturally absorb carbon dioxide, but **increased atmospheric carbon dioxide levels** have caused oceans to absorb too much CO_2, leading to a nearly **30% increase in acidity since the 1800s**, about 10 times faster than in the last 50 million years.
  - ○ If emissions continue, **surface ocean pH could drop from 8.1 to 7.7** in the next 100 years.
  - ○ **Coastal areas** are especially vulnerable due to **acid sulphate runoff,** and **climate change-related sea level rise** worsens these effects.
- ➤ **Impact of Ocean Acidification:**
  - ○ This change in acidity can have **detrimental effects on marine organisms,** particularly those with **calcium carbonate shells or skeletons**, such as **corals** and **shellfish**.

Ocean acidification

late 1800s reduced acidity — seawater pH — lower concentration of atmospheric CO_2 — CO_2 carbon dioxide — carbonate ions — H_2CO_3 carbonic acid — H^+ free hydrogen ions — HCO_3^- bicarbonate — abundant healthy corals, mollusks, and other marine calcifiers

2100 (projected) increased acidity — seawater pH — higher concentration of atmospheric CO_2 — CO_2 carbon dioxide — fewer carbonate ions — H_2CO_3 carbonic acid — H^+ free hydrogen ions — HCO_3^- bicarbonate — fewer, smaller marine calcifiers

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Plastic Waste Crisis in the Himalayan Region

Why in News?

The **Himalayan region**, known for its pristine environment, is facing a growing **plastic waste** crisis. Since 2018, **"The Himalayan Cleanup (THC)"** movement has brought volunteers together annually to clean up waste and audit the collected trash to understand its sources.

- ➤ A crucial part of addressing this issue is **implementing Extended Producer Responsibility (EPR),** which holds manufacturers accountable for their products' lifecycle, encouraging them to minimise waste and adopt sustainable practices to support local cleanup efforts.

Note: The Himalayan Cleanup (THC) is the biggest campaign addressing plastic pollution in the mountains. Each year, **THC identifies the top polluting companies and demands accountability.** The campaign encourages individuals, organisations, waste managers, and policymakers to take action against the plastic crisis.

What is the Extent of the Plastic Waste Crisis in the Himalayan Region?

- **Waste Generation:** Solid waste generation (SWG) in the Himalayas varies based on factors such as urbanisation, tourism, and household income levels.
  - A large portion of the **waste is biodegradable,** coming from households, markets, and hotels. However, **plastic waste is predominant in tourist areas.**
  - Tourist hotspots generate a significant amount of **plastic waste. Waste management in the Himalayan region** is severely inadequate, despite the importance of these ecosystems.
- **Plastic Waste:** Plastic pollution has reached even the **remotest parts of the mountains,** with no systems in place to bring the waste back down for recycling or disposal.
  - Only about 25% of collected plastic waste consists of Polyethylene Terephthalate (PET), High-Density Polyethylene (HDPE), and Low-density polyethene (LDPE), which are **categorised as recyclable,** while the **majority (75%) is non-recyclable.** Multi-layered plastics (MLP) pose an added challenge as they are non-recyclable and difficult to manage.
  - Microplastics, formed by the degradation of larger plastic items, have been found in **Himalayan glaciers, rivers, lakes, and even in human tissues.**
  - The main contributors to plastic waste are plastics generated from **top food brands, smoking and tobacco brands, and personal care products.**

Note: India is one of the **world's largest contributors to plastic pollution**, generating around **9.3 million tonnes of plastic waste annually**. This accounts for nearly **20% of the global total.**

- The rapid urbanisation, population growth, and economic development have led to increased use of single-use plastics and packaging materials.
- A report by **Swiss non-profit EA Earth Action** reveals that **India, along with 11 other countries, is responsible for 60% of the world's mismanaged plastic waste.**
  - India ranks 4th in the **Mismanaged Waste Index (MWI) 2023**, with 98.55% of generated waste being **mismanaged and fares poorly in the management of plastics waste**, according to the EA report.
    - MWI is the ratio of the mismanaged waste and the total waste.

THE 7 TYPES OF PLASTICS — THEIR TOXICITY AND WHAT THEY ARE MOST COMMONLY USED FOR

Indian Himalayan region

- It refers to the mountainous area in India that encompasses the entire **Himalayan range within the country.** It stretches from the northwestern part of India in Jammu and Kashmir to the northeastern states along the border with countries like Bhutan, Nepal, and Tibet (China).
- The Indian Himalayan Region is spread across **13 Indian States/ Union Territories** (namely **Jammu and Kashmir, Ladakh**, Uttarakhand, Himachal Pradesh, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, Assam and West Bengal), stretching across 2500 km.

Note:

Indian Himalayan Region (IHR)

1. LADAKH
2. JAMMU & KASHMIR
3. HIMACHAL PRADESH
4. UTTARAKHAND
5. SIKKIM
6. WEST BENGAL (Darjeeling)
7. ARUNACHAL PRADESH
8. NAGALAND
9. ASSAM (Karbi Anglong & North Cachar)
10. MEGHALAYA
11. MANIPUR
12. MIZORAM
13. TRIPURA
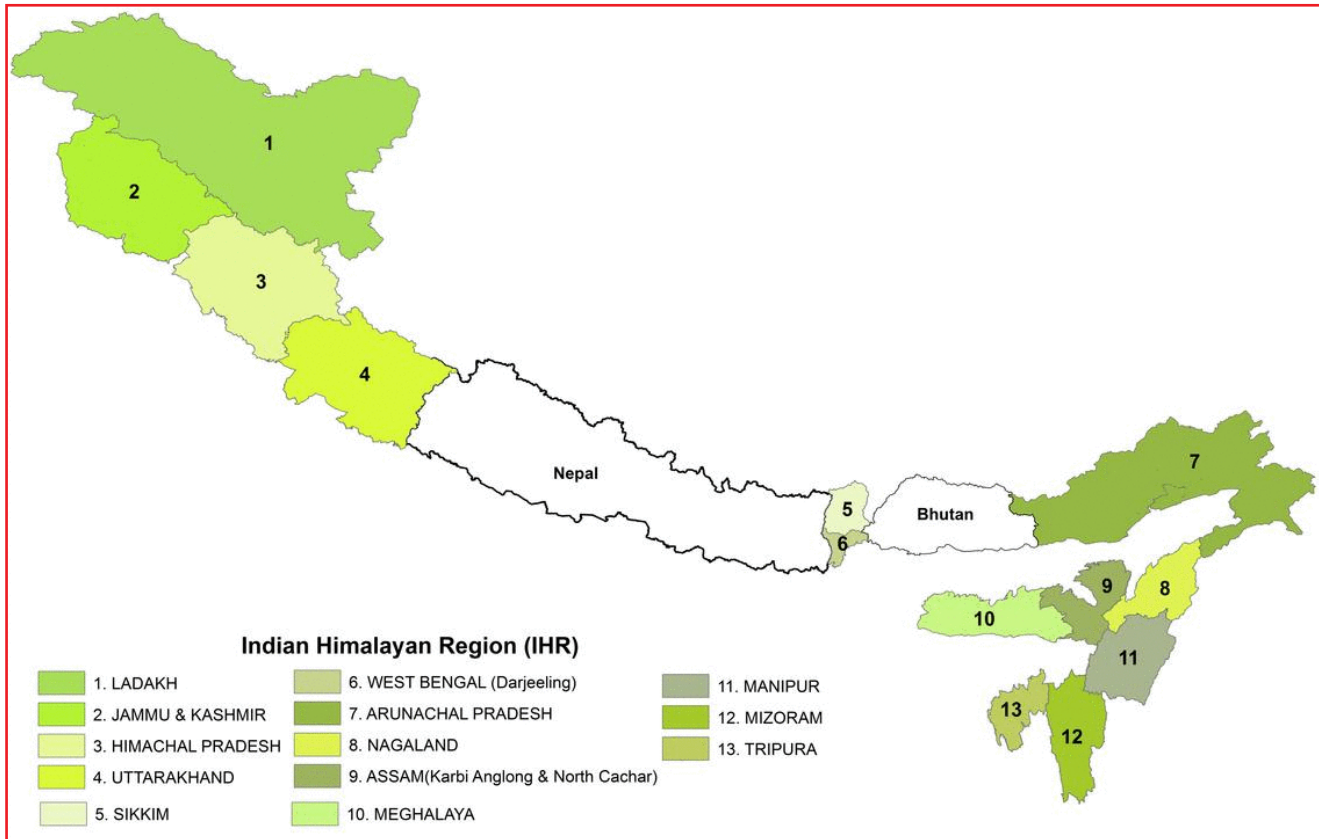
What are the Consequences of Poor Plastic Waste Management?

➢ **Environmental Degradation**: Open dumping of waste not only tarnishes the scenic beauty of the mountains but also leads to **air and soil pollution,** and **destabilises mountain slopes.**

➢ **Impact on Water Sources:** The Himalayan region is vital for the water supply of major Indian rivers like the **Indus, Ganga,** and **Brahmaputra.** Unscientific disposal of plastic waste is **polluting these water sources** and harming biodiversity.

➢ **Biodiversity at Risk**: Wildlife, such as the **Greater Adjutant stork in Assam**, is reportedly consuming plastic waste instead of their natural diet.

➢ **Public Health Threats**: Pollution from mixed waste in **landfills** poses health risks to local communities and disrupts ecosystems.

What are the Challenges of Waste Management in the Himalayas?

➢ **Harsh Terrain and Climate**: The remote and rugged landscape, combined with **harsh climatic conditions,** makes waste collection and disposal more challenging than in urban areas.

   ○ **Segregation at source, collection, and waste transport** remain major challenges in Himalayan states.

   ○ Most waste is collected and dumped in landfills or rolled downhill, exacerbating the pollution problem.

➢ **Limited Infrastructure**: The availability of **land for waste treatment and disposal** is limited, and infrastructure for handling solid waste is often weak or non-existent.

   ○ The practice of **centralised dumping is still widespread,** and the infrastructure for recycling is lacking.

➢ **Regulations and Data Gaps**: There is **insufficient data on the volume and types of waste generated** in the Himalayan settlements, making it harder to manage waste effectively.

   ○ Despite existing regulations under the **Solid Waste Management Rules, 2016** and **Plastic Waste Management Rules 2016,** the pace of implementation has been slow.

➢ **Lack of Awareness**: Local communities are aware of the link between waste management and environmental

health but **lack knowledge about proper disposal practices.**

What are the Concerns Regarding the EPR in the Himalayan Region?

➤ **Limited Implementation**: The EPR framework, anticipated to address plastic pollution, has seen **minimal implementation in the Himalayan states.** Local bodies **exhibit low awareness of EPR,** hampering effective operationalization.

➤ **Non-Recognition of Local Context**: Current EPR rules do not adequately account for the specific needs and conditions of mountain communities, ignoring factors such as **population density, local economies, and environmental fragility.**

  ○ The **one-size-fits-all approach fails to recognize the ecological significance and challenges faced in the Himalayas.**

➤ **Geographical Challenges**: The mountainous terrain presents unique challenges in waste collection, aggregation, and transportation, making traditional EPR models difficult to apply.

  ○ Inaccessible regions exacerbate issues of waste management, leading to an accumulation of litter.

➤ **Insufficient Producer Responsibility**: The burden of waste management has **largely fallen on consumers and waste managers,** with **producers not being held adequately accountable** for the lifecycle of their products.

  ○ There is a persistent lack of mechanisms for producers to take responsibility for waste generated from their products, particularly in remote areas.

Legal Mandate for Waste Management in the Himalayan Region

➤ **National Regulatory Framework**: The **Solid Waste Management (SWM) Rules 2016, Plastic Waste Management (PWM) Rules 2016,** and **Extended Producer Responsibility (EPR) 2022** form India's framework for plastic waste management.

➤ **Acknowledgment of Hill Areas**: The SWM recognizes the special needs of hill areas, but this is not adequately reflected in the mandates for local bodies and Producers, Importers, and Brand Owners (PIBOs).

➤ **State Specific Initiatives and Regulatory Efforts:**

  ○ **Himachal Pradesh**: Enacted state laws banning certain plastics and introduced a buyback policy for **non-recyclable and single-use plastics** in 2019, though littering remains an issue.

  ○ **Sikkim**: Banned **packaged mineral water** in January 2022 and developed a robust regulatory system, yet struggles with inadequate infrastructure for plastic waste management.

  ○ **Tripura**: Enacted municipal by-laws and formed a state-level task force to combat single-use plastics, but results are limited.

Integrated Development of Wildlife Habitats

Why in News?

Recently, the **Union Cabinet** approved the continuation of the **Centrally Sponsored Scheme** of **Integrated Development of Wildlife Habitats (IDWH)** for the **15th Finance Commission** cycle (2021-26).

What are the Key Facts About the IDWH?

➤ **About:** It aims to enhance the **protection and management** of wildlife habitats across India.

  ○ It encompasses various activities like **habitat restoration, community involvement** in conservation, and addressing **human-wildlife conflicts.**

➤ **Components of the Scheme**:

  ○ Support to **Protected Areas** (National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves).

  ○ Protection of wildlife **outside protected areas.**

  ○ Recovery programmes for saving **critically endangered species** and **habitats.**

➤ **Subcomponents of IDWH:**

  ○ **Project Tiger:** It was launched in India in **1973** with the primary objective to **protect and conserve** tiger populations in their natural habitats to prevent extinction.

  ○ **Project Elephant:** It was launched in **1992** to address the decline in the elephant population due to **habitat loss and poaching.**

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❍ **Development of Wildlife Habitat:** It focuses on creating and enhancing habitats to support wildlife conservation and biodiversity.

- **Project Dolphin** and **Project Lion** are under this subcomponent.

➤ **Conservation of Keystone Species**: The scheme focuses on **keystone species** such as **tigers, elephants, cheetahs, and lions**, which are indicators of ecosystem health.

❍ It also supports lesser-known species identified under the **Species Recovery Programme** within the **Development of Wildlife Habitat component.**

- **16 terrestrial and 6 aquatic species** have been identified for saving critically endangered species/ecosystems.

IUCN Status	Journey of East
Critically Endangered	Great Indian Bustard, Hangul, Jerdon's Courser, Malabar Civet, Northern River Terrapin
Endangered	Asian Wild Buffalo, Brow-Antlered Deer (Sangai), Gangetic River Dolphin, Nilgiri Tahr, Arabian Sea Humpback Whale, Red Panda
Vulnerable	Asiatic Lion, Dugong, Indian Rhino or Great One-horned Rhinoceros, Nicobar Megapode, Snow Leopard, Swamp Deer, Clouded Leopard,
Near Threatened	Caracal (Globally: Least Concern)
Least Concern	Edible Nest Swiftlet

➤ **Beneficiary Areas:** The scheme is set to benefit **55 tiger reserves, 33 elephant reserves, and 718 protected areas** along with their zones of influence.

➤ **Technological Interventions:**

❍ **M-STrIPES Application**: Project Tiger employs the **M-STrIPES (Monitoring System for Tigers, Intensive Protection and Ecological Status)** mobile application, that helps to capture data relating to tiger sightings, activities etc.

❍ **Artificial Intelligence (AI):** The **All-India Tiger Estimation** process involves use of **AI for species-level identification.**

❍ **Conservation Genetics Applications**: A Standard Operating Procedure (SOP) has been issued for the **translocation of tigers** based on their **genetic composition.**

- Genetics is also applied to assess tiger populations in low-density areas and to analyse their **food ecology.**

➤ **Focus on Specific Animals:**

❍ **Project Dolphin:** The Project Dolphin is proposed to be supported by **Remotely Operated Vehicles (ROVs)** and **passive acoustic monitoring devices** for the enumeration of dolphins as well as their habitat.

❍ **Project Lion:** Project Lion will be reinforced by the vision in **"Lion@2047: A Vision for Amrut Kaal,"** aiming to promote the long-term conservation of lions and their ecosystems.

❍ **Project Cheetah**: The **Project Tiger component also supports** the ambitious Project Cheetah in India. The areas for introducing cheetahs will be expanded according to the **Cheetah Action Plan.**

➤ **Livelihood Generation**: The continuation of the scheme is expected to generate **over 50 lakh man-days of employment** through direct engagement in conservation activities.

Methane Emissions and Global Warming

Why in News?

Methane (CH_4) emissions are surging, threatening global climate targets set by the **Paris Agreement.** While **carbon dioxide (CO_2)** has been the main focus in climate discussions, **methane, a far more potent greenhouse gas (GHG),** is gaining attention.

➤ Addressing methane's role in global warming offers significant potential for rapid climate progress.

What is the Climate Impact of Methane Emissions?

➤ **Climate Impact:** Methane is approximately **80 times more potent than CO_2** as a GHG and has contributed to around **30% of global warming since the industrial revolution.**

❍ However, it remains in the atmosphere for **only about 7 to 12 years.** Therefore, **reducing methane emissions or enhancing its sinks** can significantly

Note:

impact climate change in the **short term,** providing valuable time to tackle the more complex challenge of reducing reliance on **fossil fuels and associated CO₂ emissions.**

○ Reducing **methane emissions by 45% by 2030** can help meet the Paris Agreement's goal of **limiting global warming to 1.5°C.**

● Abating methane emissions and enhancing atmospheric removal can rapidly mitigate warming, turning this climate villain into a crucial ally in keeping **global temperatures within safe limits.**

➢ **Air Quality Issues:** Controlling methane emissions is crucial for improving **air quality** as methane contributes to the formation of **ground-level (tropospheric) ozone,** a harmful air pollutant that affects respiratory health.

➢ **Emission Sources:** Key sectors responsible for methane emissions include **energy (especially oil, gas, and coal), agriculture (primarily livestock and rice cultivation),** and waste management **(landfills).**

○ Global methane emissions are estimated at around **580 million tonnes annually,** with approximately **40% from natural sources** and **60% from human activities** (anthropogenic emissions), their mitigation is seen as a **relatively achievable climate action.**

● The largest anthropogenic source is **agriculture,** accounting for about **25% of emissions,** closely followed by the energy sector (coal, oil, natural gas, and biofuels).

What Global Efforts are Underway to Reduce Methane?

➢ **Global Methane Pledge (GMP)**: It was launched at **CoP26 2021 (Glasgow climate pact),** and aims to reduce methane emissions by **at least 30% below 2020 levels by 2030.**

○ Led by the US and EU, the **GMP** now has 158 country participants representing a little over **50% of global anthropogenic methane emissions.**

○ **India has opted not to sign the Global Methane Pledge.**

➢ **UN Environment Programme (UNEP)**: **UNEP** leads initiatives like the **International Methane Emissions Observatory (IMEO)** and the **Oil and Gas Methane Partnership** to monitor and reduce methane from energy, agriculture, and waste sectors.

➢ **International Energy Agency:** The **IEA's Global Methane Tracker** is an indispensable tool in the fight to bring down emissions from across the energy sector.

➢ **Climate and Clean Air Coalition (CCAC)**: Supports countries in implementing methane reduction measures.

➢ **Intergovernmental Panel on Climate Change (IPCC) Reports:** The **IPCC** emphasises the importance of reducing methane to meet global climate targets and has provided guidelines for nations to address methane emissions in their climate strategies.

Why did India Reject the Global Methane Pledge?

➢ **Impact on Agricultural Livelihoods:** The primary sources of methane emissions in India are **enteric fermentation (**digestive process that occurs in the stomachs of ruminant animals**) from livestock and paddy cultivation.** These practices are vital for **small and marginal farmers,** who form the backbone of India's agricultural sector.

○ The methane emissions resulting from these agricultural activities are considered **"survival" emissions,** as they directly **impact food production** and farmers' livelihoods rather than being associated with luxury consumption.

➢ **Food Security Concerns:** India is one of the **largest producers and exporters of rice.** A reduction in methane emissions, particularly from rice cultivation, could significantly jeopardize **food security,** affecting both domestic supply and export potential.

○ The potential negative impact on agricultural production could further threaten **farmers' incomes and, by extension, rural economies.**

➢ **Shifting From CO₂:** India contends that CO2, with a lifespan of **100-1000 years,** is the primary contributor to climate change, while the **Pledge shifts focus to methane reduction, which has a shorter lifespan,** thus altering the burden of CO₂ reduction.

➢ **Sovereign Right to Determine Climate Actions:** India's **Nationally Determined Contributions (NDCs)** under the Paris Agreement **do not impose sector-specific emissions reduction targets,** allowing the country to determine its climate actions based on national circumstances and priorities.

○ The Indian government, through assessments, determined that signing the **Pledge would not align with its national interests.**

Note:

How is India Reducing Methane Emissions?

- **India's Participation in Climate Agreements:** India is a Party to the United Nations Framework Convention on Climate Change (UNFCCC), including its **Kyoto Protocol** and the **Paris Agreement ,** which aim to reduce greenhouse gas (GHG) emissions.

- **National Mission on Sustainable Agriculture (NMSA)**: Implemented by the Ministry of Agriculture and Farmers Welfare, NMSA promotes climate-resilient practices, including techniques to reduce methane emissions in rice cultivation.

- **National Innovations in Climate Resilient Agriculture (NICRA)**: The Indian Council of Agricultural Research (ICAR) has developed multiple technologies to reduce methane emissions in rice production:

  - **System of Rice Intensification (SRI)**: Increases rice yield by 36-49% while using 22-35% less water than conventional methods, reducing methane emissions.

  - **Direct Seeded Rice (DSR)**: The DSR system reduces methane emissions as it does not involve raising nurseries, puddling and transplanting.

  - **Crop Diversification Programme**: Shifts from paddy cultivation to other crops like pulses, oilseeds, maize, and cotton, which reduces methane emissions from rice fields.

- **Capacity Building Programs**: Krishi Vigyan Kendras across India conduct awareness programs for farmers on climate-resilient and methane-reducing agricultural practices.

- **National Livestock Mission**: This mission, under the Department of Animal Husbandry and Dairying (DAHD), promotes:

  - **Breed Improvement and Balanced Rationing**: Feeding livestock with a balanced and superior-quality diet reduces methane emissions.

  - **Green Fodder Production and Silage Making**: Encourages green fodder production, chaff cutting, and total mixed ration practices to reduce emissions from livestock.

- **Gobardhan Scheme (Galvanizing Organic Bio-Agro Resources)**: Incentivizes the utilisation of cattle waste for producing clean energy and organic manure, thus reducing methane emissions from livestock waste in rural areas.

  - The **New National Biogas and Organic Manure Programme** incentivises cattle waste utilisation and clean energy production in villages.

Methane

- Methane is the **simplest hydrocarbon,** consisting of one carbon atom and four hydrogen atoms (CH_4). It is the primary component of **natural gas,** possessing key characteristics: **odourless, colourless, and tasteless gas. Lighter than air.**

  - It burns with a blue flame in complete combustion, yielding carbon dioxide (CO_2) and water (H_2O) in the presence of oxygen.

- Global warming potential (GWP) is a **measure of how much energy the emissions of one tonne of a gas will absorb over a given period**, relative to the emissions of one tonne of **carbon dioxide**.

  - Methane has a GWP of 28, meaning it is 28 times more potent than carbon dioxide.

Table 1: Summary of the GWPs for different greenhouse gases by year.

Greenhouse gas	AR2 GWPs (2008–09 to 2014–15)	AR4 GWPs (2015–16 to 2019–20)	AR5 GWPs (2020–21 onwards)	2020–21 GWPs / 2019–20 GWPs
Carbon dioxide	1	1	1	0%
Methane	21	25	28	12%
Nitrous oxide	310	298	265	−11%
Perfluoromethane (tetrafluoromethane)	6,500	7,390	6,630	−10%
Perfluoroethane (hexafluoroethane)	9,200	12,200	11,100	−9%
Sulphur hexafluoride	23,900	22,800	23,500	3%
Hydrofluorocarbons(HFCs)	dependent on HFC type	dependent on HFC type	dependent on HFC type	dependent on HFC type

Note:

International Big Cat Alliance

Why in News?

Recently, India has officially joined the **International Big Cat Alliance (IBCA)**, which was **launched by the Prime Minister in 2023.** IBCA aims to protect big cats and their habitats.

> **Note:**
> ➢ Though India launched **the International Big Cat Alliance (IBCA)** as a global institution, it must still sign and ratify its Framework Agreement, similar to its approach with other international agreements and institutions, such as the **Paris Agreement**, the **Convention on Biological Diversity (CBD)**, and the **Shanghai Cooperation Organization (SCO).**

What is the International Big Cat Alliance (IBCA)?

➢ **About:**
- ○ The **International Big Cat Alliance (IBCA)** is a multi-country, multi-agency coalition of **96 big cat range countries**, and non-range countries aimed at conserving 7 big cats and their habitats.
- ○ The idea was **first proposed** by India's **Prime Minister** in **2019** and officially launched in April 2023 to mark the 50th anniversary of **Project Tiger**.

➢ **Objectives:**
- ○ To **prevent the illegal wildlife trade** involving the seven big cat species.
- ○ To **promote the conservation of natural habitats** for these seven big cats.
- ○ To **mobilise financial and technical resources** to support the implementation of conservation and protection efforts.
- ○ IBCA would work towards **mitigating the adverse effects of climate change**.
- ○ It will advocate for policy initiatives that **align biodiversity conservation efforts** with local needs and contribute towards the attainment of **United Nations**-mandated **Sustainable Development Goals** within member countries.

➢ **Focus Species:**
- ○ The initiative focuses on the conservation of **seven** big cat species: the **Tigers, Lions, Leopards, Snow Leopards, Cheetah, Jaguar** and **Puma.**
  - Five of these—**tiger, lion, leopard, snow leopard, and cheetah—are found in India**, excluding the puma and jaguar.

➢ **Member Countries:**
- ○ Currently, 4 countries (**India, Nicaragua, Eswatini, and Somalia)** are its members.

➢ **Budgetary Allocation:**
- ○ The Union Cabinet allocated a one-time budgetary support of **Rs 150 crore** for the IBCA for five years from **2023-24 to 2027-28.**

➢ **Governance Structure:**
- ○ It includes an **Assembly of Members, a Standing Committee**, and a **Secretariat** based in **India**.
- ○ The framework is modelled after the **International Solar Alliance (ISA)**, with a Director-General (DG) appointed by the Ministry of Environment, Forest and Climate Change (MoEFCC).

What are Big Cats?

➢ Big cats refer to **large wild cat species,** typically belonging to the *Panthera* genus, though some other species are also included.
- ○ Smaller and medium cats, including domestic cats, are classified under the genus *Felis*.

➢ **Key Points:**
- ○ **Lions** are the only big cats that live in **social groups,** called prides, and hunt cooperatively. Other big cats are solitary, except for mothers with cubs.
- ○ The **Siberian tiger**, the **largest of the big cats**, is endangered due to threats like trophy hunting and use in traditional Chinese medicine.
- ○ Big cats are **keystone species** and **critical indicators of ecosystem health** but are increasingly threatened by poaching, illegal wildlife trade, and habitat loss.
- ○ The Indian subcontinent has historically been home to the **Bengal tiger, Asiatic lion**, **Indian leopard, Indian/Asiatic cheetah**, and **Snow leopard**.

Note:

❍ The cheetah was declared extinct in India in 1952. In 2022, the Government launched an ambitious initiative to reintroduce **African cheetahs** into <u>**Kuno National Park**</u> in Madhya Pradesh.
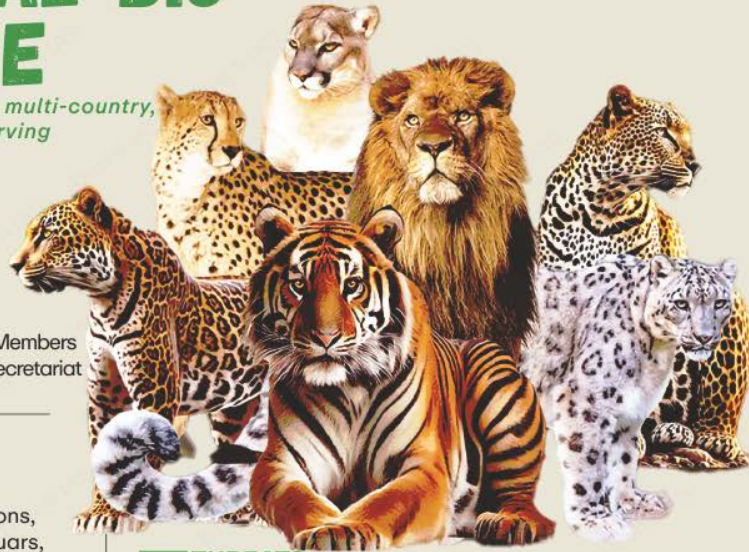
INTERNATIONAL BIG CAT ALLIANCE

The International Big Cat Alliance is a multi-country, multi-agency coalition aimed at conserving big cat species and their habitats.

Launched by
India (2023)

Headquarters
India

Member states
96 countries

Structure
Consists of Assembly of Members
Standing Committee & Secretariat

FUNCTIONS

→ Secure the future of big cats (Tigers, Lions, Leopards, Snow Leopards, Pumas, Jaguars, and Cheetahs)
→ Mitigate the adverse effects of climate change
→ Advocate for policy initiatives
→ Attain the United Nations-mandated Sustainable Development Goals

THREATS TO BIG CATS

→ Poaching
→ Habitat loss & fragmentation
→ Human-Leopard conflict
→ Climate change & Deforestation

Conservation Status of Big Cats

Species	Scientific Name	IUCN Red List	CITES	Indian Wildlife (Protection) Act, 1972
Tigers	Panthera tigris	Endangered	Appendix-I	Schedule-I
Lions	Panthera leo	Vulnerable	Appendix-I	Schedule-I
Leopards	Panthera pardus	Vulnerable	Appendix-I	Schedule-I
Snow Leopards	Panthera uncia	Vulnerable	Appendix-I	Schedule-I
Pumas	Puma concolor	Least Concerned	Appendix II (P. c. Costaricensis and cougar: Appendix-I)	NA
Jaguars	Panthera onca	Near Threatened	Appendix-I	NA
Cheetahs	Acinonyx jubatus	Vulnerable	Appendix-I	Schedule-I

Other Conservation Efforts in India

■ Project Tiger (1973)
■ Asiatic Lion Reintroduction Project (2004)
■ Project Snow Leopard (2009)
■ Project Cheetah (2022)

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Conservation Efforts for Big Cats in India

➢ **Project Lion**
➢ **Project Leopard**
➢ **Project Cheetah**
➢ **Cheetah Reintroduction Project**
➢ **Wildlife Protection Act, 1972**
➢ **Snow Leopard** Conservation

BIG CATS SCIENTIFIC CLASSIFICATION

KINGDOM — ANIMALIA
PHYLUM — CHORDATA
CLASS — MAMMALIA
ORDER — CARNIVORA (meat-eater)
SUBORDER — FELIFORMIA (cat-like)
FAMILY — FELIDAE (cat)

SUBFAMILY : PANTHERINAE
 GENUS : PANTHERA — Lion, Tigar, Jaguar, Leopard, Snow Leopard
 GENUS : NEOFELIS — Clouded leopard, SUNDA Clouded leopard

SUBFAMILY : FELINAE
 GENUS : ACINONYX — Cheetah
 GENUS : PUMA — Cougar
 OTHER WILD CAT GENUS — Several other small genus, including the domestic cat.

Read More: **Cheetah Cubs in Kuno National Park**

Salt Pans Land

Why in News?

Recently, the Centre approved the transfer of **256 acres of salt pan land** in Mumbai to the **Dharavi Redevelopment Project Pvt Ltd (DRPPL)** for building **rental housing for slum dwellers.**

➢ Environmentalists raised ecological concerns about construction on **salt pan lands.**

What are Salt Pan Lands?

➢ **About:**
  ❍ Salt pans are **low-lying tracts of land where seawater periodically flows in**, leaving behind deposits of salt and minerals.

Note:

- ❍ This **natural process** plays a critical role in maintaining the **balance of** coastal ecosystems.
- ➤ **Protection Status:**
  - ❍ Under **the** CRZ Notification of 2011, these ecologically sensitive areas are **classified under CRZ-1B** and **restrict economic activities except salt extraction and natural gas exploration.**
- ➤ **Salt Pans in India:**
  - ❍ In Mumbai, a total of **5,378 acres** have been **designated as salt pan lands**.
  - ❍ On a national scale, **around 60,000 acres of salt pan lands** are identified, distributed across states like **Maharashtra, Andhra Pradesh, Tamil Nadu, Odisha, Gujarat, and Karnataka**.
    - ● **Andhra Pradesh has the largest expanse** (20,716 acres), followed by Tamil Nadu (17,095 acres) and Maharashtra (12,662 acres).

Coastal Regulation Zone (CRZ)

- ➤ The **CRZ was first notified in 1991 by** the Ministry of Environment and Forests (MoEF) under the Environment Protection Act of 1986. The CRZ is categorized into five zones: **CRZ-I, CRZ-II, CRZ-III, CRZ-IV, and CRZ-V.**
  - ❍ **CRZ-I** are **ecologically sensitive** areas like mangroves, coral reefs, biosphere reserves etc.
  - ❍ **CRZ-II** includes built-up areas – **villages and towns** that are already well established.
  - ❍ **CRZ-III** are **areas that are undisturbed** and do not fall under either in Category I or II.
  - ❍ **CRZ-IV** is the **aquatic area** from low tide line up to territorial limits.
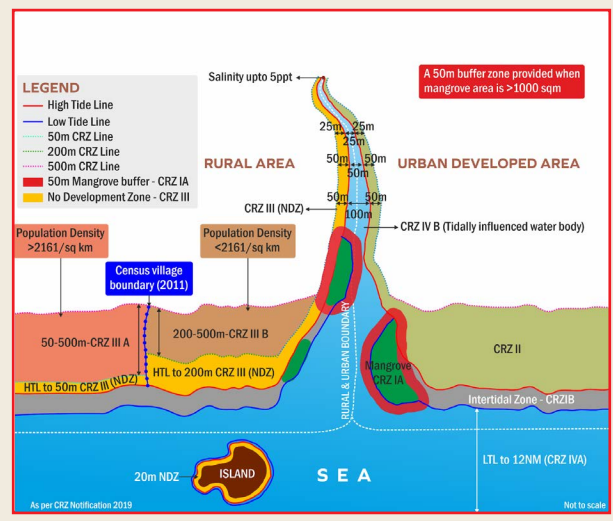
- ➤ CRZ is an **area near the coastline** that's governed by rules to protect the environment and promote sustainable development. The CRZ includes:
  - ❍ It is the land between **the high tide line (HTL)** and the **low tide line (LTL)**.
  - ❍ A 100-metre stretch along the banks of **rivers, estuaries, backwaters, and creeks** that are affected by tides.
  - ❍ The river banks on either side of estuaries.

What is the Significance of Salt Pans?

- ➤ **Environmental:** Alongside **the coastal mangroves, salt pans** form a vital **ecological barrier** that **mitigates flooding risks.**
- ➤ **Economic:** Salt pans provide **employment for a large number of workers,** especially in rural and coastal areas. Labourers engage in activities like harvesting, processing, and transporting salt.
- ➤ **Raw Material:** Salt produced in salt pans is essential for various industries, including **chemical production (e.g., chlorine, caustic soda), agriculture (as animal feed),** and water treatment.
- ➤ **Tourism Attraction:** Some salt pans, especially those with scenic landscapes, have become tourist destinations, adding economic value through **ecotourism and cultural tourism.**

What are Welfare Schemes the Government Initiated for Salt Workers?

- ➤ **Scheme for Grant of Rewards to the Children of Salt Labourers:** It provides financial rewards to students for their educational development.
- ➤ **Namak Mazdoor Awas Yojana (NMAY):** It provides for the construction of houses for salt workers. It promotes cooperative societies in the salt industry.
- ➤ **Salt Commissioner's Organization (SCO):** It **monitors the development of the salt industry**, including planning, facilitating technology upgradation, and conducting training programs for salt workers.

GCF to Help Vulnerable Nations

Why in News?

Recently, the Chief of the Green Climate Fund (GCF) committed to ensuring that vulnerable nations receive

the necessary financial support to address climate challenges.

What is the Green Climate Fund (GCF)?

➢ **About:**
  ○ GCF is a **fund for climate finance** that was established within the framework of the **United Nations Framework Convention on Climate Change**.
  ○ It was **established in 2010**, and headquartered in the **Republic of Korea**.

➢ **Governed by:**
  ○ The Fund operates under the governance of the GCF Board and is accountable to the **Conference of the Parties (COP),** functioning in accordance with its guidance.
  ○ It supports projects, programs, policies, and various activities in developing country Parties through designated thematic funding windows aimed at addressing specific priority areas.

➢ **Functions:**
  ○ GCF is mandated to support developing countries raise and realise their **Nationally Determined Contributions (NDC)** ambitions towards low-emissions, climate-resilient pathways.
    ● NDCs are climate action plans that outline how countries intend to reduce their **greenhouse gas emissions** and adapt to climate change.
    ● The **Paris Agreement** requires all countries to create, communicate, and update their NDCs every five years.

Climate Finance

➢ **About:**
  ○ It is the funding that **supports actions to address climate change.** It can come from **public, private, and alternative sources.**

➢ **Importance:**
  ○ It is important for reducing emissions and adapting to the effects of climate change. It's also critical for enabling countries to transition to low-carbon economies and achieve the goals of the Paris Agreement.

➢ **Need in India:**
  ○ India needs climate finance to scale up renewable energy installations, modernise infrastructure, and improve energy efficiency.

➢ **Financial mechanisms:**
  ○ UNFCCC has established several financial mechanisms to provide climate finance to developing countries, including the Adaptation Fund, Green Climate Fund, and the Global Environment Fund.

What are the Objectives and Ambitions of the GCF?

➢ It is a key mechanism for **channelling climate finance to developing countries** that, despite **being least responsible for global carbon emissions,** are disproportionately affected by climate change.
  ○ The fund **primarily supports nations in two key areas** like reducing greenhouse gas emissions and **enhancing resilience to the worsening impacts of climate change**, including **storms**, **droughts**, **heatwaves**, **and rising sea levels**.

➢ The **GCF has recognized 19 climate-vulnerable countries** that have received little to no financial assistance.
  ○ This includes Algeria, the Central African Republic, Chad, Iraq, Lebanon, Mozambique, Papua New Guinea, and South Sudan.
  ○ The GCF is now **intentionally prioritizing these countries to provide targeted climate funding** and support.

➢ The GCF emphasised the organization's commitment to becoming the "partner of choice" for vulnerable countries and **ensuring funds are directed to where they are most urgently needed.**
  ○ Somalia, devastated by **severe floods** and its **worst drought in decades**, has been **promised over USD 100 million in GCF investments for year 2025** to foster climate-related projects and attract further investments.

Government Initiatives Regarding Climate Finance

➢ **National Adaptation Fund for Climate Change (NAFCC)**
➢ **National Clean Energy Fund**
➢ **National Adaptation Fund**
➢ **Clean Development Mechanism (CDM)**

Note:

CLIMATE FINANCE

Climate finance refers to local, national or transnational financing—drawn from public/private/alternative sources of financing—to support mitigation and adaptation actions against climate change.

PRINCIPLES OF CLIMATE FINANCE

- Polluter Pays
- Common but Differentiated Responsibility and Respective Capability (CBDR–RC)

Multilateral Climate Funds Coordinated by UNFCCC

- **Global Environment Facility (GEF):** Operating entity of financial mechanism (1994)
- **Kyoto Protocol (2001):**
  - **Adaptation Fund (AF):** Gives developing countries full ownership of adaptation projects
  - **Clean Development Mechanism (CDM):** To carry out emission-reduction projects in developing nations
- **Green Climate Fund (GCF):** estd. - 2010 (COP 16)
  - Funds under it - **Least Developed Countries Fund (LDCF)** and **Special Climate Change Fund (SCCF)**
- **Long-Term Climate Finance:**
  - **Cancun Agreements (2010):** Mobilize and provide scaled-up funds in short and long term
  - **Paris Agreement (2015):** Developed nations agreed to establish new collective goal of at least $100 billion/year by 2025
- **Loss and Damage Fund (2023) (COP27 & COP28):** Financial assistance to nations most vulnerable and impacted by effects of climate change

Climate Investment Funds (CIFs) under World Bank

- Clean Technology Fund
- Strategic Climate Fund

INDIA'S INITIATIVES REGARDING CLIMATE FINANCE

Fund	Objective
■ National Adaptation Fund for Climate Change (NAFCC) (2015) ■ National Clean Energy Fund (2010-11) ■ National Adaptation Fund (2014) ■ Intended Nationally Determined Contributions (INDCs) (2015) ■ Climate Change Finance Unit (2011)	■ For vulnerable Indian states ■ Advancing clean energy (started with initial carbon tax on industrial coal use) ■ Bridging gap between required and available funds ■ Nationally binding targets adopted under UNFCCC ■ Leads on global climate finance issues

Challenges to Climate Finance

- Gap between national needs and climate finance under NDCs
- Least Developed Countries receive much less approved funding in per-capita terms from the multilateral climate funds
- Slow rate of approvals
- Failure in securing viability-gap funding

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Reduction in CO2 from Transport Sector by 2050

Why in News?

A recent study by the **World Resources Institute (WRI)** India suggests that India's transport sector could reduce **carbon dioxide emissions by up to 71% by 2050** through the implementation of high-ambition strategies.

➢ This significant reduction hinges on **three key measures** including, advancing electrification, enhancing fuel economy standards, and transitioning to cleaner modes of transport and mobility.

World Resources Institute (WRI)

➢ It is a **global research organisation founded in 1982**, with its headquarters located in Washington, USA.

➢ It spans more than 60 countries and focuses on six critical issues at the intersection of environment and development: **climate, energy, food, forests, water, and cities and transport.**

➢ WRI **works with government, business, and civil society** to drive ambitious action based on high-quality data and objective analysis.

Note:

What are the Key Findings of the Report?

➢ **Current Emissions and Need for Targets:**
  ○ In **2020**, India's transport sector was responsible for **14% of the total energy-related CO_2 emissions**. There is an urgent need to establish an emission reduction roadmap and specific targets for this sector.

➢ **Impact on Net-Zero Goals:**
  ○ Achieving high emission reduction targets in the transport sector is crucial for India to meet its **net-zero emissions goal by 2070.**

➢ **Cost-Effectiveness of Decarbonisation:**
  ○ **Transitioning to low-carbon transport** is identified as the **most cost-effective long-term policy,** with potential savings of Rs. 12,118 per tonne of CO_2 equivalent abated.

➢ **Electric Vehicle Mandates:**
  ○ Expanding **Electric Vehicle** sales is particularly effective, with an annual CO_2 emissions abatement potential of 121 million tonnes of CO_2 equivalent. Complementing this with decarbonisation of electricity generation could enhance results.

➢ **Additional Policy Benefits:**
  ○ Implementing a **carbon-free electricity standard with 75% renewable energy** could further achieve a 75% reduction in emissions by 2050.

➢ **Future Fossil Fuel Dependency:**
  ○ Without significant intervention, fossil fuel consumption in the transport sector is expected to quadruple by 2050, driven by increased passenger and freight travel demands.

➢ **Current Emission Sources:**
  ○ **Road transport** accounts for **90% of the sector's emissions.** Railways, aviation, and waterways account for a smaller fraction of energy consumption.

> **Note:**
> ➢ **Decarbonisation of Transport:** Decarbonising transport refers to the **process of minimising or eliminating carbon emissions from the transportation sector**, with the objective of making transportation more environmentally sustainable and reducing its **carbon footprint.**

What are the Major Challenges in Achieving Transport Decarbonisation?

➢ **High Dependence on Fossil Fuels:**
  ○ The **global transportation sector is heavily reliant on fossil fuels** such as gasoline and diesel, making the transition to cleaner alternatives challenging.
  ○ Fossil fuel infrastructure is deeply embedded, and a complete overhaul requires significant time and resources.

➢ **BAU (business as usual) Scenario:**
  ○ Under a BAU scenario, India's **fossil fuel consumption (LPG, diesel, and petrol)** is **expected to increase fourfold by 2050**, primarily due to rising demand in passenger and freight transport.
  ○ **Passenger travel is anticipated to witness a threefold growth by 2050**, while freight transport is projected to increase sevenfold, further driving the surge in fossil fuel consumption.

➢ **Lack of Clean Energy Infrastructure:**
  ○ **Inadequate infrastructure** for EV charging, hydrogen refuelling, and **biofuel** availability poses a major barrier to the widespread adoption of clean energy in transport.

➢ **Energy Grid Constraints:**
  ○ The decarbonisation of transport is closely linked to the availability of renewable energy for the power grid.
  ○ In many regions, **electricity generation is still dominated by fossil fuels**, limiting the benefits of electrification unless the energy mix is also cleaned up.

➢ **Slow Policy Implementation and Regulatory Gaps:**
  ○ The pace of **policy formulation and enforcement for transport decarbonisation is often slow.**
  ○ Regulatory frameworks for emissions standards, fuel efficiency, and alternative fuels are either lacking or insufficiently stringent in many countries, impeding progress.

➢ **Consumer Behavior and Market Acceptance:**
  ○ **Public reluctance to adopt alternative transportation modes or vehicles** due to unfamiliarity, cost concerns, and perceived inconvenience hinders progress.

Note:

○ Behavioural inertia and attachment to traditional vehicles present a significant challenge to scaling up clean transport solutions.

➢ **Technological and Supply Chain Barriers:**

○ Achieving transport decarbonisation **requires advances in battery technology, hydrogen production, and sustainable biofuel production.**

○ Supply chain disruptions for critical components, such as lithium and rare earth metals, can further complicate the transition.

➢ **Financing and Investment Constraints:**

○ Decarbonising transport at scale demands massive capital investment in infrastructure, technology, and research and development.

○ In developing nations, limited financial resources and competing development priorities restrict the capacity to invest in sustainable transport solutions.

➢ **International Coordination:**

○ International coordination is crucial for effectively decarbonising the transport sector, but differing regulations, standards, and levels of commitment across countries create barriers to collaboration.

What are the Initiatives India has Undertaken for Energy Transition?

➢ **National Solar Mission:**

○ Launched under the **National Action Plan on Climate Change (NAPCC),** the mission aims to achieve 100 GW of solar capacity by 2022, **later revised to 280 GW by 2030.**

○ It promotes the development of **solar energy** infrastructure, focusing on **large-scale solar power plants and rooftop solar installations.**

➢ **National Hydrogen Mission (NHM):**

○ **NHM** was launched in 2021, this initiative aims to **make India a global hub for the production and export of green hydrogen.**

○ The mission focuses on research, production, and deployment of hydrogen as a clean energy source, with plans to meet 19% of India's industrial hydrogen demand from green hydrogen by 2070.

➢ **National Biofuel Policy:**

○ The policy encourages the **blending of biofuels with conventional fuels** to reduce dependency on fossil fuels.

➢ India aims for a 20% **ethanol blending** target by 2025, advancing the initial 2030 target to accelerate emission reduction in the transportation sector.

➢ **Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles (FAME):**

○ Under the **FAME initiative**, the government incentivizes the adoption of EVs and hybrid vehicles.

○ **FAME-II**, launched in 2019, provides subsidies for electric two-wheelers, buses, and charging infrastructure, with the objective of boosting clean mobility.

Delhi's Winter Plan to Curb Air Pollution

Why in News?

Recently, the Delhi government launched a **21-point winter action plan** to combat **air pollution**, featuring real-time drone surveys and a special task force.

What Does Delhi's Winter Action Plan Include?

➢ **Real-Time Drone Surveys**: For the first time, **drones** will monitor pollution hotspots across the city to provide real-time data and enhance pollution control efforts.

➢ **Special Task Force**: A dedicated task force will be established to oversee the implementation of the action plan and ensure effective execution.

➢ **Key Focus Areas of the Plan:** The plan targets **pollution hotspots,** aiming to address areas with the highest pollution levels.

○ It tackles **vehicular and dust pollution** by addressing emissions from vehicles and controlling dust.

○ A significant component of the **strategy is the work-from-home policy,** which aims to reduce vehicular emissions by encouraging private organisations to adopt remote work.

○ The plan tackles **stubble and garbage burning**, regulates **industrial emissions**, and prepares for emergency measures like **odd-even vehicle rationing**, **artificial rain** to manage pollution levels and awarding **Harit Ratna(**a green award for organisations taking part in environment-friendly activities**).**

➢ **Key Stakeholders:** For monitoring pollution the Environment Department, along with **Delhi Pollution Control Committee (DPCC)**, **Municipal Corporation of**
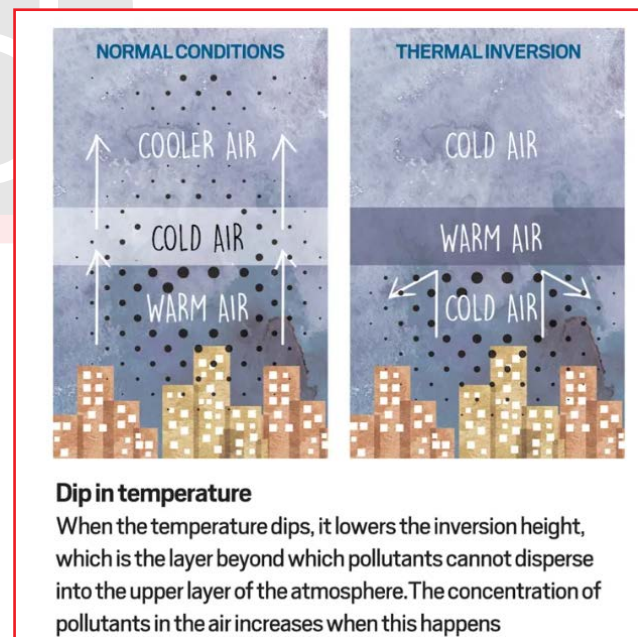
Delhi (MCD), Delhi Traffic Police, Delhi Development Authority (DDA), and Delhi State Industrial and Infrastructure Development Corporation (DSIIDC), has been designated to oversee various aspects of the plan.

What are the Main Causes of Air Pollution in Delhi During Winters?

➢ **Stubble Burning:** Farmers in Punjab and Haryana **burn crop residues** to clear their fields for the next cropping season. This produces a lot of smoke and **particulate matter(PM)** that gets carried by the wind to Delhi and other parts of north India.

○ According to **the System of Air Quality and Weather Forecasting And Research (SAFAR)**, in 2023, stubble burning's contribution to Delhi pollution was significant.

○ Stubble burning emits toxic pollutants in the atmosphere containing harmful gases like **Carbon Monoxide (CO),** **methane (CH$_4$),** and **volatile organic compounds (VOC)**.

➢ **Vehicle Emissions:** Vehicular emissions from Delhi's numerous cars, trucks, buses, and two-wheelers are major sources of air pollution.

○ As per a research paper published in the **Observer Research Foundation**, the transport sector is the main source of **PM 2.5 emissions** in Delhi (28% of all PM2.5 emissions).

○ According to the Delhi Pollution Control Committee (DPCC), traffic hot spots in Delhi have been experiencing **dangerous levels of ground-level ozone (O$_3$) pollution**, which can have serious health consequences.

➢ **Wind Direction:** Wind direction plays a significant role in Delhi's air pollution, especially during the winter months. The **predominant direction of winds in Delhi is north westerly post-monsoon.** These winds bring dust and smoke to the city when stubble is being burnt in Haryana and Punjab.

○ According to a study conducted by National Physical Laboratory, **72% of Delhi's wind in winters comes from the northwestern parts of India and Pakistan,** while the remaining 28 % comes from the Indo-Gangetic plains.

○ A change in wind direction means these pollutants are not carried into the city.

○ **La Niña** can **significantly impact wind patterns in Delhi** by altering atmospheric circulation dynamics.

➢ **Dry and Still Air:** In winter, reduced rainfall and lower wind speeds prevent pollutants from being washed away or dispersed, leading to a decrease in air quality and accumulation of PM in the air.

➢ **Temperature Inversion:** **Temperature inversion** is a phenomenon that occurs when the **air temperature increases with altitude, instead of decreasing as usual.** This creates a layer of warm air above a layer of cold air, trapping the pollutants near the ground.

○ Temperature inversion affects Delhi's pollution in winter, when the weather is cold and calm. The **pollutants accumulate in the lower atmosphere** and form a thick layer of **smog** that prevents pollutants from rising and dispersing, leading to higher pollution levels near the surface.

Dip in temperature
When the temperature dips, it lowers the inversion height, which is the layer beyond which pollutants cannot disperse into the upper layer of the atmosphere. The concentration of pollutants in the air increases when this happens

➢ **Other Sources of Pollution:** Other winter pollution sources include dust storms, which bring dust from arid regions; firecrackers, which release smoke and metals during festivals; and domestic biomass burning for heating, which adds carbon monoxide and particulates to the air.

○ A 2015 study conducted by IIT-Kanpur states that **17-26% of all particulate matter in Delhi in winters is because of biomass burning.**

Note:

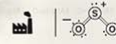## *What are the Indian Government Initiatives Related to Air Pollution?*

➢ Graded Response Action Plan (Delhi)
➢ System of Air Quality and Weather Forecasting and Research (SAFAR) Portal.
➢ Air Quality Index
➢ Turbo Happy Seeder (THS) Machine
➢ National Air Quality Monitoring Programme (NAMP)
➢ Polluter Pay principle
➢ **For Reducing Vehicular Pollution:**
  ❍ BS-VI Vehicles,
  ❍ Push for Electric Vehicles (EVs),
  ❍ Odd-Even Policy as an emergency measure (for Delhi).

Key Terms Related to Air Pollution

➢ **Air Quality Index:** It is an index for **reporting daily air quality.** It focuses on health effects one might experience within a few hours or days after breathing polluted air.
  ❍ AQI is calculated for eight major air pollutants which are; Ground-level ozone, PM10, PM2.5, Carbon Monoxide (CO), Sulphur dioxide(SO_2), Nitrogen dioxide(NO_2), Ammonia(NH_3), and Lead (Pb).

➢ **Volatile Organic Compounds (VOCs)**: These are carbon-containing chemicals released by petrol and diesel vehicles. They impact air quality and human health
  ❍ However, VOCs can have a natural origin, too. Plants emit these chemicals to **attract pollinators, defend themselves from pests and predators** and adapt to environmental stress.

➢ **Ground-Level Ozone:** Ground-level ozone, or **tropospheric ozone**, is a secondary pollutant formed when **nitrogen oxides (NOx)** and **volatile organic compounds (VOCs)** from **vehicles, industries, and power plants react in the presence of sunlight,** with levels rising especially during summer. It is a **colourless gas** forming just above the Earth's surface.

Air Pollutants

Sulphur Dioxide (SO_2)
It comes from the consumption of fossil fuels (oil, coal and natural gas). Reacts with water to form acid rain.
Impact: Causes respiratory problems.

Ozone (O_3)
Secondary pollutant formed from other pollutants (NOx and VOC) under the action of the sun.
Impact: Irritation of the eye and respiratory mucous membranes, asthma attacks.

Nitrogen Dioxide (NO_2)
Emissions from road transport, industry and energy production sectors. Contributes to Ozone and PM formation.
Impact: Chronic lung disease.

Carbon Monoxide (CO)
It is a product of the incomplete combustion of carbon-containing compounds.
Impact: Fatigue, confusion, and dizziness due to inadequate oxygen delivery to the brain.

Ammonia (NH_3)
Produced by the metabolism of amino acids and other compounds which contain nitrogen.
Impact: Immediate burning of the eyes, nose, throat and respiratory tract and can result in blindness, lung damage.

Lead (Pb)
Released as a waste product from extraction of metals such as silver, platinum, and iron from their respective ores.
Impact: Anemia, weakness, and kidney and brain damage.

Particulate Matter (PM)
PM10: Inhalable particles, with diameters that are generally 10 micrometers and smaller.
PM2.5: Fine inhalable particles, with diameters that are generally 2.5 micrometers and smaller.
Source: Emitted from construction sites, unpaved roads, fields, fires.
Impact: Irregular heartbeat, aggravated asthma, decreased lung function.

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

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Note:

History

Highlights

- Company Rule in India
- 100 Years of Discovery of IVC
- NCERT Chapter on Veer Abdul Hameed
- Megalithic Site in Kerala
- 450th Jyoti Jot Diwas of Sri Guru Amardas
- 76th Anniversary of Accession of Hyderabad
- Shivaji Maharaj and Surat Raid
- Industrial Revolution

Company Rule in India

The Company Rule in India (1773–1858)

Arrival of East India Company
- British EIC arrived (1608)→ Permission to trade (from Jahangir)
- EIC's rule in India began →1757 after Battle of Plassey

Regulating Act of 1773
- Estd:
  - British Crown's control over the EIC & centralised governance
  - Supreme Court of Calcutta (1774)
  - *First Governor General of Bengal – Warren Hastings*
  - Prohibited Company servants from private trade or bribes

Amending Act of 1781
- Resolved issues of Regulating Act 1773
- Exempted Governor-General Council from Supreme Court jurisdiction and revenue oversight

Pitt's India Act of 1784
- Differentiated commercial & political functions of the Company
- Court of Directors →commercial affairs; Board of Control → political affairs
- Established double government
- Granted British Crown supreme control over Company territories

(Amendment) Act of 1786:
- Lord Cornwallis became GGB – granted overriding authority & made Commander-in-Chief

Charter Act of 1793
- Enhanced powers of the Governor-General
- Increased control over Bombay & Madras presidencies
- Trade Monopoly of EIC → +20 years
- Board of Control to be paid from Indian revenues

Charter Act of 1813
- Ended EIC's monopoly in Indian trade (except tea & China)
- Allowed Christian missionaries in India; promotion of western education
- Authorised local taxes & punishments for non-payment

Charter Act of 1833
- Estd. centralised government
- GGB → Governor-General of India
- *First Governor-General of India → Lord William Bentick*
- Estd. Law Commission (1834) (Chairman - Lord Macaulay)
- EIC became purely administrative (no commercial activities)
- Proposed open competition for civil service positions (later opposed)

Charter Act of 1853
- Final Charter Act reshaping governance in India
- Estd. Indian (Central) Legislative Council (mini-Parliament)
- First separation of legislative & executive functions
- Opened civil service to Indians & evaluated recruitment
- Allowed Company to retain territories (under Crown) indefinitely

The Company's rule ended with the Government of India Act 1858 abolishing the EIC rule and placing India under direct control of British Crown.

100 Years of Discovery of IVC

Why in News?

20th September 2024, marked 100 years since the discovery of the Indus Valley Civilization, which was announced by archaeologist Sir John Marshall on 20th September 1924.

➢ This civilization spans over 2,000 sites across 1.5 million sq. km in India, Pakistan, and Afghanistan and is famous for its advanced urban planning and architecture.

What was Harappan Civilization?

➢ **About:**

○ The **Harappan Civilization**, also known as the **Indus Valley Civilization (IVC)**, flourished around **2500 BCE** along the **Indus River** .

○ It was the **largest of the four ancient urban civilizations** alongside **Egypt, Mesopotamia**, and **China**.

○ The IVC is classified as a **Bronze-age civilization** due to the discovery of numerous artefacts made from **copper-based alloys.**

○ **Daya Ram Sahni** first excavated **Harappa in 1921-22**, and **Rakhal Das Banerji** began excavating **Mohenjo-daro** in **1922.**

  ● **Sir John Marshall, DG of ASI**, was responsible for the excavations that led to the discovery of **Harappa** and **Mohenjo-Daro** sites of IVC.

➢ **Phases:**

○ **Early phase (3200 BCE to 2600 BCE):** This phase is associated with the Hakra Phase, which was discovered in the Ghaggar-Hakra River Valley. The earliest Indus script dates back to 3000 BC.

Note:

○ **Mature period (2600 BCE to 1900 BCE):** By 2600 BC, the IVC had reached a mature stage. Early Harappan towns, **like Harappa and Mohenjodaro in Pakistan and Lothal in India**, were growing into major urban centres

○ **Late phase (1900 BCE to 1500 BCE):** In this phase, Harappan civilization decayed and collapsed.

What were the Important Sites of Harappan Civilization?

Important Sites of IVC			
Site	**Excavated by**	**Location**	**Important Findings**
Harappa	Daya Ram Sahni in 1921	Bank of river Ravi in Montgomery district of Punjab (Pakistan)	➢ Sandstone statues of Human anatomy ➢ Granaries ➢ Bullock carts
Mohenjo-Daro (Mound of Dead)	R.D. Banerjee in 1922	Bank of river Indus in Larkana district of Punjab (Pakistan)	➢ Great bath ➢ Granary ➢ Bronze dancing girl ➢ Seal of Pasupathi ➢ Steatite statue of beard man ➢ A piece of woven cotton
Sutkagendor	Stein in 1929	In southwestern Balochistan province, Pakistan on Dast river	➢ A trade point between Harappa and Babylon

Note:

Chanhudaro	N.G. Majumdar in 1931	Sindh on the Indus river	➢ Bead makers shop ➢ Footprint of a dog chasing a cat
Amri	N.G. Majumdar in 1935	On the bank of Indus river	➢ Antelope evidence
Kalibangan	Ghose in 1953	Rajasthan on the bank of Ghaggar river	➢ Fire altar ➢ Camel's bones ➢ Wooden plough
Lothal	R. Rao in 1953	Gujarat on Bhogva river near Gulf of Cambay	➢ First manmade port ➢ Dockyard ➢ Rice husk ➢ Fire altars ➢ Chess-playing
Surkotada	J.P. Joshi in 1964	Gujarat	➢ Bones of horses ➢ Beads
Banawali	R.S. Bisht in 1974	Hisar district of Haryana	➢ Beads ➢ Barley ➢ Evidence of both pre-Harappan and Harappan culture
Dholavira	R.S Bisht in 1985	Gujarat in Rann of Kachchh	➢ Water harnessing system ➢ Water reservoir

What were the Key Features of Harappan Civilization?

➢ **Town Planning:**
   ○ The Harappan culture was notable for its **advanced town planning with cities designed in the grid-like layout.**
   ○ Both Harappa and Mohenjodaro featured a **citadel or acropolis,** likely occupied by the **ruling class**.
     ● Below these citadels lay the lower towns, consisting of **brick houses** inhabited by common people.
   ○ **Granaries** of large size were used to store grains, and there was **widespread use of burnt bricks**, which is different compared to the dried bricks used in contemporary Egyptian structures.
   ○ Mohenjodaro had an impressive **drainage system**, and almost all houses had courtyards and bathrooms.
   ○ In Kalibangan, many homes even had private wells.
   ○ At sites like **Dholavira** and **Lothal** in Gujarat, the entire settlement was **fortified**, with internal sections divided by walls.

➢ **Agriculture:**
   ○ Harappan villages, primarily located near floodplains, were **highly productive**, yielding crops such as **wheat, barley, peas, sesame, lentils, chickpeas, rai**, and **mustard**.
   ○ **Millets** were also cultivated, particularly in Gujarat, though rice was rare. The Indus people were among the **first to produce cotton (Greeks called it "Sindon").**
   ○ **While agricultural activity is evidenced by grain remains**, reconstructing specific farming techniques is challenging.
     ● In addition to farming, **animal husbandry** was widespread.

➢ **Economy:**
   ○ Trade played a vital role in Harappan life, evident from the widespread use of **seals, a uniform script, and standardised weights** and measures.
   ○ Major trade items included **stone, metal, and shell.**
   ○ The **barter system** was used, as metal currency did not exist.
   ○ **Navigation** was practised along the Arabian Sea coast.

Note:

- A **trading colony in northern Afghanistan** facilitated commerce with Central Asia.
- The Harappans engaged in trade with **Mesopotamia (Tigris-Euphrates region)**.
- **Long-distance trade** in **lapis lazuli** (blue semi precious stone) likely enhanced the social status of the ruling class.

➢ **Crafts:**
- Harappans were skilled in **bronze manufacturing**, using **copper** from **Rajasthan (Khetri mines)** and tin possibly from Afghanistan.
- **Textile impressions** on objects suggest a knowledge of weaving.
- **Key crafts** included boat-making, bead-making, seal-making, and terracotta production.
- Goldsmiths **crafted jewellery** from gold, silver, and precious stones.
- The potter's wheel was widely used, producing **glossy, distinctive pottery.**

➢ **Religion:**
- Numerous **terracotta figurines of women** suggest **worship of a fertility goddess**, similar to the Egyptian goddess Isis.
- A male deity, identified as **Pashupati Mahadeva (in yogi posture),** is depicted on a seal with **three horned heads**, surrounded by animals like **elephants, tigers, rhinoceros, and buffalo**.
- Symbols of the **phallus (male sex organ) and female sex organs** indicate fertility worship.
- The Harappans **worshipped animals and trees**, with the **unicorn** (possibly a rhinoceros) and the **humped bull** being significant.
- **Amulets** were commonly found, likely used for protection or religious purposes.

MAJOR CIVILISATIONS OF THE WORLD

MESOPOTAMIA, 4000-3500 BC
- Modern-day Iraq and parts of **Iran, Syria, Kuwait, and Turkey,** between **Tigris** and **Euphrates Rivers**
- Known as **Fertile Crescent/Cradle of civilization**
- Diverse collection of cultures bound by their script, gods, and views on women
- **Highly esteemed education system** (law, medicine, and astrology, reflecting rich cultural and religious landscape)
- Both **men and women were involved in diverse occupations**
- **Cities built around ziggurats**, step-pyramid temples, honoured their patron deity
- Cities, made of **sun-dried brick,** were the world's first

ANCIENT EGYPT, 3100 BC
- Set along fertile **Nile River**
- Most known for **pyramids, tombs, and mausoleums** practice of mummification to prepare corpses for afterlife
- Left legacy of monumental writing and mathematics systems
- Civilization **ended in 332 BC** with Alexander the Great's conquest

INDUS VALLEY CIVILISATION, 3300 BC
- Located in modern-day **India, Afghanistan, and Pakistan**
- Relatively peaceful compared to other ancient civilizations, with little evidence of widespread warfare
- **Organised city planning**, complete with **uniform baked-brick homes**, a grid structure, and drainage, sewage, and water supply systems
- **Declined around 1800 BC,** actual reasons behind demise still debated (theories propose Aryan invasion or climatic & natural factors for decline)

ANCIENT CHINA, 2000 BC
- Protected by the Himalayan Mountains, Pacific Ocean, and Gobi Desert, and **situated between Yellow and Yangtze rivers**
- Flourished in isolation from invaders and other foreigners for centuries
- Generally divided into four dynasties—**Xia, Shang, Zhou, and Qin** - ancient China was ruled by a succession of emperors
- Credited with developing the **decimal system, abacus, and sundial,** as well as **the printing press**
- Mobilised populations to build massive infrastructure projects (like Egyptians)

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What were the Possible Reasons for Decline of Harappan Civilization?

➢ **Invasion Theory:** Some scholars suggest that **Indo-European tribes**, known as the Aryans, invaded and overthrew the IVC. However, evidence of cultural continuity in later societies challenges this abrupt invasion narrative.

➢ **Natural Environmental Changes:** More widely accepted is the impact of environmental factors.
- **Tectonic Activity:** Earthquakes may have altered river courses, leading to the drying up of essential water sources.

❍ **Changes in Rainfall Patterns:** Shifts in monsoon patterns could have diminished agricultural productivity, resulting in food shortages.

❍ **Flooding:** Altered river courses might have caused flooding in key agricultural areas, further threatening the civilization's stability.

Recent Initiatives Related to IVC Sites

➢ **National Maritime Heritage Complex (NMHC):** Under the **Sagarmala programme,** the Ministry of Ports, Shipping, and Waterways (MoPSW) is **developing a NMHC** at Lothal. It includes a museum, theme parks, a research institute, and more, to showcase India's maritime history and heritage, and attract tourists.

➢ **Dholavira added to UNESCO's World Heritage list:** In July 2021, Dholavira was named India's 40th **World Heritage Site** by **UNESCO**.

➢ **Development of Rakhigarhi as an Iconic Site:** Union Budget (2020-21) has proposed to develop Rakhigarhi (Hisar district,Haryana) as an **iconic site.**

NCERT Chapter on Veer Abdul Hameed

Why in News?

Recently, a chapter titled **'Veer Abdul Hameed'** and a poem titled **'National War Memorial'** have been included in the **NCERT** curriculum of Class VI.

What are the Key Facts About Changes in the NCERT Textbook?

➢ **Chapter on 'Veer Abdul Hameed'**: It honours **Company Quarter Master Havildar (CQMH) Abdul Hameed**. He is a war hero from the **India-Pakistan war 1965** who was awarded the **Param Veer Chakra** posthumously.

❍ His story of bravery and supreme sacrifice is intended to **inspire students** with real-life examples of **patriotism and devotion to duty.**

➢ **Poem on 'National War Memorial'**: It aims to cultivate a deep sense of **respect for the soldiers** who sacrificed their lives for the nation, and to promote a spirit of **national pride** and remembrance for their **bravery.**

❍ The National War Memorial stands **testimony** to the **sacrifices** made by our soldiers during various

conflicts, **United Nations Operations**, **Humanitarian Assistance and Disaster Response Operations** since Independence.

● It was inaugurated on **25th Feb 2019** at the India Gate complex, New Delhi.

➢ **Aligned with NEP 2020 and NCF 2023:** The changes are aligned with the vision of the **National Education Policy (NEP) 2020** and **National Curriculum Framework (NCF) 2023**.

❍ **NEP 2020** and **NCF 2023** emphasise holistic education that promotes ethical values, **patriotism**, and the development of responsible citizens.

What are the Key Facts About Veer Abdul Hameed?

➢ **About Abdul Hamid:** He served with the **4th Grenadiers Battalion** of the **Indian Army** and was part of India's defence force in the **Battle of Asal Uttar** during the **India-Pakistan War in 1965**.

➢ **Battle of Asal Uttar:** The Battle of Asal Uttar took place in early September 1965, near the India-Pakistan border in **Punjab**, close to the **town of Khem Karan.**

❍ Pakistan aimed to invade India, capture **Khem Karan**, and advance towards the **Beas River** bridge to isolate strategic areas like Amritsar.

❍ Utilizing a significant number of superior Patton tanks, Pakistan's offensive surprised Indian forces, initially forcing a retreat.

● This was one of the largest tank battles of the 1965 India-Pakistan War.

➢ **Role of Abdul Hamid:** Abdul Hameed was stationed near **Chima village** on the **Amritsar-Khem Karan road**, leading a detachment of Recoilless Guns to target enemy tanks.

❍ **On 10th September 1965**, he spotted four Pakistani Patton tanks, destroying three and damaging one. He was subsequently killed by fire from another tank.

➢ **Recognition:** The site of his death is now part of a **war memorial.**

❍ A captured **Pakistani Patton tank stands guard** at the entrance of the building, with its **turret down,** as a tribute to the Indian soldiers who fought and died in the battle.

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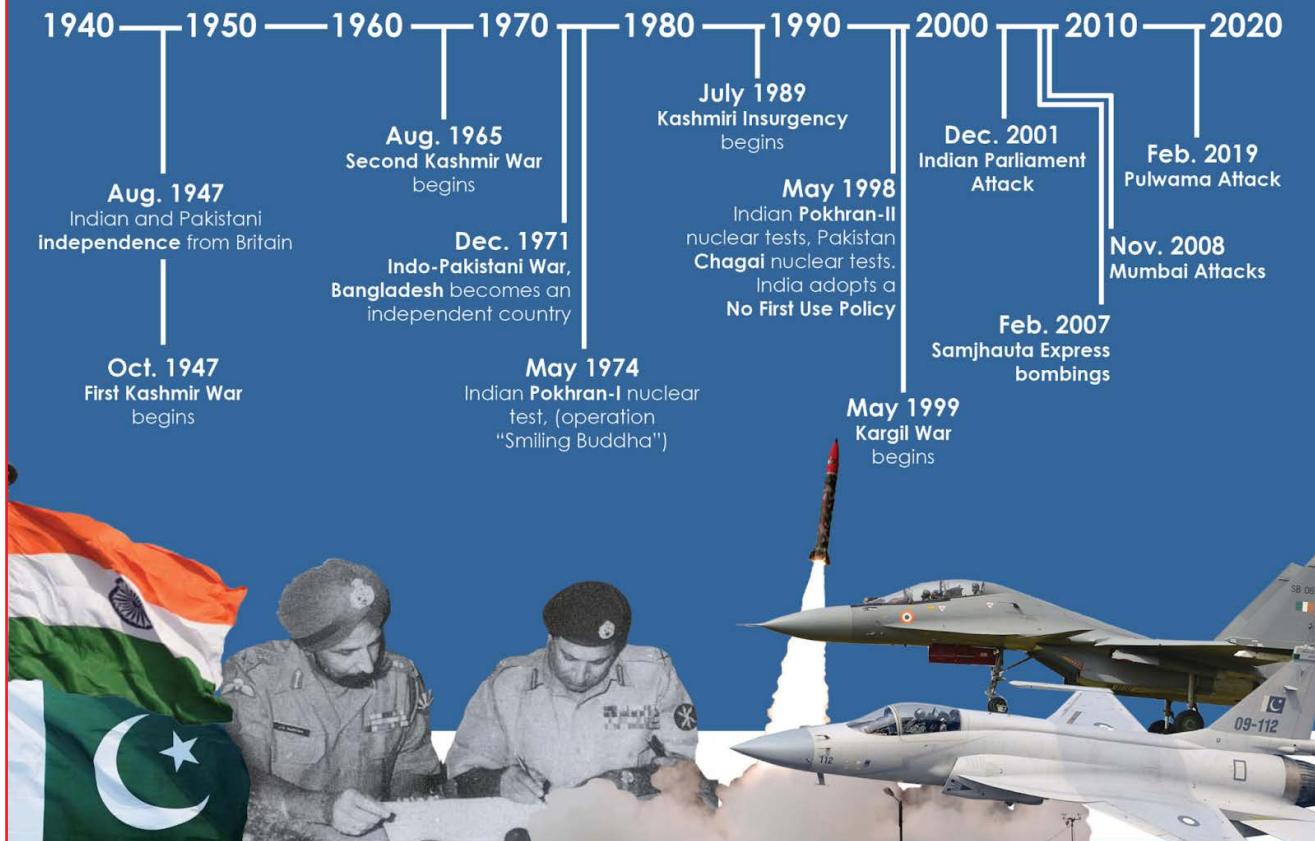
Megalithic Site in Kerala

Why in News?

Recently, a **rainwater harvesting project** in Kerala led to the discovery of a large number of **megalithic urn burials**.

➤ These findings were unearthed on **Kundlikkad hill** (also known as Malampalla or **Malappuram hill)** in the **Nenmara forest division**.

➤ An **urn burial** is a type of burial where the **remains of a deceased person are placed in a pottery vessel, or urn,** and buried.

What are the Key Facts about the Discovery of Megalithic Urn Burials?

➤ **Classic Urn Burials:** Typically, **hilltop burial sites** feature **cairn heaps** with cists, cairn circles, and stone circles burials.

○ The presence of these urn burials, which date back **over 2,500 years**, is rare for a hilltop site.

➤ **Urn Characteristics:** The region contained **pot sherds** from different types of pottery, including **black ware, red ware, and black and red ware**.

○ A notable find includes an urn with **fingertip impressions**, and smaller pots featured **cord-impressed designs**, indicating distinct **decorative techniques** used in pottery.

○ **Chisel marks** were found on rocks across the hill, indicating that **circling boulders** were crafted using chisels.

● This suggests a more **organised** approach to **burial construction** in the area.

➤ **Importance of the Discovery:** It offers significant **insights** into the links between the **Mesolithic** because of the presence of **microliths** from the site **and Iron Age periods** in Kerala.
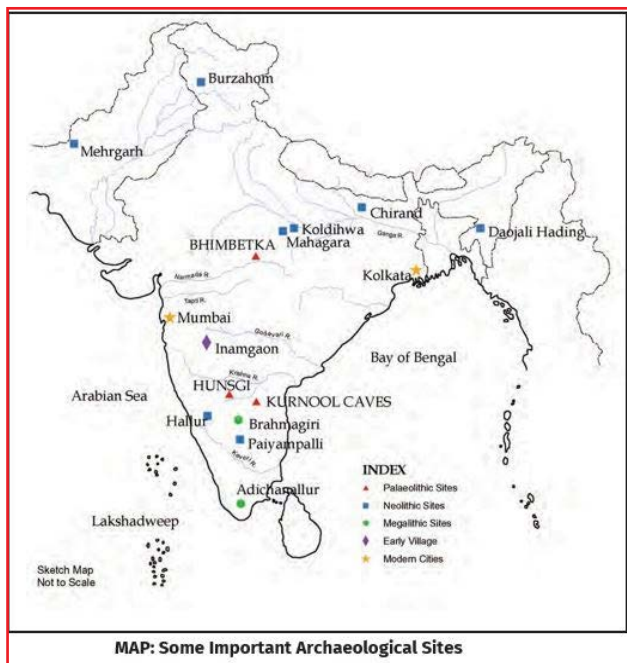
Note:

○ Archaeologists say that such **combination of mesolithic and iron age remains** is unusual.

What is Megalithic Culture?

➤ **About Megalith:** Megaliths refer to **monuments made from large stones.** In most cases, megaliths are **burial sites** located away from habitation areas.

➤ **Chronology of Megaliths:** Based on the **Brahmagiri excavation**, megalithic cultures in South India are dated to between the **3rd century B.C. and 1st century A.D.**

➤ **Geographical Distribution of Megaliths in India:** The main concentration of megalithic culture is in **Deccan**, especially **south of the Godavari River.**

○ It has been found across **Punjab Plains, Indo-Gangetic basin, Rajasthan, Gujarat,** and **Burzahom** in Jammu and Kashmir.

○ Important sites include **Seraikala (Bihar), Khera (Uttar Pradesh), Deosa (Rajasthan)** etc.

➤ **Use of Iron in South India:** The **Megalithic period** in South India was a **full-fledged Iron Age culture**, where the benefits of **iron technology** were fully realised.

○ **Iron objects** such as **weapons** and **agricultural implements** were found from **Junapani** in Vidarbha to **Adichanallur** in Tamil Nadu.

➤ **Subsistence Pattern:** They lived on a combination of **agriculture, hunting, fishing,** and **animal husbandry.**

➤ **Rock Paintings:** Rock paintings found at megalithic sites depict scenes of **hunting, cattle raids,** and **group dancing.**


MAP: Some Important Archaeological Sites

Note:

➤ **Mesolithic period (middle stone)** began **about 12,000 years ago till about 10,000 years ago.** Stone tools found during this period are generally **tiny,** and are called **microliths.**

➤ Microliths were probably **stuck** on to **handles of bone or wood** to make tools such as **saws and sickles.**

450ᵗʰ Jyoti Jot Diwas of Sri Guru Amardas

Why in News?

Recently, the **450ᵗʰ Jyoti Jot Diwas** (passing away day) of **Sri Guru Amardas Ji**, the **third Sikh Guru**, was marked.
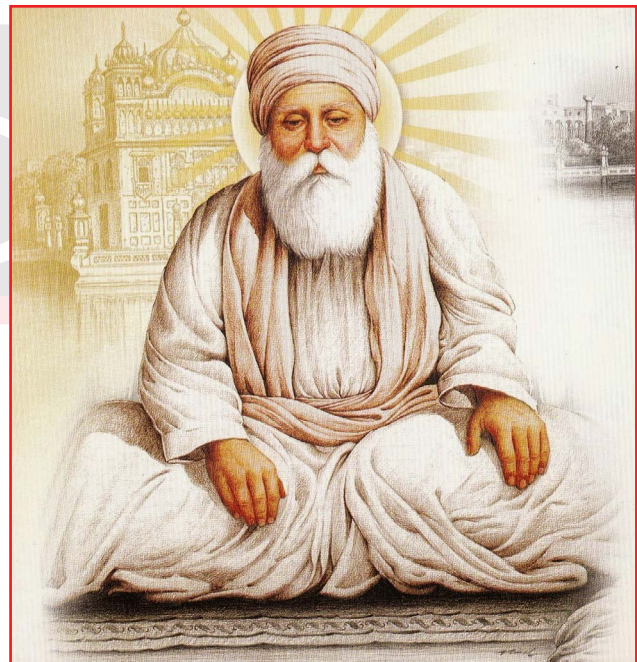
Who was Sri Guru Amardas Ji?

➤ **About:**

○ Born in 1479 at Basarke in **Amritsar district**, **Sri Guru Amardas Ji** was raised in an orthodox Hindu family.

○ He was deeply inspired by the hymns of **Sri Guru Nanak Dev Ji** and adopted **Sri Guru Angad Dev Ji** as his spiritual guide.

○ Appointed as the **third Guru** (succeeding Guru Angad Ji) in march 1552 at the age of 73, he established his headquarters in **Goindwal.**

Note:

- ➢ **Key Contributions:**
  - ○ **Guru Amardas Ji** divided the Sikh community into **22 administrative districts (Manjis)** to facilitate the spread of Sikh teachings.
  - ○ He reinforced the tradition of '**Guru ka Langar' (communal kitchen)** by insisting that visitors eat before meeting him, promoting equality and community.
  - ○ His interaction with **Emperor Akbar** led to the abolition of **toll-tax (pilgrim's tax)** for **non-Muslims** and solidified a respectful relationship.
  - ○ He actively campaigned against **social injustices** and **abolished** the custom of **Sati** and **Purdah system** among the Sikhs.
  - ○ He introduced the ceremony of the **Anand Karaj Marriage**.
- ➢ **Legacy and Final Years:**
  - ○ **Guru Amardas Ji** constructed a **Baoli at Goindwal Sahib**, making it a significant Sikh pilgrimage site.
  - ○ He composed **869 verses** (though some accounts state there were 709), including **Anand Sahib**, and **Sri Guru Arjan Dev Ji** incorporated all these Shabads into the **Guru Granth Sahib**.
  - ○ He passed away on 1st September 1574, at the age of 95, leaving a profound legacy that continues to inspire the Sikh community today.

Sikh Gurus and their Major Contributions		
Guru	**Period**	**Key Contributions**
Guru Nanak Dev	1469-1539	Founder of Sikhism; started **GURU KA LANGAR**; contemporary of Babur; 550th birth anniversary commemorated with Kartarpur corridor.
Guru Angad	1504-1552	**Invented Guru-Mukhi script**; popularized GURU KA LANGAR.
Guru Amar Das	1479-1574	**Introduced Anand Karaj Marriage**; abolished Sati and Purdah; **contemporary of Akbar.**
Guru Ram Das	1534-1581	Founded Amritsar in 1577; **initiated construction of Golden Temple.**
Guru Arjun Dev	1563-1606	**Composed Adi Granth in 1604**; completed Golden Temple; **executed by Jahangir.**
Guru Hargobind	1594-1644	Transformed Sikhs into a military community; **established Akal Takht**; waged wars against Jahangir and Shah Jahan.
Guru Har Rai	1630-1661	Promoted **peace with Aurangzeb**; focused on missionary work.
Guru Har Krishan	1656-1664	Youngest guru; summoned by **Aurangzeb** for anti-Islamic blasphemy.
Guru Teg Bahadur	1621-1675	Founded **Anandpur Sahib**.
Guru Gobind Singh	1666-1708	Founded **Khalsa** in 1699; introduced "**Pahul**"; last guru to pass Guruship to **Guru Granth Sahib**.

76th Anniversary of Accession of Hyderabad

Why in News?

Recently, **17th September 2024** marked the **76th anniversary** of the **accession of Hyderabad** to independent India.

- ➢ **Operation Polo** was launched to prevent Hyderabad from becoming a **security threat** to the Indian Union.

What are the Key Highlights of the Accession of Hyderabad to India?

- ➢ **Background of Hyderabad:** Hyderabad was a large **landlocked princely state** in south India, covering present day **Telangana, Andhra Pradesh, Karnataka,** and the Marathwada region of **Maharashtra.**
  - ○ The **population** was primarily **Hindu (87%)** while its ruler, **Nizam Osman Ali Khan**, was Muslim, supported by a Muslim elite.
  - ○ The **Nizam** and the **Ittehad-ul-Muslimeen**, a pro-Nizam Muslim party, pushed for Hyderabad's independence, wanting the state to be on **par with India and Pakistan.**

- ➢ **Nizam's Declaration of Independence:** In **June 1947**, **Nizam Osman Ali Khan** issued a firman declaring Hyderabad's intention to remain **independent** after British India's transfer of power.
  - ○ **India rejected** this arguing that Hyderabad's location was **strategically important** to India's national security.
  - ○ A temporary **Standstill Agreement** (to maintain status quo) was signed to buy time, but Hyderabad still did not accede to India.
- ➢ **Hyderabad's Moves Toward Independence:** The Nizam had provided **Rs. 200 million to Pakistan** and stationed a **bomber squadron** there, intensifying Indian suspicions.
  - ○ Hyderabad banned **Indian currency,** **imported arms from Pakistan and expanded its military forces**, particularly the **Razakars militia**.
  - ○ Australian aviator **Sidney Cotton** was hired by the Nizam to **smuggle weapons** into Hyderabad.
- ➢ **Role of the Razakars:** The Razakars, a militia aligned with the **Ittehad-ul-Muslimeen (All India Council for Unity of Muslims)** and led by **Qasim Razvi,** acted to protect the Muslim ruling class against any **uprisings.**
  - ○ The Razakars' violent suppression of opposition, including atrocities against Hindus, heightened tensions.
  - ○ They also targeted **Hyderabadi Muslims** who favoured merging with India.
- ➢ **Political Agitation:** Internally, Hyderabad faced a **Communist uprising in Telangana**, a peasant revolt that the Nizam could not quell, weakening his position further.
  - ○ The **Hyderabad State Congress,** affiliated with the **Indian National Congress,** launched a political agitation for **Hyderabad's integration** with India.
- ➢ **International Appeals:** The Nizam sought **British support** and later attempted to involve **US President Harry Truman** and the **United Nations,** but his efforts were unsuccessful.
  - ○ After Mountbatten's efforts for a negotiated settlement failed, in **August 1948**, the Nizam appealed to the **UN Security Council** and the **International Court of Justice**, fearing an imminent Indian invasion.
- ➢ **Operation Polo (Hyderabad Police Action):** **Sardar Patel** was getting **anxious** as the negotiations with the Nizam **dragged on**.

- ○ On **13th September 1948**, the Indian Army launched **"Operation Polo,"** a military operation of Hyderabad, citing internal law and order concerns.
- ○ It was referred to as **"Police Action"** because it was an **internal matter** of India.
- ○ On **17th September 1948**, the Nizam formally **surrendered** after dismissing Prime Minister **Mir Laik Ali** and his cabinet.
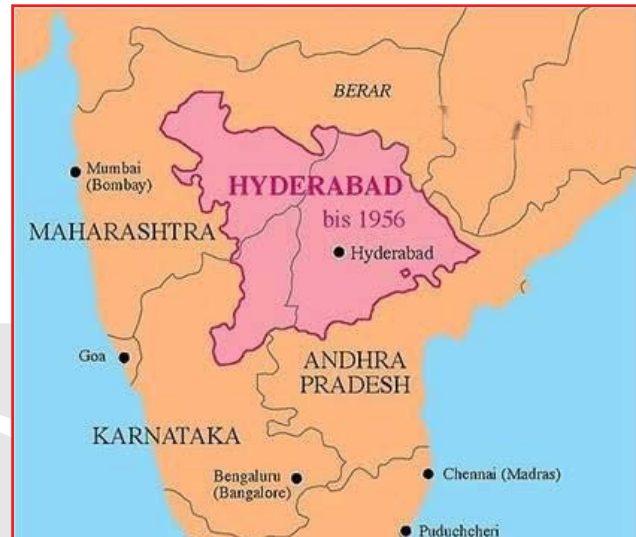
What is the Significance of Hyderabad's Accession to India?

- ➢ **Unity and Integrity of India:** The integration of Hyderabad into India, despite opposition from the Nizam and Razakars, **strengthened** the Indian Union's **unity, integrity and stability.**
- ➢ **Triumph of Secularism:** It was not only a significant **political victory** but also a triumph of **secularism,** as it highlighted the support of Indian Muslims for integration with India.
  - ○ Involvement of Indian Muslims on India's side created a **positive impression** across the country.
- ➢ **Prevented Further Crisis:** Despite ongoing talks, Hyderabad's government continued importing arms, preparing for conflict.
  - ○ Immediate military operation prevented an **insurgency-like situation** which might have spiralled across decades with help of foreign powers.
- ➢ **Use of Force: Arms imports** and involvement of **foreign powers** increased the **urgency** for India to resolve the Hyderabad issue, which was now seen as a potential **security threat**.

Note:

○ **Operation Polo** showed that India would **not shy away** from using force for its national interests.

➢ **India's Successful Diplomacy:** India's combination of **diplomatic, military, and logistical strategies**, especially the **stymieing of arms supplies**.

○ E.g., Efforts of **V.K. Krishna Menon**, then Indian High Commissioner in London, literally **starved Hyderabad of weapons**.

What was the Role of Sardar Patel in Integration of Princely States?

➢ **Role in Interim Government (2nd September 1946):** Sardar Patel was allocated the **Home, States and Information & Broadcasting portfolios**, setting the stage for his crucial role in India's administration even before independence.

➢ **Nehru's Acknowledgement:** A fortnight before independence, on **1st August 1947,** JL Nehru invited Patel to join his cabinet, referring to him as the **"strongest pillar of the Cabinet."**

➢ **Collaboration with Lord Mountbatten:** Patel and **Mountbatten** worked closely, using a combination of **diplomacy and pressure** in convincing the princes to accede to India.

○ They warned **Princely States** of the perils of independent existence.

➢ **Creation of States Department (5th July 1947):** Patel organised the **States Department** and appointed **V.P. Menon as its Secretary.**

○ The department aimed to secure the **accession of states in defence, foreign affairs, and communications**, and maintain **Standstill Agreements** for common interests.

➢ **Carrot and Stick Approach:** Patel charged with **negotiating accession**, adopted a **conciliatory and diplomatic stance**, balancing pressure with reassurance.

○ E.g., India closed all its borders to **Junagadh** and **stopped** the movement of **goods, transport and postal articles** which forced Junagarh to invite the Government of India to take control.

● Later, a **plebiscite** was held in which **99% of the population** voted to **join India.**

➢ **Appeal for Friendship and Equality:** Patel invited the princes to join independent India **as friends**, emphasising that it was preferable to **make laws together as equals**, rather than establish treaties as separate entities.

➢ **Integration's Impact on India's Territory:** While India lost **3.6 lakh square miles of territory** and 81.5 million people during Partition, it **gained 5 lakh square miles** and 86.5 million people through the **integration of princely states**.

What India would have looked like without Sardar Patel's efforts to unify princely states

THE GREAT UNIFIER

PRINCELY STATES   BRITISH INDIA

562 No. of princely states in 1947

27% of the country's population lived in these states

₹77 cr Value of assets princely states surrendered to India

12,000 miles of railway lines India gained from princely states

What was the Role of Other Leaders in Integration of Princely States?

➢ **Lord Mountbatten:** Mountbatten played a key role in **persuading reluctant monarchs** to accede to the Indian Union.

○ Princes believed he could guarantee that independent India would adhere to any agreements because he was appointed as the **first Governor-General of India**.

➢ **JL Nehru:** Nehru's approach was more **confrontational.**

○ In **January 1947**, he **rejected the divine right of kings** and by May 1947, he declared that any princely state that refused to join the **Constituent Assembly** would be treated as an **enemy state.**

➢ **C. Rajagopalachari:** C. Rajagopalachari argued that British control over princely states was based on reality, not an agreement, so it would **naturally transfer** to independent India as the British successor.

➢ **Congress as an Organisation:** The Congress asserted that the princely states were **not sovereign entities** and could not opt for independence after **British paramountcy** ended.

Note:

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Shivaji Maharaj and Surat Raid

Why in News?

Recently, a 35-foot statue of **Chhatrapati Shivaji Maharaj,** unveiled at **Rajkot Fort** in Malvan in **Sindhudurg district**, collapsed in less than a year.

➢ It is in contrast with the **Sindhudurg Fort,** built by Shivaji Maharaj **357 years ago**, **remains resilient** and has played a significant role in **military activities** such as the **Surat raids.** A major portion of **Sindhudurg Fort** was financed by Surat raids.

What are the Key Facts about the Sindhudurg Fort?

➢ **Construction**: The fort's construction began on **25ᵗʰ November 1664,** and was completed on **29ᵗʰ March, 1667**.

  ○ The fort was built on the **island of Kurte in the Arabian Sea** after a thorough examination by Shivaji Maharaj and an expert (**Hiroji Indulkar).**

➢ **Cost of Construction:** The construction of the fort was estimated at a cost of **one crore hons**. Hon was a **gold coin** used as currency during the reign of Shivaji Maharaj in the **17ᵗʰ century**.

➢ **Maritime Dominance**: Shivaji Maharaj's vision was to establish **maritime control** and enhance economic stability through a powerful navy.

  ○ The fort was strategically located to dominate maritime access and defend against foreign powers like the **Siddis, Portuguese, and other colonial forces**.

➢ **Architectural Excellence:** The fort was built with a **serpentine wall** covering four kilometres, standing ten metres high with **45 stairways**, and included facilities for guards and cannons.

  ○ It featured a south-facing statue of **Hanuman** at the entrance and was complemented by smaller forts like **Padmagad, Sarjekot, and Rajkot** for additional security.

➢ **Current Status:** Sindhudurg Fort remains an **impregnable symbol** of Shivaji Maharaj's military and strategic prowess. It stands as a historical testament to **Maratha naval strength** and fortification techniques.

What were Surat Raids Conducted by Shivaji?

➢ **Strategic Importance of Surat**: Surat was known as **'the greatest emporium of the Orient and the richest jewel of the Mughal Empire'**.

  ○ Surat was strategically situated along the southern bank of the **Tapi river.**

  ○ It was central to Mughal trade with Europeans, Iranians, and Arabs as well as a transit point for pilgrims en route to **Mecca (Gateway to Mecca).**

  ○ Targeting Surat was a strategic move to **disrupt the Mughal economy** and assert Maratha dominance.

➢ **First Raid on Surat (January 1664):** Shivaji Maharaj raided Surat in **January 1664,** catching Mughal forces off guard.

  ○ Surat's governor, **Inayat Khan**, also sought refuge, leaving the city defenceless.

  ○ The **Battle of Surat 1664 (Sack of Surat)** yielded wealth, including cash, gold, silver, pearls, and fine clothing, estimated at **one crore rupees.**

    ● The wealth seized **funded** the construction of **Sindhudurg fort** and expanded the Maratha Navy.

  ○ **Impact:** Shivaji Maharaj's actions in Surat **alarmed the English** to move their warehouse from **Surat to Bombay.** By May 1664, the **Portuguese had gifted Bombay to the English,** and Shivaji Maharaj's legendary exploits became widely known.

➢ **Second Raid on Surat (October 1670):** In 1670, Shivaji Maharaj launched a **second raid on Surat**, seizing wealth worth approximately **Rs 6.6 million.**

  ○ The Dutch and English merchants were spared as Shivaji Maharaj's **primary target** remained the **Mughals.**

  ○ The loot included gems, gold, and coins worth around **five million rupees.**

➢ **Strategic Significance of Surat Raids:** The raids aimed to **disrupt Mughal economic stability** and showcase Maratha power. Shivaji Maharaj's **careful planning**

Note:

and strategic execution, combined with his restraint in sparing civilians, were designed to weaken Mughal rule while minimising harm**.**

What are Key Facts About Shivaji Maharaj?

➢ **Birth:** He was born on **19th February 1630** at Shivneri Fort in District Pune in the present-day state of Maharashtra.

➢ **Early Life:** As a teenager, he successfully got control of the **Torna Fort** which was under Bijapur. He also acquired the **Kondana Fort** from Adil Shah of Bijapur.

➢ **Death:** Chhatrapati Shivaji died on 3rd April 1680 at Raigad, after running a fever for three weeks.

➢ **Important Battles:**

Battle	Parties
Battle of Pratapgad, 1659	Between the Maratha forces led by **Chhatrapati Shivaji Maharaj** and the Adilshahi general **Afzal Khan.**
Battle of Surat, 1664	Between **Chhatrapati Shivaji Maharaj** and **Inayat Khan**, a Mughal Governor.
Battle of Purandar, 1665	Between **Chhatrapati Shivaji Maharaj** and Mughal commander **Jai Singh**.
Battle of Sangamner, 1679	Between the Mughal Empire and Maratha Empire. This was the **last battle** in which the Maratha King **Shivaji fought.**

➢ **Title:** He was crowned as the king of the Marathas on **6th June 1674**, at Raigad.

○ He took on the titles of **Chhatrapati, Shakakarta, Kshatriya Kulavantas and Haindava Dharmodhhaarak.**

➢ **Administration:**

○ **Central Administration:** The King was the supreme head of state who was assisted by a group of eight ministers known as the **'Ashtapradhan'.**

○ **Revenue Administration: Chauth and Sardeshmukhi** were important sources of income.

● **Chauth:** It amounted to **1/4th** of the **revenue demand** which was paid to Marathas as a safeguard against Shivaji's forces raiding Non-Maratha territories.

● **Sardeshmukhi:** It was an **additional levy of 10%** on those lands on which the Marathas claimed **hereditary rights.**
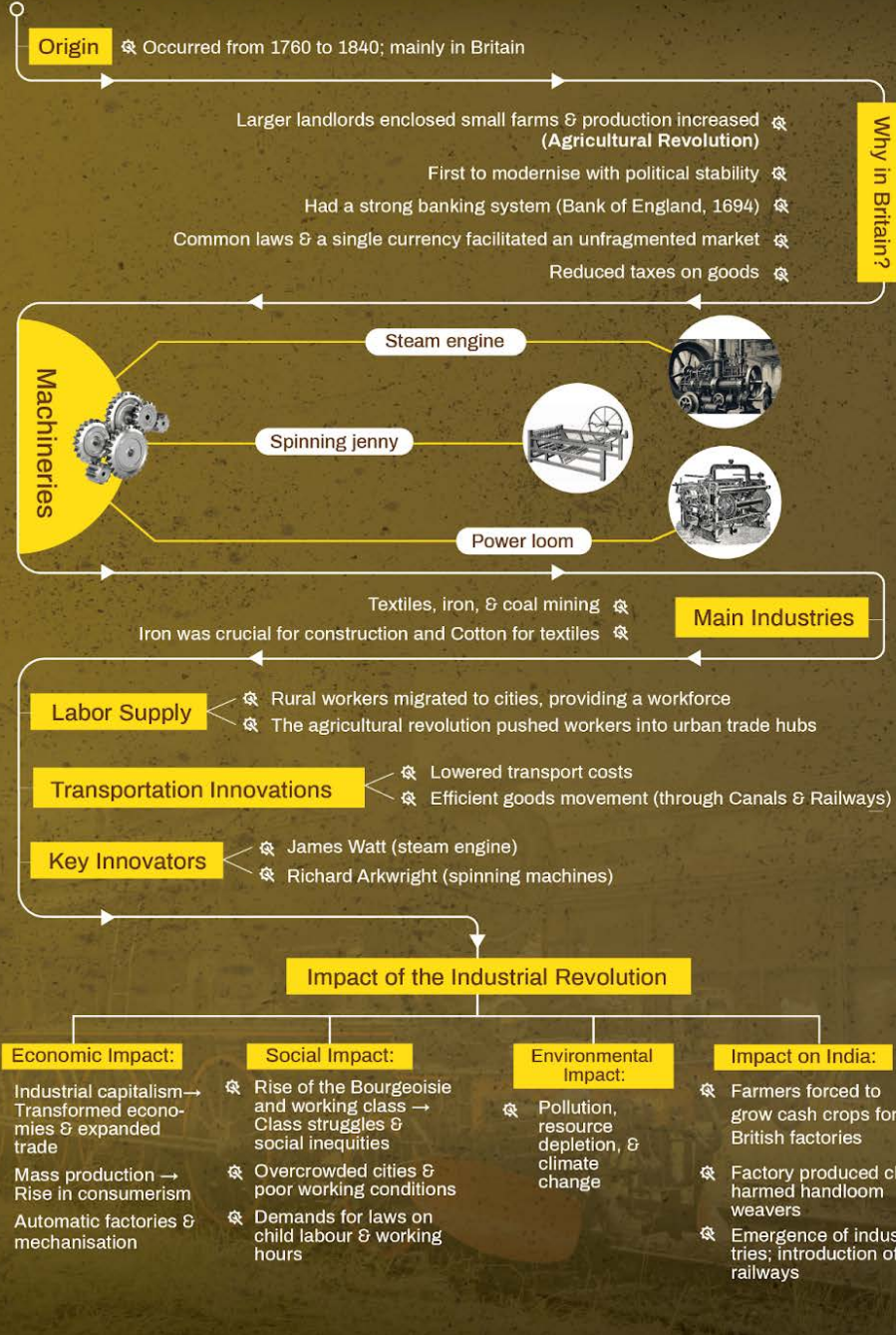
What was the Journey of Marathas after Shivaji?

➢ **Turbulence After Shivaji Maharaj's Death:** Following Shivaji's death, his son **Sambhaji,** ascended to the throne but his reign was short-lived due to his capture and **execution by the Mughals in 1689.**

○ Following Sambhaji's death, the empire was led by regents and **Chhatrapati Rajaram Maharaj, Shivaji's younger brother.**

➢ **Maratha's Rise Under Peshwa:** The appointment of Balaji Vishwanath as Peshwa in 1713 marked a turning point. His diplomacy and reforms laid the **foundation for Maratha expansion and consolidation.**

○ **Baji Rao I (1720-1740) extended Maratha's control into northern India**, and his strategic vision and military acumen solidified Maratha's dominance.

➢ **Maratha Confederacy:** By the early **18th century**, the central power of the **Maratha Empire weakened** due to internal strife and external pressures.

○ The Confederacy was **not a centralised state** but rather an alliance of various Maratha states and leaders, including the **Peshwa of Pune, Holkars of Indore, Gaekwad of Baroda and the Scindhias of Gwalior**.

➢ **Maratha Struggle with the British:**

○ **First Anglo-Maratha War (1775-1782):** The war ended with the **Treaty of Salbai 1782** which led to the cession of **Salsette Island** to the British and opened up the Maratha ports of **Surat and Broach** to British trade.

○ **Second Anglo-Maratha War (1803-1805): The** British army under **Arthur Wellesley** defeated the combined armies of **Sindhias and Bhonsle** and they were forced to accept **the Subsidiary alliance**.

○ **Third Anglo-Maratha War (1817-1818):** It marked the **final defeat** of the Marathas, this war led to the dissolution of the Maratha Empire.

Note:

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Industrial Revolution

Industrial Revolution

The Industrial Revolution, typically spanning from around 1760 to 1840, referred to the transformation from an agrarian & handicraft economy to one that was primarily driven by industry & machine-based manufacturing.

Origin — Occurred from 1760 to 1840; mainly in Britain

Why in Britain?
- Larger landlords enclosed small farms & production increased (**Agricultural Revolution**)
- First to modernise with political stability
- Had a strong banking system (Bank of England, 1694)
- Common laws & a single currency facilitated an unfragmented market
- Reduced taxes on goods

Machineries
- Steam engine
- Spinning jenny
- Power loom

Main Industries
- Textiles, iron, & coal mining
- Iron was crucial for construction and Cotton for textiles

Labor Supply
- Rural workers migrated to cities, providing a workforce
- The agricultural revolution pushed workers into urban trade hubs

Transportation Innovations
- Lowered transport costs
- Efficient goods movement (through Canals & Railways)

Key Innovators
- James Watt (steam engine)
- Richard Arkwright (spinning machines)

Impact of the Industrial Revolution

Economic Impact:
- Industrial capitalism→ Transformed economies & expanded trade
- Mass production → Rise in consumerism
- Automatic factories & mechanisation

Social Impact:
- Rise of the Bourgeoisie and working class → Class struggles & social inequities
- Overcrowded cities & poor working conditions
- Demands for laws on child labour & working hours

Environmental Impact:
- Pollution, resource depletion, & climate change

Impact on India:
- Farmers forced to grow cash crops for British factories
- Factory produced cloth harmed handloom weavers
- Emergence of industries; introduction of railways

Note:

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Art and Culture

Highlights

- *Gingee Fort Nominated for UNESCO World Heritage Site*
- *Corridor Projects for Vishnupad and Mahabodhi Temples*
- *Bhagat Singh's Birth Anniversary*

Gingee Fort Nominated for UNESCO World Heritage Site

Why in News?

Recently, the **Gingee Fort** in **Tamil Nadu's Villupuram** district has been nominated for **UNESCO's World Heritage Site** list as part of the <u>Maratha Military Landscapes</u> proposal, which includes 11 other forts.
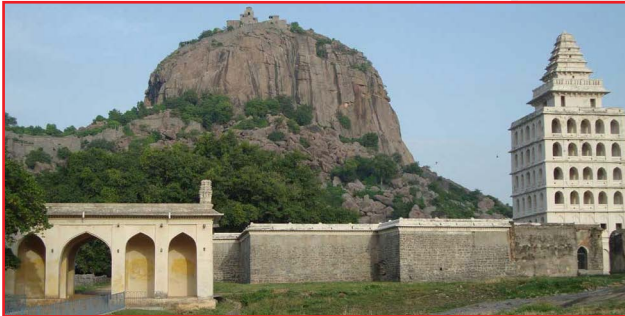
What are the Key Facts Regarding Gingee Fort of Tamil Nadu?

- ➢ **Geographical Feature and Significance:** Gingee Fort is renowned for its historical importance and strategic location atop three hillocks: **Rajagiri, Krishnagiri,** and **Chandragiri.**
  - ❍ It is also known as the **"Troy of the East,"** as it is one of the most impregnable fortresses in peninsular India.
  - ❍ Its strategic location and robust defences, including a **60-foot-wide rampart and an 80-foot-wide moat,** made it vital during the <u>Carnatic Wars</u> between the **French and British**.
- ➢ **Historical Overview:** The fort was originally built by **Ananta Kon** of the **Konar Dynasty** in **1200 CE** and named it **Krishnagiri.**
  - ❍ **Vijayanagar Empire** undertook significant renovations of the fort.

- ❍ In 1677, the fort was captured by **Chhatrapati Shivaji** and remained under **Maratha control until 1698,** when it fell to the **Mughals.**
  - • The Fort became the **last stronghold for the Marathas (Rajaram I, son of Shivaji)** during their resistance against the Mughal forces.
- ❍ Briefly ruled by **Raja Desingh (Tej Singh),** it was taken over by the **Nawabs of Arcot in 1714** and remained under their dominion until 1749.
- ❍ From **1750 to 1770, the French** held the fort before it eventually passed into **Britishers.**
- ➢ **Architectural Features:**
  - ❍ The fort complex houses several temples and shrines.
    - • It includes significant structures such as a **stepped well, Kalyana Mahal, durbar hall, cannon, clock tower, armory, elephant tank, stable, granary, gymnasium, Venkataramana temple,** and **Sadathtulla mosque.**
  - ❍ **Water Supply Systems:** Gingee Fort features two sophisticated **water supply systems**, ensuring a continuous water supply even at the highest points of the fort.
  - ❍ **Rajagiri Hill:** It is the tallest hill at 800 metres, featuring a citadel and the **temple of Ranganatha**.
    - • **Krishnagiri Citadel** is notable for its <u>Indo-Islamic architecture</u>, including an audience hall with a domed roof.
  - ❍ **Venkataramana Swamy Temple:** It is located in the **Lower Fort complex** and adorned with intricate carvings from Hindu epics.
  - ❍ **Kalyana Mahal:** It is an architectural jewel with eight storeys, used as the **royal ladies' quarters**.

UNESCO World Heritage Site
➢ A World Heritage Site is a location **recognized by UNESCO** for its exceptional cultural or natural significance.

Note:

➤ UNESCO promotes the identification, protection, and preservation of cultural and natural heritage sites globally that hold outstanding value to humanity.

➤ As of September 2024, **India has 43 World Heritage Sites** (**cultural sites-35, natural sites-7, mixed-criteria site-1**) with the latest addition being the **Mound-Burial System of Ahom Dynasty**.

➤ **Process for nominating a site to UNESCO's World Heritage List**

  ○ A country creates a list of important cultural and natural heritage sites.

  ○ The **country selects sites from the Tentative List** and prepares nomination details.

  ○ The **International Council on Monuments and Sites (ICOMOS)** and **IUCN** evaluate the nominated property.

  ○ The **Committee meets annually to decide which sites to add** to the World Heritage List, based on advisory recommendations and criteria fulfillment.

Corridor Projects for Vishnupad and Mahabodhi Temples

Why in News?

The **Union Budget 2024-25** revealed plans to develop **corridor projects** for the **Vishnupad Temple at Gaya** and the **Mahabodhi Temple at Bodh Gaya** in Bihar.

➤ Modelled after the **Kashi Vishwanath Corridor**, these projects aim to enhance both temples as major pilgrim and tourist destinations.

➤ The temples are about **10 kilometres apart** and are culturally significant.

What are the Key Facts About Vishnupad Temple and the Mahabodhi Temple?

➤ **Vishnupad Temple at Gaya:** It is situated on the banks of the Phalgu/Falgu river in Gaya district of Bihar. The temple is dedicated to **Lord Vishnu.**

  ○ **Legend:** According to local mythology, a demon named **Gayasur requested the gods to grant him the power** to help others attain moksha (liberation from the cycle of rebirth).

● However, after misusing this power, Lord Vishnu subdued him, leaving a footprint in the temple, believed to be a mark of that event.

○ **Architectural Features:** The temple stands about 100 feet tall and features 44 pillars constructed from **large gray granite blocks** (Munger Black stone) joined with **iron clamps**.

  ● The **octagonal shrine** is oriented towards the east.

○ **Construction:** It was constructed in **1787** under the orders of **Queen Ahilyabai Holkar.**

○ **Cultural Practices:** The temple is particularly significant during **Pitra Paksha**, a period dedicated to honoring ancestors, attracting many devotees.

  ● The **Brahma Kalpit Brahmins**, also referred to as Gayawal Brahmins, have been the traditional priests of the temple since ancient times.

➤ **Mahabodhi Temple at Bodh Gaya:** It is believed to be the **site where Gautam Buddha attained enlightenment** under the Mahabodhi Tree.

○ **Construction of Temple**: The original temple was built by **Emperor Ashoka** in the 3rd century BC, with the current structure dating back to the **5th–6th centuries**.

○ **Architectural Features:** It comprises the **50 m high grand temple (**the Vajrasana**),** sacred **Bodhi Tree** and other 6 sacred sites of Buddha's enlightenment.

  ● It is surrounded by numerous ancient **Votive stupas,** well maintained and protected by inner, middle and outer circular boundaries.

  ● It is one of the earliest **brick temples** from the **Gupta period,** influencing later brick architecture.

  ● The **Vajrasana (the Diamond Throne)** was originally installed by **Emperor Asoka** to mark the spot where Buddha sat and meditated.

❍ **Sacred Sites:**

● **Bodhi Tree:** Believed to be a direct descendant of the tree under which Buddha attained **Enlightenment**.

● **Animeshlochan Chaitya:** Where Buddha spent the second week of meditation after attaining enlightenment.

● **Ratnachakrama:** Site of Buddha's third week after attaining enlightenment.

● **Ratnaghar Chaitya**: Site of Buddha's fourth week after attaining enlightenment.

● **Ajapala Nigrodh Tree:** Site of Buddha's fifth week after attaining enlightenment.

● **Lotus Pond:** Site of Buddha's sixth week after attaining enlightenment..

● **Rajyatana Tree:** Site of Buddha's seventh week after attaining enlightenment..

❍ **Recognition**: It has been a **UNESCO World Heritage Site** since 2002.

❍ **Pilgrimage Site:** The Mahabodhi Temple attracts a large number of national and international pilgrims, highlighting its spiritual significance.
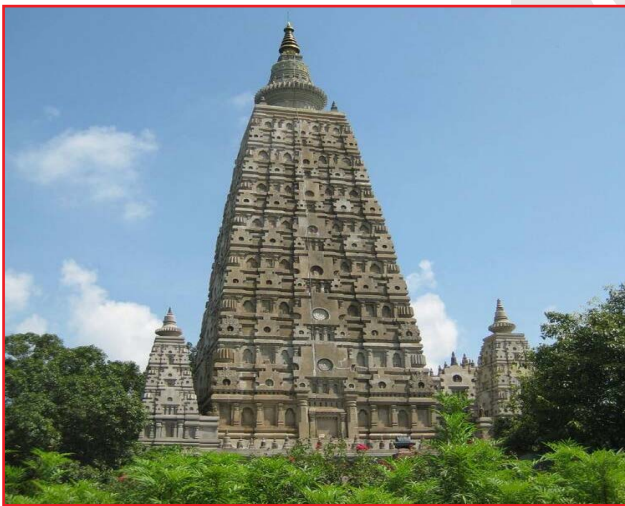
Note:

➤ **Other famous tourist places in Bihar** are Vishwa Shanti Stupa in Rajgir, Nalanda, Ancient city of Patliputra, **Valmiki Nagar Tiger Reserve** in the West Champaran, etc,.

What is the Pilgrim Corridor Project (PCP)?

➤ The **Pilgrim Corridor Project (PCP)** involves **upgrading religious sites into world-class destinations** for spiritual and tourism purposes.

➤ **Key Features:**

❍ **Boost to Tourism and Economy:** The expansion of religious tourism is expected to generate foreign exchange and create jobs, with India's tourism revenue rising by **65.7% year-on-year** (**Economic Survey 2023-24**).

❍ **Preservation and Restoration:** Projects like the **Kashi Vishwanath Corridor** expand and restore temple areas, including smaller temples like Sheetla Mata and Shri Ram Temple.

❍ **Enhanced Visitor Experience**: Improvements include reducing congestion, offering virtual tours, and providing amenities such as restrooms, shops, and improved accessibility with escalators and ramps.

Bhagat Singh's Birth Anniversary

Why in News?

28th **September 2024** marks the **birth anniversary of Bhagat Singh,** a legendary revolutionary whose spirit inspires generations in India. Celebrated as a national hero, he dedicated his life to fighting British colonial rule, leaving a legacy of courage and sacrifice.

Who was Bhagat Singh?

➤ **Birth: Bhagat Singh** was born on 28th September, 1907, in **Banga, Punjab, British India (now in Pakistan).** He Came from a Sikh family actively involved in anti-colonial activities; his father, **Kishan Singh, and uncle, Ajit Singh,** were prominent freedom fighters.

➤ **Early Life:** Witnessed the **Jallianwala Bagh massacre** at the age of 12, which instilled a deep sense of patriotism and a vow to fight for India's freedom.

Note:

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- **Education:** Joined the National College, Lahore, founded by <u>**Lala Lajpat Rai,**</u> which emphasised <u>**Swadeshi Movement**</u> and provided a platform for revolutionary ideas.

- **Revolutionary Organisations:** Bhagat Singh became a member of the <u>**Hindustan Republican Association (HRA)**</u> in 1924, later renaming it the **Hindustan Socialist Republican Association (HSRA)** in 1928.
  - **Naujawan Bharat Sabha was founded by Bhagat Singh in 1926,** aimed at mobilising youth for the freedom struggle.

- **Major Actions:** Involved in the assassination of police officer **J.P. Saunders in 1928 (Lahore Conspiracy Case)** as retaliation for Lala Lajpat Rai's death due to police brutality.
  - Threw a bomb in the Central Legislative Assembly on 18th April 1929, with B.K. Dutt to protest against repressive British laws.

- **Arrest and Trial:** Arrested in 1929 for the bomb incident and later charged with murder in the <u>**Lahore Conspiracy Case**</u>. He was tried, convicted, and sentenced to death.
  - **Executed on 23rd March 1931,** along with fellow revolutionaries Sukhdev and Rajguru, in Lahore. Bhagat Singh is affectionately known as **Shahid-e-Azam,** the greatest of martyrs.

- **Literary Contributions:** Authored significant works, including *Why I Am an Atheist, The Jail Notebook and Other Writings,* and several political manifestos advocating for socialism and revolution.
  - In his early work, *Vishwa Prem (Universal Love),* Singh proclaimed the importance of equality. He envisioned a world free of hunger and war, where humanity transcends boundaries of race and nationality.

- **Ideologies:** Advocated **Marxist** and socialist ideologies, emphasising rationalism, equality, and justice. Critiqued **organised religion**, viewing them as forms of mental and physical slavery.

- **Legacy:** Celebrated as a national **hero and martyr**; his birth anniversary and the date of his execution are observed annually to honour his contributions to India's freedom struggle.
  - Every year, **23rd March is observed as <u>Martyrs' Day</u>** as a tribute to freedom fighters **Bhagat Singh, Sukhdev, and Rajguru.**

What is the Relevance of Bhagat Singh's Ideologies in Today's World?

- **Universal Brotherhood:** Singh's idea of *Vishwa Prem* is promoting **global peace, equality, and cooperation** in a time of growing nationalism, racism, and economic disparities.

- **Communal Harmony:** His critique of communalism in his article *Communal Riots and Their Solution* holds relevance in contemporary India, where religious and communal tensions continue to **undermine social cohesion.**

- **Student Involvement in Politics:** Singh's call for students to engage in political discourse, as outlined in his article *Students and Politics,* resonates with current debates about the **role of youth in addressing pressing social and political issues.**

- **Upliftment of Marginalized Communities:** Singh in *The Problem of Untouchability,* article advocated for the empowerment of oppressed groups and dismantling caste hierarchies aligns with ongoing struggles for social justice and equality in India today.

- **Revolutionary Spirit:** Singh's view on revolution, outlined in his article *What is Revolution?,* calls for the continuous **challenging of oppressive systems and reactionary forces.**
  - This idea remains applicable in modern movements for **political reform and social change globally.**

■■■

Note:

Geography

Highlights

- *Latitudinal Variation in Sun's Rotation Speed*
- *Landslide Induced Earthquake in Greenland*

Latitudinal Variation in Sun's Rotation Speed

Why in News?

Recently, **Indian astronomers** have mapped variation in the **Sun's rotation** speed from its **equator to its poles** for the first time.

➢ The study used 100 years of daily solar observations from the **Kodaikanal Solar Observatory, Tamil Nadu.**

What are the Key Findings of the Study?

➢ **Sun's Chromospheric Rotation Mapped:** Astronomers have successfully mapped the variation in the rotation speed of the **Sun's chromosphere** for the **first time.**
  - ○ The chromosphere is a **thin layer of plasma** that lies **between** the Sun's visible surface **(the photosphere)** and the **corona** (the Sun's upper atmosphere).

➢ **Differential Rotation of the Sun:** The Sun's **equator** spins much **faster** than its poles. It takes the equatorial region only about **25 days** to complete one rotation, while the **poles take 35 days.**
  - ○ The Sun's **equator** rotates at **13.98 degrees per day**, while at **80 degrees latitude,** the rotation rate slows to **10.5 degrees per day**.

➢ **Contribution of Kodaikanal Solar Observatory:** Using **solar plages** and **network cells** from the observatory's records of 100 years, astronomers could measure the Sun's rotation speeds across **all latitudes.**
  - ○ **Plages** are **brighter regions** with weaker magnetic fields. They are found in the **chromosphere** and are 3 to 10 times larger than sunspots.
  - ○ **Network cells** have weaker magnetic fields and are slightly larger than individual **sunspots** but smaller than sunspot groups.
  - ○ Unlike sunspots, **plages and networks are always present** on the Sun's surface, helping scientists study the rotation rate even at the poles.

- **Sunspots** are areas that appear **dark on the surface of the Sun**. They appear dark because they are **cooler** than other parts of the Sun's surface.

➢ **Significance of the Findings:** Understanding this differential rotation is essential as it is behind the **solar dynamo**, the **11-year solar cycle**, and its periods of intense activity that even produce **magnetic storms** on Earth.

> **Note:**
> ➢ **Richard Carrington**, an English astronomer in the **19th century**, first discovered **differential rotation** by observing **sunspots**.
> ➢ However, sunspots are mostly limited to **latitudes below 35 degrees** and are not suitable for high-latitude rotation measurements.

What are the Key Facts About the Sun's Atmosphere?

➢ The Sun's atmosphere consists of **multiple layers,** each with distinct **characteristics and temperatures:**
  - ○ **Photosphere:** The **visible surface** of the Sun, marking the **boundary** between the interior and the atmosphere.
  - ○ **Chromosphere:** An **irregular layer** above the photosphere where the temperature rises from **6000°C to about 20,000°C.**
  - ○ **Transition Region:** A thin and very irregular layer of the Sun's atmosphere that **separates** the **hot corona** from the much cooler **chromosphere.**
  - ○ **Corona:** The Sun's **outer atmosphere**. It is **much hotter** than the underlying chromosphere or photosphere.

➢ **Beyond the corona** lies the **solar wind**, which is an outward flow of **charged particles (plasma)** originating from the corona.
  - ○ The solar wind extends **far into space** affecting planetary atmospheres and causing phenomena like the **auroras on Earth**.

Note:

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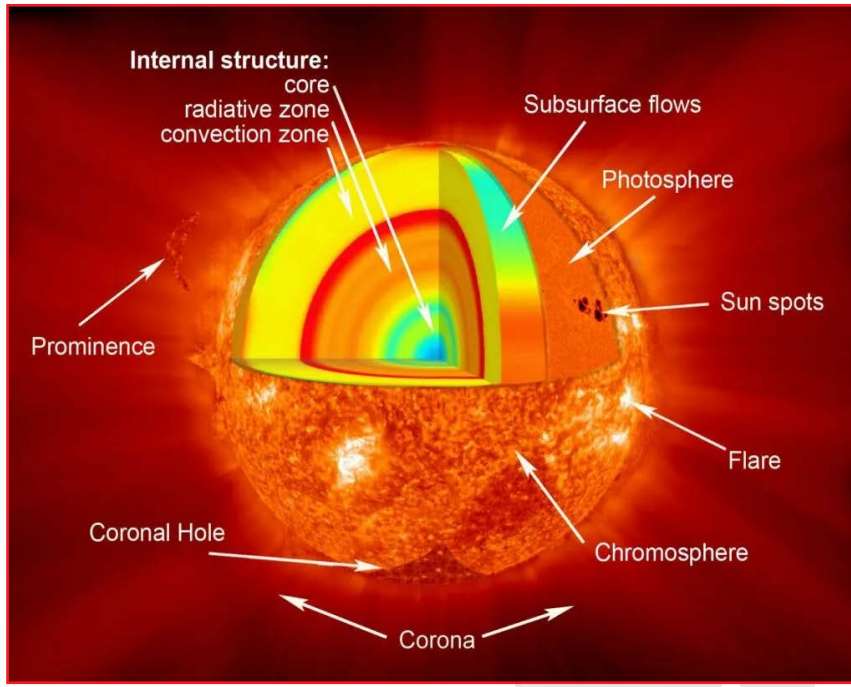
About Kodaikanal Solar Observatory

➢ It is operated by the **Indian Institute of Astrophysics** **(IIA)** is located in the Palani range of hills in Southern India.

  ❍ IIA is an autonomous institute of **Department Of Science & Technology.**

➢ It was established to study the **Sun's impact on Earth's atmosphere** and better understand **monsoon patterns**.

➢ Solar observations at this observatory over **more than 100 years** provide one of the **longest continuous series** of solar data.

➢ One of the major milestones was the discovery of the **Evershed Effect** in **1909**, which is related to the **movement of gases in the solar atmosphere**.

Landslide Induced Earthquake in Greenland

Why in News?

Recently, scientists detected unusual **seismic waves** around the world caused due to **landslides** in Greenland that lasted nine days.

➢ Unlike typical **earthquake signals** **(P and S waves)**, these waves exhibited a **single frequency**, suggesting a **non-seismic origin**.

➢ Seismologists initially labelled the phenomenon as a **"USO" (Unidentified Seismic Object)** due to its mysterious nature.

What are the Key Facts About this Landslide-Induced Earthquake?

➢ **Origin:** By analysing seismic data, satellite images, water level monitors, and simulations, scientists discovered that a **large landslide** in **Dickson Fjord, Greenland**, triggered the event.

  ❍ The collapse of **Hvide Stovhorn peak** led to a rock-ice avalanche, triggering a **submarine landslide**.

➢ **Seiche Effect in the Fjord:** In the **confined fjord**, waves **bounce** between its walls, creating a phenomenon known as a **"seiche."**

  ❍ This **back-and-forth sloshing** persisted for over nine days, with **waves oscillating** every 90 seconds.

➢ **Tsunami:** The earthquake gave rise to a **200-metre-high mega-tsunami** at an isolated place in the **Arctic Ocean region**. It didn't kill anyone but it damaged an unstaffed research facility on the **island of Ella**.

➢ **Global Reverberations:** The seiche waves sent seismic signals across the globe causing **Earth's surface to vibrate**.

  ❍ This prolonged reverberation was detected on seismometers from the **Arctic** to **Antarctica**.

➢ **Link to Climate Change:** The landslide occurred because the glacier at the fjord's foot **melted and retreated** due to **global warming**, leaving the rocky slope unsupported and causing it to collapse.

  ❍ It underscores the impact of **climate change** in polar regions, where warming accelerates ice melt, destabilising landscapes.

Note:

EARTHQUAKE

ABOUT

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

EARTHQUAKE WAVES

- **Body Waves:** Move in all directions travelling through the body of the earth
  - **P Waves:** Move faster, First to arrive at surface, Similar to sound waves, Travel through gaseous, liquid and solid materials
  - **S Waves:** Arrive at surface with some time lag, Travel only through solid materials
- **Surface Waves:** Last to report on seismographs, More destructive, Cause displacement of rocks
  - **Love Waves:** Same motion as S-waves (horizontal) without vertical displacement, Sideways motion perpendicular to the direction of propagation, Faster than Rayleigh waves
  - **Rayleigh Waves:** Cause the ground to shake in an elliptical pattern, Spread out the most of all seismic waves, Move vertically and horizontally in a vertical plane

CAUSES OF EARTHQUAKES

- Release of energy along a Fault/Fault Zones (break in the crustal rocks)
- Movement of tectonic plates (most common)
- Volcanic eruption (stress changes in rock-injection/withdrawal of magma)
- Human activities (mining, explosion of chemical/nuclear devices etc.)

MEASURING EARTHQUAKE

- Seismometers - Measures seismic waves
- Richter Scale - Measures magnitude (energy released; range: 0-10)
- Mercalli - Measures intensity (visible damage; range: 1-12)

DISTRIBUTION

- Circum-Pacific Belt - 81% of earthquakes
- Alpide Earthquake Belt - 17% of the largest earthquakes
- Mid-Atlantic Ridge - Mostly submerged underwater

HYPOCENTER

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

EPICENTER

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

P-wave patterns
P-waves that passed through the core

S-wave patterns
Core
Mantle
S-wave shadow zone

EARTHQUAKE IN INDIA

- India is one of the highly earthquake affected countries due to the presence of technically active mountains - the Himalayas.
- India has been divided into 4 seismic zones (II, III, IV, and V)

INDIA SEISMIC ZONE

LEGEND
- International Boundary
- State Boundary
- Country Capital
- Zone - II (Least Active)
- Zone - III (Moderate)
- Zone - IV (High)
- Zone - V (Highest)

Map not to Scale
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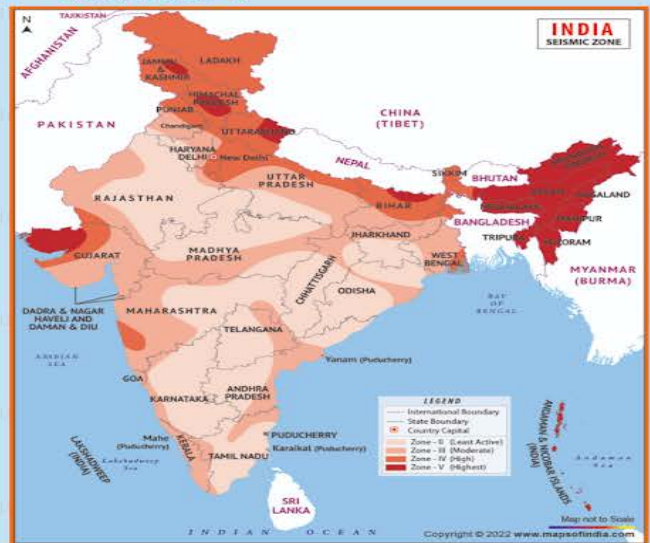
What are Fjords?

➢ **About:** Fjords are **elongated, deep, narrow steep-sided inlets of the sea** that extend far inland and are formed due to the **inundation of a glaciated valley**.

   ○ Fjords are found in **mountainous areas** of both the **Northern and Southern Hemispheres,** particularly in the **higher latitudes** (up to about 80⁰).

➢ **Formation of Fjords:** Fjords were formed during the **last Ice Age** by glaciers. As glaciers moved slowly, they carved out **deep valleys**, leading to the creation of fjords.

   ○ Fjords are **deepest inland** because the **glacier's force was strongest** there during glaciation.

Glacial valley & Fjord formation
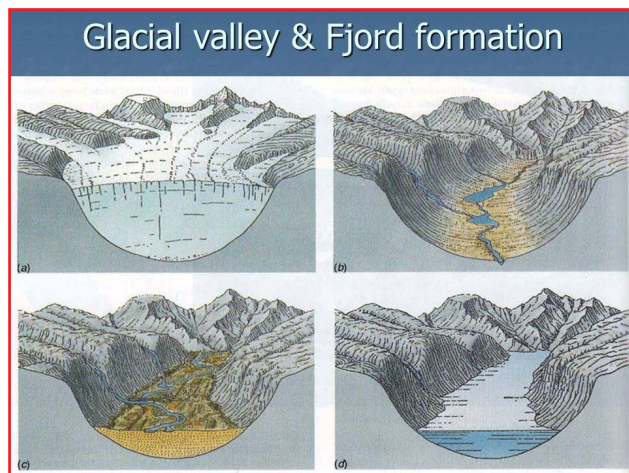
➢ **Geographic Distribution of Fjords:** Fjords are primarily found in **Norway, Chile, New Zealand, Canada, Greenland, and Alaska**.

➢ **Coral Reefs in Fjords:** Some fjords, particularly in **Norway,** host **deep cold-water coral reefs**, which support various marine species like **fish, plankton, and sea anemones.**

   ○ These cold-water reefs thrive in **complete darkness and under extreme pressure,** unlike their tropical counterparts.

➢ **Skerries (Rocky Islands):** Skerries are **small rocky islands** found around fjords, formed by glaciation. They are common along the **Scandinavian coastline.**

➢ **Fjords as Calm Harbours:** Despite the rocky islands or skerries that can make navigation difficult, fjords are generally **calm and protected.** This makes them **ideal harbours** for ships due to their tranquil waters.

Greenland

➢ **Largest Island**: Greenland is recognised as the **world's largest island** and functions as an **autonomous Denmark territory.**

   ○ Geographically, it is a part of the **North American continent.**

➢ **Climate**: Greenland experiences perpetual **daylight for two months** each year due to its high latitude.

➢ **Strategic Importance:** The United States established a **radar base at Thule** at the start of the Cold War.

Arctic Sea Ice Impact on Indian Monsoon

Recently research revealed that the **decline in Arctic sea ice levels**, driven by **climate change** is influencing the **Indian summer monsoon rainfall (ISMR)** leading to **increased variability and unpredictability.**

➢ It involved researchers from **India's National Centre for Polar and Ocean Research (NCPOR),** under the Ministry of Earth Sciences, and **South Korea's Korea Polar Research Institute**.

➢ Another study attributes the **significant rain surplus in northwestern India this monsoon** season to long-term trends driven by the climate crisis

How Arctic Sea Ice Influences the Indian Monsoon?

➢ **Central Arctic Sea Ice Decline: Less Arctic Sea** (sea ice cover of the Arctic Ocean and its vicinity) leads

Note:

to **reduced rainfall in western and peninsular India,** but **increased rainfall in central and northern India.**

- This is due to **increased heat transfer from the ocean to the atmosphere**, strengthening **Rossby waves,** which alter global weather patterns.

- **Enhanced Rossby waves** cause **high pressure over northwest India** and **low pressure over the Mediterranean, shifting the subtropical easterly jet northward,** resulting in more rain over western and peninsular India.

➤ **Low Sea Ice in the Barents-Kara Sea Region:** Low sea ice in the Barents-Kara Sea leads to **higher pressure over southwest China** and a **positive Arctic Oscillation,** which affects global weather patterns.

- Reduced sea ice causes **heat to rise, creating calm, clear skies** over northwest Europe.

- This disruption **impacts upper atmospheric conditions in subtropical Asia and India,** resulting in **high rainfall over northeastern India,** while central and northwest regions experience less rain.

➤ **Climate Change's Role:** The warming Arabian Sea and moisture from surrounding water bodies further destabilise weather patterns, exacerbating the variability in monsoon rainfall.

What are the Findings of the Study Related to Surplus Rain in North-Western (NW) India?

➤ **Increased Moisture from the Arabian Sea:** NW India is experiencing a wetter monsoon season due to **increased moisture inflow from the Arabian Sea.** This trend is expected to continue, particularly under high emissions scenarios.
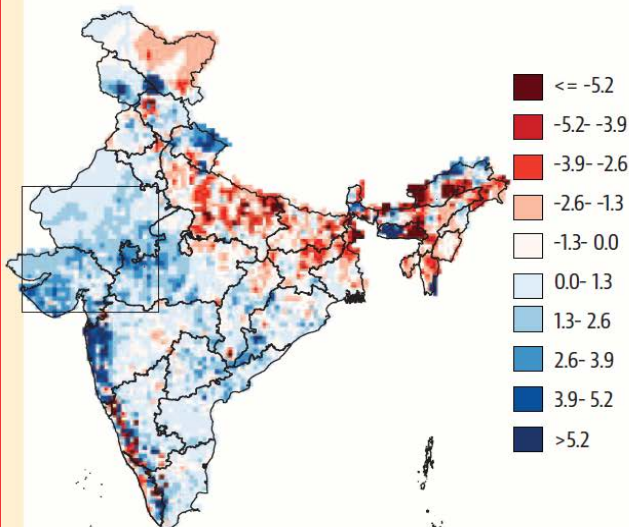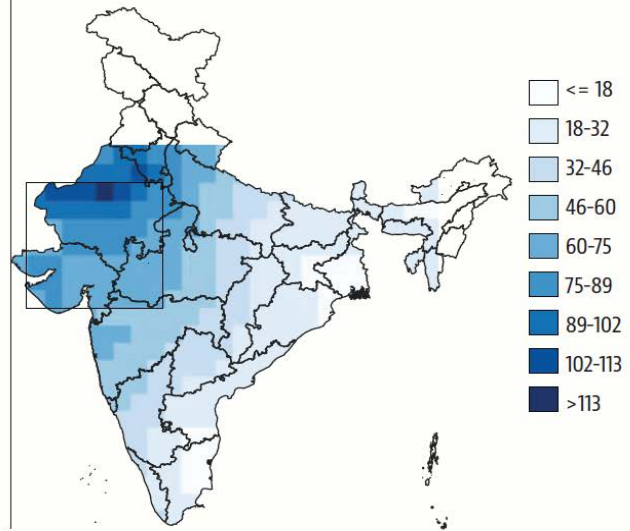
Source: Increased Summer Monsoon Rainfall Over Northwest India Caused by Hadley Cell Expansion and Indian Ocean Warming

➤ **Changes in Wind Patterns:** The region's increased rainfall is linked to altered wind patterns. **Faster winds over the Arabian Sea** and **slower winds over northern India trap moisture in northwestern India**.

- Enhanced evaporation from the Arabian Sea, driven by these winds, also contributes to the region's increased precipitation.

➤ **Shifts in Pressure Gradients:** Changes in wind patterns are attributed to shifts in pressure gradients.

- Increased pressure around the **Mascarene Islands** (Indian Ocean) and decreased pressure in the **equatorial Indian Ocean** have **strengthened the monsoon winds** that bring rain to northwestern India.

➤ **Amplified Winds from East-West Pressure Gradient:** An increased east-west pressure gradient, influenced by higher pressure over the eastern Pacific, further amplifies these winds. This could potentially **lead to even wetter monsoons in the future.**

Note:

Rossby Waves

➤ These are **large-scale atmospheric waves,** also called **planetary waves,** that occur primarily in the **mid-latitudes** of the Earth's atmosphere.

➤ They form in **jet streams with high-altitude** air currents **flowing from west to east** and have a **meandering pattern** that influences weather across the Northern and Southern Hemispheres.

➤ These waves are **most prominent where there is a large temperature contrast between the equator and the poles**.

➤ They play a **key role in shaping global weather patterns**, affecting temperature extremes and precipitation levels.

➤ Rossby waves **help balance global heat distribution**, **preventing polar regions from becoming too cold** and **equatorial regions from overheating**.
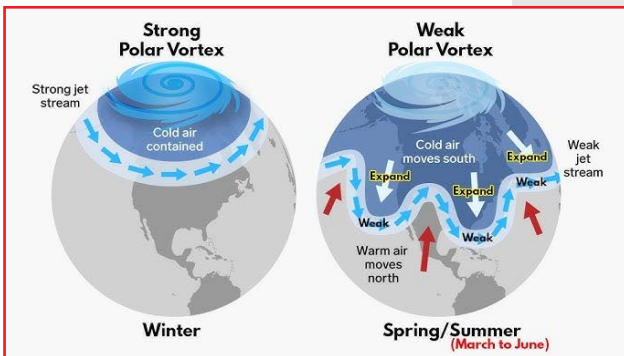
What is the Indian Summer Monsoon Rainfall (ISMR)?

➤ **About:** The **Indian Summer Monsoon Rainfall (ISMR)** is a **major climatic phenomenon** that occurs when **moist air from the Indian Ocean** moves towards the **Indian subcontinent.**

   ❍ It occurs over the Indian subcontinent from **July to September** with most of the rains recorded in **July and August.**

➤ **Factors Influencing ISMR: ISMR** is influenced by the **surface temperatures of the Indian, Atlantic,** and **Pacific Oceans**, as well as the **circum-global teleconnection (CGT)**, a large-scale **atmospheric wave** flowing at the **mid-latitudes**.

➤ **Formation:**

   ❍ Sunlight warms the **Central Asian and Indian landmass** more **rapidly** than the surrounding ocean, creating a **low-pressure band** known as the **Intertropical Convergence Zone (ITCZ)**.

   ❍ **Trade winds** blowing **from the southeast** are **deflected toward the Indian landmass** due to the **Coriolis force**.

      ● As these winds cross the equator and move over the Arabian Sea, they gather moisture and release it as rainfall over India

   ❍ The **southwest monsoon splits into two arms**. One bringing rain to the **west coast (Arabian Sea arm)** and the other to **India's eastern and northeastern parts (Bay of Bengal arm)**.

      ● These arms **converge** over **Punjab** and **Himachal Pradesh**.
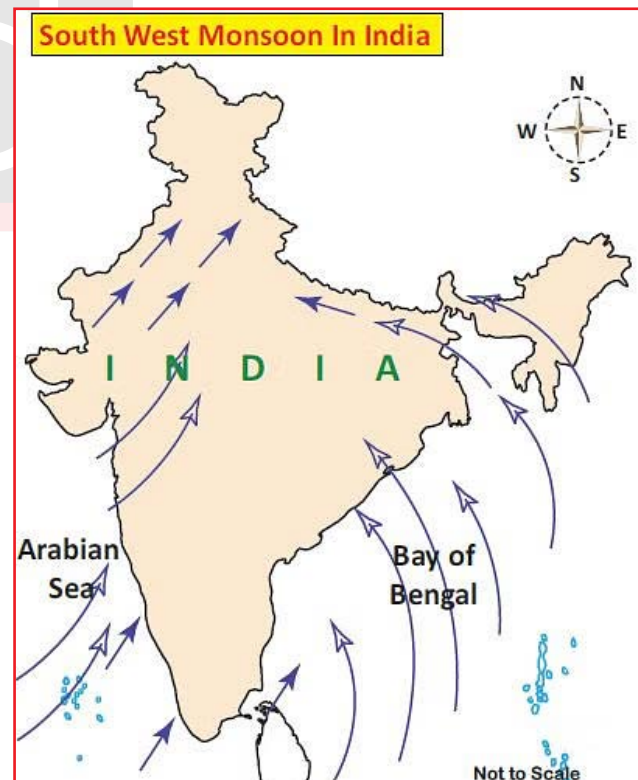
➤ **India Winter Monsoon Rainfall:** The northeast monsoons is the **reversal phase of monsoon during the winters** (due to the high-pressure cells that are formed over the Siberian and Tibetan plateaus).

   ❍ **It occurs during October to December.**
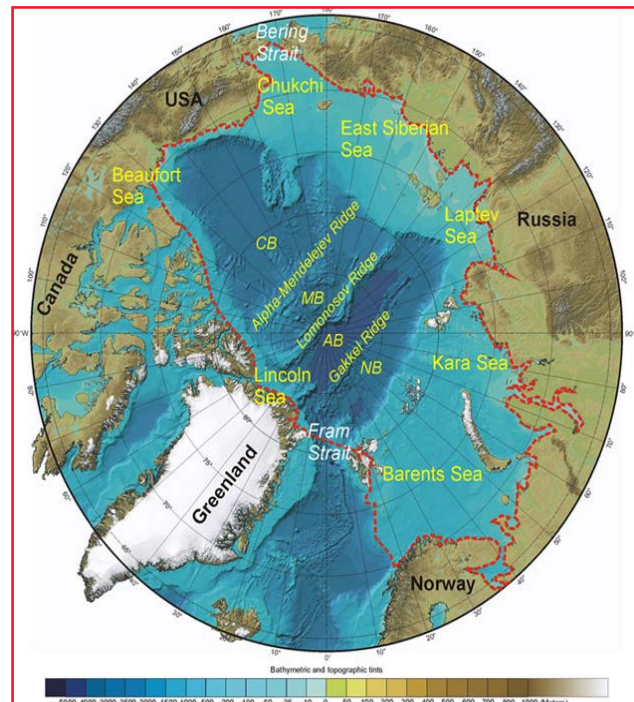
Note:

North East Monsoon In India

What is the Significance of the Monsoon for India?

➢ **Agricultural Backbone:** The monsoon is crucial for Indian agriculture, impacting food security and rural livelihoods. With **61% of farmers reliant on rainfall,** a well-distributed monsoon **supports 55% of India's rain-fed crops** and influences agricultural productivity and the economy.

➢ **Water Resource Management**: India receives **70-90% of its annual rainfall during the monsoon season** (June to September), essential for replenishing rivers, lakes, and groundwater.

  ❍ This period is vital for irrigation, drinking water, and hydroelectric power.

➢ **Economic Ripple Effects:** A good monsoon **boosts rural incomes and consumer demand**, while a poor monsoon can cause **food price inflation** and impact the overall economy, influencing monetary policy and government spending.

➢ **Ecological Balance:** The monsoon **supports India's diverse ecosystems**, affecting biodiversity, wildlife migration, and habitat health. Changes in monsoon patterns can disrupt flora and fauna.

➢ **Climate Regulation:** The Indian monsoon plays a key role in global climate regulation, influencing atmospheric patterns and interacting with phenomena like **El Niño** and **La Niña.**

Arctic Ocean

➢ It is the smallest of the world's oceans, centering approximately on the North Pole.

➢ It is bordered by Canada, Greenland, Iceland, Norway, Sweden, Finland, Russia, and the United States.

➢ **Key Seas:** Includes the Barents, Kara, Laptev, East Siberian, and Beaufort Seas.

➢ **Ice Coverage:** Predominantly covered by sea ice, with patterns of seasonal melting and freezing.

➢ **Climate Change:** Rapid warming has diminished ice cover, leading to new shipping routes (e.g., Northern Sea Route) and increased access to resources.

➢ **Resources:** Home to an estimated 13% of the world's undiscovered oil and 30% of its natural gas reserves.

Note:

MONSOON

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Monsoons are seasonal winds that reverse their direction with the change of season.

Origin of Monsoon

- Thermal Concept
- Dynamic Concept

Thermal Concept by Halley

- Monsoon result of:
  - ▶ Heterogenous character of globe (Unequal distribution of land and water)
  - ▶ Differential seasonal heating and cooling of continents and oceans

South-West (Summer) Monsoon

- Sun shines over Tropic of Cancer
- Brings low-pressure centres (Near Baykal Lake and Peshawar) due to High temperature
- Low temperature in Southern hemisphere brings High pressure centre over Australia and Indian Ocean
- Winds Blow from high (ocean) to low pressure in Asia (land)
- Ferrel's law and Coriolis force turn these wind in south-westerly (SW) direction
- They bring moisture from Indian oceans to Indian subcontinent yielding heavy rainfall

North-East (Winter) Monsoon

- Sun shines over Tropic of Capricorn
- Brings High Pressure centers (near Baykal Lake and Peshawar) due to low temperatures
- High temperature in Southern hemisphere brings Low pressure centre over Australia and Indian Ocean
- Winds Blow from high (land) to low pressure (ocean) in north-easterly (NE) direction called Retreating Monsoon

Dynamic Concept by Flohn

- Monsoon originated due to shifting of pressure and wind belts
- Intertropical Convergence (ITC) formed due to convergence of NE and SE trade winds near equator
- Northern and Southern branches of the ITC, known as NITC and SITC respectively, create a belt of doldrums marked by equatorial westerlies

South-West (Summer) Monsoon

- Sun shines over Tropic of Cancer
- NITC extended up to 30° N latitude covering south and SE-Asia and establishes Equatorial westerlies
- It brings atmospheric depressions (cyclones) with heavy rainfall

North-East (Winter) Monsoon

- Sun shines over Tropic of Capricorn
- Due to Southward shifting of Sun, pressure and wind belts also shifts
- Western cyclonic disturbances (from Mediterranean Sea) enter India from west in winter due to Westerly Jet stream
- Northeast trade winds reestablished over south and SE Asia
- These NE trades become winter monsoons called Retreating Monsoon and rains in Andhra and Tamil Region

■■■

Note:

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Security

Highlights

- *SC Halts Criminal Cases under AFSPA*
- *7th National Security Strategies Conference 2024*
- *Joint Doctrine for Amphibious and Cyberspace Operations*

SC Halts Criminal Cases under AFSPA

Why in News?

Recently, the **Supreme Court (SC)** has quashed **FIRs** and set aside all proceedings against **30 21 PARA (Special Forces)** personnel accused of **allegedly killing civilians in Nagaland**.

➤ The **Union Ministry of Home Affairs (MHA)** declined to grant sanctions for initiating criminal prosecution against these personnel.

Note:

➤ The **AFSPA Act has been extended for six months** (starting from 1st October 2024) in **hill districts of Manipur**, **eight districts of Nagaland and three districts of Arunachal Pradesh.**

  ○ The extension follows a **review of the law and order situation** in these states to maintain order and facilitate the operations of armed forces in "disturbed" areas.

➤ As per MHA, **AFSPA has been lifted in 70% of northeastern states** but remains in force in Jammu and Kashmir, with potential consideration for revoking it in J&K.

What are the Key Facts of the Case and the Supreme Court's Ruling?

➤ **Background:**

  ○ The incident involved a **tragic case of mistaken identity by Army personnel,** leading to the **deaths of civilians in Nagaland in 2021**.

  ○ The subsequent **legal proceedings were halted** by the **Supreme Court** due to the **lack of Central government (Ministry of Home Affairs) sanction** required under **Section 6** of **Armed Forces Special Powers Act (AFSPA), 1958.**

  ○ Thus, the **Supreme Court** has **closed criminal proceedings against Army personnel** involved in the incident and left the possibility open for the proceedings to be revived if the government grants the required sanctions.

➤ **Legal Provisions:**

  ○ **Section 6 of the AFSPA:** It **protects actions** carried out under the act stating that **no prosecution, suit**, or other legal proceedings can be initiated against any individual for actions taken or believed to be **taken under the Act without prior approval from the Central Government**.

What is Armed Forces Special Powers Act (AFSPA), 1958?

➤ **Background:**

  ○ On 15th August 1942, the British colonial government introduced the **Armed Forces Special Powers Ordinance** to suppress the **Quit India movement.**

    ● This led to several ordinances, including one for **"Assam disturbed areas"** in 1947 passed by the Indian government to deal with the security challenges after partition.

  ○ The **Armed Forces (Assam and Manipur) Special Powers Act, 1958**, followed the **Assam Disturbed Areas Act of 1955** to address unrest in the Naga Hills.

    ● The Act was **later replaced by the AFSPA** for broader use.

➤ **About:**

  ○ AFSPA was passed by Parliament on 11th September 1958. It was implemented in response to **escalating violence in the North-eastern States**, which the State governments struggled to manage.

  ○ It grants extensive powers to the armed forces and **Central Armed Police Forces** in **"disturbed areas".**

    ● It allows them to **kill individuals violating the law, arrest and search** premises **without a warrant**, and **receive protection from prosecution** and

Note:

legal suits **unless sanctioned by the Central government.**

○ Both the **state and Union governments can issue notifications** declaring certain areas as "disturbed", granting the armed forces the authority under AFSPA.

○ For the States of **Arunachal Pradesh and Nagaland,** the MHA issues periodic "**disturbed area" notifications.**

➤ **Disturbed Area Under AFSPA:**

○ A "disturbed area" is designated by a notification under **Section 3 of the Act,** which is invoked where the **deployment of armed forces in aid of civil power** is deemed necessary.

○ The Act was amended in 1972 to allow **both the Central government and State governments to declare** an area as "disturbed."

    ● Such a designation can be **based on conflicts or disputes** between different religious, racial, linguistic, regional, or caste communities.

○ The **Central Government, or the Governor of a State or the Administrator** of a Union Territory, can declare any part or the entirety of a State or Union Territory as disturbed.

    ● Once declared, the area remains under this status for a **continuous period of 3 months,** as per the **Disturbed Areas (Special Courts) Act, 1976.**

    ● The **State government** can recommend whether the Act should continue in the region.

What are the Committees and their Recommendations on AFSPA?

➤ **Recommendations of Jeevan Reddy Committee:** In November 2004, the Central Government established a five-member committee led by Justice B.P. Jeevan Reddy to review the AFSPA's provisions in the northeastern states. The committee recommended a few measures that need to be taken.

○ Repealing the AFSPA and incorporating its provisions into the **Unlawful Activities (Prevention) Act, (UAPA)1967**.

○ Modifying the UAPA Act to **clearly define the powers** of the armed and paramilitary forces.

○ Setting up **grievance cells** in each district where armed forces are deployed.

➤ **Second ARC Recommendations:**

○ The 5th report of the **Second Administrative Reforms Commission (ARC) recommended repealing the AFSPA,** since it will remove feelings of discrimination and alienation but these recommendations have not been implemented.

➤ **Recommendations of Santosh Hegde Commission:**

○ **Reviewing the AFSPA every 6 months** to ensure its necessity and enhance its humanitarian aspects.

○ **Amending the UAPA Act** to address terrorism, rather than relying solely on the AFSPA.

○ **Allowing investigations of armed forces** for excesses committed during their duties, even in "disturbed areas."

What are the Reasons for Violence in the North-Eastern States of India?

➤ **Multi-Ethnic Diversity:** The North-East is India's most **ethnically diverse region**, home to around 40 million people and 213 of the 635 tribal groups.

○ Each tribe has a distinct culture, leading to **resistance against integration with common society** and concerns over the **loss of cultural identity.**

➤ **Lack of Economic Development:** Government policies have contributed to economic stagnation in the region, resulting in **limited employment opportunities.**

○ This economic disenfranchisement drives many youths to join insurgent groups in search of better prospects.

➤ **Demographic Changes:** The **influx of refugees** from Bangladesh has altered the region's demographic landscape, causing discontent and fueling the insurgency, particularly with groups like the **United National Liberation Front (ULFA)**, which was formed in response to anti-immigrant sentiments.

➤ **Perceived Army Excesses:** The implementation of the AFSPA has been criticised as draconian, contributing to **alienation among locals** and being **used as propaganda by insurgent groups**.

○ **Irom Sharmila Chanu from Manipur fasted for 16 years** to protest the use of AFSPA in the Northeast and to demand its repeal.

➤ **Political Instability in Neighboring Counties:** The ongoing instability in Bangladesh and Myanmar has further complicated the security dynamics in the North-East, contributing to the region's insurgency issues.

Note:

> ➢ **External Support:** Historically, insurgent groups in the North-East have received support from neighbouring countries.
>> ❍ East Pakistan (now Bangladesh) provided training and weapons in the 1950s and 1960s, **while China offered support from 1967 to 1975 as part of its revolutionary foreign policy.**

7th National Security Strategies Conference 2024

Why in News?

Recently, the Union Home Minister inaugurated the National Security Strategies Conference (NSSC) 2024 in New Delhi.

➢ The roadmap to solutions to **emerging national security challenges** has been discussed with the top police leadership.

➢ The top police officers also discussed how to study the issues concerning **tribals** with a **"non-Colonial approach".**

What are the Key Highlights of the NSSC 2024?

➢ **About NSSC:** It was conceived by the **Prime Minister** during the **DGsP/IGsP Conference** with the objective of finding solutions to major **national security challenges** through discussions amongst a **unique mix of senior police leadership**.

➢ **Diversity of Participants:** The conference brings together a unique mix of **senior police leadership** managing national security challenges, **young police officers** working at the cutting-edge level, and **domain experts** in specialised fields.

➢ **DGsP/IGsP Conference Recommendations Dashboard:** A new dashboard developed by the **National Crime Records Bureau** has been launched.
>> ❍ It is designed to aid in the i**mplementation** of decisions taken during the annual **Directors and Inspectors General of Police conference** chaired by the Prime Minister.

➢ **Focus on Tribal Issues with a Non-Western Approach:** The discussion emphasised the need for adopting a **non-colonial perspective** in addressing the grievances of tribal communities.
>> ❍ The idea is to **move away** from the **Western model** of dealing with indigenous populations, which historically **stigmatised and marginalised them** and emphasis should be given to **respect, inclusion, and empowerment** rather than control and exclusion.

➢ **Discussion on Multiple Security Challenges:**
>> ❍ **Radicalisation** of youth via social media particularly focusing on **"Islamic and Khalistani radicalization."**
>> ❍ **Narcotics and trafficking** has become a major concern in internal security, impacting **social and economic stability**.
>> ❍ **Security at non-major ports and fishing harbours** which pose significant risks for **smuggling** and other illegal activities.

➢ **Emerging Threats and Technological Challenges:** The conference explored several emerging security threats.
>> ❍ **Fintech Fraud**: It emphasised on how **financial technologies** are being exploited for criminal activities.
>> ❍ **Rogue Drones**: Countermeasures against **rogue drones**, used for smuggling and surveillance, were a focal point of the session.
>> ❍ **Exploitation of App Ecosystems**: Criminals are increasingly using **mobile apps** for illicit activities.

How British Colonists Dealt with Tribals in India?

➢ **Criminal Tribes Act, 1871:** During British colonial rule, the **Criminal Tribes Act, 1871** classified several tribes as **hereditary, habitual criminals**.
>> ❍ As per the British, they were **naturally inclined** to commit minor crimes.
>> ❍ Their alleged likelihood to commit crime at any moment justified **blanket surveillance** against them at all times.

➢ **Indian Forest Act, 1865:** The act banned many daily practices of tribals, such as **cutting wood, grazing cattle**, collecting fruits and roots, and fishing.
>> ❍ Tribals were **forced to steal wood** from the forests, facing bribes from forest guards if caught.

➢ **Forest Act, 1878:** It was more comprehensive than earlier ones.
>> ❍ Forests were categorised as **reserved forests, protected forests and village forests** which restricted tribals' access to forests.
>> ❍ Provision was made to impose a **duty on timber.**

Note:

- **Indian Forest Act, 1927:** This Act classified forests into three categories namely **reserved forests, village forests and protected forests**.
  - In reserved forests, local people are **prohibited** leading to **physical harassment** of tribal communities on their **entry.**
- **Permanent Settlement (1793):** Introduction of **permanent settlement** in tribal areas abolished the traditional practices of **collective and traditional ownership** of lands (Khutkutti system).
  - Exploitation by the **outsiders (Dikus)** such as police, traders, and moneylenders aggravated the tribals' sufferings.

How has the Indian Government has Adopted a non-Colonial approach for Tribals?

- **Habitual Offenders Act, 1952:** After Independence, the Indian government replaced Criminal Tribes Act, 1871 with the **Habitual Offenders Act, 1952**.
  - The communities that were notified as 'criminal' under the Criminal Tribes Act, 1871 had become **"Denotified Tribes"** and **no longer considered "born criminals".**
- **National Forest Policy 1952:** It recognised tribal **symbiotic relationship** with the forests and allowed for the **protection, preservation and development of forests**.
- **Scheduled Caste and Scheduled Tribe (Prevention of Atrocities) Act, 1989:** It aims to prevent the commission of offences of atrocities against the members of the **Scheduled Castes (SCs)** and the **Scheduled Tribes (STs)**.
  - It mandates the constitution of **special courts** for hearing cases on atrocities against SCs and STs.
- **Forest Rights Act (FRA), 2006: FRA 2006** aims to **correct the injustices** done to forest-dwelling communities by colonial-era forest laws.
  - It gives **Forest-dwelling Scheduled Tribes (FDST)** and **other traditional forest dwellers (OTFD)** the right to ownership to land farmed by tribals or forest dwellers.

What Challenges are Still Faced by Tribals?

- **Colonial Legacy of Stigmatisation:** Despite the repeal of the **"criminal tribes" law** in 1952, the stigma associated with tribals persists.
  - The **colonial mindset** of **excluding tribals** and viewing them as **unequal** to the mainstream population has continued even after Independence.

- **Challenges Faced by Denotified Tribes:** Denotified tribes are **not scheduled tribes**, so they **lack legislative protection**, making them even more vulnerable.
- **Rising Violence Against Tribals:** Data from the **National Crime Records Bureau (NCRB)** indicates a steady rise in such crimes, with incidents increasing from **8,802 cases in 2021 to 10,064 in 2022 (14.3% increase).**
  - **Madhya Pradesh (30.61%), Rajasthan (25.66%)** and **Odisha (7.94%)** recorded the majority of cases of atrocities against STs.
- **State-Wise Variations in Problems:** In Madhya Pradesh, **prostitution rackets** exploit tribals, while in Jharkhand and Chhattisgarh, **counter-insurgency operations** against **Maoists** disproportionately impact tribal populations.
- **Evictions and Displacement**: Despite the FRA's protections, some tribal communities still face **eviction from forest lands due to poor enforcement or lack of recognition of their rights.** E.g., Eviction of **Bodo, Rabha and Mishing tribe** from the **Orange National Park** in Assam.

How to Address Challenges Faced by Tribals?

- **Addressing Historical Stigma:** Public awareness campaigns, **educational reforms, and media portrayal** should **challenge stereotypes** and promote respect for tribal communities.
- **Enhancing Law Enforcement:** Strengthening law enforcement mechanisms, increasing conviction rates, and establishing **fast-track courts f**or crimes against tribals are crucial steps to ensure justice.
- **Effective Implementation of the Forest Rights Act (FRA):** Efforts must be made to strengthen the implementation of the FRA at the local level, ensuring that tribals are not unjustly evicted from their lands.
  - Mechanisms such as **land title verification**, community involvement in forest management, and legal recourse for displaced tribals should be enhanced.
- **Cultural Preservation**: Support initiatives that promote and preserve tribal culture, languages, and traditions, fostering pride and identity. E.g., **Adi Mahotsav.**
- **Political Representation:** Ensure **adequate representation** of tribal communities in **local governance** and decision-making bodies to voice their concerns. E.g., Reservation of seats for STs in the **Lok Sabha (Article 330), State Legislatures (Article 332) and**

Note:

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Panchayats (Article 243) and proper implementation of **5ᵗʰ Schedule** of the Constitution.

Joint Doctrine for Amphibious and Cyberspace Operations

Why in News?

Recently, **Chief of Defence Staff** (CDS) General Anil Chauhan released the **Joint Doctrine for Amphibious Operations** during the **Chiefs of Staff Committee (COSC) meeting**.

➢ Earlier CDS also released **the Joint Doctrine for Cyberspace Operations.**

What are the Joint Doctrines for Amphibious and Cyberspace Operations?

➢ **Joint Doctrine for Amphibious Operations:** The Doctrine is a **keystone publication** providing guidance to Commanders for Amphibious Operations in a **complex military environment.**

  ❍ The **amphibious capability enhances the Armed Forces' ability** to undertake a wide range of operations within the **Indian Ocean Region**, in both wartime and peacetime scenarios.

  ❍ These operations constitute a **vital aspect of multi-domain military engagements** and exemplify the highest level of coordination and integration among the **Armed Forces.**

➢ **Joint Doctrine for Cyberspace Operations: Cyberspace** is the global network of entities, including **Information and Communication Technology (ICT) systems**, that process, store, and transmit digital **information and code, whether connected or independent.**

  ❍ In addition to the conventional domains of warfare—land, sea, and air—**cyberspace has emerged as a critical and complex domain in modern warfare**, requiring dedicated focus and strategy.

  ❍ The doctrine highlights the **military dimensions of cyberspace operations, providing strategic guidance for commanders,** staff, and practitioners in planning and executing cyberspace operations, while also raising awareness among military personnel at all levels.

Chief of Defence Staff (CDS)

➢ **Background:**

  ❍ Its creation was recommended in 2001 by a **Group of Ministers (GoM)** that was tasked with studying the **Kargil Review Committee (1999) report.**

  ❍ After the GoM recommendations, in preparation for the post of CDS, the government created the **Integrated Defence Staff** in 2002, which was to eventually serve as the CDS's Secretariat.

  ❍ In 2012, the **Naresh Chandra Committee** recommended the appointment of a Permanent Chairman of the Chiefs of Staff Committee as a midway to eliminate apprehensions over the CDS.

  ❍ Finally, the post of **CDS was created in 2019** on the recommendations of a committee of defence experts headed by Lt General **DB Shekatkar.**

    ● **General Bipin Rawat** was the first CDS in the country and was appointed on 31ˢᵗ December 2019.

➢ **Roles and Responsibilities:**

  ❍ He also **heads the newly created Department of Military Affairs (DMA)** in the Ministry of Defence.

  ❍ The CDS will be the **single-point military adviser to the Defence Minister on matters involving all three services and the service** chiefs will be obliged to confine their counsel to issues pertaining to their respective services.

  ❍ As the head of DMA, CDS is vested with the authority in prioritising inter-service procurement decisions as **Permanent Chairman-Chiefs of Staff Committee.**

  ❍ The CDS is also **vested with the authority to provide directives to the three chiefs**. However, he does not enjoy any command authority over any of the forces.

  ❍ CDS is **first among equals, he enjoys the rank of Secretary within the DoD** (Department of Defence) and his powers will be confined to only the revenue budget.

  ❍ He will also perform an advisory role in the **Nuclear Command Authority (NCA).**

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Miscellaneous

Highlights

- World Tourism Day 2024
- Engineers Day 2024

World Tourism Day 2024

Why in News?

The Ministry of Tourism celebrated **World Tourism Day** on 27th **September 2024**, with the theme **"Tourism and Peace."** focusing on how tourism contributes to promoting world peace by encouraging cross-cultural interactions and understanding.

What is the Significance of World Tourism Day?

➢ **History**: World Tourism Day was first celebrated in **1980 by the United Nations World Tourism Organization (UNWTO),** and raises awareness about the social, cultural, and economic importance of tourism.

- ○ The day marks the **adoption of UNWTO's statutes in 1975,** signifying its official establishment five years later.
- ○ UNWTO advocates for tourism as a driver of economic growth, inclusive development, and environmental sustainability while supporting the sector in advancing knowledge and policies worldwide.
  - **UNWTO comprises 160 Member States (including India),** 6 Associate Members, 2 Observers, and over 500 Affiliate Members.
  - **Headquartered in Madrid, Spain.**

➢ **Annual Themes**: Each year, World Tourism Day is celebrated with a specific theme and a host country, highlighting the unique role tourism plays in different regions around the world.

- ○ In **2024, Georgia** will have the honour of hosting this important event. The theme for World Tourism Day 2024 is particularly inspiring: **"Tourism and Peace."**

➢ The day emphasises tourism's potential as a tool for achieving the **UN Sustainable Development Goals (SDGs),** particularly in **poverty eradication** and **sustainable resource management.** It also highlights the importance of **eco-tourism** in supporting **SDG 13 on climate action.**

How does Tourism Contribute to Peace?

➢ **Cultural Exchange**: Tourism promotes understanding and **tolerance** among diverse cultures**, reducing prejudice** through shared experiences and dialogue.

➢ **Economic Empowerment:** As a major driver of economic growth (tourism **contributes 10% of global Gross Domestic Product (GDP),** 7% of global exports and accounts for **one in every 10 jobs worldwide**), tourism creates jobs and **strengthens local economies,** which can alleviate **poverty and inequality**, which can be root causes of conflict.

➢ **Sustainability**: Responsible tourism practices **conserve natural and cultural heritage,** fostering community pride and reducing resource-related tensions.

➢ **Good Governance**: A thriving tourism sector encourages governments to maintain **stability and develop policies** that promote **peace and functionality.**

➢ **Gender Equality**: The tourism industry **empowers women and engages local communities.**

- ○ The Tribal Home Stays (under **Swadesh Darshan program**), implemented by the Ministry of Tourism of India, aims to tap into the **tourist potential of tribal areas** and provide an **alternative livelihood to the tribal community.**
- ○ This initiative fosters social equity and reduces inequalities.

➢ **Pandemic Recovery**: Tourism aids in rebuilding economies and promoting healing in post-conflict areas, as seen in countries like **Rwanda.**

- ○ Rwanda's GDP grew by 8.4% in the first three quarters of 2022, following an 11% increase in 2021. This growth was driven by the services sector, particularly the **revival of tourism, which improved employment indicators to levels similar to early 2020**, before the **Covid-19 pandemic.**

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What is the Outlook of India's Travel and Tourism Industry?

➢ **Global Ranking:** India ranks 39ᵗʰ in the **World Economic Forum's Travel and Tourism Development Index** 2024. Its strong performance is driven by exceptional **natural, cultural, and non-leisure resources(**resources that are utilised for business, education, and other activities outside of leisure travel**).**

➢ **Economic Contribution:** According to the **World Travel & Tourism Council (WTTC)** , the contribution of India's travel and tourism sector to India's economy was worth USD 199.6 billion in 2022.

  ○ Cumulative **Foreign Direct Investment** (FDI) inflow in the hotel and tourism industry stands at USD 17.2 billion from April 2000 to March 2024. This constitutes 2.54% of the total FDI inflow received across sectors.

  ○ Rise of Domestic Tourist Visits (DTV) in 2023 reached 250 crore, nearly double from 128 crore in 2014.

➢ **Government Initiatives:**
  ○ **National Tourism Policy, 2022**
  ○ **Dekho Apna Desh Initiative**
  ○ **Swadesh Darshan Scheme**
  ○ **Ek Bharat Shreshtha Bharat**
  ○ **e-Visa Facility**
  ○ **Cruise Tourism**

➢ **Growth Projections:**
  ○ **Annual Growth Rate:** The Indian travel and tourism industry is expected to grow at an **annual rate of 7.1%.**
  ○ **Job Creation:** The Government of India has a vision of USD 56 Billion **forex,** , creating around **140 million jobs in tourism by 2030** through inclusive growth and are particularly focusing on **cruise tourism, ecotourism and adventure tourism.**
  ○ **Visitor Spending Trends:** Domestic visitor spending surged by 20.4% in 2022, while international visitor spending increased by 81.9%.
  ○ **Foreign Tourist Arrivals (FTAs):** FTAs reached 9.24 million in 2023, a notable rise from 6.43 million in 2022**.**

● The top countries for FTAs in India during 2022 are the **United States, Bangladesh, and the United Kingdom.** FTAs are expected to reach **30.5 million by 2028.**

What are the Challenges Related to the Tourism Sector in India?

➢ **Safety and Security Issues:** Instances of crime, including theft and assault, have been reported, creating an atmosphere of fear, **particularly for women travellers.**
  ○ Such security issues can deter tourists from visiting certain areas, affecting the overall perception of India as a tourist-friendly country.

➢ **Inadequate Infrastructure:** Many tourist destinations, especially in remote regions like the Northeast, lack essential infrastructure such as reliable air, rail, and road connectivity. This limits access to beautiful yet unexplored areas, affecting **domestic and international travel.**

➢ **Unskilled Human Resources:** The tourism sector suffers from a **lack of trained manpower, including multilingual guides.** This shortage can hinder the overall experience for international tourists and impact service quality.

➢ **Unsustainable Tourism Practices:** Unsustainable tourism practices, especially in ecologically sensitive areas like the **Himalayas,** lead to resource depletion, soil erosion, and habitat destruction. The overconsumption of resources strains local ecosystems and communities.

➢ **Pollution and Climate Change:** Major tourist sites, including the **Taj Mahal,** are affected by pollution. **Climate change** poses further threats, leading to **natural disasters** that impact tourism infrastructure and heritage conservation.

What are India's Tourism Advantages?

➢ **Rich Cultural Heritage:** India is a mosaic of languages, religions, and traditions. Home to **UNESCO World Heritage sites** like the Taj Mahal, **Hampi,** and **Jaipur's forts** that attract tourists interested in history and culture.

➢ **Natural Beauty: India boasts 70% of the Himalayas (**Home to numerous adventure sports and trekking opportunities**).**

Note:

○ 7,000 km of **coastline** (ideal for water sports and beach tourism). India has both **hot and cold deserts.**

○ Extensive forest cover which can aid in **boosting ecotourism.**

○ India's **biodiversity** hosts unique flora and fauna, including national parks like **Jim Corbett** and **Kaziranga.**

➢ **Adventure Tourism Potential:** With a range of activities like **trekking, river rafting, paragliding, and wildlife safaris** available, India is poised to become a premier destination for adventure tourism.

➢ **Affordable Travel Options:** India offers relatively **low travel costs compared to many Western countries,** making it accessible for various income groups, thereby attracting a diverse range of tourists.

➢ **Warm Hospitality:** The Indian ethos of **"Atithi Devo Bhava" (Guest is God)** ensures warm and welcoming experiences for visitors.

○ Locals are generally eager to help and share their rich cultural heritage with tourists, enhancing their overall experience.

➢ **Culinary Diversity:** The country boasts varied culinary experiences across its regions, known for both vegetarian and non-vegetarian dishes. Its popular street food offerings cater to food lovers seeking authentic local flavours.

➢ **Growing Infrastructure:** India is enhancing tourism infrastructure through airport expansions, railway improvements, and highway developments under initiatives like **Bharatmala.**

○ Investments in hospitality and skill development programs aim to improve **service quality and accommodate growing visitor numbers.**

Engineers Day 2024

Why in News?

Recently, on the occasion of **Engineers Day**, the Prime Minister paid tribute to **Sir M. Visvesvaraya** and extended his greetings to engineers for their contributions to innovation and progress across various fields.

What are the Key Facts About Sir M. Visvesvaraya?

➢ **About Sir Mokshagundam Visvesvaraya:** Born on 15th September 1861 in Karnataka, he was an eminent engineer, scholar, and statesman.

○ A graduate of the College of Engineering, Pune, he went on to become one of India's most respected engineers.

➢ **Engineering Contributions:**

○ **Flood Control and Irrigation:** He is best known for his pioneering work in flood control and irrigation projects. His design of the **Krishna Raja Sagara (KRS) Dam** in Mysuru revolutionized water storage and irrigation.

○ **Automatic Water Floodgates:** In 1903, he developed an innovative system of automatic water floodgates, which were installed at the **Khadakwasla Dam** in Pune.

○ **Urban Planning:** Visvesvaraya played a critical role in the planning of the **city of Hyderabad**, improving its drainage and water supply systems.

➢ **Role in Public Service:**

○ He served as the **Diwan of Mysore** (1912–1918) and implemented major industrial and economic reforms.

○ His emphasis on education, public health, and industrialization laid the foundation for economic development in the region.

Note:

- He is widely recognized as an early advocate and practitioner of **Economic Planning in India**, called the **Visvesvaraya Plan**, which he presented in a book titled **"Planned Economy in India"**.

➢ **Honors and Recognition:**

- In 1955, he was awarded India's highest civilian honor, the **Bharat Ratna,** for his exceptional service to the nation.

- Sir M. Visvesvaraya was appointed in 1911 as a **"Companion of the Order of the Indian Empire (CIE)"** by **King Edward VII.**

- In 1915, he was conferred the title of **"Knight Commander of the Order of the Indian Empire (KCIE)"** for his contributions to the public good.

- He received an honorary membership from the Institution of Civil Engineers, London, a fellowship from the **Indian Institute of Science, Bangalore**, and several honorary degrees, including D.Sc., LL.D., and D.Litt., from eight universities in India.

- He presided over the **Indian Science Congress** in 1923.

➢ **Engineers Day:** His birth anniversary, **15th September,** is celebrated annually as **Engineers Day** in India to honor his legacy and contributions to the field of engineering.

Read More: Engineer's Day, Birth Anniversary of M.Visvesvaraya, 108th Indian Science Congress, Bharat Ratna Awardees 2024

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Rapid Fire Current Affairs

Highlights

- Impact of Permafrost Collapse on Himalayan Disasters
- GlobE Network
- Kumki Elephants
- Hike in Minimum Wages
- Launch of PARAM Rudra Supercomputers
- Decline in Out-of-Pocket Health Spending
- Non-Publication of Details of Security Projects
- Open Science
- Tuvalu's Fight Against Rising Sea Levels
- CDSCO Flags 53 Drugs for Quality Issues
- Food Import Rejection Alert (FIRA)
- International Day for the Total Elimination of Nuclear Weapons
- Food of the Future
- Antyodaya Diwas 2024
- Robotic MULE Inducted in Indian Army
- NRI Quota Expansion Undermines Education
- India's Mediation Act Lies Unused
- 14-day Timeline under UAPA
- Status of Legacy Waste Management under SBM 2.0
- NGT's Directive on Zoning of Nainital
- World Rhino Day 2024
- Amur Falcon
- India Won Gold at 45th Chess Olympiad
- Government Announces Measures to Resolve Shipping Woes
- Neuralink's Blindsight Implant
- Upcoming Global Summits on Environment

- Ammonium Nitrate Import Raises Concern
- Bio-RIDE Scheme
- Earth's Temporary Mini-Moon
- NPS Vatsalya Scheme
- BHASKAR: Platform For India's Startup Ecosystem
- Role of Helium in Rockets
- India win 5th Asian Champions Trophy
- Onam and Milad-Un-Nabi
- Swabhav Swachhata Sanskaar Swachhata (4S)
- Navika Sagar Parikrama II
- Telangana unveils AI City project
- Mercury's South Pole
- Anusandhan National Research Foundation
- Anti-Submarine Warfare Launch
- Trade Connect ePlatform
- Human-induced Extinction of Dodo
- Mpemba Effect in Magnets
- Typhoon Yagi
- Sri Vijaya Puram
- Hindi Diwas 2024
- Cyber Commandos
- 127th Anniversary of the Battle of Saragarhi
- APEDA to Boost Alcohol Exports Under 'Make in India' Initiative
- Delhi Declaration on Civil Aviation
- Pradhan Mantri Gram Sadak Yojana-IV
- National Florence Nightingale Awards 2024

Impact of Permafrost Collapse on Himalayan Disasters

Glaciologists as a part of **India's Arctic Expedition** are researching **permafrost** collapse to assess **disaster risks in the Himalayas** due to **climate change.**

➤ Permafrost is **ground that remains frozen at or below 32°F (0°C)** for at least two years, commonly found in **high-latitude and high-altitude regions.**

○ Permafrost is a combination of **soil, rocks, and sand held together by ice,** with frozen soil and ice year-round.

➤ **Global warming** leads to **permafrost thaw (the melting of permanently frozen soil or rock),** causing fluctuations and potential ground collapse, which can affect infrastructure.

○ There is a significant **knowledge gap regarding the potential link between permafrost and disasters in the Indian Himalayas,** including recent events like the **South Lhonak glacial lake (Sikkim) bursting.**

Note:

➢ Glaciologists aim to **fill data gaps** by studying permafrost in Arctic regions, leveraging findings for similar Himalayan topography.
  ○ The goal is to create **awareness among local communities** for <u>early warning systems</u> and long-term infrastructure planning.
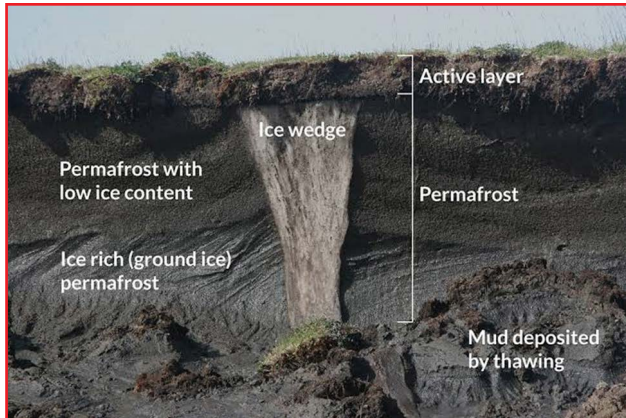
Read more: <u>Thawing Permafrost in Arctic and Industrial Contamination</u>

GlobE Network

Recently, India was elected to the 15-member steering committee of the **Global Operational Network of Anti-Corruption Law Enforcement Authorities (GlobE Network)**.

➢ **About GlobE:**
  ○ The GlobE Network is a <u>G-20</u> initiative, **supported by India since 2020.**
    ● It was established in 2021, during a special event at the <u>UN General Assembly</u> Special Session against Corruption.
  ○ It is governed by its members and supported by the <u>United Nations Office on Drugs and Crime (UNODC)</u>, which provides its **secretariat**.
    ● It currently includes **121 member countries** and 219 authorities.
    ● It consists of one chairman, one vice-chairman, and 13 members to guide its initiatives effectively.
    ● It facilitates the **sharing of intelligence and best practices**, crucial for addressing **cross-border financial crimes**.
  ○ The **Ministry of Home Affairs (MHA)** is the central authority in India, with the <u>Central Bureau of</u> <u>Investigation (CBI)</u> and <u>Enforcement Directorate (ED)</u> as member authorities.

➢ **Other Efforts Against Corruption:**
  ○ **Global:**
    ● <u>United Nations Convention against Corruption (UNCAC)</u>
    ● <u>Transparency International's Corruption Perception Index (CPI)</u>
    ● <u>G20 Anti Corruption Working Group</u>
  ○ **National:**
    ● <u>Lokpal and Lokayuktas Act, 2013</u>

Read More: <u>United Nations Convention against Corruption (UNCAC)</u>.

Kumki Elephants

Recently, **Andhra Pradesh (AP)** and **Karnataka** signed an MoU for the deployment of **trained elephants (Kumki) from Karnataka** to **control the elephant menace in AP**.

➢ It Includes deploying an **expert team for elephant capture, mahout training programs,** knowledge transfer, SOPs for darting (tranquillising) and capturing animals, nutrition and food, and workshops and seminars.

➢ Karnataka has transferred 62 kumki elephants to Uttar Pradesh, Chhattisgarh, Maharashtra, and other states.

➢ **Kumki:**
  ○ Kumki is a term used in India to refer to **trained captive <u>Asian elephants</u>.**
  ○ They can **capture, rescue, and treat injured wild elephants,** as well as to drive them away from human settlements.
    ● Some are **trained to follow commands and aid** in training other elephants.
    ● They participate in **forest patrolling to support conservation** initiatives.

➢ India is home to about **60%** of the world's Asian elephant population, with an estimated 27,312 individuals as per the 2017 census and 138 identified <u>elephant corridors.</u>

➢ Elephants have a **gestation period of about 22 months**, the longest of any land animal.

➢ Asian elephants (Indian) are classified as **Endangered** on the <u>IUCN Red List</u>.

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ELEPHANT

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4 Main Species of Elephant

Species	Found in	IUCN Red List Status	Habitat
Indian	Asia	EN (CITES – Appendix I, WPA – Schedule I)	Subtropical broadleaf forest, tropical broadleaf moist forest, dry forest, grassland
Sumatran	Asia	CR	Broadleaf moist tropical forests
Savanna (Bush)	Africa	EN	All sub-Saharan Africa except for Central Africa's dense tropical forest
Forest	Africa	CR	Dense Tropical Forests

Indian Elephant (Elephas maximus)

Largest Land Mammal on Asian Continent
National Heritage Animal of India

⇥ **Top 5 Indian States by Maximum Elephant Population:**
  (As per elephant census 2017)
  - Karnataka > Assam > Kerala > Tamil Nadu > Odisha
⇥ **Social Structure:**
  - Female elephants are more social than males; form herd (generally 5-7)
    - Led by the oldest female, the 'matriarch'
  - Males usually live alone

⇥ **Threats:**
  - Habitat Fragmentation
  - Poaching for Ivory
  - Human-Elephant Conflict
  - Mistreatment in Captivity
⇥ **Conservation Efforts:**
  - Gaj Soochna App (2022)
  - Gaj Yatra (2017)
  - Hathi Mere Sathi campaign (2011)
  - National Elephant Corridor project (2005)
  - Monitoring the Illegal Killing of Elephants (MIKE) Programme (2003)
  - Project Elephant (1992)

Read More: Translocation of Elephants

Hike in Minimum Wages

Recently, the Union government hiked central **minimum wages** for agricultural and industrial workers.

➢ The increase is made under the provisions of the **Minimum Wages Act, 1948** which empowers both the **central and state governments** to fix, review, and revise the minimum wages.

➢ A **minimum or floor wage** represents the **lowest remuneration** that employers are legally required to pay their workers.

➢ The government revises minimum wage rates **twice a year.**

➢ These adjustments are **linked** to the **Consumer Price Index for Industrial Workers (CPI-IW).**
  ○ CPI-IW measures the relative changes in **retail prices** of fixed basket of goods and services **consumed by industrial workers** over a period of time.
  ○ The **Labour Bureau**, **Ministry of Labour and Employment**, releases CPI-IW.

Read More: Consumer Price Index for Industrial Workers

Launch of PARAM Rudra Supercomputers

Recently, the Prime Minister virtually launched three **PARAM Rudra supercomputers** showcasing India's commitment to self-reliance in **high-performance computing (HPC).**

➢ The supercomputers have been deployed in **Pune, Delhi, and Kolkata**:
  ○ **Pune**: The **Giant Metre Radio Telescope (GMRT)** will utilise it to investigate **astronomical** phenomena like **Fast Radio Burst (FRB)**.
    ● A fast radio burst is a **bright and brief burst** of **electromagnetic radiation** (light) seen in **radio-wave frequencies.**
  ○ **Delhi**: The **Inter-University Accelerator Centre (IUAC)** will use it to bolster research in **material science and atomic physics.**
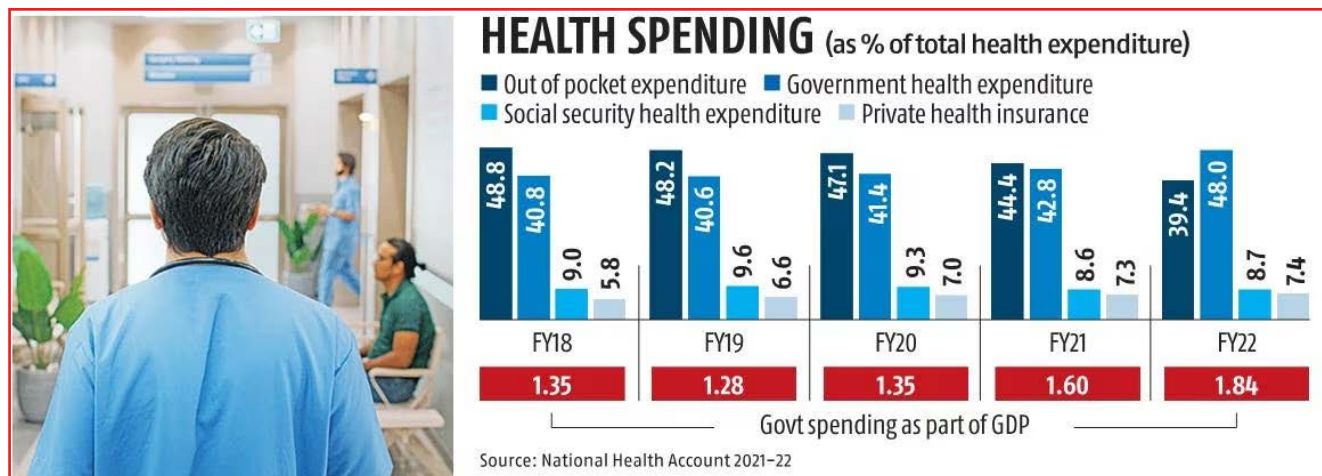
Note:

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- ○ **Kolkata**: The **S N Bose Centre** will use it for research in **physics, cosmology, and earth sciences.**
- ➤ PARAM Rudra supercomputers are part of the **National Supercomputing Mission (NSM).**
- ➤ **About NSM:** It aims to create a **network of advanced computing** systems across India.
  - ○ It is a collaboration between the **Ministry of Electronics and Information Technology (MeitY)** and the **Department of Science and Technology (DST)**.
- ➤ Supercomputers are **advanced computing systems** designed to handle **complex and data-intensive tasks** that require significant **computational power.**

    Read More: National Supercomputing Mission (NSM)

Decline in Out-of-Pocket Health Spending

Recently, the **National Health Accounts (NHA) Estimates 2021-22** was released by the **Ministry of Health and Family Welfare** as per which **Out-of-pocket expenditure (OOPE)** dropped to **39.4%** of total health expenditure (THE) in 2021-22, down from **48.8%** in 2017-18.

- ○ This aligns with the government's **objective** to reduce **OOPE to 35%** of THE by the financial year **2025-26.**
- ➤ **Reasons for Decline in OOPE:**
  - ○ Increase in the **government's share of THE** from 40.8% to 48%.
  - ○ Initiatives like **Ayushman Bharat** have facilitated broader access to health coverage.
  - ○ Increased **private health insurance coverage** which grew from **5.8% in 2017-18 to 7.4% in 2021-22.**
- ➤ **Trends in Health Expenditure:**
  - ○ **Social security expenditure for health** declined from **9% in 2017-18 to 8.7% in 2021-22.**
  - ○ **Government health expenditure** as a percentage of GDP rose from **1.35% in 2017-18 to 1.84% in 2021-22**. (Target: 2.5% of GDP by 2025).
  - ○ **Per capita health expenditure** nearly doubled between 2017-18 and 2021-22.
- ➤ **NHA Estimates** is an annual publication that **provides estimates** of **healthcare expenditures** in India.
  - ○ It explains how **money flows in India's health system**, how it's spent, how healthcare is provided, and the types of services used.
  - ○ Based on – **'A System of Health Accounts (SHA), 2011' (by WHO).**
  - ○ Published by – **The National Health Systems Resource Centre (NHSRC).**

HEALTH SPENDING (as % of total health expenditure)
- ■ Out of pocket expenditure ■ Government health expenditure
- ■ Social security health expenditure ■ Private health insurance

	FY18	FY19	FY20	FY21	FY22
Out of pocket expenditure	48.8	48.2	47.1	44.4	39.4
Government health expenditure	40.8	40.6	41.4	42.8	48.0
Social security health expenditure	9.0	9.6	9.3	8.6	8.7
Private health insurance	5.8	6.6	7.0	7.3	7.4
Govt spending as part of GDP	1.35	1.28	1.35	1.60	1.84

Source: National Health Account 2021–22

    Read More: Ayushman Bharat-Pradhan Mantri Jan Arogya Yojana

Note:

Non-Publication of Details of Security Projects

Recently, the **Ministry of Environment, Forest and Climate Change** stated that details of projects granted **environmental clearance** related to national security will **not** be available on its **PARIVESH portal**.

➢ The project processing will occur via **PARIVESH 2.0** but **defence-related projects** will be **masked and inaccessible** to the public on the portal.

➢ The **Forest Conservation Act, 1980**, **amended in 2023**, **exempted specific projects** from seeking forest clearance.
   - ○ **Strategic linear projects (Roads, Railways etc)** of national importance located **within 100 km** from international borders or the Line of Control/Actual Control.
   - ○ **Security-related infrastructure** projects involving forest land **up to 10 hectares.**
   - ○ Defence-related and public utility infrastructure in **Left Wing Extremism (LWE)** affected districts involving **forest land upto 5 hectares.**
   - ○ Projects requiring up to **0.1 hectares of forest land** for connectivity to **road/rail amenities.**

➢ **PARIVESH 2.0** is a web-based application for online **submission and monitoring** of Environmental, Forest, Wildlife, and **Coastal Regulation Zone** clearances.

Read More: Environmental Impact Assessment

Note:

Open Science

Open science is a set of principles and practices that aim to make **scientific research accessible to everyone**, ensuring that the production of knowledge is **inclusive, equitable, and sustainable.**

➤ It encompasses principles such as **free access to publications, availability of datasets, open-source software utilisation**, and **citizen science engagement**.

➤ The **UNESCO Recommendation on Open Science** defines and outlines shared values and principles for open science.

➤ **Benefits of Open Science:**

  ❍ Provides **free access to knowledge**, broadening research reach and enhancing recognition.

  ❍ Fosters **collaboration across institutions and countries,** enabling joint projects.

  ❍ Promotes **transparency and reproducibility,** improving research quality while maximising the impact of funding through **FAIR (Findable, Accessible, Interoperable, and Reusable)** principles.

➤ **Ethical Considerations Related to Open Science:** Open-access publishing demands transparency from authors, rigorous peer-review from publishers, and adherence to ethical standards to ensure research quality.

➤ **Impact of AI on Open Science: AI** boosts **data mining and analysis**, fostering collaboration and data sharing in open science.

  ❍ However, it introduces challenges like bias and reliability issues.

➤ **Challenges to Open Science:** Technological barriers, institutional resistance, economic constraints, and legal issues, such as **intellectual property** and data privacy concerns, hinder the widespread adoption of open science.
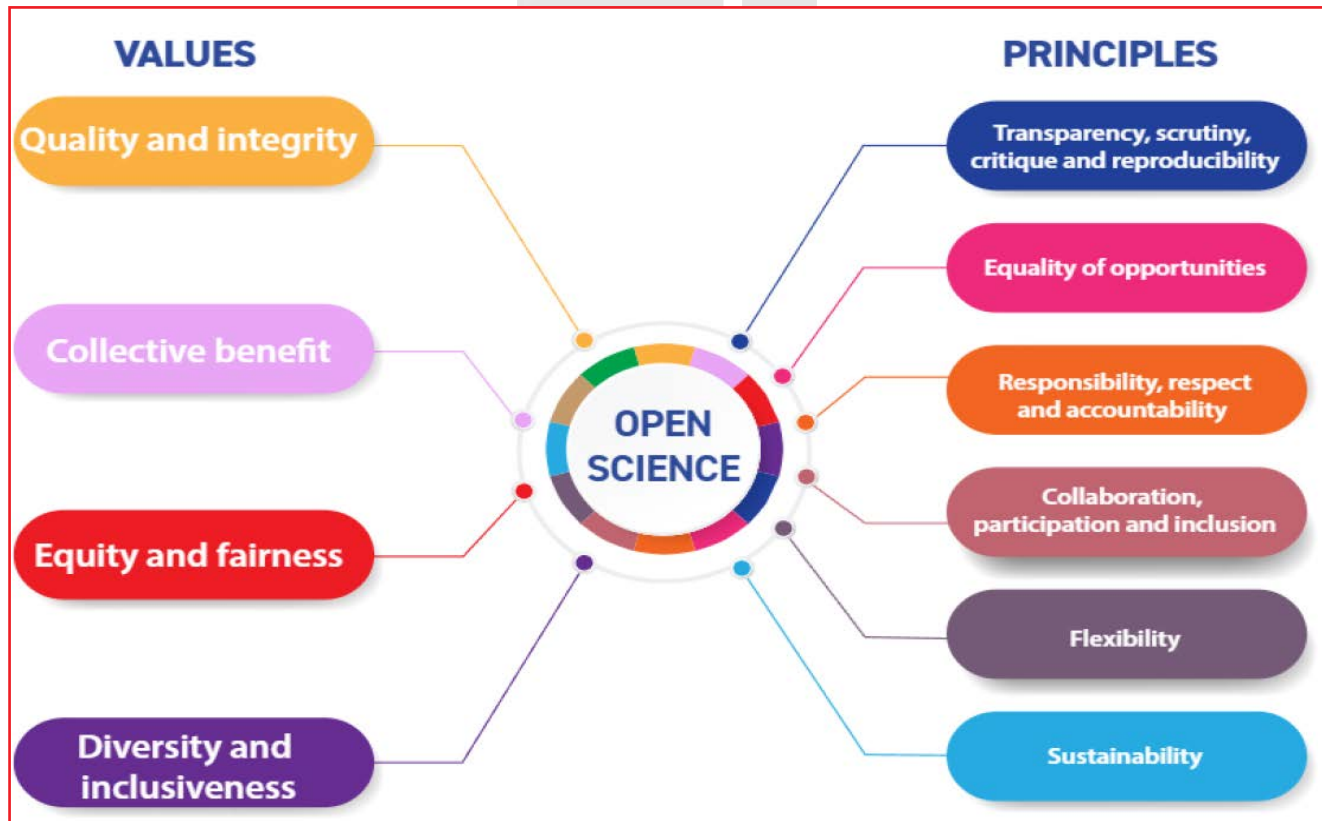
**Read More: Draft National Science, Technology and Innovation Policy**

Note:

Tuvalu's Fight Against Rising Sea Levels

In recent times, Tuvalu, a **Pacific island nation** with 11,000 residents, faces severe **existential threats** from **rising sea levels.**

➢ **NASA** projects that **by 2050**, half of its **main atoll, Funafuti**, will be **submerged** by **daily tides.**

➢ **Saltwater** has **contaminated groundwater, damaging crops** and **forcing reliance on rainwater tanks and a central raised garden** for food.

  ❍ Tuvalu is **building seawalls** and **expanding artificial land** to **delay the impacts until 2100.**

➢ A **2023 climate and security treaty with Australia** offers **migration pathways for 280 Tuvaluans annually**.

➢ Tuvalu seeks **UN-backed recognition** of its maritime boundaries and statehood, even if submerged, a**mid concerns over illegal fishing and revenue loss.**

  ❍ It seeks legal assurance from the **UN** and the **Pacific Islands Forum**.

➢ **Tuvalu:**

  ❍ It lies in the **west-central Pacific**, halfway between **Hawaii** and **Australia**.

  ❍ Its capital is **Funafuti**, and neighbours include **Kiribati** and **Nauru** to the north and **Fiji** as its nearest neighbour to the south.

  ❍ It consists of 3 main islands (**Nanumanga, Niutao,** and **Niulakita)** and features 6 **coral atolls** (like **Funafuti, Nanumea, Nui)** along with over 100 small islets.
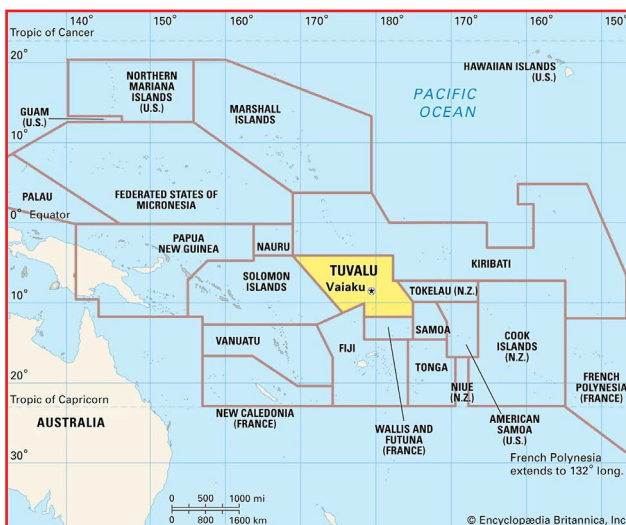
Read More: Line of Credit to Pacific Island Nations.

CDSCO Flags 53 Drugs for Quality Issues

The **Central Drugs Standards Control Organisation (CDSCO)** flagged **53 drugs, including Paracetamol and Pan D, as 'not of standard quality' (NSQ)**, raising significant **safety concerns** regarding their consumption.

➢ The CDSCO has issued two lists, one with **48 drugs that failed quality tests** and another with **5 drugs categorized as "Not of Standard Quality" (NSQ Alert),** based on random monthly sampling by state drug officers.

➢ CDSCO under the Ministry of Health & Family Welfare, is the **Central Drug Authority** for discharging functions assigned to the Central Government of India under the **Drugs and Cosmetics Act, 1940.**

  ❍ Major functions of CDSCO include overseeing the regulatory control over drug imports**, approving new drugs and clinical trials,** and issuing certain licences as the Central License Approving Authority.

Read more: India's Pharmaceutical Industry

Food Import Rejection Alert (FIRA)

Recently, **Food Safety Standards Authority of India (FSSAI)** has developed an online portal **Food Import Rejection Alert (FIRA)** to notify the food import rejections at Indian borders to food safety authorities.

➢ **About FIRA:**

  ❍ FIRA was **launched during** the second edition of the **Global Food Regulators Summit 2024** hosted by FSSAI in New Delhi.

    ● **Global Food Regulators Summit 2024** aims to establish a global platform for food regulators to exchange insights on strengthening food safety systems and regulatory frameworks throughout the food value chain.

  ❍ It has an **interactive online interface** designed for swift information dissemination, aimed at enhancing traceability and transparency.

➢ **FSSAI:**

  ❍ It is an **autonomous statutory body** established under **the Food Safety and Standards Act, of 2006.**

Note:

❍ It is responsible for **protecting and promoting public health** by regulating and supervising food safety and quality in India, operating under the **Ministry of Health & Family Welfare.**

Read More: FSSAI to Streamline Food Safety Regulations

International Day for the Total Elimination of Nuclear Weapons

The **International Day for the Total Elimination of Nuclear Weapons** is celebrated on **September 26ᵗʰ every year** to raise awareness about the **threat of nuclear weapons and to promote their elimination**. It was declared by the **UN General Assembly** (UNGA) in 2013.

➢ The **first Special Session of the UNGA devoted to disarmament,** held in 1978, reaffirmed the preeminence of nuclear disarmament.

➢ The **Atomic Energy Commission (1946)** to propose measures for controlling nuclear energy and eliminating weapons of mass destruction.

➢ **Other Initiatives of UNGA:**

  ❍ **Comprehensive disarmament in 1959**

  ❍ **Special Session on Disarmament in 1978**

  ❍ **Supported the Treaty on the Prohibition of Nuclear Weapons (TPNW)**

➢ **Efforts of India:**

  ❍ India has advocated for **universal, non-discriminatory, and verifiable nuclear disarmament** within a time-bound framework, while supporting **non-proliferation and disarmament**.

  ❍ India is part of various groups to control the transfer of technology, materials, or components to entities that threaten international security and stability. Such as

    ● **Wassenaar Arrangement**

    ● **Australia Group (AG)**

    ● **Missile Technology Control Regime (MTCR)**

Treaties Against Nuclear Weapons
Part - I

Nuclear Weapons

- The most dangerous weapons on earth; a **bomb or missile that uses nuclear energy to cause an explosion.**
- Nuclear weapons release energy either by **nuclear fission (atomic bombs) or nuclear fusion (hydrogen bombs).**
- Even a single weapon is potent of **destroying a whole city,** potentially **killing millions, jeopardising the natural environment** and lives of future generations.
- They were used for the **first and last time in WW-II** by the US in 1945 **on Hiroshima and Nagasaki.**

Treaty on the Non-Proliferation of Nuclear Weapons (NPT 1970)

- **Objective:**
  ○ Prevent the spread of nuclear weapons and its technology
  ○ Foster peaceful uses of nuclear energy
  ○ Further the goal of nuclear disarmament
- **Member States:**
  ○ 191 with **5 nuclear-weapon states (NWS)** (US, Russia, UK, France & China)
- **Nuclear-Weapon States:**
  ○ Those who **manufactured & exploded** a nuclear weapon or nuclear explosive device **before 1st January 1967**
- **Significance:**
  ○ **Only binding treaty** to the goal of disarmament by the NWS
- **India and NPT:**
  ○ India (along with Pakistan, Israel, North Korea, and South Sudan) is **not a member**
  ○ Opposes it as a **discriminative disarmament policy**
  ○ India's policy - **No First Use against NWS** and **no use against non-NWS**
- **NPT Review Conference:**
  ○ **Undertakes review** of the treaty's implementation **quinquennially**

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Read More: Securing India's Nuclear Future

Food of the Future

Recently, the Indian government approved the **Biotechnology for Economy, Environment, and Employment (Bioe3) Policy**, prioritising the production of **"smart proteins"** as a key focus area.

➢ **About Smart Proteins:**

  ❍ Alternative or smart proteins refer to **proteins derived from unconventional sources** such as **algae, fungi, or insects**, or **produced using advanced methods** like fermentation and lab-grown cells.

  ❍ The term also encompasses **plant-based proteins,** which have been available for decades, and are designed to replicate the taste and nutritional value of animal products without the need for breeding livestock.

Note:

○ As per data, alternative protein production reduces environmental impact, using **72-99% less water, 47-99% less land, causing 51-91% less water pollution**, and emitting 30-90% fewer <u>greenhouse gases</u> compared to conventional meat production.

➢ **Safe and sustainable:**

○ As incomes rise, people consume more protein, with **India's protein intake increasing from 9.7% of calories in 1991 to 11% in 2021.**

○ Alternative proteins enhance food safety by mitigating the risk of <u>zoonotic diseases</u> and fostering ethical consumption but also align with Indian dietary habits

➢ **BioE3 Policy:**

○ It is aimed at fostering high-performance <u>biomanufacturing</u>, with broader **national goals such as achieving a** <u>'Net Zero' carbon economy</u> and promoting sustainable growth through a <u>circular bioeconomy.</u>

Read More: <u>BioE3 Policy and Biotechnology in India</u>

Antyodaya Diwas 2024

Recently, **Antyodaya Diwas** was observed on **25ᵗʰ September, 2024** to commemorate the birth anniversary of <u>Pandit Deendayal Upadhyaya.</u>

➢ This day serves to **remember and celebrate** his life and contributions, highlighting his influence on Indian politics and society.

➢ **Contributions**: He focussed on **Antyodaya** which means **upliftment of the last person** and address the needs of the **most disadvantaged individuals** in society,

○ His philosophy of **"Integral Humanism"** focussed on **individual and collective welfare, social justice, economic equality, and self-reliance**.

○ He was the co-founder of the <u>**Bharatiya Jana Sangh (BJS)**</u>, which later evolved into the **Bharatiya Janata Party (BJP).**

○ He was also a key thinker for the <u>**Rashtriya Swayamsevak Sangh (RSS)**</u>.

➢ **Recognition:** Since 25ᵗʰ September 2014, his **birth anniversary** is observed as **Antyodaya Diwas** to recognise his **efforts and contributions** to the nation.

○ In 2015, the name of <u>**National Rural Livelihood Mission (NRLM)**</u> was changed to <u>**Deendayal Antyodaya Yojana-NRLM**</u>.

○ In 2018, the **Mughalsarai Junction** railway station in UP was renamed **Deen Dayal Upadhyaya Junction**. He died near Mughal Sarai in **1968**.

Read More: <u>National Rural Economic Transformation Project</u>

Robotic MULE Inducted in Indian Army

The Indian Army has recently inducted 100 **robotic Multi-Utility Legged Equipment (MULE)** for **use in forward (combat) areas,** especially in high altitudes.

➢ These robots can **climb stairs, steep hills,** and **operate in extreme temperatures** ranging from **-40 to +55 degrees Celsius** and carry a payload of 15kg.

○ Also, **logistics drones** are being tested to improve support and transport in high-altitude areas.

➢ The robotic mule is a **durable, agile ground robot** designed for all weather, equipped with **electro-optics** and **infrared technology** for object recognition. It can move through and inside rivers.

➢ It will help the Indian army to **enhance surveillance capabilities** without risking human lives and to ensure critical supplies reach frontline soldiers.

➢ Mules are still crucial for supply delivery in high-altitude areas, making up a significant part of the Army's animal transport. The Army expects to **reduce animal transport usage by 50-60% by 2030**, though it remains essential in many border regions.

➢ China has already integrated <u>robotic dogs</u> into its military operations, indicating a growing deployment of robotics in military settings and possibly indicative of a new arms race.

Read More: <u>Robots in Warfare</u>

Note:

NRI Quota Expansion Undermines Education

Recently, the **Supreme Court** condemned the **Punjab government's** decision to **expand the Non-Resident Indian (NRI) quota (15%) in medical colleges** to include distant relatives of NRIs, such as **uncles, aunts, and cousins.**

➤ The Supreme Court described the expansion of **NRI quota as a "fraud"** that **undermines merit-based admissions** and called it a **"money-spinning tactic"** that could allow less deserving candidates to gain entry based on **wealth and connections** rather than merit.

➤ The SC referenced the *PA Inamdar vs. State of Maharashtra Case, 2005,* which highlighted the necessity to **prevent misuse of the NRI quota**.

   ○ However, similar **broad definitions of NRI candidates** had been adopted in other states, such as **Himachal Pradesh and Uttar Pradesh.**

➤ NRI Quota allows **NRIs, PIOs, and OCIs** to secure admission, often **without** the need to appear for **entrance exams** that residents must undertake.

   ○ The All India Council for Technical Education (AICTE) allows NRI Students up to **5% in technical institutes** while it is **15% in medical institutes** as per the Medical Council of India.

➤ NRI refers to an **Indian citizen** who resides **outside India 182 days** in a financial year.

   Read More: Rights of Overseas Citizens of India

India's Mediation Act Lies Unused

The delay in implementing the **Mediation Act, 2023** is hindering India's **alternative dispute redressal** (ADR) framework.

➤ A working committee chaired by **P.K. Malhotra** to draft the rules for the **Mediation Council of India** submitted its report. However, the government is yet to notify these rules.

➤ **Significance of Mediation Act, 2023:**

   ○ **Reducing Judicial Overload:** Nearly **76.98 million** civil dispute cases are **pending** in Indian courts. Of this, commercial suits account for **0.36%** and arbitration contributes **0.77%** which can be dealt under the **Mediation Act, 2023.**

○ **Family Matters:** It can help curb the **"third-generation curse,"** where **less than 10%** of family businesses **survive** beyond the third generation due to disputes.

○ **Banking:** Helpful in resolving loan defaults and **non-performing assets (NPAs)** related disputes.

○ **Real Estate Sector:** Quicker resolution of disputes over **project delays** and **buyer-developer contracts.**

○ **Aligning with Global Standards:** It will help India aligning with **international mediation standards**, which are vital for resolving cross-border business disputes.

Read More: Mediation Act, 2023: Easing Judiciary Workload

14-day Timeline under UAPA

Recently, the **Supreme Court** ruled that the **14-day timeline** for granting **sanction for prosecution** under the **Unlawful Activities (Prevention) Act (UAPA), 1967** is **mandatory** and not discretionary.

➤ **Both central and state governments** are required to act within this timeline in matters of **national security.**

➤ **UAPA Rules 2008** use the term **"shall,"** indicating a clear legislative intent to complete the sanctioning process within the **stipulated 14 days**.

   ○ This includes both the **independent review (7 days)** and **government decision (7 days).**

➤ **Non-compliance** with the 14-day timeline could result in severe **legal consequences,** such as the **quashing of criminal proceedings.**

Note:

➤ This ruling would apply **prospectively,** meaning it would not affect previous cases but must be followed strictly in **all future instances.**

➤ Bombay and Jharkhand High Courts had earlier considered the **14-day timeline** as **merely discretionary.**

➤ The UAPA serves as a **critical tool** for the Indian government to **combat terrorism** effectively.

Read More: Assessing the Unlawful Activities Prevention Act

Status of Legacy Waste Management under SBM 2.0

According to the dashboard of the **Swachh Bharat Mission (SBM) 2.0** the **legacy waste management** has progressed slowly, with **only 470 of 2,424 dumpsites remediated** and **16% of the area reclaimed** since 2021.

➤ **Legacy waste** refers to waste that has been **improperly collected and stored for years**, often found in **landfills, abandoned mines, and industrial sites**.

   ○ It poses several challenges, including **radiological characterization, safety issues, leachate management, and fire control**.

   ○ Processing methods include **bioremediation, biomining, stabilisation**, and **screening.**

   ○ It can be classified into four types: **containment and storage, buried garbage, soil and groundwater contamination**, and **waste from contaminated construction materials**.

➤ **Legacy waste** **dumpsites** have been created by **Municipalities** in India in city outskirts due to the lack of solid waste handling facilities.

➤ According to government estimates, around **15,000 acres of prime real estate** is buried under **nearly 16 crore tonnes of legacy waste** across the country.

➤ **State Performance:**

   ○ **Tamil Nadu** leads in reclaimed **area** with 837 acres (42%).

   ○ **Gujarat tops by percentage**, reclaiming 75% (698 out of 938 acres) of its landfill area.

➤ **Swachh Bharat Mission Urban (SBM-U) 2.0** was **launched in 2021**, with a vision of achieving **"Garbage-Free Status"** for all cities **by 2026.**

   ○ **SBM-U 1.0** was launched to make urban India **Open Defecation Free (ODF).**

No. of Dumpsites:2425 *

Primarily dumpsites having legacy waste >= 1000 Tonne

Legacy Waste Qty.	Remediated Waste Qty	Waste to be Remediated
2,200	896 (41%)	1,304 (59%)
Area	Area Reclaimed	Area to be Reclaimed
17,098.12	4,552.34 (27%)	12,546 (73%)

* Waste Qty in Lakh Tonne
* Area in Acre

Remediation Status

Remediation Completed   (470) No of Dumpsite

Legacy Waste Qty.	Remediated Waste Qty	Waste to be Remediated
299	299 (100%)	0 (0%)
Area	Area Reclaimed	Area to be Reclaimed
2,549.38	2,549.38 (100%)	0 (0%)

Read More: 2nd Phase of SBM-U, Making Swachh Bharat Mission A Reality

NGT's Directive on Zoning of Nainital

Recently, the **National Green Tribunal (NGT)** ordered classifying **Nainital town** into **prohibited, regulated, and development zones**.

Note:

➤ This zoning aims to limit the environmental impact of **unchecked urbanisation** and **manage development** responsibly.

➤ The NGT emphasised the concept of **"carrying capacity,"** which refers to the **maximum population and development** that Nainital can support without degrading its environment.

○ The felling of **oak and deodar trees** for parking construction near hotels has caused major **ecological damage** in Nainital's catchment area, affecting **Nainital Lake's** recharge.

➤ Nainital Lake is a **lunar-shaped freshwater lake** that was formed due to **tectonic movements**. It is located in the **Kumaon region** in Uttarakhand.

➤ NGT is a **statutory body** established under the **National Green Tribunal Act, 2010** for effective and **expeditious disposal** of cases relating to environmental protection and conservation of forests.

NATIONAL GREEN TRIBUNAL

The National Green Tribunal (NGT) is a specialised body for swift resolution of environmental and natural resource cases.

About

- **Establishment:** By National Green Tribunal Act 2010
- **Objective:** Quick resolution of environmental & natural resource cases
- **Case Resolution:** Within 6 months
- **Places of Sitting:** New Delhi (Principal), Bhopal, Pune, Kolkata, and Chennai

Structure

- **Composition:** Chairperson, Judicial Members, and Expert Members
- **Tenure:** Up to 5 years/until age 65 (no reappointment)
- **Appointments:** Chairperson - Central Government (with the CJI's consultation)
  - 10-20 judicial members & 10-20 expert members - Selection Committee

India is the third country globally (after Australia and New Zealand) and the first developing nation to establish a specialised environmental tribunal like NGT.

Powers & Jurisdiction

- **Jurisdiction:** Civil cases on environmental issues and rights
- **Suo Motu Powers:** Granted since 2021
- **Roles:** Adjudicatory, preventative, and remedial
- **Procedures:** Follows Principles of natural justice
  - Not bound by the CPC, 1908 or Indian Evidence Act, 1872
- **Principles:** Sustainable Development; Precautionary; Polluter pays
- **Orders:** Executable as civil court decrees; offers relief and compensation **(decisions are binding)**
- **Appeals:** Tribunal can review its decisions.
  - If decision fails - Appeal to the SC to be filed within 90 days

NGT deals with Civil Cases under

- Water (Prevention and Control of Pollution) Act, 1974
- Water (Prevention and Control of Pollution) Cess Act, 1977
- Forest (Conservation) Act, 1980
- Air (Prevention and Control of Pollution) Act, 1981
- Environment (Protection) Act, 1986
- Public Liability Insurance Act, 1991
- Biological Diversity Act, 2002

Drishti IAS

Read More: National Green Tribunal (NGT)

Note:

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World Rhino Day 2024

On the occasion of **World Rhino Day** **2024**, the Prime Minister has reiterated the commitment towards rhino protection.

➢ **About:**
  ○ It is **celebrated annually on September 22** to **raise awareness** about the five endangered rhino species: Javan, Sumatran, Black, Greater One-Horned, and White rhinos.
  ○ **Theme** for 2024 – **Keep the Five Alive**, emphasising the importance of protecting all five rhino species

➢ **Historical Reference:**
  ○ **Zaheeruddin Muqqqhammad Babur** of the **Mughal Empire**, is recorded to have hunted rhinoceros in the northern regions of India and present-day Pakistan.
  ○ The rhinoceros is mentioned in four distinct passages of **Baburnama**, Babur's autobiography, highlighting the animal's presence during his hunting expeditions.

RHINOCEROS

World Rhino Day - 22nd September (declared by WWF in 2010)

5 Main Species of Rhino

Species	Found in	IUCN Red List Status	Habitat
African White	Africa	NT	Long/short grass Savannah
African Black	Africa	CE	Semi-Desert Savannah
Greater one-horned	Asia	Vu (CITES - Appendix I, WPA - Schedule I)	Tropical grassland
Javan	Asia	CE	Tropical, subtropical forests
Sumatran	Asia	CE	Same as Javan

Ujung Kulon National Park (a UNESCO WHS) is home to the last remaining wild Javan rhinos on Earth

Greater One-Horned Rhino

Only species found in India (aka Indian Rhino)

CHARACTERISTICS
- Largest of the 5 species
- Identified by a single black horn and a grey-brown hide with skin folds

Threats
- Poaching for horns
- Habitat loss
- Decreasing Genetic diversity

Protected Areas (India)
- **UP**
  - Dudhwa TR
- **West Bengal**
  - Jaldapara NP   • Gorumara NP
- **Assam**
  - Pabitora WLS
  - Orang NP
  - Kaziranga NP **(max no. of Rhinos: ~2400)**
  - Manas NP

Conservation Efforts (India)
- National Rhino Conservation Strategy
- Indian Rhino Vision 2020 (launched in 2005)

New Delhi Declaration on Asian Rhinos 2019
Signed by 5 rhino range nations (India, Bhutan, Nepal, Indonesia and Malaysia)

Drishti IAS

Read More: State of the Rhino 2023

Amur Falcon

Recently, the **Tamenglong** district administration in Manipur imposed an **immediate ban** on hunting, catching, killing, and selling **Amur falcons** (*Falco amurensis*) in preparation for their arrival.


➢ **About Amur Falcons:**
  ○ They are small and agile birds **(raptors)** locally known as **'Kahuaipuina'** in Manipur and **'Molulem'** in **Nagaland** (**Amur Falcon capital of the world**).
  ○ Their **distinctive features** include dark plumage, white wing linings, and reddish-orange eyes and feet.
  ○ **Migration:**
    ● **They migrate** from **Northern China, Eastern Mongolia**, and **Far East Russia** to South Africa, covering a distance of approximately **22,000 kilometres** and passing through India.
  ○ **Feeding:** They are **insectivorous** but may also consume small vertebrates**.**
  ○ **Threat:**
    ● They face **threats** from **habitat loss, hunting, and illegal trapping.**
  ○ **Conservation Program:**
    ● In 2016, Manipur tagged Amur falcons with radio transmitters to monitor their migration routes.
    ● An annual **'Amur Falcon Festival'** is held in Tamenglong district to raise awareness and celebrate these birds.

Note:

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○ **Leal Protection:**

- **IUCN** Red List- Least Concern
- **Convention on Migratory Species** (CMS): Appendix II
- **Wildlife Protection Act, 1972**: Schedule IV
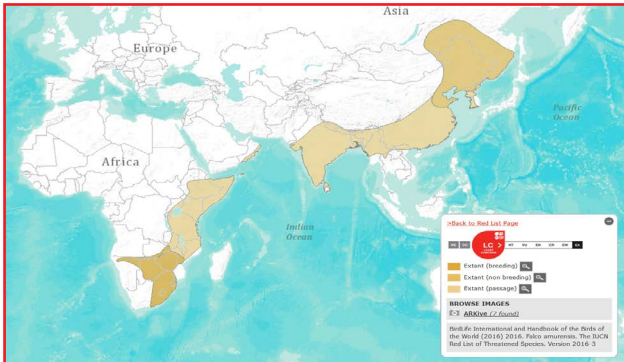
Read More: Amur Falcon - Drishti IAS

India Won Gold at 45ᵗʰ Chess Olympiad

Recently, Indian **Chess** men's and women's teams won the **gold medals** at the **Chess Olympiad held in Budapest.**

➢ The Indian **men's team defeated Slovenia** with a score of 3.5-0.5 in the 11th and final round of the 45th Chess Olympiad.

➢ Simultaneously, the **Indian women's team dominated Azerbaijan**, securing victory with a 3.5-0.5 margin.

➢ Prior to India, only **China and the erstwhile Soviet Union** had achieved the distinction of winning both men's and women's gold medals in the same edition of the Chess Olympiad.

- ○ The **Indian men's team** had previously secured **two bronze medals**, in the **2014 and 2022 editions** of the tournament.
- ○ The **Indian women's team** had earned a **bronze medal in the 2022 edition**, which was held in Chennai.

➢ **Chess Olympiad:**

- ○ It is a **biennial event** in which teams representing **nations of the world compete**. **FIDE** organises the tournament and selects the host nation.
- ○ The **first Olympiad** was **unofficial** and was held in **1924.**

Read More: International Chess Federation (FIDE)

Government Announces Measures to Resolve Shipping Woes

An inter-ministerial meeting led by the Union Minister of Commerce & Industry addressed concerns over rising freight costs, container shortages, and port congestion.

➢ **Key Decisions from the Meeting: Significant reductions in shipping costs** with measures like allowing free

Note:

storage of empty containers at **Jawaharlal Nehru Port Authority (JNPA)** for up to 90 days.

- JNPA in Navi Mumbai is a premier container port, handling about **50% of India's containerized cargo.** It ranks **26th among the world's top 100 container ports** and connects to over 200 global ports.
- **Container Corporation of India (CONCOR)**, a Navratna Company, has reduced loading, handling, and storage fees.
- **Shipping Corporation of India (SCI)** announced chartering of ships to increase container capacity by 9,000 twenty-foot equivalent units (TEUs), along with plans to acquire five more container ships.
- **Faster custom clearances** through simultaneous screening of two 20 ft containers at ports, implemented by the **Central Board of Indirect Taxes and Customs (CBIC).**
- **Private container yards** will now have to register with GST authorities to curb illegal profiteering and prevent cash transactions.

➤ Freight forwarder associations, and exporters expressed satisfaction, stating that the government's measures will **ease logistical bottlenecks and enhance trade flow.**

     Read more: **Container Port Performance Index (CPPI) 2023**

Neuralink's Blindsight Implant

Recently, the **US Food and Drug Administration** granted **"breakthrough device" status** to Elon Musk's **Neuralink's Blindsight.**

➤ This designation aims to **speed up the development and review** of innovative medical devices that **address severe conditions.**

➤ Blindsight is an experimental **vision-restoring implant**. It could help individuals who have **lost both eyes** and their **optic nerve regain vision.**

- It also offers a **possibility of vision for those born blind**, as long as their visual cortex remains intact.

➤ Initially, the visual experience will be **low resolution**, similar to **early video game graphics**. However, with future advancements, Blindsight could **surpass natural vision**.

- In addition to restoring sight, the device might enable users to **perceive wavelengths** outside the visible spectrum, such as **infrared, ultraviolet, or radar**, giving them **superhuman-like vision abilities.**

➤ In addition to Blindsight, the company is working on a **device** designed to help **paralysed individuals control digital devices using only their thoughts**.

➤ Neuralink, founded by Elon Musk in 2016, focuses on developing **brain chip interfaces** that could help **restore vision, aid in movement, and facilitate communication** for patients with disabilities.

     Read more: **First Human Neuralink Implant**

Upcoming Global Summits on Environment

The **United Nations** is going to host **four major sessions** to address key threats to the planet in the year 2024.

➤ **Key threats** to the planet include **Global warming**, disappearing plant and animal species, fertile land turning to **desert**, and **plastic** pollution in the **oceans**, in air and on land.

➤ **Upcoming Four Major Sessions:**

- **Convention on Biological Diversity (CBD COP16):** **CBD COP16** will be held in **Cali, Colombia.** The key objective is to assess how countries are advancing towards the **2022 Montreal commitment** to protect **30% of the planet's land and marine areas** by 2030.
- **UN Framework Convention on Climate Change (UNFCCC COP 29):** **UNFCCC COP 29** will be held in **Baku, Azerbaijan.** It aims to finalise agreements on **climate finance** and improve the quality and scope of financial support.
- **United Nations Convention to Combat Desertification (UNCCD COP16):** **UNCCD COP16** will be held in **Riyadh, Saudi Arabia.** Discussions will aim to **restore 1.5 billion hectares of land by 2030** and manage ongoing droughts affecting various regions.
- **Plastic Pollution Treaty Negotiations:** It will be held in **South Korea.** The final session of negotiations will focus on creating a **global treaty to address plastic pollution**. This treaty aims to tackle plastic waste across environments, including oceans, rivers, and land.

     Read More: **UNFCCC**

Note:

Ammonium Nitrate Import Raises Concern

The sharp rise in **ammonium nitrate (AN)** imports from **Russia** has raised concerns for India's domestic fertiliser industry, which faces competition from cheaper imports.

➢ Indian fertiliser companies are investing over Rs 4,000 crore to boost AN capacity, vital for mining coal, iron ore, and limestone.

➢ **Ammonium Nitrate (AN):**

  ○ **Ammonium Nitrate (NH_4NO_3)** is the **nitrate salt of the ammonium ion**, consisting of ammonia and nitric acid. It is a **white crystalline solid** highly soluble in water.

  ○ **Uses:**

    ● **Fertiliser:** Its high nitrogen content makes it extensively used in agriculture.

    ● **Explosives:** Mixed with fuel oil to produce **Ammonium Nitrate Fuel Oil (ANFO)**, commonly employed in mining and demolition.

    ● **Cold Packs:** These are found in instant cold packs and are useful for injury treatment.

    ● **Matches**: AN is used in safety matches.

➢ **About the Fertilizer Industry in India:**

  ○ **India is the world's second-largest consumer of urea**, after China, and the second-largest producer of nitrogenous fertilisers

  ○ The **fertiliser Industry is** one of the **8 core industries** in India.

  ○ It receives the **second-largest subsidy**, after food.

  ○ India meets 100% of its **potash requirement through imports** from countries like **Belarus, Russia, Israel, and Jordan**.
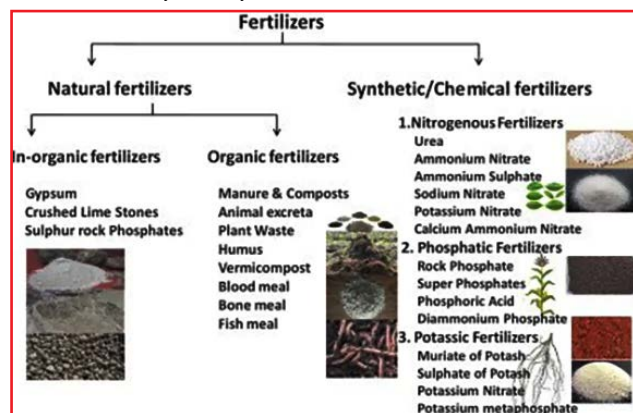
Read More: Fertiliser Consumption in India

Bio-RIDE Scheme

Recently, the Union Cabinet has approved the **Biotechnology Research Innovation and Entrepreneurship Development (Bio-RIDE) scheme**.

➢ **About Bio-RIDE:**

  ○ Its aim is to foster research, innovation, and entrepreneurship in biotechnology, positioning India as a global leader in this field.

  ○ To make India a **USD 300 billion** bioeconomy by 2030 and achieve the vision of **Viksit Bharat 2047**.

  ○ The proposed budget for the scheme's implementation is ₹9,197 crore for the **15th Finance Commission** period from **2021-22 to 2025-26.**

➢ **Key Components:**

  ○ **Biotechnology R&D:** Supports **innovation** in synthetic biology, biopharmaceuticals, bioenergy, and more through grants and incentives.

  ○ **Industrial & Entrepreneurship Development:** Nurtures startups with funding, incubation, and mentorship.

  ○ **Biomanufacturing and Biofoundry:** Promotes **sustainable practices** in biomanufacturing.

    ● It supports a **circular bioeconomy** in line with the **Lifestyle for the Environment (LiFE)'** initiative to develop eco-friendly solutions to tackle climate change, improve healthcare, boost agriculture, and scale bio-based products.

Read More: India's Biotech Revolution, National Biopharma Mission

Earth's Temporary Mini-Moon

A recent study indicates that **Earth's gravitational field** is expected to temporarily capture a **small asteroid**, called **2024 PT5**, by late September 2024.

➢ **Mini-Moon:**It refers to **small asteroids that are temporarily captured** by Earth's gravitational pull, **resulting in short-term orbital paths** around the planet. These celestial bodies are typically minute in size and often elude detection.

  ○ This phenomenon is rare, as in most cases, asteroids either miss the planet or burn up upon entering Earth's atmosphere.

Note:

- ❍ **Only four mini-moons have ever been discovered,** and none are still orbiting Earth. **Some of these may have been mistaken for space debris**, like the **Gaia spacecraft** or rocket stages from past missions.
- ➢ **2024 PT5:**
  - ❍ It was detected by **NASA.** It will contribute to **advancing scientific understanding of near-Earth asteroids,** particularly those that frequently approach or occasionally impact the planet.

What is a....?

Comet
A comet is a mass of ice, rock, and dust, and often has a tail that is made up of dust and other materials.

Asteroid
An asteroid is made up of metallic or non-metallic rocks, and orbits the sun. They can range in size from a few centimeters wide to almost a thousand kilometers across!

Meteoroid
Meteoroids are usually fragments of asteroids or comets, often smaller than 1 meter wide, that fly through space.

Meteor
A meteor is a meteoroid that enters Earth's atmosphere. It burns up as it travels through the atmosphere, producing a streak of light behind it.

Meteorite
If a meteor doesn't completely burn up in the Earth's atmosphere, the fragment found on Earth is called a meteorite.

Read More: Space Missions in 2024, International Asteroid Day

NPS Vatsalya Scheme

Recently, the Union Finance Minister unveiled the **NPS Vatsalya scheme** announced in the **Union Budget** as a **new pension plan for minors**.

- ➢ Under the scheme, the Vatsalya account requires a **minimum initial contribution of Rs 1,000 to open**. Subscribers must make an **annual contribution of Rs 1,000** each year to maintain the account.
  - ❍ Upon reaching adulthood (18 years), the account is automatically converted into a standard **National Pension System (NPS)** account. Pension will come from the account **only after they turn 60.**
- ➢ It is regulated and administered by the **Pension Fund Regulatory and Development Authority (PFRDA)** and **Permanent Retirement Account Number (PRAN) cards** will be **issued to newly registered minor** subscribers.

Read More: Union Budget 2024-2025, National Pension System

BHASKAR: Platform For India's Startup Ecosystem

The **Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry** is set to launch the Bharat Startup Knowledge Access Registry (BHASKAR), **a platform under the Startup India program**, aimed at enhancing collaboration and innovation within the **country's startup ecosystem.**

- ➢ **BHASKAR** is designed to centralize and streamline interaction among startups, investors, mentors, service providers, and government bodies, with the **primary goal** of building the **world's largest digital registry** for stakeholders, facilitating seamless collaboration and access to resources.
- ➢ The platform will serve over **1,46,000 DPIIT-recognised startups**, enabling personalized engagement through **BHASKAR IDs for each stakeholder**.
- ➢ The platform is expected to drive innovation, job creation, and the overall growth of India's startup ecosystem, aligning with the country's vision to become a global leader in **entrepreneurship.**
- ➢ **Current Scenario of India's Startup Ecosystem:** India ranks **3rd globally** in the startup ecosystem. Between 2014 and 2023, the number of startups in the country surged from approximately **7,000 to over 80,000**.
  - ❍ The country has seen the rise of over 100 **unicorns** and a few decacorns, reflecting the maturity and success of Indian startups.

Read More: Indian Startup Ecosystem, India's Startup Ecosystem, Six Years of Digital India Programme

Role of Helium in Rockets

Two **NASA** astronauts aboard Boeing's Starliner will remain on the **International Space Station (ISS)** for an extended period due to a faulty propulsion system, which has been **affected by helium leaks**.

- ➢ Past missions affected by helium leaks include **ISRO's Chandrayaan 2** and **ESA's Ariane 5.**
- ➢ **About Helium (He):**
  - ❍ It is the **second-lightest element after hydrogen**, characterized as a colorless, odorless, tasteless, and inert gas with an **atomic number of 2**.

Note:

drishti

○ Helium is a **stable, non-reactive noble gas**. While non-toxic, it **cannot be breathed** on its own as it displaces the oxygen needed for respiration.

○ It has a **very low boiling point (-268.9° C)**, allowing it to remain a gas even in super-cold environments, making it useful for **cryogenics.**

● This helps **reduce rocket weight and energy needs**, which **lowers fuel consumption** and engine costs.

○ **Rocketary Applications:**

● Maintains consistent fuel flow by pressurising tanks.

● Assists in cooling systems for storing rocket fuel and oxidizer at very low temperatures.

● Fills empty space in tanks as fuel is used, keeping pressure stable.

○ Helium is also used in industrial welding, leak detection systems, etc.

➢ Some launches such as **ESA's Ariane 6** have experimented with other inert gasses like argon and nitrogen, which can be cheaper alternatives. However, **helium remains the most widely used gas in the space industry**.

Read More: Cryogenics, Astronauts Stuck in ISS.

India win 5ᵗʰ Asian Champions Trophy

Recently, the **Indian men's hockey team** won the **5th Asian Champions Trophy 2024** in China by defeating China 1-0 in the final.

➢ **India has won the most Asian Men's Hockey Champions Trophy titles with 5,** while **Pakistan has won 3**, including one shared with India.

➢ India's **Harmanpreet Singh** is the **second-highest goal scorer** in the Asian Champions Trophy with 7 goals, trailing behind Korea's Jihun Yang, who has scored 8 goals.

➢ **Asian Men's Hockey Champions Trophy:**

○ The **Men's Asian Champions Trophy** is an event **held annually** by the **Asian Hockey Federation** since 2011 with **India, Pakistan, Malaysia, Japan, South Korea,** and **China** participating in the inaugural tournament.

● The **Asian Hockey Federation** is the **governing body for hockey in Asia**.

● It has **33 member associations** and it is **affiliated to the International Hockey Federation (FIH).**

○ **India won** the **first edition in 2011**, defeating Pakistan in the final with a penalty shoot-out.

○ Pakistan won the next edition in 2012 and the tournament saw a back and forth between India and Pakistan until **South Korea broke the trend by winning the title in 2021.**

Asian Men's Hockey Champions Trophy winners and runner-ups list		
Year	Winner	Runner-up
2024	India	China
2023	India	Malaysia
2021	South Korea	Japan
2018	India and Pakistan (joint winners)	-
2016	India	Pakistan
2013	Pakistan	Japan
2012	Pakistan	India
2011	India	Pakistan

Read More: Hockey World Cup

Onam and Milad-Un-Nabi

Recently, the **Prime Minister** and **President** of India extended their greetings and wishes for **Onam** and **Milad-Un-Nabi (Eid-e-Milad)**.

➢ This year both Onam and Milad-Un-Nabi were celebrated on **same day** across India.

➢ **Onam:**

○ Onam is a prominent **harvest festival in Kerala,** celebrated to commemorate the **homecoming of the Asura king Mahabali**, who is believed to have ushered in peace and prosperity to the region.

○ It takes place **during Chingam, the first month of the Malayalam calendar,** Kollavarsham.

○ The 10-day festival begins on **Atham (first day of Onam)** and culminates on **Thiruvonam (last day)**.

○ Key celebrations include the creation of **Pookkalam (flower rangolis)**, along with various traditional rituals such as **Vallam Kali (boat races)**, **Pulikali (tiger dances)**, **Kummattikali (mask dances)**, and **Onathallu (martial arts)**.

Note:

- **Milad-Un-Nabi (Eid-e-Milad):** It commemorates the **birth of the Prophet**. According to tradition, the Prophet was born on the 12th of Rabee-ul-Awwal (third month of the Islamic calendar) in Mecca in **570 CE**.
  - Notably, the **Prophet also passed away on this same day.**

  Read More: Onam Festival

Swabhav Swachhata Sanskaar Swachhata (4S)

Recently, **Swabhav Swachhata Sanskaar Swachhata (4S) 2024** campaign was initiated in New Delhi as the theme of **Swachh Bharat Mission (SBM) 2024.**

- Under this, the Central Government is aiming for the time-bound and **targeted transformation of highly challenging and unsanitary locations**.
  - A key highlight of the campaign is the **introduction of Cleanliness Target Units (CTUs)** which entails the identification and mapping of these units through a dedicated portal.
  - **Three Pillars of 4S 2024 Campaign:**
    - **Swachhata Ki Bhaagidari:** Public participation, awareness, and advocacy for Swachh Bharat.
    - **Sampoorna Swachhata:** Mega cleanliness drives targeting difficult and dirty spots (Cleanliness Target Units).
    - **SafaiMitra Suraksha Shivir:** Single-window service, safety, and recognition camps for sanitation workers' welfare and health.
- **Swachh Bharat Mission (SBM):** The initiative aspires to **engender a transformative shift towards fostering sustainable behavioral change**, embedding cleanliness into daily routines, and promoting widespread public participation in upholding a clean and healthy environment.

  Read More: Swachh Bharat Mission

Navika Sagar Parikrama II

Recently, the **Indian Navy** announced the **second women circumnavigation expedition** and unveiled the expedition **logo.**

- Two Indian Navy women officers, **Lt Cdr Roopa A and Lt Cdr Dilna K,** will embark on a globe-circumnavigating expedition known as **Navika Sagar Parikrama II**, onboard **INSV Tarini.**

- Women Navy officers are being guided by **Cdr Abhilash Tomy (Retd.)**, a renowned circumnavigator and **Golden Globe Race** hero.
  - Golden Globe Race is a prestigious **solo sailing competition** to circumnavigate the globe **without stopping** and using only **traditional navigation methods.**
- In the **Navika Sagar Parikrama** logo, the **octagonal shape** in the center depicts the **Indian Navy**, while the **sun** signifies a **celestial body** and the **compass**, guiding the sailors through the challenging seas.
- **Previous Expeditions of Indian Navy:**
  - A trans-oceanic voyage from **Goa to Rio de Janeiro via Cape Town** and back.
  - A sailing expedition from **Goa to Sri Vijaya Puram** (formerly Port Blair) and back.
  - A sortie from **Goa to Port Louis, Mauritius**.

Read More: Women Navy Officers on Transoceanic Expeditions

Telangana unveils AI City project

The **Telangana government** plans to build an **AI City** with the aim to **become a global hub for Artificial Intelligence.**

- The AI City will serve as a hub for **research, development, and application, driving pioneering advancements** in the field of Artificial Intelligence.

- ○ Additionally, an **AI School will be established within the city** to cultivate expertise and foster education in AI.
- ➢ The **Telangana AI Mission**, in collaboration with **Nasscom**, will assist the government in the implementation of the AI framework **to prevent the misuse of AI technologies**.
- ➢ The government will collaborate with private players to establish **Centres of Excellence,** aimed at advancing AI in critical and emerging sectors within the state.
  - ○ It aimed to **foster talent development and skill enhancement among the youth**, benefiting over 2.5 lakh students and professionals.
  - ○ The government will partner with the **Abdul Latif Jameel Poverty Action Lab (J-PAL)**, a **global research center, to establish an AI Research Lab**, which will leverage AI to enhance governance services and processes.

Read More: IndiaAI Mission

Note:

Mercury's South Pole

Recently, The **joint European-Japanese BepiColombo mission** successfully conducted its **fourth Mercury flyby**, advancing the spacecraft closer to orbit around the innermost planet in the solar system.

➢ This marks a significant milestone for BepiColombo, as it provided the **first-ever glimpse of Mercury's elusive South Pole.**

➢ This will help prepare the spacecraft for its **upcoming mission to orbit Mercury**, which has been **delayed to November 2026**.

➢ **BepiColombo Mission:**

○ It is a joint **European Space Agency (ESA)** and **Japan Aerospace Exploration Agency (JAXA)** mission to Mercury, **launched in October 2018.**

○ It is an ambitious and complex mission designed to **study Mercury's surface, composition, magnetic field, and its interaction with the solar environment.**

➢ **Mercury:**

○ It is the **nearest to the Sun** and also the **smallest planet** in our solar system.

○ Although Mercury is closest to the Sun, it is **not the hottest planet**. That distinction goes to Venus, due to its thick atmosphere.

○ It has **no satellite** of its own.

○ It takes **88 Earth days to complete a rotation.**
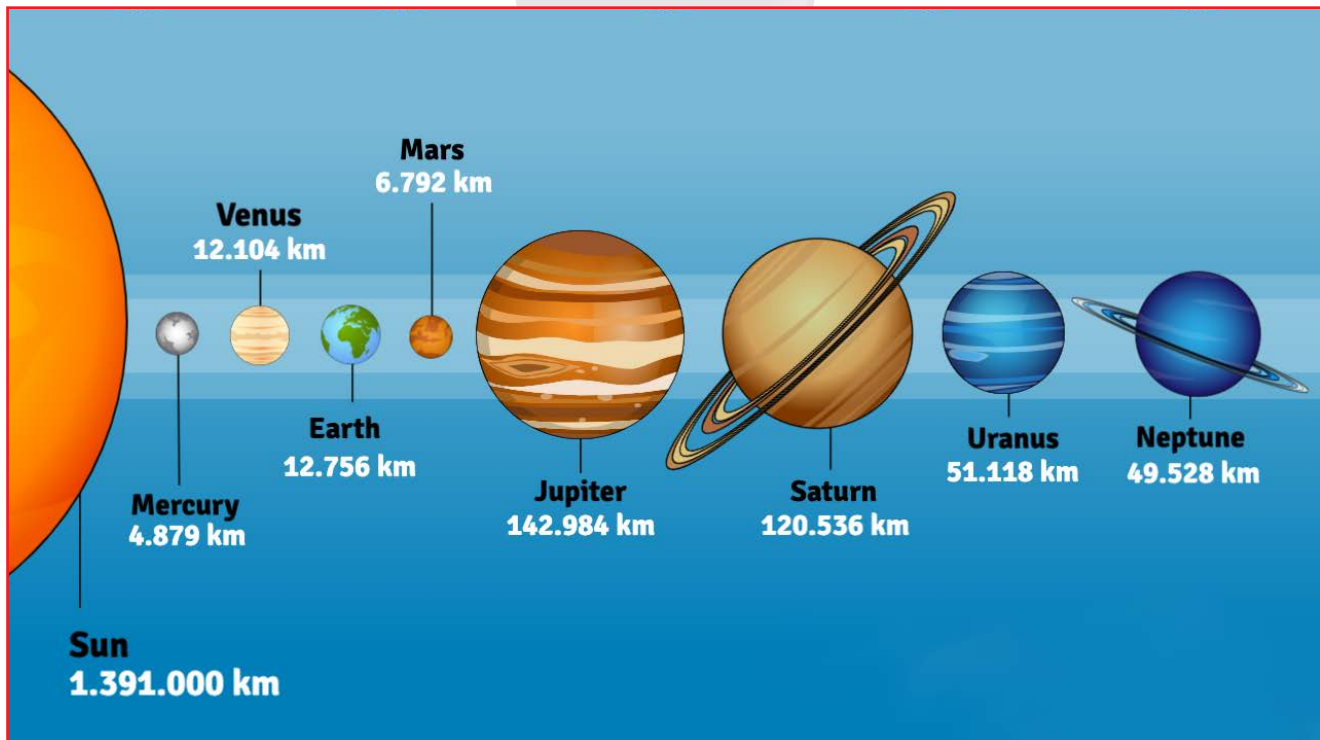
Read more: Mission to Mercury

Note:

Anusandhan National Research Foundation

Recently, the first meeting of the governing board of the **Anusandhan National Research Foundation (ANRF)** was chaired by the **Prime Minister**.

➤ It focused on initiatives to **enhance** India's **research capabilities** and establish a strong **research culture** across institutions.

➤ **Partnerships for Accelerated Innovation and Research (PAIR), the Mission for Advancement in High-impact Areas (MAHA), and ANRF Centres of Excellence (ACE)** are planned to be launched during the meeting.

   ❍ **PAIR** aims to foster **new partnerships** established between **top-tier institutions** and **academic institutions** where research capabilities are limited.

     ● It will operate under a **Hub and Spoke framework.**

   ❍ **MAHA** is designed to accelerate research in **key strategic and emerging areas** through priority-driven, solution-focused research.

     ● The immediate priority areas for support under MAHA are **EV Mobility and Advanced Materials**.

   ❍ **ANRF Centres of Excellence** will create a **world-class research environment** with state-of-the-art infrastructure to support **cutting-edge research** in various fields.

➤ ANRF has been established under the **Anusandhan National Research Foundation Act, 2023** to seed, grow, and foster a culture of research and innovation throughout the country.

  Read More: National Research Foundation

Anti-Submarine Warfare Launch

Recently, **Malpe and Mulki**, the fourth and fifth ships of the **Eight Anti-Submarine Warfare (ASW) Shallow Water Craft (SWC)** project, being **built by M/s Cochin Shipyard Ltd,** for the **Indian Navy,** were launched in **Kochi.**

➤ **INS Mahe, INS Malvan, and INS Mangrol** were unveiled in 2023.

➤ The **Mahe-class ASW SWC** have been named after **strategically significant ports along India's coastline.**

➤ The ASW SWC ships are equipped with indigenously developed, state-of-the-art underwater sensors, and are envisaged to undertake **anti-submarine operations in coastal waters** as well as **Low Intensity Maritime Operations and Mine Laying Operations**.

   ❍ They can achieve a maximum speed of **25 knots with endurance of up to 1800 nautical miles.**

  Read More: Indian Navy ASW SWC Project

Trade Connect ePlatform

Recently, The government launched **Trade Connect ePlatform**, a portal to provide all kinds of information related to exports and imports.

➤ The Trade Connect ePlatform is developed in collaboration with the **Ministries of External Affairs** and **MSME**, **EXIM Bank, IT major TCS, and the Department of Financial Services (DFS).**

   ❍ It will connect a large number of **Import-Export code (IEC) holders**, **Indian Mission officials**, **Export Promotion Council Officials**, **officials from the Directorate General of Foreign Trade (DGFT)**, and the Department of Commerce.

➤ **Significance:**

   ❍ The portal aims to **mitigate information asymmetry** by providing exporters with an extensive array of support mechanisms and resources.

   ❍ The platform will **provide information on product and country-specific customs duties and regulations,** details regarding free trade agreements, and trade-related services offered by various government departments and agencies.

   ❍ Additionally, it will **offer insights into non-tariff barriers, global buyers, and updates on international exhibitions.**

   ❍ As per the commerce ministry, **India will export goods and services worth USD 2 trillion by 2030.**

  Read More: India's Trade Dynamics

Human-induced Extinction of Dodo

A new study by researchers from the Oxford University Museum of Natural History and others has challenged the idea that the dodo was a slow and clumsy bird.

➤ The study found evidence that **dodos** and its sister species, the **solitaire,** were actually **fast-moving, well-adapted forest birds.**

Note:

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➢ Dodos went extinct **primarily due to human activity** and the introduction of non-native species like **pigs, rats, and cats, which preyed on their eggs and chicks**, rather than their perceived lack of intelligence.

➢ Through **DNA analysis**, it has been established that the **dodo belonged to the family (Columbidae) of doves and pigeons**, with its closest relative being the Nicobar pigeon.

➢ **Dodos** and **Rodrigues Solitaires:**

	Dodos	Solitaires
Scientific name	*Raphus cucullatus*	*Pezophaps solitaria*
Characteristics	➢ It had **grayish feathers** and a distinctive large, hooked beak.	➢ It exhibited pronounced **sexual dimorphism**. ➢ Males had a large bony knob on the wrists.
Habitat	Endemic to the island of Mauritius and lived in forests	Endemic to Rodrigues island of Mauritius
Evolutionary History	➢ It evolved to be **flightless** due to the **absence of predators** on **Mauritius**. ➢ The dodo likely had strong running abilities.	
Discovery and Extinction	Extinct in 1681.	Extinct (last confirmed in the 1760s)

Read More: Heracles Inexpectatus: Giant Extinct Parrot - Drishti IAS

Mpemba Effect in Magnets

Recently, a study by Scientists from Jawaharlal Nehru Centre for Advanced Scientific Research, an autonomous institute of the **Department of Science and Technology,** has observed the **Mpemba effect** in magnetic materials.

➢ It revealed that **hotter paramagnets** transition **faster** to their **ferromagnetic** phases compared to colder ones, even when they are initially at a **higher temperature**.

○ **Paramagnets** have a **temporary and weaker attraction** to **magnetic fields** due to the random alignment of atomic magnets, while **ferromagnets** exhibit a **permanent and stronger attraction** with ordered atomic magnets.

○ The transition from paramagnetic to ferromagnetic phases occurs as the temperature decreases, reaching a **"critical" point** known as the **Curie point.**

➢ **Mpemba Effect:** It is a **counterintuitive phenomenon** where a **hot liquid cools or freezes faster** than a cooler liquid.

○ It was first noted by **Aristotle** in his book *Meteorologica* and rediscovered in the 1960s by **Erasto Mpemba**, a Tanzanian schoolboy.

➢ **Implications:** It could lead to **diverse applications,** such as improved thermal control in devices, enhanced cooling strategies etc.

Read More: Mpemba Effect

Note:

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Typhoon Yagi

Recently, **Typhoon Yagi** has caused severe damage across <u>Southeast Asia,</u> affecting the **Philippines, China, Laos, Myanmar, Thailand**, and particularly **Vietnam**.

➢ It is the **strongest tropical <u>cyclone</u> Asia** has encountered till September 2024 and the second most powerful globally after **Hurricane Beryl (Atlantic Ocean).**

➢ It originated as a **tropical storm (wind speed upto 63 kmph)** in the western Philippine Sea but became <u>**Category 5 typhoon**</u> with winds of **260 kmph**.

  ❍ The **Saffir-Simpson Hurricane Wind Scale** categorizes tropical cyclones from **Category 1 (119-153 kmph) to Category 5 (252 kmph or higher).** Storms reaching Category 3 and higher are considered major tropical cyclones due to their potential for significant damage."

  ❍ Storm systems with winds of 119 kmph and above are classified as hurricanes, typhoons, or tropical cyclones."

➢ India launched **Operation "Sadbhav"** to provide aid and urgent supplies to **Vietnam, Laos, and Myanmar.**

  ❍ Operation Sadbhav is part of India's broader effort to contribute to <u>**Humanitarian Assistance and Disaster Relief (HADR)**</u> within the <u>**ASEAN region**</u>, in line with its longstanding <u>**'Act East Policy'.**</u>

➢ **Reasons for More Intense Typhoons:** Global mean **sea surface temperatures** have **increased** by approximately **0.9°C since 1850**, and **about 0.6°C** in the **past four decades.**

  ❍ Higher sea surface temperatures drive **marine heat waves** and increased **evaporation,** leading to more intense typhoons that form closer to coastlines and intensify rapidly.

Note: Typhoon Bebinca made landfall in **Shanghai, China**. It is the **strongest storm** to hit Shanghai in **75 years**. It is **rare** for Shanghai to get a **direct hit** from strong typhoons, which tend to make landfall further south in China.


Read More: <u>Cyclone</u>

Sri Vijaya Puram

India recently renamed **Port Blair**, the capital of the <u>**Union Territory of Andaman and Nicobar(A&N) Islands**</u>, as **Sri Vijaya Puram.**

➢ The new name, Sri Vijaya Puram, reflects a break from the **colonial legacy** and It symbolises the victory in India's freedom struggle and the islands' unique historical role.

➢ **History of Port Blair:** The Andaman Islands served as a strategic naval base for the <u>**Chola Empire**</u> **under Rajendra Chola I** in the 11th century, who attacked the **Srivijaya Empire (present-day Indonesia)**, marking a unique military event in India's history.

  ❍ The Chola invasion of Srivijaya was seen as an attempt to **expand Chola dominance and safeguard trade routes.**

  ❍ Port Blair, named after **Archibald Blair, a British naval officer,** became significant during British rule as a **penal colony** and a symbol of oppression, especially after the <u>**Revolt of 1857.**</u>

Note:

- With the strengthening of the **Indian Independence Movement,** a huge **cellular jail known as Kaala Paani** was established in 1906, housing several freedom fighters, including **Veer Damodar Savarkar.**
  - On 30th December 1943, **Netaji Subhas Chandra Bose** hoisted the national flag for the first time on Indian soil, at Port Blair.
- ➢ The A&N Islands are strategically located in the **Bay of Bengal,** providing India with substantial ocean space under **UNCLOS** and are the first line of defence against any **maritime threats** from the east.
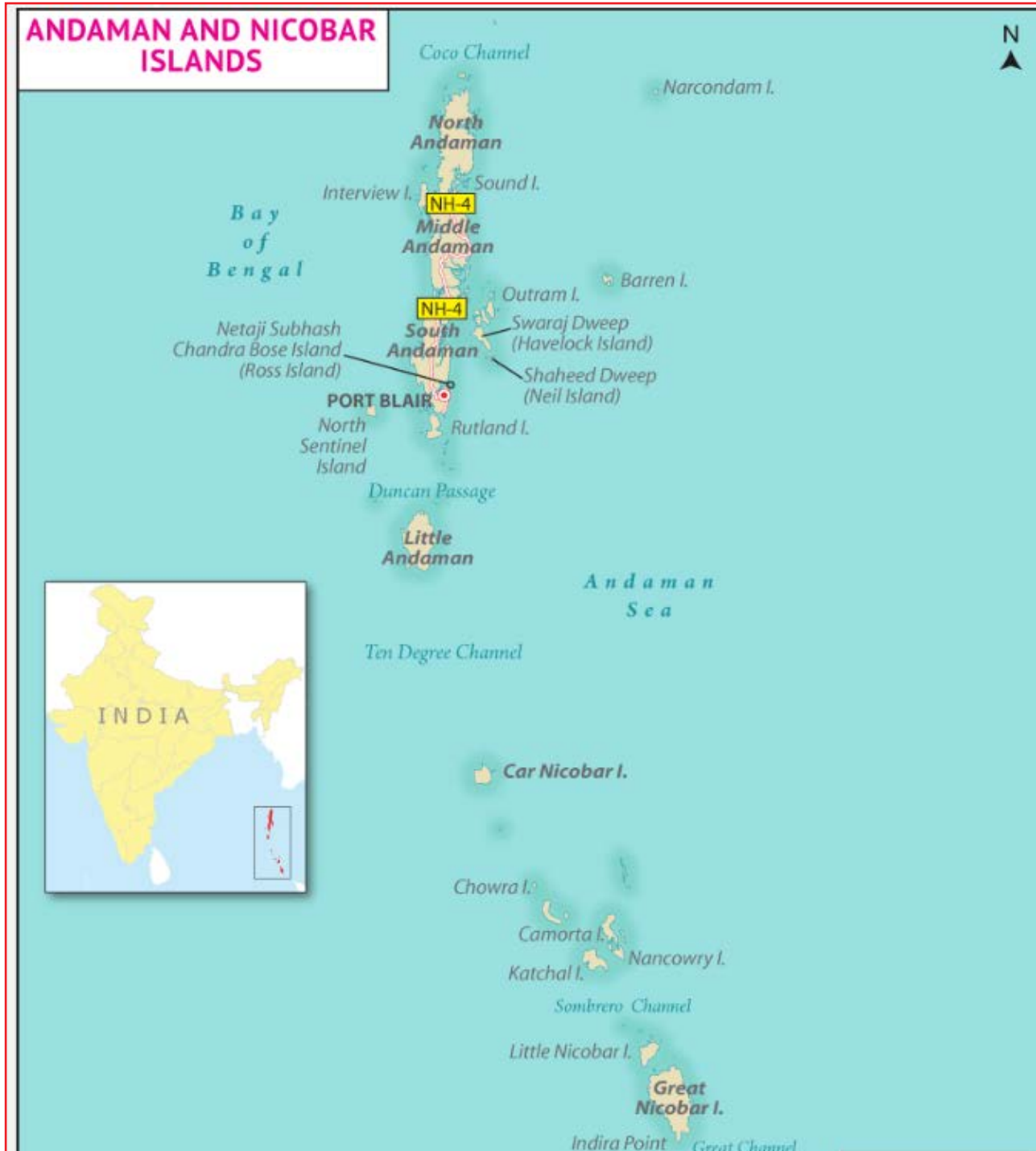
Read More: Strategic Importance of A&N Islands

Note:

Hindi Diwas 2024

India celebrated **Hindi Diwas** **on 14th September 2024**, marking the **75th anniversary of Hindi's adoption as the official language of the country**.

➤ The Union Minister for Home Affairs and Cooperation released a commemorative postage stamp to mark the completion of 75 years of Hindi as an official language.

➤ On 14th September 1949, the **Constituent Assembly** designated Hindi in Devanagari script as the official language of the Union of India.

➤ The **Munshi-Ayyangar formula,** a compromise between **K M Munshi and N Gopalaswamy Ayyangar,** resulted in **Article 343 of the Constitution** adopting **Hindi in the Devanagari script as the official language of the Union**, while allowing English to continue for official purposes for fifteen years.

   ❍ As the 15-year period ended, protests over the fear of **Hindi imposition** led to the **Official Languages Act 1963,** which upheld English as an official language alongside Hindi.

➤ **Articles Related to Hindi:** **Article 210** states that the **language** to be used **in the legislature can be the official language of the state, Hindi, or English.**

   ❍ **Article 351** states that it shall be the **duty of the Union to promote the spread of the Hindi language**, to develop it so that it may serve as a medium of expression for all the elements of the composite culture of India.

➤ Hindi is one of the 22 languages listed in the **eighth schedule** of the Constitution of India and It is **not a classical language.**

   ❍ The language is named after the **Persian word 'Hind' meaning 'land of the Indus River'** and is a descendant of Sanskrit.
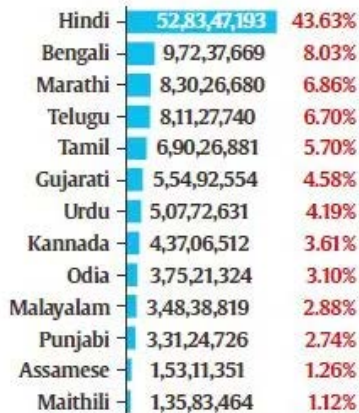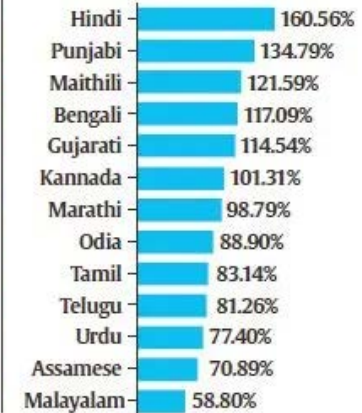
Read More: World Hindi Day

Cyber Commandos

Recently, the Central government announced the plan to train and prepare **5,000 'Cyber Commandos'** over the next five years to tackle the rising cybercrime threats.

➤ This announcement was made during the first Foundation Day celebration of the **Indian Cyber Crime Coordination Centre (I4C)**. **I4C** is a **national-level coordination centre** for addressing cybercrime issues.

➤ These cyber commandos will be trained in **IT infrastructure security, digital forensics, and incident response**.

➤ **Other Launches Along With Cyber Commando:**

   ❍ **Centralised Suspect Registry:** It is a **centralised database** of **suspicious bank accounts and related persons**. It will be securely accessible to banks, financial institutions, and law enforcement agencies.

Note:

- ○ **Samanvaya Platform**: It is a one-stop data repository for cybercrime, **data sharing, crime mapping, analytics, cooperation, and coordination** for law enforcement agencies (LEAs) across the country.
- ○ **Cyber Fraud Mitigation Centre (CFMC)**: It serves as a **"war room"** to monitor high-priority cybercrime cases involving large financial transactions.
- ➢ **Cyber Fraud Statistics 2023:** In 2023, a total of **1,128,256 cybercrime incidents** were reported across India on the **Citizen Financial Cyber Fraud Reporting Management System (CFCFMS)**, a key component of I4C.
  - ○ Uttar Pradesh reported the highest number of complaints at **197,547**, while Maharashtra reported the **highest amount of fraud at Rs 9.9 billion**.

NATIONAL SECURITY THROUGH CYBER SECURITY

Modi government sets up ' **Indian Cybercrime Coordination Centre (I4C)'** to tackle Cyber Crime

7 INSTITUTIONS/PLATFORMS LAUNCHED

- 🔒 National Cyber Crime Threat Analytical Unit
- 🔒 National Cyber Crime Reporting Portal
- 🔒 National Cyber Crime Forensic Laboratory
- 🔒 National Cyber Crime Training Centre
- 🔒 Joint Cyber Crime Investigation Task Force
- 🔒 Cyber Crime Ecosystem Management Unit
- 🔒 National Cyber Crime Research and Innovation Centre

Read More: Cyber Crime

Note:

127ᵗʰ Anniversary of the Battle of Saragarhi

Recently, the 127ᵗʰ anniversary of the **Battle of Saragarhi** was observed on 12ᵗʰ September 2024. It is one of the **greatest final defences** in world military history.

➢ On **12ᵗʰ September 1897**, **21 soldiers** and **a non-combatant** (named **Daad** who did menial works) of the **36ᵗʰ Sikh Regiment (now 4ᵗʰ Sikh)** fought against over **8,000 Afridi and Orakzai tribal militants** in the **North West Frontier Province (NWFP)**, now in Pakistan.

  ❍ The soldiers, led by Havildar Ishar Singh, fought **valiantly** for seven hours, **killing 200 militants** and **injuring 600** others.

➢ **Strategic Importance of Saragarhi:** Saragarhi was a **communication tower** located between **Fort Lockhart** and **Fort Gulistan**, two critical British forts in the NWFP. , originally built by **Maharaja Ranjit Singh** and later renamed by the British.

  ❍ Losing this post meant **isolating the forts**, thereby making British troops and the families of British officers **vulnerable to attack**.

➢ **Honours for the Martyrs:** Queen Victoria awarded the 21 dead soldiers the **Indian Order of Merit (comparable with the Victoria Cross)** for their bravery.

  ❍ The British built an **obelisk** using burnt bricks from Saragarhi to honour the martyrs.

  ❍ In 2017, the Punjab government declared 12ᵗʰ September as **Saragarhi Day**, a holiday to honour the sacrifice of the soldiers.

  ❍ The **Khyber Scouts** regiment of the **Pakistani army** continues to honour the **Saragarhi martyrs** with a guard and salute at the memorial near **Fort Lockhart**.
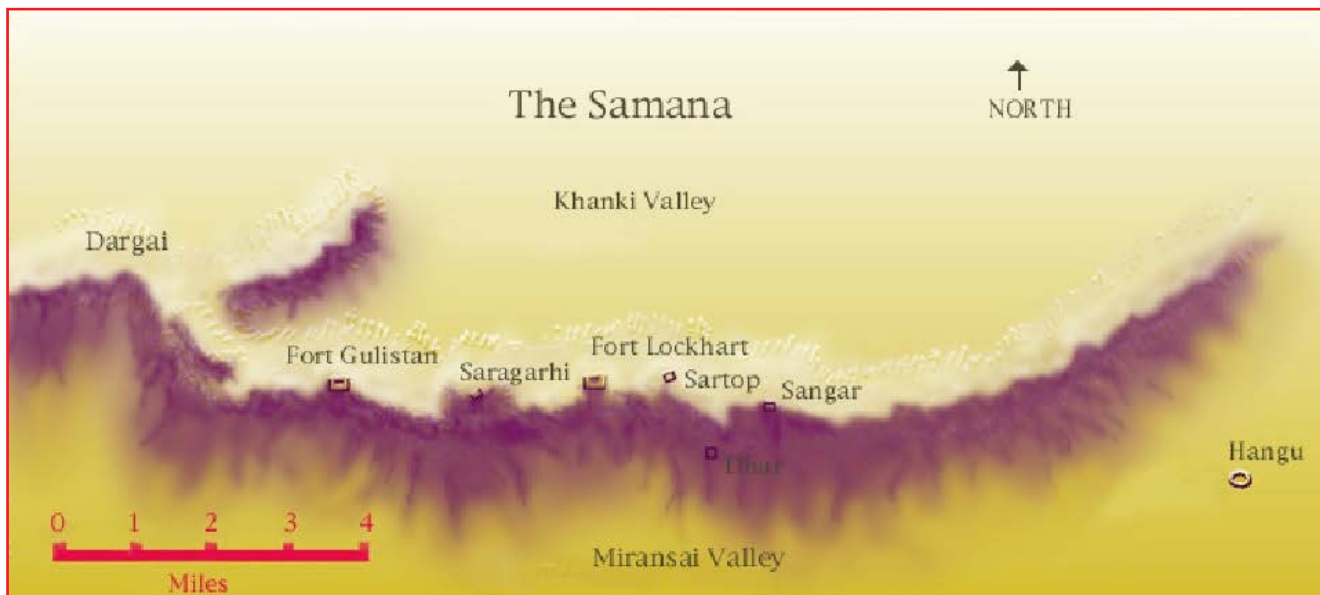
Read More: Battle of Saragarhi

Note:

APEDA to Boost Alcohol Exports Under 'Make in India' Initiative

The **Agricultural and Processed Food Export Development Authority (APEDA)** plans to promote both the **Indian alcoholic and non-alcoholic beverages** globally targeting **USD 1 billion in export revenue** over the next few years, as part of the **'Make in India' initiative**.

➤ As part of India's push to enhance its global beverage footprint, **Godawan Single Malt Whisky,** an artisanal whisky made in Rajasthan, India, is set to launch in the United Kingdom.

➤ **India's Alcohol Market:** India currently **ranks 40th** in the world for alcoholic beverage exports. India is the **3rd largest market** for alcoholic beverages in the world.

○ India **exported** alcoholic products worth **Rs 3,107.50 Crores (USD 375.09 Millions)** during the year 2023-24. India's imports of alcoholic beverages in 2023 reached USD 1 billion.

○ Major Export Destinations are **UAEs, Singapore, Tanzania, Angola and Ghana.**

○ **Maharashtra** has emerged as an **important state** for the manufacture of wines.

● **India** has **46 wineries**, with **43 located in Maharashtra**, where approximately **1,500 acres of grapes** are cultivated for **wine production**.

● Maharashtra has declared the wine-making business as a **small-scale industry** and has also offered excise concessions.

➤ APEDA was established under the **APEDA Act, 1985** and is mandated with the responsibility of **export promotion and development** of products like **Alcoholic and Non-Alcoholic Beverages**, Meat and Meat Products, Floriculture Products etc.

Read More: Industrial Alcohol Regulation

Delhi Declaration on Civil Aviation

Recently, the **2nd Asia Pacific Ministerial Conference on Civil Aviation,** hosted in India in collaboration with the **International Civil Aviation Organization (ICAO)** concluded with the adoption of the **Delhi Declaration**. The 80th anniversary of the founding of the ICAO coincided with the Conference.

➤ The event **gathers global aviation leaders** to discuss cooperation, explore new opportunities, and build relationships in the sector. It saw participation from delegates of 29 countries, ministers, policymakers, and 8 international organisations including ICAO.

➤ The Prime Minister praised India's advancements in aviation technology and infrastructure and highlighted the sector's inclusivity, noting that **15% of Indian pilots are women**, surpassing the **global average of 5%**.

○ India has emerged as the **third-largest domestic aviation market** in the world, after the US and China.

○ **India's Initiatives Related to Aviation Industry:**

● **UDAN Scheme (Ude Desh ka Aam Nagrik)**

● **National Civil Aviation Policy, 2016**

● **GST** reduced to 5% from 18% for domestic Maintenance, Repair and Overhaul (MRO) services

● **Open Sky Agreement**

● **Digi Yatra**

➤ The ICAO is a specialised agency of the **United Nations (UN)** that **coordinates international air navigation** and fosters the **planning and development of international air transport** to ensure safe and orderly growth.

○ It was **founded in 1944** and is headquartered in **Montreal**, Canada.

○ It was established by the **Chicago Convention (Convention on International Civil Aviation)** which is an international treaty that **governs international aviation**.

Read More: India's Aviation Sector

Pradhan Mantri Gram Sadak Yojana-IV

The Union Cabinet has approved the **Pradhan Mantri Gram Sadak Yojana - IV (PMGSY-IV)** for the period 2024-25 to 2028-29, aiming to enhance rural connectivity by constructing **62,500 km of new all-weather roads.**

➤ **Coverage:** The initiative will connect 25,000 unconnected habitations with populations of **over 500 in plains, over 250 in Northeast and hill states**, and over **100 in Left Wing Extremism (LWE)-affected districts.**

○ The new roads are expected to catalyse **socio-economic development** in remote rural areas and

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improve access to educational, health, market, and growth centres. The scheme is **designed to create 40 crore human-days of work employment.**

➢ **PMGSY is a central government scheme** launched in 2000 to provide all-weather road connectivity to unconnected rural habitations.

  ❍ The scheme was originally a 100% centrally-sponsored initiative, but starting from the financial year 2015-16, the funding has been shared between the **Central and State governments in a 60:40 ratio.**

  ❍ Around 800,000 kilometres of rural roads have been built and 180,000 habitations were connected under various phases of the PMGSY scheme.

  Read more: Pradhan Mantri Gram Sadak Yojana

National Florence Nightingale Awards 2024

Recently, the President of India presented the **National Florence Nightingale Awards 2024** to 15 **nursing professionals,** recognizing their exemplary contributions to healthcare and public service.

➢ **Award Recognition:** The National Florence Nightingale Award was instituted in 1973 by the **Ministry of Health and Family Welfare** to honour outstanding nursing personnel in various settings.

  ❍ A total of 15 awards are given in the category of **Registered Auxiliary Nurses & Midwife,** Registered Nurses and Midwife and Registered Lady Visitor.

  ❍ The award is given to outstanding nursing personnel **employed in Central, State/UTs and Voluntary Organizations.** Each award consists of a **Certificate of Merit, Cash Award of Rs.100000/- and a medal.**

➢ **Nursing Initiatives:** The government of India has established 157 nursing colleges and formed the **National Nursing and Midwifery Commission,** under the **National Nursing and Midwifery Commission (NNMC) Act, 2023** to improve education and healthcare services.

  Read More: International Nurses Day 2024

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