Monthly IQ

A Comprehensive Current Affairs Magazine for UPSC CSE Exam

October 2023

Contents

POLITY & GOVERNANCE

LEGAL RECOGNITION OF SAME-SEX MARRIAGE

CONTEXT

- A five-judge Supreme Court bench in the **Supriyo v. Union of India case** delivered a 3:2 verdict on LGBTQ marriage and family rights petitions. The court declined to legalize same-sex marriage and left it to Parliament and state governments to decide if non-heterosexual unions are allowed.

SAME-SEX MARRIAGE JUDGMENT

Parameters	Demand of Petitioners	Court Judgment
Right to Marriage	**Legal recognition of Same-Sex Marriage** - Petitioner had demanded that the institution of marriage should be open to two consenting adults, irrespective of their sex, gender identity, or sexual orientation.	- There was no fundamental or unqualified right to marry in the Indian constitution. - Same-sex couples do not have a 'right to marry'. - Transgender persons in a heterosexual relationship have a right to marry. - Same-sex couples have a right to choose their partners and cohabit with one another
Special Marriage Act, 1954	**Gender-neutral interpretation of SMA** - Section 4(c) of Special Marriage Act, 1954 was challenged as it only recognizes marriage between a 'male' and a 'female' person which discriminates against same-sex and other queer couples. - Petitioners demanded that the words "husband" and "wife" in the Special Marriage Act be read in a gender-neutral manner as "spouse" or "person".	- The court refused to interpret the Special Marriage Act (SMA) as 'gender-neutral'. The act was upheld in its current form, i.e., permitting marriages only between a 'man' and a 'woman'. - Special Marriage act governs civil marriage in India i.e. state rather than religion sanctions the marriage. - It enables marriage between inter-faith or inter-caste couples, without giving up their religious identity or resorting to conversion
Adoption Rights	**Provide Queer couples adoption rights** - Under the present laws, queer couples do not possess the right to adopt as no law recognizes either same-sex marriage or live-in relationships for the purpose of adoption.	- The constitution bench of SC said that same-sex couples do not have the right to adopt children under existing law.
Right to form civil unions:	**Interpret legal statutes to recognize civil unions** - The legal status as a 'civil union' would have helped queer couples to avail '**bouquet of rights'** i.e. right such as file taxes jointly, inherit property, opening bank accounts, and choosing nominees for insurance policies .	- The majority view rejected interpreting legal statutes to recognize civil unions between same-sex couples **What is a Civil Union?** - A 'civil union' refers to the legal status allowing same-sex couples specific rights and responsibilities normally conferred upon married couples. - It resembles a marriage but does not have the same recognition in personal law as marriage.
Observations		The Entire bench of the Supreme Court made some unanimous observations: - **Recognized Natal couple violence**: which they face from their families. The court held that people in queer relationships have the right against being separated through coercion and fear - **Formation of Committee:** Union Government will form a committee to decide the benefits and entitlements of persons in queer unions such as ration cards, joint bank accounts, pension flows, and gratuity.

Parameters	Demand of Petitioners	Court Judgment
Directions given by the Court	Some key directions were given by the court as follows: ❒ Ensuring that the queer community is not discriminated against because of gender identity or sexual orientation ❒ Sensitizing public about queer identity ❒ Establishing hotline numbers the queer community can access ❒ Establishing safe houses in all districts to provide shelter to members facing violence ❒ A ban on treatments that aim to change gender identity or sexual orientation ❒ Inter-sex children are not forced to undergo operations ❒ No person shall be forced to undergo any hormonal therapy ❒ Ensure there is no discrimination in access to goods and services.	

SHOULD SAME – SEX MARRIAGE BE LEGALIZED IN INDIA?

Arguments in support of Legalisation

- **Human Rights Perspective:** Every individual, regardless of gender, has the right to love and be with the person of their choice. The legalization of same-sex marriage protects these fundamental rights.
  - For e.g. The Universal Declaration of Human Rights affirms every individual's right to marry and start a family. Also, countries such as Canada, the United States, and the United Kingdom have legalized same-sex marriage on the basis of human rights.
- **Constitutional provisions**: The constitutional provisions favor the legalization of same-sex marriage in India
  - **Article 14:** Right to Equality is violated by denying same-sex couples right to marriage.
  - **Article 15:** Prohibits discrimination based on sex. Therefore, denying same-sex couples the right to marry is a violation of the same.
  - **Article 21:** which includes Right to privacy should include individual right to choose their partners and the state should not interfere in consensual relationships**.**
- **Decriminalization of Homosexuality**: In 2018, Navtej Singh Johar v. Union of India, homosexuality was decriminalized homosexuality (Section 377 of the IPC). This should naturally pave the way for further rights, such as same sex marriage.
- **Social Acceptance:** Legalizing same-sex marriages will reduce the stigma and discrimination faced by LGBTQ+ community members.
  - For e.g. In Denmark, the first country to recognize same-sex unions in 1989, there has been a noticeable decline in prejudice against the LGBTQ+ community over the decades.
- **Strengthening of Democratic Values:** Legalizing same-sex marriage can reinforce India's commitment to democracy, showcasing that it values and respects minority rights.
- **Promotes Mental and Emotional Well-being**: Legal recognition can reduce mental health issues among the LGBTQ+ community by providing emotional and social stability
  - Studies in United States have shown a decrease in mental health issues among LGBTQ+ individuals in states that legalized same-sex marriage.

Arguments against of Legalisation

- **Traditional view of Marriage:** Marriage has traditionally been viewed as a sacred institution defined as a union between a man and a woman. Changing this definition might be perceived as undermining the sanctity and tradition of the institution.

- **Purpose of Marriage:** The primary purpose of marriage is perceived to procreate and raise children. Same-sex couples biologically cannot procreate in the same manner as opposite-sex couples, making their union distinct.
- **Breakdown of Social Norms:** The acceptance of same-sex marriages might pave the way for the acceptance of other non-traditional relationships such a**s polyamorous relationship** possibly altering established societal structures.
- **Contrary to Indian Cultural and Religious Beliefs:** Same-sex marriage is viewed by many as inconsistent with India's deep-rooted cultural and religious values. Some argue that it's a step towards Westernization and could erode traditional Indian values.
- **Majoritarian View:** Given the traditional backdrop of Indian society, many argue that the majority of the population might not support same-sex marriage.
- **Potential Clash with Personal Laws:** India has religion-specific personal laws that govern matters like marriage, divorce, inheritance etc. Legalization may lead to revision and overriding of these personal laws.
- **Societal Unpreparedness**: Acceptance levels for same-sex relationships vary across the nation.
  - A sudden push for legalization without broader societal acceptance might lead to backlash and potential harm to the LGBTQIA+ community.

WAY FORWARD

Build societal acceptance:

- **Youth engagement**: Partner with schools, colleges, and universities to incorporate LGBTQIA+ awareness and education into the curriculum, focusing on early exposure to foster tolerance and understanding.
- **Public awareness campaigns:** Use social media and other online platforms for targeted awareness campaigns, to build awareness around LGBTQIA+ issues e.g. conducting **Pride Events**, create online platforms like **Khush – list** etc.
- **Capacity building**: Strengthen the capacity of civil society organizations like **Humsafar Trust, Indian Aces** etc. working on LGBTQIA+ rights through targeted funding, training, and other resources, enhancing their advocacy and outreach efforts.
- **Celebrity advocacy:** Identify and support well-known personalities who can become effective advocates for LGBTQIA+ rights, leveraging their influence to reach specific target audiences.

Legal protections

- **Extend legal protections:** Ensure that legislations such as Transgender Protection Act, 2019 is implemented in letter and spirit. Provisions of Present laws such as Equal remuneration act, Payment of wages etc. needs to be extended to LGBTQIA+ members thereby ensuring parity at workplace.

Protective Measures

- **Law enforcement training:** Conduct targeted and sensitization training programs for law enforcement personnel on LGBTQ+ rights and protection ensuring they can provide adequate protection to this community e.g. **Naz foundation** conducts such sensitization training for Delhi police officers.
- **Public reporting mechanisms:** Establish easy-to-access channels, tailored to specific communities, for reporting discrimination and hate crimes, ensuring these reports are taken seriously and acted upon.

Stakeholder Engagement

- **Corporate engagement:** Engage with the corporate sector to promote LGBTQ+ inclusive policies in the workplace, setting a positive example for other organizations and society at large.
- **International LGBTQ+ organizations:** Collaborate with international LGBTQ+ organizations to garner support, share experiences, and learn from global best practices, focusing on specific areas of need.

Pilot Programs

- **Feedback mechanisms:** Establish robust feedback mechanisms within pilot programs to ensure continuous assessment and improvement based on community feedback and observed outcomes.
- **Interfaith dialogues:** Facilitate dialogues between different religious and cultural groups to foster mutual understanding and work towards consensus on LGBTQ+ rights and acceptance, focusing on specific areas of disagreement.

ADOPTION RIGHTS

CONTEXT

- The constitution bench of SC said that **same-sex couples do not have the right to adopt children** under existing law.

ADOPTION PROCEDURE IN INDIA

Agencies governing Adoption in India

CARA (Central Adoption Resource Authority)

- Founded in 1990
- Nodal authority for adoption in India
- Statutory body under the **Juvenile Justice (Care & Protection of Children) Act, 2015.**
- It functions under the administrative control of Ministry of Women and Child Development
- Responsibilities:
  - Regulates intra-country and inter-country adoptions
  - Handles adoptions of orphaned, surrendered, and abandoned children
- Designated authority for intercountry adoptions as per the Hague Convention (Ratified by India in 2003)

Associated Entities for Adoption

State Adoption Resource Agency	State-level body to promote adoption and non-institutional care
Specialized Adoption Agency	Recognized by State Governments for child placements
Authorised Foreign Adoption Agency	Oversees foreign adoptions; authorized by CARA based on foreign country recommendations
District Child Protection Unit	Identifies orphaned, abandoned, or surrendered children and ensures they are legally free for adoption.

The legal regulation governing Adoption

CARA regulations on 'prospective Adoptive Parents'

Prospective Parents should fulfill the following Criteria

Health	Must be in good health and free from any serious illnesses
Criminal Record	Should not have been convicted of any criminal act. Must not be accused in any case related to child rights violation.
Age Criteria	The age difference between the child and either of the adoptive parents should be at least twenty-five years.
Marital Couple	Married couples should have a stable marital relationship for a minimum of two years (except in cases of relative or step-parent adoptions). Consent of both spouses is mandatory in the case of married
Individuals or Single Parents	Individuals, irrespective of their marital status or whether they have biological children, are eligible. A single female can adopt a child of any gender. A single male is prohibited from adopting a girl child.

Juvenile Justice Act

- Under the act, a single person or couple in a stable marital relationship can adopt.
- Can adopt a child whose age is up to 18 years.
- Can adopt children of any gender. No regulations like the HAMA act
- The law does not prohibit adoption based on sexual orientation.
- However, LGBTQ persons can apply to the Central Adoption Review Authority (**CARA**) for adoption as a **single parent only** (as the marriages are not recognized).

Other laws governing adoption	❒ **Hindu Adoptions and Maintenance Act (HAMA Act),** which governs adoption in the case of Hindus. ❒ **Guardians and Wards Act:** Personal laws of Muslims, Christians, Parsis and Jews do not recognize complete adoption. Thus, people belonging to these religions who are desirous of adopting a child can only take the child in 'guardianship' under the provisions of The Guardians and Wards Act, 1890.
Adoption in India - Features	
Key Principles of Adoption:	❒ **Child's Best Interest i.e.** prioritize the well-being and interests of the child. ❒ **Registration:** All adoptions to be registered with **CARINGS** (Centralized Adoption Resource Information Guidance System) maintained confidentially by CARA. ❒ **National Preference**: Indians are prioritized over foreigners; NRIs and PIOs treated as Indian citizens. ❒ **Inter-country Adoption**: Foreigners generally adopt from the Immediate Placement list (older children, siblings, or those with disabilities/ailments)
Eligibility Criteria of Children to be Adopted	The following types of Adoption have been provided ❒ Orphaned, surrendered, or abandoned and declared free for adoption by the child welfare committee. ❒ **Relative Adoption i.e.** adoption in which a child is adopted by a relative, such as a grandparent, aunt, uncle, cousin, or sibling**.** ❒ **Step-Child Adoption**: Children from earlier marriage, with the consent of biological parent'
Procedure for Adoption	
Procedure governed under Juvenile Justice act, HAMA	❒ **Registration and Preparation: Prospective Parent** needs to Register with CARA or a recognized adoption agency. Attend counseling sessions. ❒ **Home Study and Background Check:** Social worker assesses the suitability of prospective adoptive parents via a home visit. A Comprehensive background check ensures the child's safety and welfare. ❒ **Child Referral:** Prospective adoptive parents placed on the adoption waiting list. The child's profile is referred to parents; they can accept or decline based on preferences. ❒ **Child Care and Transition Period:** Pre-adoption foster care may be arranged for bonding and adaptation between the child and parents. Essential for establishing a secure attachment between the child and their new family. ❒ **Legal Formalities and Adoption Order**: Submit relevant documents and file a court petition for adoption. The court issues an adoption order once all legal requirements are satisfied, granting legal custody. ❒ **Post-Adoption Follow-up:** Social workers conduct follow-up visits to ensure child's well-being and family's adjustment.

DEMAND FOR A NATIONWIDE CASTE CENSUS

CONTEXT

❒ The Bihar government had come up with a caste survey for the state, in which it was found that 63% of Bihar's 13 crore population belonged to the castes listed in the OBC (Other backward Class) and EBC (Extremely backward class) categories. This survey spurred the demand for a nationwide caste census by the Opposition parties.

ABOUT CASTE – CENSUS

❒ **Definition:** Caste census means inclusion of caste-wise tabulation of India's population in the Census exercise.

❒ **Present Status:** Only the data of Scheduled Caste and Scheduled Tribe has been recorded from 1951 – 2011.

❒ **Documentation:** Caste census will help document the population of each caste, its educational, social, and economic profile.

❒ **Last Caste Census** was conducted in 1931. This became the basis for quota caps under the Mandal formula.

❒ After Independence, the Government of India decided to stop the documentation of Caste data as it would help in moving away from a divisive approach and promote National unity.

- Post – Independence, the data of only Scheduled caste and Scheduled tribe is recorded.

NEED FOR A CASTE CENSUS IN INDIAN SOCIETY

- **Inadequate caste data:** At present, data on castes is collected by **NSSO (National Sample Survey Office)** and **NFHS (National Family Health Survey),** both are sample surveys and do not adequately reflect the current caste headcount of India.
  - Census, conversely**,** will enumerate data of **every single person** in the country and provide comprehensive caste data of India.
- **Documentation of Socio-economic status:** A caste Census is needed to understand the impact of caste-based inequalities on the 'socioeconomic status' of the people.
  - This data will help design well-targeted policies and government welfare programs.
- **Re-calibration of Reservation policy:** Well-documented data will provide clarity on issues like whether the reservation should be based on caste or economic status, cut off for creamy layers, and need for sub quotes within the OBCs.
  - By utilizing this, an accurate recalibration of the reservation policy can take place addressing the needs of the marginalized sections of the society.
- **Evaluate demands by dominant caste**: In recent times, dominant castes such as Jats, Patels, and Marathas have been agitating for reservation.
  - Thus, detailed documentation will help in objective analysis and help in legitimizing the demands of deprived sections of society.
- **Judicial pronouncements:** The Supreme court in its various judgments such as the **Indira Sawhney Judgment** had called for the collection of caste-based evidence every 10 years.
  - Also, **Jarnail Singh and Nagaraj judgments** had asked for quantifiable data demonstrating inadequacy in the representation before providing reservation benefits.
  - Thus, a caste census will provide quantifiable data across all castes and fulfill the Judicial requirement of providing verifiable empirical evidence before providing reservation.

ISSUES SURROUNDING CASTE CENSUS

- **Insufficient Data**: The caste Census would require comprehensive data i.e. a 'Jati – wise breakup, but at present no official list of all castes is available.
  - The government cited that the lack of registry of castes led to flaws in caste data collected by the **Socio-Economic Caste Census** and refused to make the data public.
  - The Government in its own affidavit to the Supreme Court, stated that a caste census was 'unfeasible, administratively difficult, and cumbersome'.

Why Government did not release Data collected by Socio–Economic Caste Census?

No registry of Castes had been prepared before the SECC was conducted. This caused errors by enumerators as they could not differentiate between same or similar castes, with varied spelling. This caused an exponential increase in the number of castes e.g. in case of Maharashtra 4,28,677 castes were recorded as against the government record of 494. More than 11% of the State population was found to have no caste. And 99% of the caste recorded had a population of less than 100. At the national level, the SECC showed a presence of around 46 lakh castes as against 4147 castes which were recorded in the 1931 census. Thus, government cited that data was flawed and could not used for reservation purposes.

- **Logistical difficulties**: If the Caste data is included, it would be extremely difficult to tabulate the caste data because, People in India use clan/gotra, sub-caste, and caste names interchangeably. This would lead to thousands of castes.
- **Lack of Skilled personnel**: The enumerators in India, are part-timers with 6-7 days of training. They are "not an investigator or verifier", and thus will find it difficult to classify and record caste entries.
- **Promote Identity politics**: Caste-related statistics can be misused to incite caste insecurities among various castes causing **casteisation of politics**. This can lead to the marginalization of development issues like health, education, etc.
- **Increased Reservation demand:** The publication of caste census can lead to a clamor for higher quotas and the removal of the 50 per cent cap on reservations.

WAY FORWARD

Thus, many sociologists and scholars have suggested that there is a need for a caste-based census to both justify the extension of reservations to various communities and create a more egalitarian society. They assert that a survey enumerating caste will help

the government map the socio–economic status of castes and abolish privileges derived only on the basis of caste.

Government should also work towards laying the groundwork needed to conduct a comprehensive caste-based survey for e.g.

- **Create a caste registry:** The government similar to Bihar government should create an official, up-to-date registry of all castes, sub-castes, and communities in India to overcome data shortages.
- **Training workforce:** Special training modules should be made for Enumerators to train them to classify and record caste returns.
- **Use of technology:** It will help in creating digital databases and verification tools to expedite census data collection and tabulate caste names in a better manner.

Thus, a well-conducted caste survey will help in the proper recalibration of reservation policy and ensure that those at the top of caste hierarchy do not take away the benefits, help in compliance with Judicial requirement of providing quantitative facts and empirical evidence before providing reservation. A well-conducted caste census will help in resolving many of India's societal and socio–economic imbalances**.**

Key Facts related to Census

- The earliest literature 'Rig Veda' reveals that some kind of Population count was maintained during 800-600 BC.
- Kautilya's Arthashastra, mentions taking Census for the purpose of taxation.
- The administrative report 'Ain-Akbari' mentions comprehensive data collection pertaining to population, industry, wealth, and many other characteristics.
- The first census was conducted in the in 1872 during the British rule.
- The **first complete census** was done in 1881.
- Data such as the Name of person, relationship to head, sex, date of birth and age, current marital status, religion, mother tongue, literacy status.
- Conducted by the **Office of the Registrar General** and **Census Commissioner,** India, under the Ministry of Home Affairs, Government of India
- The exercise is governed under **Census Act, 1948.**
- Decennial exercise i.e. conducted every 10 years.
- Data collected is planning, policy-making, demarcation of constituencies, and allocation of representation to the Parliament, state legislative assemblies, and local bodies.
- last census was done in 2011, next census was to be conducted in 2021 (16th census) but was delayed due to Covid 19

DIGITAL INDIA ACT, 2023

CONTEXT

- The Ministry of Electronics and Information Technology (MEITY)'s Digital India Bill 2023 is a step toward a future-ready legal framework for India's digital ecosystem.

WHY IS THERE A NEED FOR A NEW ACT?

Change in Online Cyberspace

India's digital revolution and Global Advancements have made our current regulatory landscape outdated. The present challenges in Cyberspace are much different than before.

- **Exponential growth in User base:** During 2000, an estimated 5.5 million Indians used the internet. This has exponentially increased with 850 million Indians on the internet making it the world's largest digitally connected democracy.
- **Multiple types of Intermediaries**: Multiple types of intermediaries (instead of one) have emerged such as e-commerce, digital media, social media, AI, OTT, gaming, etc.
- **Increased criminalization of cyberspace**: The Internet in 2000 was seen as a 'space for good' allowing citizens to interact. Nowadays there has been an increase in cybercrime.
  - Traditional forms of User harm such as Cyber - crime, hacking have been replaced with new complex forms such as Phishing, ransomware, Malware, Catfishing doxxing etc. requiring strict regulation.
- From being a source of Information and news, the Internet is being misused to **proliferate hate speech, disinformation and Fake news.**

- For e.g A 2021 study by the MIT Technology Review found that fake news is 70% more likely to be shared on social media than real news.

Limitation of IT Act, 2000

The present regulatory mechanism i.e. IT Act, 2000 has limitations and is inadequate to deal with present challenges.

- **No comprehensive provisions** to protect the rights of users, such as the right to privacy and the right to be free from harmful content exist.
- **Limited awareness of cybercrimes** such as Phishing, ransomware etc**.** and there is no institutional mechanism to create awareness about them.
- **Lack of clear distinction** between harmful and illegal content which can lead to over-censorship.
- **Regulatory gaps** for emerging technologies such as artificial intelligence and automated decision-making systems.
- Lack of **data protection principles**
- No converged, coordinated, and harmonized institutional regulatory body, adjudicatory mechanism is present.
- Lack of **coordinated cyber security incident response** is present in the act

DIGITAL INDIA ACT, 2023

The proposed Digital India Act, 2023 will encompass the following key provisions:

- **Classification of intermediaries:** The Digital India Bill provides for classification of intermediaries into several groups based on their risk and size.
  - This classification will help in providing customized regulations for different types of intermediaries, taking into account their specific characteristics and potential impact on the digital ecosystem.

Types of Intermediaries	
IT Act 2000	**Digital India Bill 2023**
Social media intermediaries (SMIs) Significant social media intermediaries (SSMIs) Online gaming intermediaries	**E-commerce** **Digital media** **Search engines** **Gaming** **AI** **Over-the-top (OTT) Platforms** **Technology service providers (TSPs)** **Ad-tech** **SSMIs, etc**

- **Dedicated Internet regulatory authority**: The bill proposes establishing a dedicated Internet regulator like TRAI, SEBI to oversee and manage Internet-related matters, ensuring effective governance and compliance in the digital domain.
  - The regulator will help in promoting fair practices, safeguard user interests, and maintain a well-regulated digital environment.
- **Designating punishable offenses**: The bill would empower MeitY to designate certain activities as punishable offenses, such as spreading misinformation, identity theft, and cyberbullying.
  - These penalization powers given to MeiTY will help in ensuring a safer and more responsible digital environment.
- **Penalises User harm from emerging technologies:** The bill provides penal provisions to tackle violations and user harm that may arise from emerging technologies, including generative AI platforms like ChatGPT.
  - These will help to prevent and address misuse, regulation breaches, and negative consequences of emerging technologies.
- **Modify existing internet platform rules:** The Bill proposes to modify existing internet platform rules, such as safe harbor norms, to adapt to the evolving digital landscape and address emerging challenges.
- **Ensuring platform accountability:** The Digital India Bill will hold platforms accountable for hosting prohibited content, such as pornography, child harm, copyright infringement, and misinformation.

Key Components of DIA	
Online Safety and Trust – It aims to establish the following	
Open Internet	Open Internet should have 1) Choice 2) Competition 3) Online Diversity 4) Fair Market access 5) Ease of doing business and Ease of compliance for startups
Fair-trade practices	Prevent the concentration of market power and distortions through regulation of dominant Ad-tech platforms, App stores etc.
Safeguard innovation	By enabling emerging technologies like AI/ML, Web 3.0, Autonomous systems/ Robotics, IoT
Digital Governance	Provide delivery of public services through online and mobile platforms in a simple, accessible, interoperable and citizen-friendly manner
Adjudicate User Harm	To prevent revenge porn, cyber-flashing, dark web, women and children, defamation, cyber-bullying, doxing
Age-gating	Regulate addictive tech Protect minors' data, safety and privacy of children on social media platforms, Mandatory 'do not track' requirement to avoid children as data subjects for ad targeting, etc
Digital user right	Right to be forgotten, Right to secured electronic means, Right to redressal, Right to digital inheritance, Right against discrimination,
Discretionary moderation of fake news	Done by social media platforms should be regulated under the Constitutional rights of freedom of speech & expression
Definition and Regulation of hi-risk AI system	Legal, institutional quality testing framework that examines regulatory models, algorithmic accountability, zero-day threat & vulnerability assessment, examine AI based ad-targeting, content moderation etc.
Privacy invasive devices	Such as spy camera glasses, and wearable tech should be regulated under strict KYC requirements before retail sales and appropriate Criminal law sanctions
Secure Cyberspace	empowering agencies like CERT-In for cyber-resilience; strict penalization provisions, advisories on data protection practices etc.
Content Monetisation Rules	For platform-generated and user-generated content
Accountable Internet - It aims to establish the following	
Adjudicatory and Appellate Mechanisms	Provide for accountable and responsive digital operators; Provide for Algorithmic transparency and periodic risk assessments by digital entities
Ethical use of AI based tools	To protect the rights or choices of users; Provision of deterrent, effective, proportionate and dissuasive penalties, etc.
Whole-of-Government Response	Unified, coordinated, efficient and responsive governance architecture Should include a dedicated inquiry agency and a specialised Dispute resolution/adjudication framework.
Disclosure Norms	For data collected by Data Intermediaries, collecting data above acertain threshold
Standards for ownership	In relation to anonymized personal data collected by Data Intermediaries

CONCERNS SURROUNDING THE PROPOSED CHANGES:

There are certain concerns that may need to be addressed before final bill is presented

- **Safe harbor:** Safe harbor, under Section 79 of the IT Act, 2000 protects online intermediaries (such as Facebook, and Instagram) from legal liability for user-generated content on their platforms.
  - Stakeholders debate whether to preserve a safe harbor for traditional intermediaries or modify it for emerging platforms.

- **Transparency in Data processing:** Provisions, like providing clear information to consumers regarding processing their personal data can add to the business compliance burden of companies.
- **'No - go areas' for AI and Machine Learning:** The legislation might define 'no – go areas' for companies as well as Internet Intermediaries. There is a need for clarity and proportionality in defining these boundaries.
- **Impact on Innovation:** Provision which can be included to address the Influence of major tech companies like google, Apple need to be properly balanced to protect and promote small players as well as ensure that innovation is not hindered.
- **Misinformation:** The bill recognizes misinformation and proposes measures to combat their spread. However, there is a need to find the right balance to curb misinformation and preserve freedom of speech and expression.

The Bill in conjunction with other notable legislation and policies, such as the Digital Personal Data Protection Act, the National Data Governance Policy, the Indian Penal Code amendments for cybercrime, will help establish a comprehensive framework aimed at governing different facets of the digital sphere in India.

ABORTION LAWS IN INDIA

CONTEXT

- The Supreme Court rejected a married woman's plea to terminate her 26-week pregnancy.

MORE ON THE NEWS

- India's MTP Act allows abortion up to 24 weeks; beyond that, it is allowed only if there is a risk to the woman's life or fetal abnormalities.
- The verdict of the Supreme Court has brought back into focus the '**Pro–choice** vs **Pro-life'** debate.

Pro-Choice Movement (Focus on Mother)	Pro-Life Movement (Focus on Child)
❒ Reproductive Autonomy: Women have the ultimate right to choose abortion. ❒ Birth Defects: Severe genetic abnormalities causing suffering justify abortion. ❒ Age and Mental Health: Consider the age and mental health of women, including minors and those with mental illness. ❒ Preventing Unwanted Children: Rape victims should have the freedom to terminate pregnancies to prevent unwanted children.	❒ **Foetal Personhood:** Uphold the rights of the fetus as a person. ❒ **Preventing Sex-Determination Misuse:** Address the misuse of prenatal diagnosis for sex determination and acknowledge potential future treatment for birth defects. ❒ **State Obligation to Protect All Life:** The state has an obligation to protect all life, including the fetus, as a matter of humanity.

- Abortion is a medical procedure that ends a pregnancy by removing or terminating the embryo or fetus from the uterus. Both medical and surgical procedures can be utilized to end a pregnancy.

LEGAL PROVISIONS REGULATING ABORTION

Indian Penal Code (IPC), 1860

- IPC provisions declare **abortion illegal**, **except** when necessary **to save the pregnant woman's life**.

Indian Penal Code Sections	Subject Matter of Provisions
IPC 312	Criminalises Miscarriage caused voluntarily
IPC 313	Miscarriage caused without the consent of the woman
IPC 314	Act of miscarriage causes the death of a woman
IPC 315	Act done to prevent the birth of a child or which leads to the death of the child immediately after being born
IPC 316	Act amounting to culpable homicide

It i**s important to note that the sections which criminalize abortion still exist, and that provisions under MTP Act work as an exception to the sections of IPC.**

Medical Termination of Pregnancy Act, 1971

- Abortion in India was legalized by the Medical Termination of Pregnancy Act, 1971. The act was brought on the recommendations of the **Shantilal committee.**
  - Later, the **2021 amendments** brought the act in sync with progressive ideas about women's reproductive rights and bodily autonomy.

Feature	MTP Act, 1971	MTP Amendment Act, 2021
Duration Allowed	Up to 20 weeks	Up to 20 weeks for most cases, but extended up to 24 weeks for certain categories (e.g., survivors of rape, minors, or those with disabilities)
Upper Limit of Termination	20 weeks	No upper gestational limit in cases of fetal abnormalities diagnosed by the Medical Board
Approval for Termination – Registered Medical practitioner (RMP)	Up to 12 weeks: One RMP 12 to 20 weeks: Two RMP	Till 20 weeks: One RMP 20 to 24 weeks: Two RMP More than 24 weeks: Medical board in case of substantial fetal abnormality
Formation of Medical Boards	Not required	Required in every state and union territory
Failure of Contraceptive	Grounds for abortion for married women only	Grounds for abortion for all women, regardless of marital status
Confidentiality	No specific provisions	Introduced provisions to protect the privacy of the woman.

SIGNIFICANCE OF AMENDED MTP ACT, 2021 – PROGRESSIVE LEGISLATION

- **Decrease in Unsafe Abortions:** The expansion of abortion includes 73 million single women who did not have access to legal and safe abortions.
  - **United Nations Population Fund in 2022,** 67% of abortions in India are unsafe, killing 8 women daily.
- **Enhanced autonomy for women:** The increase in gestation periods for specific groups, like rape survivors or minors, helps women who find out about their pregnancies late have more control over their reproductive choice.
- **Streamlined termination process:** For pregnancy up to 20 weeks, the opinion of only one registered practitioner is needed thereby streamlining the process and ensuring women do not have to face bureaucratic hurdles.
- **Prioritises Privacy** by introducing penal provisions for revealing the details of women whose pregnancy has been terminated except by authority of law.
- **Progressive in nature:** By allowing unmarried women to terminate pregnancies due to contraceptive failure, the Act challenges entrenched norms and stigmas surrounding premarital pregnancies**.**
- **Promotion of Safe Healthcare Practices:** The Act's accessible and user-friendly abortion process helps in reducing maternal mortality from unsafe abortions**.**

ISSUES WITH THE MTP ACT, 2021 - WHAT HINDERS IT FROM ACHIEVING SAFE ABORTIONS IN INDIA

- **Absence of a Rights-Based Framing:** The Act is exemption-focused (from criminal liability) rather than establishing a rights-centric framework.
  - International law, including CEDAW and WHO guidelines, recognizes that abortion restrictions infringe on the rights to life, privacy, and freedom from gender discrimination.
- **Contrast with International Standards:** WHO recommends decriminalization of abortion, removing mandatory waiting periods, and gestational limits, and providing for on-demand abortion, while the MTP Act maintains a more restrictive stance.
- **Barriers due to other Laws:** The mandatory reporting requirement under the POCSO Act hinders access to safe abortions, requiring a holistic review of laws impacting abortion.
- **Lack of Inclusivity:** The Act's primary focus on pregnant women excludes transgender and nonbinary individuals, contradicting the spirit of the 2019 Transgender Persons Protections and Rights Act.

- **No Timelines for Medical Boards:** Without specified timelines for decision-making, a woman's health could be at risk due to procedural delays.
- **Ableist framework:** Critics argue that Abortion after 24 weeks based on "severe fetal abnormalities" is rooted in eugenics and discriminatory against persons with disabilities.
- **Third-party authorization barriers** e.g. need for medical board approval can discriminate against women, especially those from rural, tribal, and marginalized backgrounds, and pose barriers to accessing reproductive health services.
- **Limited recognition of Abortion Methods:** The Act's recognition of medical abortion methods is limited, falling short of the WHO's more liberal guidelines such as support for self-managed medical abortions (2022 WHO Abortion Care Guideline).

WAY FORWARD

Access to abortion care is fundamental in meeting the Sustainable Development Goals (SDG) relating to SDG 3 relating to Good health and well-being as well as SDG 5 i.e. Gender equality. The following steps need to be taken:

- **Create skilled personnel:** All-India Rural Health Statistics (2018-19) indicates that there is a 75% shortage of qualified doctors. According to the National Health and Family Survey (2015-16), only 53% of abortions are performed by a registered medical doctor.
  - Thus, there is a need to create a cadre of certified medical practitioners to increase women's access to legal and safe abortion services and reduce maternal mortality**.**
- **Expand Recognition of Medical Abortion Methods**: The Act should be periodically updated to recognize all safe medical abortion methods, giving women more options.
- **Clear Timelines for Medical Boards:** Establish explicit procedural timelines to ensure that women seeking abortions aren't subjected to harmful delays.
- **Address the Ableist Framework:** Shift the narrative from "severe fetal abnormalities" to the mental, physical, and socioeconomic well-being of the pregnant person, respecting their choices based on personal circumstances**.**
- **Stakeholders engagement:** Engage stakeholders, including civil society, NGOs, medical professionals, and community leaders, to gather feedback and address ground-level challenges.
- **Periodic Review:** The legal provisions dealing with abortions should undergo periodic reviews to ensure it remains aligned with medical advancements and evolving societal norms.

PRESS FREEDOM IN INDIA

CONTEXT:

The **Delhi Police** raided the homes and offices of several **journalists associated** with the online news portal **NewsClick.**

UNDERSTANDING PRESS FREEDOM

- Freedom of the press refers to the right of individuals and organizations to gather, report, and publish information without government interference.
- The report by 'Reporters without borders' defines **Press Freedom** "the ability of journalists to **publish news** in the public interest **independent of political, economic, legal, and social interference** and in the **absence of threats** to their physical and mental safety".

SIGNIFICANCE OF PRESS FREEDOM: 4TH PILLAR OF DEMOCRACY

- **Checks and Balances:** The press serves as an external watchdog, monitoring and evaluating the actions of the government to ensure transparency and accountability. This helps in maintaining a balance of power between the three branches of government.
  - **Bofors scandal** was unveiled due to investigative journalism conducted by Reuters and Hindu newspapers**.**
- **Informed Citizenry:** The press is essential for informing citizens about public policies, government actions, etc. thereby empowering citizens to make informed choices, especially during elections**.**
  - **Indian newspaper Vs Union of India**, court noted that the press has a duty to serve the public interest by publishing facts and opinions which help citizens make informed decisions.

- **Platform for Discussion:** Serves as a platform for public discourse and debate, bringing different viewpoints to the forefront and promoting healthy discussion on important issues. This strengthens democracy by fostering civic engagement and informed decision-making.
- **Voice to the Voiceless:** The press can amplify the voices of marginalized groups and highlight issues that might otherwise remain unnoticed.
  - **Khabar Lahariya** is an Indian newspaper which covers news from a feminist perspective while focusing on gender and education.
- **Safeguard against Power Abuse:** A free press acts as a deterrent against the misuse of power by exposing corruption and wrongdoing. This is essential for protecting democracy and upholding the rule of law.
- **Promotion of Rights:** The press promotes the fundamental human rights of freedom of expression and the right to know. This is essential for creating a society where all individuals have the opportunity to participate fully in public life.
- **Cultural and Educational Role**: The press promotes civic literacy and scientific temper by disseminating cultural, educational, and scientific knowledge beyond politics thereby helping citizens fulfill their duty under **Article 51 (h)** of the Indian constitution.
- **Feedback Mechanism**: The press also serves as a feedback mechanism between the government and its citizens. By reflecting public opinion, the press can help government officials to gauge public sentiment and make informed decisions.

CHALLENGES TO PRESS FREEDOM IN INDIA

- **Political pressure and ownership**: Media outlets owned by politicians or their associates may be more likely to manipulate news to serve their interests. This can lead to a decline in the quality and independence of journalism.
  - **E.g.** Large conglomerates like Adani and Reliance media own NDTV and TV 18 respectively.
- **Use of sedition and defamation laws:** Authorities may use these laws to charge journalists with serious crimes, even for minor infractions. This can have a chilling effect on journalism and deter journalists from reporting on sensitive topics.
  - **E.g** Vinod dua Sedition case, defamation case against Siddharth Varadarajan, N RAM etc.
- **Violence against journalists:** Journalists, especially those working in conflict zones or covering sensitive topics, may face threats and attacks. This can create a climate of fear and intimidation that can deter journalists from reporting freely.
  - **E.g. Rights and Risks Analysis Group** reported that a total of 194 journalists were targeted across India by state agencies, non-state political actors and criminals.
- **Trolling and online harassment:** Journalists, particularly women, may be targeted with threats and abuse on social media. This can lead to self-censorship and make it difficult for journalists to do their jobs effectively.
  - **E.g.** Cases of Online harassment of Women Journalists like Barkha Dutt, Rana Ayyub
- **Regulatory actions:** Regulatory actions such as raids on offices may be taken against media outlets to intimidate and silence dissenting voices. This can undermine the independence of the press and make it more difficult for journalists to hold the powerful to account.
- **Challenges in covering conflict zones:** Journalists covering sensitive areas, such as Jammu and Kashmir, may face restrictions, such as communication blackouts and constraints on movement. This can make it difficult for journalists to report on important stories.
  - **E.g** Frequent internet shutdown done in Jammu and Kashmir.
- **Media pluralism:** Media ownership concentration in a few hands can limit the diversity of voices and perspectives in the media. This can make it more difficult for citizens to get a balanced and informed view of the world.
- **Fake news and credibility crisis**: The spread of misinformation and fake news, sometimes even by prominent media outlets, has led to a trust deficit in the media.
- **Digital media regulations:** Proposed regulations for digital media platforms and OTT platforms raise concerns about potential overreach and censorship. This could further stifle the free flow of information and make it more difficult for journalists to do their jobs.
  - **E.g** recently amended IT Act, 2023 has provisions which have the potential to be misused.

ENSURING PRESS FREEDOM IN INDIA:

Legal Reforms:

- Reforms like decriminalization of Defamation, revision of sedition laws should be undertaken. Also, ensure review and revision of New IT Rules so that they don't infringe on the freedom of Digital Media outlets.

Strengthening of Institutions:

- Establish a truly autonomous and **independent media regulatory body** to oversee issues related to the media.
- **Strengthen public broadcasters** to be free from political influences, ensuring they act in public interest rather than governmental interests.

Protection of Journalists:

- Develop a **national action plan for the safety of journalists**, including rapid response mechanisms for threats or attacks.
- Ensure **speedy trials and investigations** into cases of violence against journalists. There should be no impunity for those who attack the press.

Promote Media Literacy:

- Develop and introduce **media literacy programs in schools and communities**. This can help the public discern between credible news and misinformation or propaganda.

Transparency in Ownership:

- Regulations can mandate that media outlets disclose details of their ownership, funding sources, and any potential conflicts of interest.

Financial Independence:

- Explore models where media outlets can receive **public funding** without compromising their independence.
- Community radio acts as a voice for local issues. Providing financial and infrastructural support can boost grassroots journalism.

Ensure Internet Freedom:

- With the rise of digital journalism, it's crucial to ensure that the internet remains open and free from undue restrictions.

Training and Resources:

- Provide journalists with training on rights, ethical reporting, and legal protections. Encourage journalistic associations that can provide resources, legal help, and other forms of support to journalists.

Whistleblower Protections:

- Strengthen laws that protect whistleblowers, ensuring that journalists can safely report on corruption and other issues without fear of retribution.

Public Engagement:

- Encourage public discourse on the importance of press freedom. Public awareness can act as a bulwark against potential encroachments on press freedom.

CONCERNS OF USING AADHAAR IN WELFARE SCHEMES

CONTEXT:

- Moody's Investor Service, a global rating agency, released a report titled "Decentralized Finance and Digital Assets" that raised concerns about the reliability of using Aadhaar in welfare services.

ABOUT AADHAAR

- Aadhaar is a **12-digit identification number** issued by the **Unique Identification Authority of India (UIDAI) on behalf of the Government of India.**
  - The UIDAI is a **statutory authority** established under **the Aadhaar Act 2016.**
  - The UIDAI works under the jurisdiction of the Ministry of **Electronics and Information Technology.**
- **Purpose:** to provide a universally accepted identity to every Indian resident. Aadhaar serves as proof of identity and address, anywhere in India.
- **Objectives:**
  - Providing a **legal identity** to residents so they can **access welfare benefits.**
  - Allowing the government to **remove duplicate** records.
  - Providing **accurate and transparent information** to the government and service agencies.
  - Providing a **single source** for **offline and online identity** verification.

- Offering a secure and **low-cost** platform for **electronic benefit** transfers.

❒ **Eligibility for an Aadhaar card:**
- **Any resident of India** is eligible for an Aadhaar card.
- While the Aadhaar card is for adults, **Baal Aadhaar** is for children below five years.
- **NRIs and foreigners** staying in India for **more than 12 months** are eligible for the Aadhaar.

❒ **Key Features of Aadhaar:**
- **Uniqueness:** Aadhaar is a 12-digit unique number, and no resident can have a duplicate number since it is linked to their individual biometrics.
- **Random Number**: The Aadhaar enrolment process does not capture details like caste, religion, income, health, geography, etc.
- **Scalable Technology Architecture**: The UID architecture is open and scalable. Resident's data is stored centrally and authentication can be done online from anywhere in the country.
- **Targeted Delivery:** Aadhaar is mandatory for receiving subsidy or benefits under section 7 and filing income tax return. Individuals without Aadhaar shall be offered alternative means of identification for subsidy delivery.
- **Proof of Address and Identity**: It serves as proof of identity and proof of address for residents of India. Aadhaar is not proof of citizenship.
- **Electronic Benefit Transfers**: The UID-enabled-Bank-Account network will offer a secure and low-cost platform to directly remit benefits to residents.

CONSTITUTIONALITY OF AADHAAR ACT (JUSTICE K.S. PUTTASWAMY V UOI)

❒ **Aadhaar Targeted Delivery of Financial and other Subsidies, Benefits and Services Act, 2016 (Aadhaar Act)** was challenged before the **supreme court** on the grounds that it was **passed as a money bill,** thereby circumventing the upper house of Parliament.

❒ In its **2018 judgment**, the **supreme court affirmed the constitutionality** of the Aadhaar act.

Key Observations:
- The Act was **competently passed by Parliament**, even though it was passed as a Money Bill.
- The Act **does not violate the fundamental** rights guaranteed under Articles 14, 15, 19 and 21.
- Aadhaar would be **mandatory for accessing social welfare schemes**, but it **cannot be forced** on people for **opening bank accounts** or for **mobile and internet connection.**
- Aadhaar has to be linked with **PAN and ITR**. And, Aadhaar is not mandatory for **school admissions.**
- **Children** cannot be denied benefits due to unavailability of **Aadhar card.**

AADHAAR'S ROLE IN WELFARE PROGRAMS

❒ **Direct Benefit Transfer (DBT):** DBTs using Aadhaar helps reduce leakages, corruption, and ensures that welfare funds reach the intended recipients.
- According to a 2022 **study by the World Bank, Aadhaar-enabled DBTs** have helped to **reduce leakages** in India's welfare programs by an **average of 25%.**

❒ **Targeted Delivery:** By linking Aadhaar to beneficiary databases, welfare programs can precisely target those in need of assistance.

❒ **Eliminating Duplicates:** Aadhaar helps eliminate duplicate and ghost beneficiaries, making it more efficient and cost-effective to manage and distribute welfare benefits.

❒ **Reducing Middlemen:** Aadhaar minimizes the involvement of intermediaries in the distribution of welfare benefits.

CONCERNS SURROUNDING AADHAAR IN WELFARE PROGRAMS

Concerns Highlighted by Moody's Report:

❒ **Unreliable biometric technology:** The report stated that Aadhaar's biometric authentication systems are unreliable, especially for manual laborers in hot and humid climates.

❒ **Service denials:** The report stated that the Aadhaar system often results in service denials for users.

- **Security and privacy risks:** The report warned of security and privacy risks associated with centralized identification systems like Aadhaar.

Government's Stand

- Government responded that **Aadhaar's biometric system is reliable, safe and secure.**
- The government pointed out that **international agencies like the IMF and the World Bank** have **praised Aadhaar.**
- **Several nations** have **engaged with UIDAI** to explore deploying similar digital ID systems.
- The government highlighted that **Aadhaar seeding in MGNREGS** is done **without biometric authentication**, addressing concerns raised in the report.

Other issues with the Aadhaar

- **Faulty Database:** A CAG report (2022) pointed out that the UIDAI generated Aadhaar numbers with incomplete information, leading to the issuance of multiple or duplicate cards for the same person.
- **Residence Status:** UIDAI has not prescribed any specific process to confirm an applicant's residence status, potentially allowing non-residents to obtain Aadhaar.
- **Misuse of the System:** Informed consent was compromised in the Aadhaar Payment Bridge System and the **Aadhaar-enabled Payment System (AePS).**
- Instances of corrupt business correspondents **extorting money** from people through AePS.
- Organized scams like the **"scholarship scam"** in Jharkhand reported.
- **Authentication Errors:** A 2019 survey found that 2.5 percent of respondents experienced exclusion from a welfare service because of problems with Aadhaar.
- **System Vulnerability:** Aadhaar lacks standard security elements found in other IDs, making it more susceptible to copying or falsification.
- **Data Leaks and Privacy Concerns:** Security flaws have made Aadhaar vulnerable to data leaks, raising privacy concerns.
- **Bal Aadhaar:** Issuing Aadhaar numbers to minor children based on their parents' biometrics contradicts the Aadhaar Act and has incurred avoidable expenditure.

Initiatives taken to Strengthen Aadhaar ecosystem

- **Aadhaar 2.0 Roadmap:** The roadmap covers several areas, including:
  - Resident-centricity.
  - Enhancing the use of Aadhaar.
  - Strengthening people's trust in Aadhaar.
  - Adopting new technologies and upgrading existing technologies.
  - Increasing international outreach.
  - Expanding the use of Aadhaar for identity verification online and offline.
- **Two-Factor Authentication (2FA):** This requires users to enter a one-time password (OTP) in addition to their Aadhaar number and biometric data when authenticating themselves.
- **Virtual ID (VID):** Enables temporary 16-digit IDs for secure authentication, reducing misuse risk.
- **Aadhaar Authentication History:** Allows users to monitor usage for unauthorized activities.
- **Biometric Locking/Unlocking:** When locked, the biometrics cannot be used for authentication without unlocking, providing more control to the user.
- **Biometrics based deduplication:** Biometric Service Providers (BSPs) are using Facial image as additional biometric attribute for de-duplication along with 10 fingerprints and two IRIS.
- **Regular Security Audits:** UIDAI conducts regular security audits and assessments to identify vulnerabilities and strengthen the system's security infrastructure.

WAY FORWARD

- **Decentralised Identification Systems (DIDs):** Moody's report recommended that the government of India consider using DIDs in welfare services.

- DIDs are digital identity systems that are based on **cryptography and distributed ledger technology.**
- DIDs offer a number of advantages over centralized identification systems, such as **improved security and privacy**, and **greater user control over their data.**

❒ **Enhanced Biometric Technology:** Invest in R&D to improve biometric technology, making it more reliable, **especially for manual laborers** and in adverse environmental conditions.

❒ **Strengthening grievance system:** UIDAI may explore the possibility of introducing a single centralized system to capture grievances/complaints lodged to enhance the **quality of customer servicing.**

❒ **Comprehensive data protection framework:** A robust data protection framework is essential to

- Protect citizens' privacy,
- Prevent companies and governments from indiscriminately collecting data,
- Holding companies and governments accountable for data breaches to incentivize appropriate data handling.

PRELIMS POINTERS

DISQUALIFICATION FROM LOK SABHA

CONTEXT

The Supreme Court stayed the recent order of the Kerala High Court, refusing to suspend the conviction of disqualified **Lakshadweep MP Mohammed Faizal**, in a case of attempted murder.

ABOUT DISQUALIFICATION OF THE MEMBER

Aspects	Details
Constitutional Provisions	❒ Article 102 lists conditions for disqualification: – **Holding an office of profit** under the Union or state (exceptions apply). – Declared **unsound mind** by a court. – Being an **undischarged insolvent**. – **Not being an Indian citizen** or having allegiance to a foreign state. – Disqualification as per **laws made by Parliament**. ❒ Parliament has the power to set disqualification conditions via Article 102. ❒ Similar provisions exist for state legislature members.
Representation of People Act, 1951	❒ **Disqualification criteria**: Conviction with imprisonment of two years or more. ❒ **Duration of disqualification**: The person is disqualified for the period of imprisonment and a further six years.
Anti-Defection Law	❒ **10th Schedule**: Introduced by the **52nd Amendment in 1985**, it lays down the **process by which legislators may be disqualified** on grounds of defection. ❒ **Disqualification Provisions under 10th Schedule:** A Lok Sabha member is disqualified if they: – Leave the political party on whose symbol they were elected. – Vote or abstain from voting against their party's instructions. – Being elected independently, join a political party. – Being nominated, joined a political party after 6 months. ❒ **In 1992,** the Supreme Court determined that decisions made by the Chairman for the Rajya Sabha or the Speaker for the Lok Sabha concerning **disqualifications under the tenth Schedule are open to judicial review.**

Aspects	Details
Judgments of the Supreme Court	❒ **Union of India (UOI) v. Association for Democratic Reforms (2002):** The SC held that every candidate, contesting an election to the Parliament, State Legislatures, or Municipal Corporation, has to **declare their criminal records, financial records, and educational qualifications along with their nomination paper.** ❒ **Ramesh Dalal v. Union of India (2005):** The Supreme Court held that a sitting MP or MLA shall also be subject to **disqualification from contesting election**s if they are **convicted and sentenced to not less than 2 years of imprisonment** by a court of law. ❒ **Rajendra Singh Rana v. Swami Prasad Maurya and Others (2007)**: The Supreme Court held that a **member** of a political party who is given a show-cause notice by the party **under the anti-defection law is not entitled to vote in the House** until the Speaker has decided on the matter. ❒ **Lily Thomas v. Union of India (2013):** The Supreme Court held that members of Parliament and state legislatures who are convicted of offenses punishable with **imprisonment for two years or more are disqualified from membership immediately**, without having to wait for the disposal of their appeals. ❒ **Krishnamurthy v. Union of India (2015):** The Supreme Court upheld the constitutionality of the anti-defection law and held that the **Speaker of the Lok Sabha has the sole discretion to decide on matters of disqualification** of members **on the grounds of defection**.
Note	The **President of India** decides **disqualification of Lok Sabha members** (should get the opinion of the election commission), **except on grounds of defection**, for which the **Speaker** has the final say.

ENFORCEMENT DIRECTORATE (ED)

CONTEXT

❒ **IRS officer Rahul Navin** was **appointed in-charge Director of the Enforcement Directorate (ED)** replacing incumbent Sanjay Kumar Mishra.

ABOUT ENFORCEMENT DIRECTORATE (ED)

❒ **Mandate**: Multi-disciplinary body responsible for investigating money laundering offenses and foreign exchange law violations.

❒ **Administrative Control**: Operates under the **Department of Revenue, Ministry of Finance.**

- It is headed by a Director and is divided into **various zones**, each **headed by a Joint Director.**

❒ **Historical Origin**: Established as an 'Enforcement Unit' on **1st May, 1956,** within the **Department of Economic Affairs.**

- Aimed to **address violations of Exchange Control Laws** under the **Foreign Exchange Regulation Act, 1947.**
- However, its powers were expanded in 2002 with the enactment of the **Prevention of Money Laundering Act, 2002.**

❒ **Evolution**: Renamed as 'Enforcement Directorate' in 1957.

❒ **Administrative Shift**: In 1960, its administrative oversight moved from the Department of Economic Affairs to the Department of Revenue.

❒ **Appointment:** The appointment of the Enforcement Directorate (ED) director is in accordance with the Central Vigilance Commission Act of 2003.

❒ **Selection Committee Structure**: The Director, ED is appointed by the Central government, based on the recommendation of a committee. This committee is led by the Central Vigilance Commissioner.

❒ **Committee Composition:** Additional members of the selection committee are drawn from the secretariat level of the Finance (Revenue), Home, and Personnel & Training departments.

❒ **Tenure and Transfer Conditions**: The director's minimum tenure is set at two years. Any transfer within this period requires authorization from the committee responsible for the appointment.

Important note- The amendments in Central Vigilance Commission Act in 2021 allowed the extension of ED Director for a period of three years beyond their two-year tenure by granting extensions of one-year each. Such extensions were allowed to be granted in public interest.

RESPONSIBILITIES OF THE ENFORCEMENT DIRECTORATE

Prevention of Money Laundering Act, 2002 (PMLA):

- **ED's Role**: Enforce PMLA provisions
- **Responsibilities**: Investigate assets derived from crime proceeds.
- Provisionally attach suspected properties.
- Prosecute offenders and ensure property confiscation by the Special court.

Foreign Exchange Management Act, 1999 (FEMA):

- **ED's Role**: Enforce FEMA provisions
- **Responsibilities**: Investigate potential violations of foreign exchange laws.
- Adjudicate and levy penalties for confirmed contraventions.

1. **Fugitive Economic Offenders Act, 2018 (FEOA)**: A law to address economic offenders who flee India.
- **ED's Role**: Attach properties of fugitive economic offenders.
- **Outcome:** Confiscation of their assets in favor of the Central Government.

2. **Conservation of Foreign Exchange and Prevention of Smuggling Activities Act, 1974 (COFEPOSA):**
- **ED's Role**: Act as a sponsoring agency
- **Responsibilities**: Advocate for preventive detention related to FEMA violations.

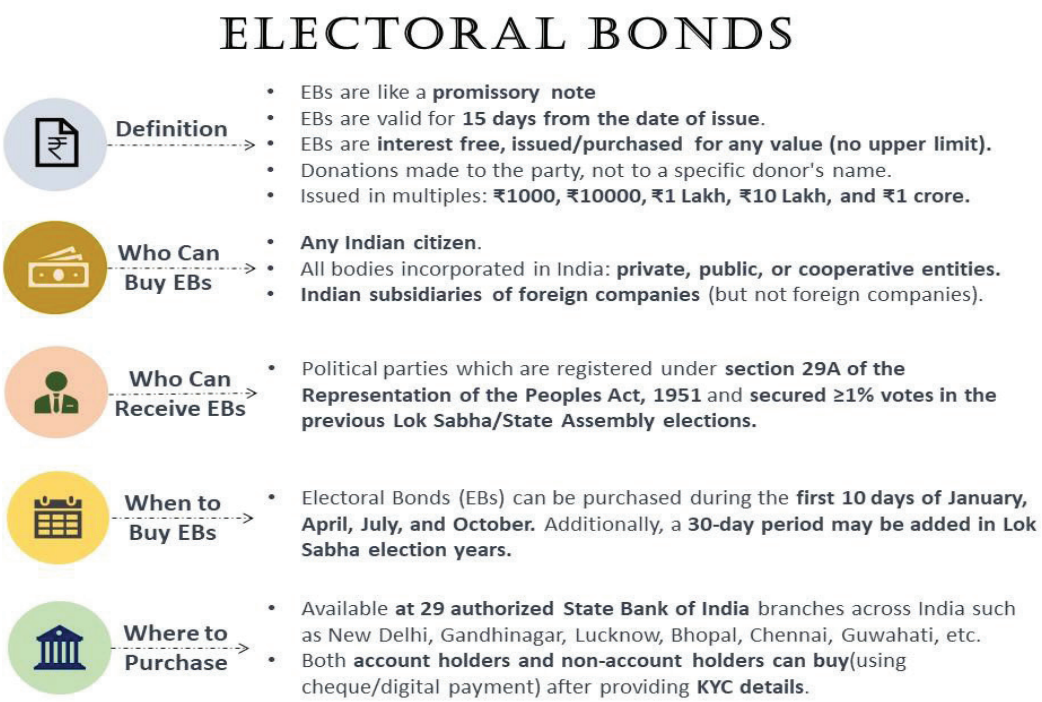
ELECTORAL BONDS

CONTEXT

SC will hear a petition challenging the electoral bonds scheme for allegedly promoting corruption and violating citizen's rights to a corruption-free nation.

ABOUT ELECTORAL BONDS

- The Electoral Bonds Scheme was launched in 2018 with an objective to cleanse electoral funding and reduce the impact of black money on elections.



EBs scheme amended important laws:

- **Foreign Contribution Regulation Act, 2010 (FCRA)**: Amendments made in this act now **allow foreign companies owning majority stakes** in Indian companies to donate to political parties.
- **Representation of People Act, 1952 (RPA):** Amendments made in this act exempts political parties from reporting donations received through EBs to the Election Commission.
- **Companies Act, 2013**: Previously, a corporate firm could donate a maximum of 7.5% of its average three year net profit as political donations according to Section 182 of the Companies Act.
  - Section 182 also provided that the companies had to disclose details of their political donations in their annual statement of accounts.
  - Amendments made in this act now ensure that above-mentioned section-182 provisions would not be applicable to companies in case of electoral bonds.

CONSTITUTION BENCH

CONTEXT

Supreme Court refers 2018 Electoral Bonds scheme pleas to 5-judge Constitution Bench

ABOUT CONSTITUTION BENCH

Aspect	Description
About	❒ A Constitution bench is a group of at least five judges of the Supreme Court of India. They decide cases that involve substantial questions of law regarding the interpretation of the Constitution of India. ❒ The Constitution bench decides on cases by a majority decision or by a unanimous decision.
Provision or Circumstances For Establishment of Constitutional Bench	❒ **Article 145(3)**: "The minimum number of Judges who are to sit for the purpose of deciding any case involving a substantial question of law as to the interpretation of this Constitution or for the purpose of hearing any reference under Article 143 shall be five." ❒ **Article 143 of the Constitution**: When the president seeks Supreme Court's consultation on a question of law or fact that has arisen, or is likely to arise, which is of such a nature and of such public importance that it is expedient to obtain the opinion of the Supreme Court upon it. ❒ **Conflicting judgments**: When two or more judgements of three judge benches deliver conflicting viewpoints on the same issue of law, it necessitates a definite understanding and interpretation of the law by a larger bench.
Constituted by	❒ The **Chief Justice of India has the power to constitute** the Constitution Bench & **refer the issues** or cases to it. ❒ **CJI need not to be a member of every constitution bench**
Judgements In which Bench has been Constituted	❒ **Unanimous decision**: 9-judges constitution bench in 'Puttaswamy case' held right to privacy as a fundamental right under constitution. ❒ **Majority decision**: 13-judges constitution bench in 'Kesavananda Bharati' case, by a majority of 7-6, held that the constitution's 'basic structure' is unchallengeable. ❒ **Present status of pendency before constitution benches**: Around 40+ significant constitutional and legal matters. Examples- Sabarimala review, Abrogation of article 370, validity of electoral bonds, etc. ❒ Recently, the 5-judges Constitution bench of the SC, by a 3-2 majority upheld the validity of EWS reservation (103rd constitution amendment).

Related Information

- **Division Bench**: It consists of 2 to 3 judges of the supreme court. Most cases before SC are heard and decided by these division benches.
- **Single judge benches**: For the first time in history of the SC, single judge bench hearings were started in 2020. Single judge benches will hear appeals related to bail and anticipatory bail cases.

- **Recusal of judges**:
  - Judges can recuse/remove themselves from a case pending before them, especially when there is a potential or evident conflict of interest.
  - Conflict of interest may happen due to a variety of reasons. Example – a Judge presiding over a case in which a corporate body is one of the parties to the case and son/daughter of the judge is the CEO of the concerned corporate body.
  - There are no laws/rules governing the procedure of recusal.
  - It flows from the idea of natural justice that no one should be a judge in his/her own case.
  - The recusal is exercised in order to prevent a perception that the judge had a bias/interest towards the party to the case and to ensure free, fair, and impartial delivery of justice.

ETHICS COMMITTEE IN PARLIAMENT

CONTEXT

Lok Sabha Speaker Om Birla has referred BJP MP Nishikant Dubey's complaint against TMC MP Mahua Moitra to the House Ethics Committee, prompting the panel to take action.

ABOUT ETHICS COMMITTEE

- Establishment of the Ethics Committee in Parliament: Originated from a resolution at the Presiding Officers Conference, New Delhi, 1996.
  - Both Lok Sabha and Rajya Sabha have distinct Ethics Committees.

Lok Sabha's Ethics Committee

- Formed in 2000.
- Includes up to **fifteen members nominated by the Speaker**.
- Members serve a **term not exceeding one year.**

Rajya Sabha's Ethics Committee

- Established earlier in **1997**.
- **Consists of ten members** nominated by the Rajya Sabha Chairman.
- Members have a term that **doesn't exceed one year.**

Function of Ethics Committee

- The main responsibility is to oversee the ethical behavior of Members of Parliament.
- It examines cases related to the ethical actions or misconduct of Members, directed by the Speaker in the Lok Sabha and the Chairman in the Rajya Sabha.
- The committee formulates a conduct code for members and recommends updates when needed.
- It provides advice on ethical issues to members, either spontaneously or when asked.
- The committee has the authority to address complaints of ethical breaches, either reported by someone or initiated by itself.
- **Complaints** can be made by **any member.**
- **Only Members of Parliament** can be scrutinized for misconduct.

Limitations of the Ethics Committee

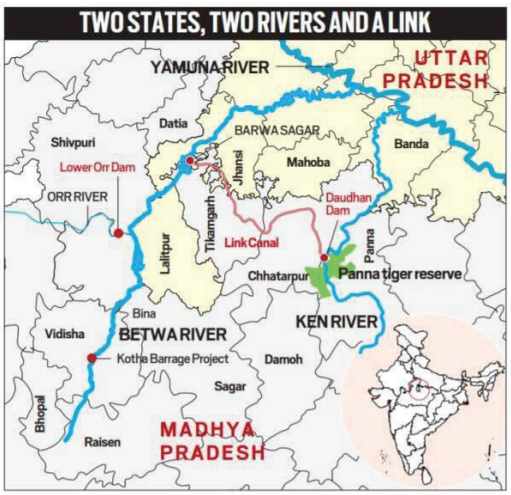
- Functions might **overlap with the Committee on Privileges.**
- More grave complaints, like corruption, can be directed to the Committee on Privileges or specific purpose panels.

Committee of Privileges

- **Comprises 15 members in Lok Sabha and 10 in Rajya Sabha**, nominated respectively by the Speaker and Chairman.
- In Rajya Sabha, the **deputy chairperson leads the Committee of Privilege**s.

KEN- BETWA INTERLINKING PROJECT

ABOUT KEN-BETWA INTERLINKING PROJECT



- In 2021, the Union Cabinet approved KBLP, marking the first river interlinking under the National Perspective Plan (NPP).
- Located in Bundelkhand, a drought-prone area covering 13 districts of Uttar Pradesh and Madhya Pradesh.
- KBLP aims to transfer water from the Ken River to the water-deficient Betwa River. Both are tributaries of the Yamuna River.

Phases of KBLP

- **Phase I**: Involves the construction of the Daudhan dam complex, Low-level Tunnel, Ken-Betwa Link canal, and powerhouses.
- **Phase II**: Encompasses the building of the Lower Orr dam, Bina Complex project, and Kotha Barrage.

Significance of KBLP

- Tackles water shortage in the Bundelkhand region for both water supply and irrigation.
- Enables power generation, producing 103 MW of hydropower and 27 MW of solar power.

Concerns Associated with KBLP

- Anticipated loss of 20 lakh trees.
- Potential submergence of parts of the Panna Tiger Reserve.
- Threats to wildlife, especially gharials in the Ken Gharial Sanctuary.

Related Information

National Perspective Plan (NPP)

- NPP was devised by the Ministry of Irrigation (now Ministry of Jal Shakti) to redirect water from water-rich basins to those in deficit.
- Under NPP, the National Water Development Agency (NWDA) pinpointed 30 river links: 16 in the Peninsular component (including KBLP) and 14 in the Himalayan Component.

Ken River

- **Origin:** The Ken River originates near the village **Ahirgawan on the north-west slopes of Barner Range in Katni district.**
- **Course**: It travels a **distance of 427 km**, before merging with the **Yamuna at Chilla village, district Banda in Uttar Pradesh.**
- **Tributaries**: Its major tributaries include the Banne, Barethi, Bearma, Kopra, Rohniya, and Jamni rivers.

Betwa River

- **Origin:** The Betwa River originates from Kumra village in **Raisen district, Madhya Pradesh.**
- **Course:** It travels **590 km**, before merging with the Yamuna in **Hamirpur, Uttar Pradesh**.
- **Region Covered:** The river drains the eastern Malwa plateau.
- **Tributaries**: Its main tributaries include Bina, Yamini, Dhasan, and Halali.

GLOBAL INTERNET FREEDOM REPORT

CONTEXT

The 2023 Freedom on the Net report found that global internet freedom declined for the 13th consecutive year.

ABOUT GLOBAL INTERNET FREEDOM REPORT

- **About:** The Freedom on the Net report is an annual report published by **Freedom House**, a **non-profit organization**.
- The **report assesses the level of internet freedom in 70 countries**, accounting for 88% of the world's internet users.
- The report, titled 'Freedom on the Net 2023: **The Repressive Power of Artificial Intelligence**'

2023 Freedom on the Net report: Key Findings

- Internet freedom declined in 29 countries, with only 20 showing improvements.
- Elections often lead to increased digital repression.
  - Incumbent leaders may criminalize speech, block independent news, and manipulate information to influence election results.
- Countries were evaluated based on **five censorship methods**: **connectivity restrictions, social media blocking, website blocking, VPN blocking, and forced content removal**.

India's Internet Landscape

- On a scale from 1 (worst repression) to 100 (highest digital freedom), **India scored 50**.
- **AI repression In India:** The Indian government's Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules require social media platforms to use AI-powered moderation tools to filter content.
  - For example, the government ordered YouTube and Twitter to block access to a BBC documentary and the platforms used automated scanning tools to remove all related content.

Global Perspective

- **Iceland scored 94**, ranking it as the nation with the **highest Internet freedom**.
- **Iran** saw the **most significant increase in digital repression**, which included Internet shutdowns, social media blocking, and heightened surveillance.
- For the 9th year in a row, **China held the title for the worst Internet freedom, with Myanmar ranking second.**

SPECIAL MARRIAGE ACT, 1954

- The court refused to interpret the Special Marriage Act (SMA) as 'gender-neutral'. The act was upheld in its current form, i.e., permitting marriages only between a 'man' and a 'woman'.

ABOUT SPECIAL MARRIAGE ACT,1954

- **About:** The legislation governs civil marriage in India i.e. state rather than religion sanctions the marriage.
- **Objective:** It enables marriage between inter-faith or inter-caste couples, without giving up their religious identity or resorting to conversion.
- **Provisions under SMA, 1954:** The key provisions under the act are as follows:
  - The **minimum age** to get married under the SMA is 21 years for males and 18 years for females.
  - Both parties must give a **30-day notice** to a Marriage Officer in the district where at least one party has resided for the past 30 days.
  - If an objection is raised, the Marriage Officer cannot officiate the marriage until they have **investigated the objection** and are convinced that it does not hinder the marriage, or until the objecting party withdraws their objection.
  - Before getting married, both parties and three witnesses must sign a declaration form before the Marriage Officer.
  - Once this declaration is approved, the couple receives a **"Certificate of Marriage**" as official proof of marriage.

INTERNATIONAL RELATIONS

SOUTH CHINA SEA DISPUTE

CONTEXT

- A fresh dispute broke out between China and the Philippines after China installed a barricade near the South China Sea's Scarborough Shoal.

ABOUT SOUTH CHINA SEA

- The South China Sea is a marginal sea of the Western Pacific Ocean, partially enclosed by China, Taiwan, the Philippines, Malaysia, Brunei, Indonesia, Singapore, and Vietnam.
  - The Gulf of Thailand and the Gulf of Tonkin are also part of the South China Sea
- It has **two main land features**: the Paracels (consists mainly islands and reefs) and the Spratlys (mostly reefs and rocks, some islands may not appear above water at high tide).

GEOPOLITICAL SIGNIFICANCE OF SOUTH CHINA SEA

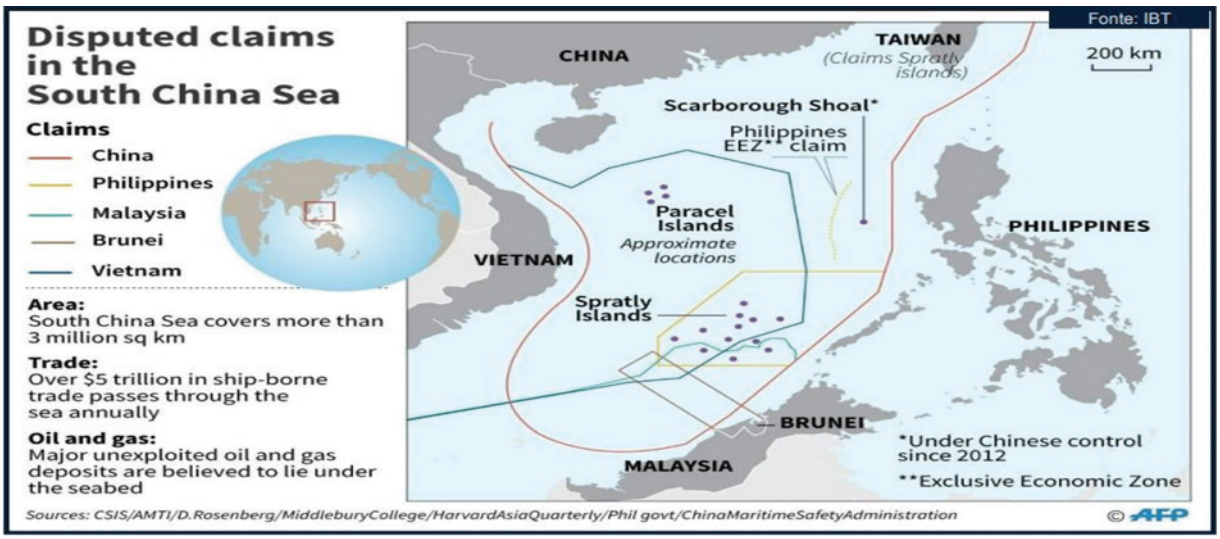
- **Strategic location**: The Sea is located at the crossroads of major maritime trade routes in the Pacific and Indian Ocean. The three "southern entrances" into the region: the Straits of Malacca, Sunda, and Lombok are particularly important chokepoints in the world trade system.
  - **E.g. United Nations Conference on Trade and Development** reported 33% of global maritime trade, worth $3 trillion passes through the South China Sea.
- **Resource rich region:** The Sea holds substantial amount of deposits of natural resources.
  - **E.g**. South China Sea holds an estimated 190 trillion cubic feet of natural gas, and 11 billion barrels of Crude Oil
  - The region has rich fishing grounds amounting to **12% of global catch**, providing livelihood opportunities.
- **Security dimension:** Dominance over South China Sea, offers strategic military advantage. China, especially has been building artificial islands which can serve as military bases, airstrips etc.
- **Regional Stability:** The South China Sea is the subject of **territorial disputes between several countries**, including China, Vietnam, the Philippines, Malaysia, Brunei, and Indonesia. Resolution of these disputes will help in bringing regional peace and promote trade in the region.

DISPUTE IN SOUTH CHINA SEA

South China Dispute involves overlapping territorial and maritime claim among several sovereign countries within the region. Specifically, China has engaged in building artificial islands in the Spratlys and militarizing them with airstrips, radar facilities, and ports which is opposed by smaller states and US.

Claimants in the South China Sea Dispute

China	**China claims nearly the entire South China Sea based on its historical "nine-dash line".**
Taiwan	**Taiwan asserts the same territorial claims as China over the South China Sea, including the Paracel Islands, Spratly Islands, and Scarborough Shoal.**
Vietnam	**Vietnam claims sovereignty over the Paracel Islands and the Spratly Islands.**
Philippines	**The Philippines asserts its claims over the Spratly Islands, including Scarborough Shoal, which is located within its Exclusive Economic Zone (EEZ).**
Malaysia	**Malaysia claims several features in the Spratly Islands, including the Layang-Layang Reef, Swallow Reef, and the Investigator Shoal.**
Brunei	**Brunei claims a portion of the Spratly Islands, but its claim is relatively small compared to other claimant countries.**



WHAT IS THE BASIS OF TERRITORIAL & OTHER CLAIMS LAID BY STATES?

- **China:** China territorial claims are based on historical maritime rights. It claims it occupied South China Sea islands in ancient times. In 1947, the Republic of China published a map with nine dashes. When connected, the dashes form a U that encloses most of the South China Sea. Communist Peoples Republic of China also adopted the map with the "nine dash line." China added a tenth dash in 2013 to include Taiwan.
- **Small country claimants:** Five small nations claim parts of the South China Sea's land features and surrounding waters. Vietnam and the Philippines are the most active claimants. The countries lay claim based on the UNCLOS principles and want the dispute to be resolved on these principles.
- **United States:** US is not a claimant in the dispute, however, from 2017 it has started conducting FONOP's (Freedom of Navigation operations) as a means to challenge China claims.

TIMELINE OF SOUTH CHINA SEA DISPUTE

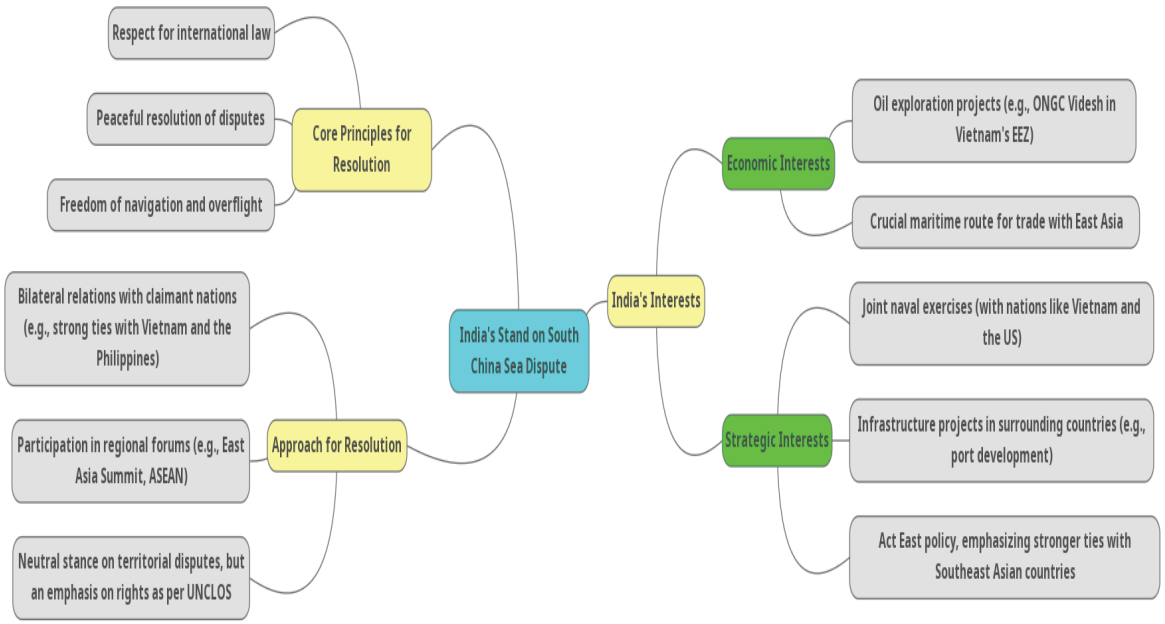
WHAT CAUSED THE RECENT TENSIONS?

During a routine patrol, Philippines coastguard discovered a 300-metre-long ball-buoy barrier policed by China's coastguard near the disputed Scarborough Shoal. The Philippines coastguard executed a 'special operation' to remove the barrier which drew strong reactions from China.

About Scarborough Shoal:

- It is located 200 km off Philippines and lies inside its exclusive economic zone.
- The Shoal is important for fishing stocks, strategically located near shipping lanes carrying 3 trillion dollar of annual commerce, also acts as safe haven for vessels during storms.
- Both Philippines and China lay claim to the shoal, effectively under the control of China which seized the shoal in 2012 after standoff with Philippines.
- In 2016, Permanent Court of Arbitration gave ruling on South China Sea, which was in favor of Philippines. It ruled China's blockade of the shoal violated international law. However, China refused to accept the ruling.

INDIA'S STAND ON SOUTH CHINA SEA DISPUTE



WAY FORWARD

- **Bilateral negotiations:** Focus should shift from confrontation to dialogue and mutual understanding. Disputing parties can resolve their differences peacefully through direct talks and negotiations.
- **Multilateral Negotiations**: Regional dialogue can take place by involving all stakeholders e.g. ASEAN (Association of Southeast Asian Nations) can play a key role in bringing all parties to a single platform and work towards amicable resolution of disputes
- **Adherence to International law**: All parties to the dispute should respect and uphold the United Nations Convention on the Law of the Sea (UNCLOS). Any clarifications or modification can be sought via legal means.
- **Third-party Mediation**: Neutral nations or organizations like the United Nations can mediate the discussions and build consensus among disputing parties.
- **Joint Development Initiatives**: Disputing parties can work towards building cooperation such as collaborating to exploit resources of the region and ensure benefits are shared equitably.
- **Code of Conduct**: Talks between ASEAN and China are taking place to build a binding code of Conduct. A binding code of conduct will help in preventing misunderstanding and conflicts.

- **Conflict Prevention:** Initiatives can be taken to establish Hotlines and communication channels to prevent miscommunication.
- **Regional Cooperation:** The parties to dispute can collaborate on non – controversial issues such as environment protection, anti-piracy practices, disaster response for e.**g.** A Marine protected area in the Spratlys to conserve biodiversity and promote sustainable fishing can be established.

UN SECURITY COUNCIL (UNSC) REFORMS

CONTEXT

- The issue of UN Security council reforms has resurfaced with Turkey President criticism of UNSC structure and call from reforms by UN Secretary-General, António Guterres.

ABOUT UNSC

- Composition: 15 member states: 5 permanent members (P5) with veto power and 10 non-permanent members;
  - P5: United States, Russian Federation, France, China, and the United Kingdom
  - Non-permanent members: elected for two-year terms by the UN General Assembly (UNGA), distributed among regions of the world
- Powers and Functions:
  - Maintain international peace and security
  - Send UN peacekeeping missions
  - Impose sanctions on states
  - Sever diplomatic relations
  - Impose financial restrictions and penalties
  - Blockades
  - Even collective military action
- Veto Power of P5 Members:
  - Can veto any substantive resolution
  - Requires affirmative votes of three-fifths (i.e., 9) of the members
  - Abstention is not regarded as a veto in most cases
  - Exceptions: amendment of the UN Charter and recommendation of the admission of a new UN member state

WHAT ARE UNSC REFORMS?

UNSC reforms aim to modernize the Council to better reflect the current geopolitical landscape. Some notable proposal includes:

- **Expansion of Membership** of both permanent and non – permanent members to make it more representative of the world's regions, cultures, and people.
  - For e.g., the African Union has proposed Ezulwini Consensus i.e. adding two permanent and five non-permanent seats to be allocated to African states.
- **Removal of Veto Power:** The veto power has to be reformed to prevent its misuse by the permanent members.
- **Regional Representation**: Currently, non-permanent members are elected on a regional basis, but this does not guarantee regional representation.
  - Creation of permanent seats for regions such as Africa, Latin America, and the Middle East will ensure that the voices are heard in the decision-making process.
- **Transparency and Accountability**: There have been calls to make the UNSC more transparent and accountable by ensuring that it consults more widely with other UN organs and civil society groups before making decisions.
- **Democratic and Inclusive Process:** Proposals include the establishment of a working group that includes civil society representatives and the creation of a more representative and accountable UN General Assembly.

SIGNIFICANCE OF UNSC REFORMS

- **Reflecting Modern Geopolitics:** The inclusion of emerging powers like India and Brazil can better represent the shifting power dynamics globally. For instance, India's significant contributions to **UN Peacekeeping missions** highlight its active role in global peace and security matters.
- **Ensuring Global Legitimacy:** Reforming the UNSC can enhance its legitimacy by addressing the democratic deficit in its structure. The exclusion of African and Latin American countries from permanent membership underlines this deficit.
- **Better Decision Making:** A more diverse Council can bring a wealth of perspectives to the table, fostering more comprehensive solutions to global crises.
- **Enhanced Regional Representation:** The inclusion of countries from underrepresented regions can correct the existing imbalances in representation. E.g. The **African Union exclusion** from permanent membership, hampers the UNSC's ability to address African security issues effectively.
- **Efficient Working Methods:** Reforms like implementing a code of conduct for the use of veto, and enhancing the working methods can lead to a more accountable UNSC.
  - The **French-Mexican initiative** to voluntarily restrain the use of veto in cases of mass atrocities is an example of such reforms.
- **Greater accountability:** A more representative and accountable UNSC would be more responsive to the needs of the international community. This would help to strengthen the UN's role as a champion of multilateralism and international cooperation.
- **Adaptation to new security threats:** UNSC's traditional focus on state-centric threats needs broadening to encompass contemporary challenges like cyber-security, terrorism, and climate change.
  - **E.g.** Estonia, with its digital expertise, contributed to the UNSC discussions on cybersecurity during its non-permanent membership in 2020-2021.
- **Resolution of Disputes:** A more representative UNSC can facilitate dialogue and consensus, promoting peaceful dispute resolution. For e.g. nations with a history of mediating international disputes, like Norway or Switzerland, could enhance the UNSC's dispute resolution capacities.

CHALLENGES TO UNSC REFORMS

- **Veto Power:** The veto power of the P5 remains a significant barrier to reform. Historical instances like China's opposition to India's permanent membership depict the challenges posed by the veto power.
- **Complex Procedure:** Amending the UN Charter is difficult, requiring a two-thirds majority vote and ratification by two-thirds of member states, including all five permanent Security Council members.
- **Diverse Interests:** Divergent interests among member states can hinder consensus. For instance, the differing positions the G4 (Brazil, Germany, India, and Japan) and Uniting for consensus on various reform proposals illustrate this challenge.
- **Financial Implications**: Reforms may have financial implications, which could be a concern amid constrained UN budgets.
  - Expansion and changes in the working of Security council could entail additional financial resources, demonstrating a potential financial hurdle to reforms.
- **Structural Complications:** An enlarged Council could potentially slow down decision-making processes due to the increased number of actors. This has been a concern expressed by some of the smaller UN member states.
- **Regional Rivalries:** Regional rivalries, like that between India and Pakistan, can stymie the reform process as countries may block the advancement of regional rivals.

STEPS TOWARDS ENSURING UNSC REFORMS

- **Diplomatic Engagements**: Engaging with key stakeholders can help build support for reform. For e.g. India's diplomatic engagements have been aimed at garnering support for its bid for permanent membership.
- **Regional Consensus Building:** Regional consensus can help present a united front. For example, endorsements from organizations like the European Union or ASEAN can add weight to reform proposals.
- **Formalized Negotiation Channels**: Creating official channels for negotiation between member states can streamline the reform process and ensure structured dialogue.
  - Inter-Governmental Negotiations (IGN) framework can be further formalized and empowered to facilitate constructive negotiations on UNSC reforms.

- **Collaboration with G4:** The G4 nations can collectively push for reforms, enhancing their bargaining power. Their joint proposal for UNSC expansion is a testament to this collaborative effort.
- **Engage Civil Society:** Civil society can play a vital role in advocating for reform and providing necessary research to support the reform agenda.
- **Highlight the Success of Wider Representation:** Showcasing the benefits of diverse representation in other international forums can help build a compelling case for UNSC reform.
  - For instance, the inclusive nature of the G20 has often been highlighted as a more representative forum compared to the UNSC.

INDIA AND UNSC REFORMS

- **Advocacy for Expanded Membership:** India advocates for expanding the UN Security Council in both permanent and non-permanent categories to reflect contemporary geopolitical realities.
  - India as a part of G4 grouping (which also includes Brazil, Germany, and Japan), has been pushing for the expansion of permanent membership to include emerging powers.
- **Aspires to be Permanent Member**: Citing its significant contributions to UN peacekeeping missions, large population, and growing economic influence India aspires to become a permanent UNSC member. (Image in favor of Permanent Membership of UNSC).
- **Engagement with P5 & Other Nations**: India has been engaging diplomatically with P5 and other influential nations to garner support for its bid and the broader UNSC reform agenda.
  - Multilateral platforms such as the G20 are being utilized to advocate for UN reform
  - The G4 countries have agreed to support each other's bids for permanent seats on the UN Security Council.
- **Regional Consensus Building**: To build regional consensus, in support of India's bid to permanent UNSC membership, India is actively engaging with regional forums like ASEAN and SAARC.

ROADBLOCKS FOR INDIA GETTING A PERMANENT SEAT AT UNSC?

- **Resistance from China:** China opposition is a significant hurdle in India attempt for permanent seat at UNSC.
- **Complex Process**: Expanding the UNSC's permanent membership requires consensus among the P5 and a two-thirds majority vote in the UNGA, making it a complex and challenging endeavor.
- **Nuclear power**: India's nuclear capabilities and its non-signatory status to the Nuclear Non-Proliferation Treaty (NPT) are often cited as barriers to its permanent membership.
- **Performance in socio – economic indicators:** Despite India's strong economic growth, it performs poorly on many socio-economic indicators, such as the Human Development Index (HDI) in which India ranked 132/191 countries.
- **Opposition from countries:** Contrasting proposals from groups like the Coffee Club (Uniting for Consensus group), lack of support from Pakistan, China etc. hinder India's bid for getting a permanent seat in the UNSC.

WAY FORWARD: WHAT STEPS CAN INDIA TAKE?

- **Advocating for UNSC Reform:** Actively advocating for UNSC reform can help build consensus around the necessity for a more representative Council.
  - **E.g.,** Utilizing platforms like the UN General Assembly to advocate for reform and articulate the benefits of a more inclusive UNSC.
- **Nuclear Responsibility and Transparency:** Demonstrating India's background as a 'responsible nuclear power' could help address concerns regarding India's non-signatory status to the NPT.
  - **E.g.** Showcasing how India has adhered to international nuclear safety standards and engaging in nuclear arms control dialogues.
- **Improving Socio-Economic Indicators**: Focusing on improving socio-economic indicators could enhance India's standing and address concerns regarding its human development record.
  - **E.g**., Implementing policies to improve health, education, and income levels to better India's ranking on the Human Development Index (HDI).
- **Using Diplomacy:** Engaging in diplomatic dialogues is pivotal to address regional concerns and garner broad-based support for India's bid for a permanent seat at the UNSC.

- **E.g.,** Bilateral discussions with countries like Argentina, Italy and China to slowly develop support from these countries.

- **Showcasing Contributions to Global Peace and Security**: Highlighting India's contributions to UN peacekeeping missions and global security can strengthen its case for a permanent seat.
- **Forming Alliances with Like-Minded Nations:** Strengthening the G4 coalition and working with other like-minded nations to amplify the call for UNSC reform.
- **Promoting a Comprehensive Reform Proposal:** Developing and promoting a comprehensive reform proposal can foster support for India's bid.
  - **E.g.,** A reform proposal that balances the interests of different regions and power blocs while promoting efficiency and representation.

ISRAEL - PALESTINE CONFLICT

CONTEXT

- On the 50th anniversary of the Yom Kippur War, Hamas launched a deadly attack on Israel resulting in significant civilian casualties. Israel responded with a vast military operation in Gaza leading to thousands of Palestinian casualties.

WHAT IS THE ISRAEL - PALESTINE CONFLICT?

- The Israel-Palestine conflict is a long-standing dispute between **Palestinian Arabs and Zionist (now Israeli) Jews** that emerged in the late 19th century.
- It revolves around competing **national identities** and claims to the same land.
- **Key historical events** in this conflict include the migration of Jews to the region, British control over Palestine after World War I, and the subsequent division of the territory into Israel, the West Bank, and the Gaza Strip following the 1948 Arab-Israeli War.
- Additional conflicts, such as the **Six-Day War in 1967,** further shaped the political boundaries and ongoing tensions in the region.
- The conflict **remains unresolved** and continues to be a source of **regional and international concern.**

WHAT IS THE HISTORICAL BACKGROUND OF THE DISPUTE?

- The historical background of the Israeli-Palestinian dispute can be traced back to the **Zionist movement,** which aimed to establish a Jewish homeland in Palestine.
- This movement gained **momentum during World War II,** driven in part by the Holocaust and anti-Semitism in Europe.
- This led to **tensions with the Arab population** in the region, resulting in a war in 1948 that created Palestinian refugees.
- In subsequent conflicts, such as the **Six-Day War in 1967,** Israel gained control over significant territories, including the **West Bank, Gaza Strip, and East Jerusalem.**
- **Palestinians were left stateless as a result.** These historical events have contributed to **the ongoing Israeli-Palestinian conflict.**

WHICH ARE THE DISPUTED REGIONS IN THE CONFLICT AND WHAT IS THEIR PRESENT STATUS?

- **West Bank:** The West Bank is to the west of the Jordan River and has been under Israeli military occupation since 1967, following the Six-Day War. Approximately 40% of the region is controlled by the Palestinian Authority, known as the Palestine Liberation Organization (PLO).
- **Gaza Strip:** The Gaza Strip is a densely populated area between the Mediterranean Sea to the west, Israel to the north and east, and Egypt to the south. Israel unilaterally withdrew its military presence from Gaza in 2005. The region is currently governed by the Islamist group Hamas, which won political power in a 2006 election, defeating the Palestine Liberation Organization.

Do You Know?

Settlements are communities of Jews that have been moving to the West Bank since it came under Israeli occupation in 1967. These settlements create what Israelis and Palestinians call "new facts on the ground. "This leads to Jewish communities settling in areas meant for Palestinians and constraints the border of any future Palestinian state

- **Jerusalem:** Jerusalem is a city located on the border between Israel and the West Bank. It is home to some of the holiest sites in both Judaism and Islam, making it a central point of contention. Israel, after taking control of East Jerusalem in the 1967 war, calls Jerusalem its "undivided capital." However, the status of Jerusalem remains a highly disputed and sensitive issue. The recognition of Jerusalem as Israel's capital by the United States in 2017 has added to the complexity of the situation.

WHAT ARE THE MAIN PARTIES INVOLVED IN THE CONFLICT?

- **Israel:** Israel is a nation-state in the Middle East, established in 1948, and is a central party in the conflict. The Israeli government and its military, the Israel Defense Forces (IDF), are key players in the conflict.
- **Palestinian Liberation Organization (PLO):** The PLO is the nominal national representative of the Palestinian people. It governs the Palestinian territories in the West Bank through the Palestine National Authority. The PLO, led by Fatah, seeks a peaceful resolution to the conflict and international recognition of Palestinian statehood.
- **Hamas:** Hamas is a Palestinian political and militant group, and one of the two main political parties in the Palestinian territories. It currently governs the Gaza Strip and is known for its militant stance and resistance against Israel.

MAJOR EVENTS IN THE CONFLICT

Timeline Of Israel and Palestine Ties		
Year	**Event(s)**	**About**
1917	**Balfour Declaration**	The Declaration was a public statement issued in 1917 by British Foreign Secretary Arthur Balfour to Lord Rothschild, a leader of the British Jewish community. The statement, for the first time, promised British support for a "Jewish national home" in Palestine, at the time a British Mandate. It went on to be the basis of the creation of Israel, 30 years later.
1947-1948	**United Nations Partition Plan**	The UN proposed a partition plan in 1947 to divide Palestine into separate Jewish and Arab states, with Jerusalem as an international city. The plan was accepted by Jewish leaders but rejected by Arab leaders, leading to the 1947-1948 Arab-Israeli War.
1948	**Israeli Declaration of Independence**	Israel declared its independence on May 14, 1948, and neighbouring Arab states immediately invaded, resulting in the first Arab-Israeli War.
1967	**Six-Day War**	In June 1967, Israel launched a pre-emptive strike against its Arab neighbours, resulting in a swift victory and the occupation of the West Bank, Gaza Strip, Sinai Peninsula, and Golan Heights.
1978	**Camp David Accords**	Israel and Egypt, under the leadership of Anwar Sadat and Menachem Begin, signed the Camp David Accords, which led to Egypt recognizing Israel and the return of the Sinai Peninsula to Egypt.
1993	**Oslo Accords**	The Oslo Accords, signed between Israel and the Palestine Liberation Organization (PLO), aimed to establish a framework for Palestinian self-governance in parts of the West Bank and Gaza Strip.
2000-2005	**Second Intifada**	A period of intensified Palestinian-Israeli violence, characterized by suicide bombings, Israeli military operations, and a significant loss of life on both sides.
2005	**Gaza Disengagement**	Israel unilaterally withdrew from the Gaza Strip, dismantling settlements and ending its military presence. However, it maintained control of Gaza's borders, airspace, and territorial waters.
2006	**Hamas Election**	The Palestinian Authority held elections in which the Hamas political party won a majority in the Palestinian Legislative Council. This led to tensions and a subsequent Hamas takeover of Gaza in 2007.

Timeline Of Israel and Palestine Ties		
Year	**Event(s)**	**About**
2021	**Gaza War**	In May 2021, after weeks of rising tensions over Israeli evictions and police raids in East Jerusalem, **Hamas** fired rockets at Israel from Gaza, triggering a massive Israeli retaliation that killed more than 250 Palestinians and 13 Israelis. A ceasefire was reached after 11 days of fighting with the mediation of **Egypt**.
2023	**Hamas Assault**	In October 2023, **Hamas** launched its biggest assault on Israel in years, firing a barrage of rockets from Gaza and sending fighters across the border. Israel responded with airstrikes and ground troops, killing more than 300 Palestinians and 20 Israelis. The **UN Security Council** called for an immediate end to hostilities.

Do You Know?

Intifidas means to 'to shake off' in Arabic. It is used to connote 'righteous rebellion against oppression'. Palestine underwent two Intifadas – from 1987 to 93, and from 2000 to 2005. The intifadas had a dramatic effect on Israeli-Palestinian relations; the second, in particular, is widely seen as marking the end of the 1990s era negotiating process and ushering in a new, darker era in Israeli-Palestinian relations.

Which steps have been taken to establish peace between Israel and Palestine? Why didn't they work?

- **Oslo Accords:** The Oslo Accords, signed in the 1990s, aimed to establish a framework for a two-state solution. However, these agreements have faced challenges in implementation due to issues like border disputes, security concerns, and disagreements over the status of Jerusalem.
- **United Nations:** The United Nations and various countries have supported the idea of a two-state solution and have made diplomatic efforts to facilitate peace talks. UN resolutions and peace initiatives have been ongoing for decades.

Despite these efforts, several factors have hindered the success of these peace initiatives:

- **Settlements:** Israel's continued construction of settlements in the West Bank has been a major obstacle. Palestinians view these settlements as an impediment to the establishment of a viable Palestinian state.
- **Political Division:** The deep political divide between Fatah, which controls the West Bank, and Hamas, which governs Gaza, has made it challenging for Palestinians to present a unified front in negotiations. This division has hindered the peace process.
- **Trust Issues:** A lack of trust between both sides has made it difficult to reach a lasting agreement. Palestinians often seek international recognition and support for statehood as a way to pressure Israel, while Israel has been reluctant to make significant concessions without perceived security guarantees.
- **Outstanding Issues:** Key issues, such as the right of return for Palestinian refugees and the status of Jerusalem, remain contentious and unresolved.

What is India's stance on the Israel-Palestine conflict?

- **From 1947 to 1992:** India's stance on the Israel-Palestine conflict has evolved over the years. Historically, India was a staunch supporter of the Palestinian cause, voting against the partition of Palestine in 1947 and actively supporting the Palestinian Liberation Organization (PLO). In 1988, India recognized the State of Palestine.
- **After 1992:** However, after 1992, India pursued a policy of de-hyphenation, treating its relationships with Israel and Palestine as mutually independent. India established full diplomatic ties with Israel in 1992, while still supporting the Palestinian cause. This approach allowed India to engage in various strategic relations with Israel, including military and economic cooperation.
- **India's stance on the current Conflict:** In the current conflict, India has expressed solidarity with Israel and referred to attacks by Hamas as "terrorist attacks." This position is in line with India's evolving policy of maintaining strong ties with Israel while continuing to express support for Palestinian self-determination.

10 YEARS OF BELT AND ROAD INITIATIVE (BRI)

CONTEXT:

China's ambitious **Belt and Road Initiative (BRI), launched in 2013,** marks its 10th anniversary this year.

UNDERSTANDING THE BELT AND ROAD INITIATIVE (BRI)

- The BRI, also known as **One Belt, One Road (OBOR),** is a vast **infrastructure and economic development project** initiated by the **People's Republic of China** in **2013.**
- **Aim:** To promote **economic connectivity** and cooperation between China and countries in **Asia, Europe, Africa, and beyond.**
- **Components:** BRI consists of two main components:
  - **Silk Road Economic Belt:** It focuses on land-based infrastructure and economic development, connecting China to Europe through Central Asia and the Middle East.
  - **21st Century Maritime Silk Road**: It centers on maritime routes and coastal development, connecting China to Southeast Asia, South Asia, Africa, and Europe via sea routes.
- **The land-based Silk Road Economic Belt** envisions **six key corridors** for development:
  - China-Pakistan Economic Corridor (CPEC).
  - New Eurasian Land Bridge Economic Corridor.
  - China-Indochina Peninsula Economic Corridor.
  - China-Mongolia-Russia Economic Corridor.
  - China-Central Asia-West Asia Economic Corridor.
  - China-Myanmar Economic Corridor.

Significance of BRI for China

- Trade and economic influence: BRI expands China's trade networks and bolsters its role in global economic affairs.
- Market access: BRI projects provide markets for Chinese industries, particularly in construction.
- Geopolitical and strategic influence: BRI increases China's influence in participating countries and on the world stage. E.g., Gwadar port in Pakistan
- Currency internationalization: Promotes the use of the Chinese yuan (RMB) in international trade and finance.
- Energy security: BRI projects secure access to crucial energy resources for China.

A SNAPSHOT OF 10 YEARS OF BRI

- **Number of BRI Countries:** As of August 2023, 155 countries, representing nearly 75% of the global population and over half of the world's GDP, had joined the BRI.
- **India's Neighbours joined BRI:** Sri Lanka, Maldives,, Bangladesh,, Pakistan, Myanmar and Nepal.
- **China's investment:** China has invested over US$1 trillion in BRI projects worldwide.
- **Growth in trade and investment:** From 2013 to 2022, China's trade in goods and non-financial direct investment with other BRI countries grown 8.6 percent and 5.8 percent each year on average, respectively.
- **Some iconic projects completed under BRI:**
  - **Jakarta-Bandung High-Speed Railway:** first high-speed rail line in Southeast Asia.
  - **Addis Ababa-Djibouti Railway:** it has provided Ethiopia with its first direct access to the sea.
  - **Piraeus Port in Greece:** one of the largest container ports in the Mediterranean Sea.
  - **Mombasa-Nairobi Railway**: significantly reduced travel time between the two cities.

CHALLENGES ASSOCIATED WITH THE BRI

- **Fragmented nature:** Belt and Road is not a unified, coherent strategy, but rather as a fragmented collection of bilateral arrangements made on different terms.
- **Lack of transparency:** The Chinese government has never published detailed information about the size and terms of Belt and Road loans such as terms of loans, interest payment, repayment schedule etc. This vacuum of information feeds confusion and mistrust.
- **Project Monopoly concern:** Chinese state-owned enterprises dominate BRI investments, limiting competition and opportunities for other companies.
  - China State Construction Engineering Corporation (CSCEC) and China Road and Bridge Corporation (CRBC) have secured multiple projects limiting opportunities for local and International companies.
- **Debt trap diplomacy:** It refers to a strategy used by a country to gain leverage over another country by lending it money for infrastructure projects that the debtor country cannot afford to repay.
  - **For instance, Sri Lanka** borrowed heavily from China to build **Hambantota Port,** but could not repay debt. China took control of the port on a **99-year lease.**
- **Slow progress due to implementation issues:** As per a report, 35% of the BRI infrastructure project portfolio has encountered major implementation problems, such as corruption scandals, labour violations, environmental hazards, and public protests.
- **Environmental costs:** The BRI has been criticized for causing severe and irreversible impacts on the environment and jeopardizing progress towards long-term sustainable development.
  - E.g. **Myitsone Dam project** in Myanmar was halted due to environmental and social concerns.
- **Multilateral Governance:** Unlike initiatives like the Asian Infrastructure Investment Bank (AIIB), the BRI lacks a centralized governing structure, making it difficult to address issues collectively.
- **Political Tensions:** Geopolitical rivalries and disputes have affected BRI project implementation, potentially undermining progress.
  - India's opposition to the **China-Pakistan Economic Corridor (CPEC),** citing sovereignty issues over the route passing through Pakistan-controlled Kashmir

INDIA'S CONCERNS OVER BRI

- **Geopolitical Concerns:** India is concerned about the BRI's infrastructure and connectivity projects in South Asian countries and Indian Ocean littoral states. These projects could alter the regional balance of power in favor of India.
- **Strategic Encirclement**: Some analyst suggest that the Maritime Silk Route is a Chinese attempt to establish a "string of pearls" consisting of ports that could potentially be used for military purposes.
  - China's projects in Tanzania, Pakistan, Sri Lanka, Bangladesh, Myanmar, and the China-Pakistan Economic Corridor (CPEC) can form a strategic encirclement of India.
- **Regional stability:** Concerns over the debt crises in neighboring countries e.g. Sri Lankan debt crisis due to BRI projects potentially leading to political instability in the region.
- **Sovereignty and Security Concerns:** India strongly opposes the China-Pakistan Economic Corridor (CPEC), one of the flagship projects of the BRI.
  - The project runs through **(Pakistan-controlled) Kashmir** and hence it 'violates Indian sovereignty.
  - **Deployment of security personnel** by China and Pakistan for the CPEC is another cause of security concern for India
  - Further, as **Gwadar, a key port in the CPEC, is a deep-water port,** it arguably grants Pakistan and China a strategic advantage in the IOR over India's position as the regional power.

ALTERNATIVES TO BELT AND ROAD INITIATIVE (BRI) – HOW COUNTRIES ARE COUNTRIES ARE COUNTERING CHINA

India's Efforts	❒ India's "IDEAS" plan: India's counter to BRI, supported by Lines of Credit (LOCs) to countries in Asia, Africa, CIS, and Latin America. It includes initiatives like IMEC and INSTC. ❒ India-Middle East-Europe Economic Corridor (IMEC) initiative during the recent G20 summit. ❒ International North-South Transport Corridor (INSTC) for connecting India to the Middle East and Russia.

Global Gateway	❒ This is an EU-led initiative to invest in **infrastructure and development projects** around the world. ❒ Global Gateway is **focused on six key areas:** digital, climate and energy, transport, health, education and research, and governance.
Blue Dot Network (BDN)	❒ This is a **US-Japan-Australia trilateral initiative** to promote high-quality infrastructure investment in the Indo-Pacific region. ❒ The BDN is **focused on three pillars:** sustainability, transparency, and economic viability.
Asia-Africa Growth Corridor (AAGC)	❒ This is a **bilateral initiative between India and Japan** to promote infrastructure development and connectivity between Asia and Africa. ❒ The AAGC is **focused on three pillars:** maritime connectivity, land connectivity, and quality infrastructure.
Build Back Better World (B3W)	❒ This is a **US-led initiative** to invest in infrastructure and development projects in low- and middle-income countries. ❒ B3W is focused on **four key areas:** climate, health, digital technology, and gender equity.

INTERNATIONAL CRIMINAL COURT

CONTEXT:

❒ **Armenia's** Parliament voted to join the **International Criminal Court.**

ABOUT THE INTERNATIONAL CRIMINAL COURT (ICC)

❒ It was established in 2002 under the **Rome Statute of 1998.**

❒ **Objective:** To investigate war crimes, genocide and crimes against humanity.

❒ **Background:** It was a successor to **ad hoc international tribunals** set up in the 1990s to address the atrocities committed in the **former Yugoslavia and Rwanda.**

❒ ICC is **different from the International Court of Justice (ICJ)**, an organ of the **United Nations** that hears disputes between states. (**see the table given below**).

❒ **Headquarters:** Hague, Netherlands

❒ **Members:** Currently **123** member states. The most recent to join are **Antigua** and **Barbuda** (in 2022).
- Countries that want to join the ICC have to ratify the **Rome Statute of 1998.**

❒ **India and ICC:** India did not sign the Rome Statute, because of following reasons:
- **Sovereignty concerns:** India is concerned about protecting its sovereignty and maintaining control over its own affairs.
- **Impartiality concerns:** India is also concerned about the impartiality of the ICC, as it is a court created by and accountable to states that are parties to the Rome Statute.
- **Legal complexity:** India has also expressed concerns about the legal complexity of the ICC's procedures and the potential impact on Indian legal traditions and practices.

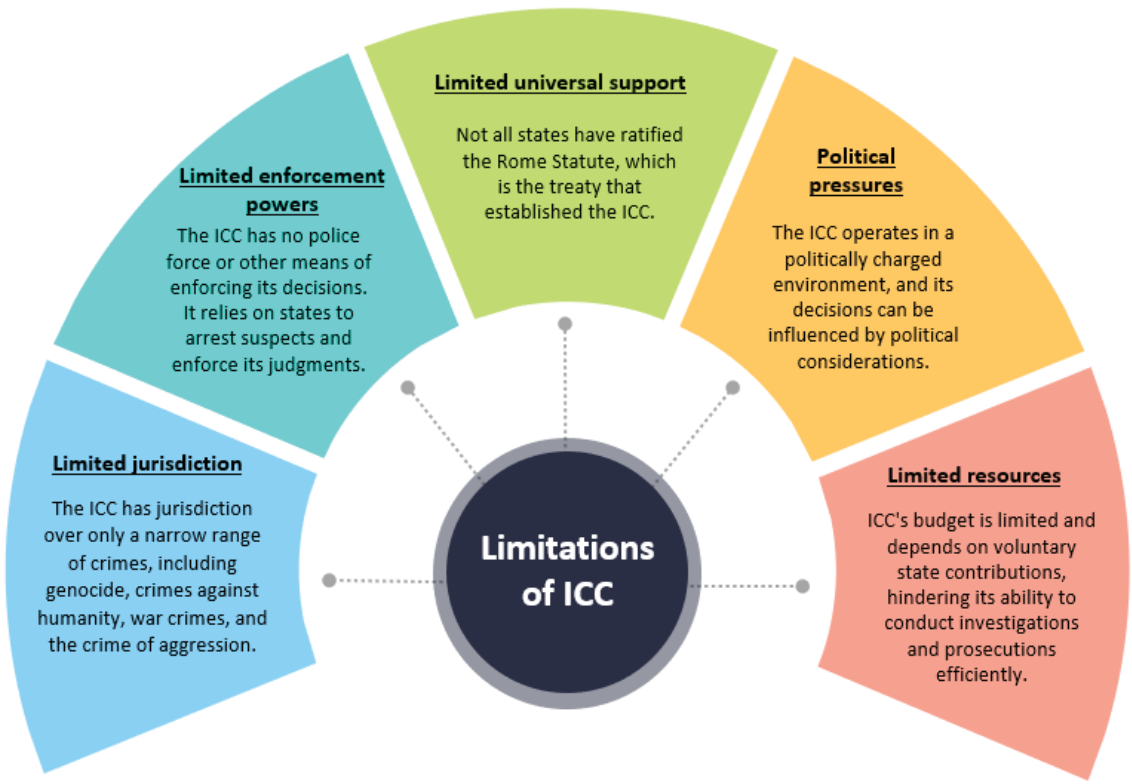
❒ **Organizational structure:** Four main organs of the ICC include the following:
- **The Presidency:** responsible for the proper administration of the Court, including judicial matters and relations with states, intergovernmental organizations, and civil society.
- **The Judicial Divisions**: responsible for conducting judicial proceedings of ICC.
- **The Office of the Prosecutor:** responsible for investigating and prosecuting individuals and also responsible for conducting preliminary examinations.
- **The Registry:** responsible for providing administrative and logistical support to the Court, including the management of the Court's finances, facilities, and personnel.

JURISDICTION AND POWERS OF THE INTERNATIONAL CRIMINAL COURT (ICC)

❒ **Jurisdiction of ICC:** The Rome Statute, grants the ICC jurisdiction over four main crimes: The crime of Genocide, Crimes against Humanity, War crimes, and Crime of Aggression.
- Additionally, ICC has jurisdiction when the **United Nations Security Council refers** a situation to the Court.

- The Court may exercise jurisdiction in a situation where genocide, crimes against humanity or war crimes were committed **on or after 1 July 2002.**
- ICC has jurisdiction if crimes were committed by a **State Party national,** or in the **territory of a State Party**, or in a **State that has accepted the jurisdiction** of the Court.
- The ICC is intended to complement, **not to replace, national criminal systems;** it prosecutes cases only when a country's own legal machinery fails to act.

- **Investigation:** The ICC has the power to investigate allegations of international crimes and to gather evidence to support its investigations.
  - The Prosecutor may also initiate investigations on **his/her own initiative,** or based on information provided by individuals, states, or other sources.
- **Prosecution and punishment:** The ICC have the power to prosecute individuals accused of international crimes. If found guilty, the ICC can impose penalties, including imprisonment and fines.
- **Cooperation:** States parties to the Rome Statute are required to cooperate fully with the ICC, including by providing **access to evidence and witnesses,** and by executing warrants of arrest and surrendering suspects to the Court.
- **Protection of victims and witnesses:** The ICC has the power to provide protection to victims and witnesses who are participating in proceedings before the Court, including through the use of protective measures such as **witness anonymity or relocation.**



HOW IS ICC DIFFERENT FROM ICJ?

Parameter	ICC (International Criminal Court)	ICJ (International Court of Justice)
Year court established	2002	1946
Location	Hague, Netherlands	Hague, Netherlands
UN Relation	Independent- may receive case referrals from UN Security Council	Official court of the UN, known as the World Court

Parameter	ICC (International Criminal Court)	ICJ (International Court of Justice)
Case types	Criminal prosecution of individuals	Contentious between parties, and advisory opinions
Subject matter	Genocide, crimes against humanity, war crimes, crimes of aggression	Maritime disputes, sovereignty, natural resources, trade, treaty violations and treaty interpretations, human rights, etc.
Funding	Contributions from parties to the Rome Statute, voluntary contributions from the UN, governments, corporations, organizations, etc.	UN

PRELIMS POINTER

OPERATION AJAY

About Operation Ajay		
Operation Ajay	India has started Operation Ajay to bring its citizens back from Israel using chartered flights.	
Other Operation By India		
Year	**Operation**	**Evacuation Due to**
2023	**Operation Kaveri**	To bring Indian citizens from Sudan
2023	**Operation Dost**	Turkey- Syria Earthquake
2022	**Operation Ganga**	Tensions between Russia & Ukraine
2021	**Operation Devi Shakti**	Collapse of the Islamic Republic of Afghanistan.
2020	❒ **Vande Bharat** ❒ **Operation Samudra Setu**	Covid-19 Pandemic
2016	**Evacuation From Brussels**	Terrorist strikes
2015	**Operation Raahat**	Conflict In Yemen
2015	**Operation Maitri**	Nepal Earthquake
2011	**Operation Safe Homecoming**	Conflict in Libya
2006	**Operation Sukoon**	Conflict in Libya
1990	**Kuwait Airlift**	Invasion in Kuwait by Iraq

INDIA- SRI LANKA FERRY SERVICE

CONTEXT

India – Sri Lanka ferry service restarted after 40 years with the launch of a passenger ferry service across the Palk Strait.

ABOUT THE FERRY SERVICE

- The **Indo-Ceylon Express (also known as the Boat Mail),** a combined train and steamer ferry service that ran between Chennai and Colombo from the early 1900s, was discontinued in 1982 due to the **Sri Lankan Civil War.**
- India and Sri Lanka have resumed ferry service across the Palk Strait after a 40-year hiatus.
- The passenger ferry service operates between **Nagapattinam in Tamil Nadu, India and Kankesanthurai in Jaffna, Sri Lanka.**

- The vessel used in the service is called the "**Cheriyapani**."

Sri Lankan Civil War

- The Sri Lankan Civil War was a **26-year armed conflict between the government of Sri Lanka and the Liberation Tigers of Tamil Eelam (LTTE)**, a separatist militant organisation that wanted to **establish an independent Tamil state** called Tamil Eelam in the north and eastern Sri Lanka.
- The conflict was rooted in long-standing ethnic and political tensions between the majority Sinhalese population and the minority Tamil population in Sri Lanka.
- In 1987, India intervened in the civil war by sending the **Indian Peacekeeping Force (IPKF) to Sri Lanka.**
- The IPKF's mission was to disarm the Tamil militant groups and help restore peace. However, the IPKF was unable to end the civil war and was withdrawn in 1990.
- The armed conflict continued without direct Indian military involvement, but India continued to play a diplomatic role in attempts to resolve the conflict.

Issues For Lakshadweep Islanders

- **Diversion of Cheriyapani:** The high-speed ferry, Cheriyapani, which was originally used for inter-island transportation in Lakshadweep, was redirected to sail between Nagapattinam (Tamil Nadu, India) and Kankesanthurai (Sri Lanka), leaving the residents of Lakshadweep with reduced connectivity.
- **Reduced Inter-Island Connectivity:** The diversion of Cheriyapani resulted in reduced connectivity among the islands of Lakshadweep and between the islands and the mainland ports of Kochi and Beypore in Kerala.
- **Insufficient Passenger Capacity**: With Cheriyapani's diversion, the remaining two high-speed ferries, Valiyapani and Parali, now have a combined passenger capacity of 300, which is inadequate to meet the increasing travel needs of the islanders.
- **Inadequate Services to Farthest Islands and Mainla**nd: The high-speed ferry used to sail to Lakshadweep's farthest island, Minicoy, and the mainland. The remaining inter-island ferries are not authorised to sail to Minicoy or the mainland, causing further connectivity woes

BENEFITS OF THE FERRY SERVICE

- **Strengthened Bilateral Relations:** It marks a renewed chapter in diplomatic and economic ties, reviving historical connections.
- **Boosted Local Trade:** The service enhances trade by providing an efficient transportation route, promoting local economies.
- **Promoted Tourism:** By offering a new travel route, it encourages tourism and cultural exchange.
- **Enhanced Connectivity:** With a 30-minute journey time, it greatly improves connectivity, fostering stronger people-to-people ties.
- **Aid for Tamil Diaspora:** While not explicitly stated, the improved connectivity likely benefits the Tamil communities in both regions by providing easier travel options and strengthening cultural ties.

NUCLEAR BAN TREATY

CONTEXT

Russia has hinted that it may leave the Comprehensive Nuclear Test Ban Treaty (CTBT).

COMPREHENSIVE NUCLEAR TEST BAN TREATY (CTBT)

- CTBT is a multilateral treaty that seeks to **ban all nuclear explosions**, whether for civilian or military purposes, in all environments.
- CTBT was adopted by the **United Nations General Assembly in 1996**.
- The treaty itself includes protocols detailing the **International Monitoring System (IMS), On-Site Inspections (OSI), and Confidence-Building Measures (CBMs)** to ensure compliance and build trust among signatories.
- To activate the treaty, 44 nuclear-capable countries need to sign and ratify it.
  - China, Egypt, Iran, Israel and the United States have signed but not ratified the Treaty; India, North Korea and Pakistan have not signed it.

EARLIER TEST BAN TREATIES

Limited Nuclear Test Ban Treaty (LTBT) 1963

- The Limited Nuclear Test-Ban Treaty (LTBT) emerged as one of the **initial efforts to control nuclear testing** (Signed on August 5, 1963, by the United States, Soviet Union, and United Kingdom), barring tests in the atmosphere, outer space, and underwater, though **allowing underground tests**.
- The constraints of the LTBT led to discussions of a comprehensive test ban during the Nuclear Nonproliferation Treaty negotiations in 1968, but no consensus was achieved.

Threshold Test Ban Treaty (TTBT) 1974

- In 1974, the Threshold Test Ban Treaty (TTBT) was formed with the **aim of capping nuclear tests producing yields over 150 kilotons**, intending to minimise the explosive potency of new nuclear warheads.

Peaceful Nuclear Explosions Treaty (PNET) 1976

- Following the TTBT, the US and Soviet Union agreed on the PNET in 1976, which further regulated nuclear explosions outside the weapons sites discussed in the TTBT, with a focus on peaceful nuclear explosions exceeding certain yield limits

NUCLEAR TESTS POST-CTBT

- Following the CTBT, 10 nuclear tests occurred:
  - India and Pakistan each conducted two tests in 1998
  - North Korea carried out tests in 2006, 2009, 2013, twice in 2016, and once in 2017.
  - The last nuclear tests by the United States, China, and France were in 1992, 1996, and 1990 respectively,
  - the Soviet Union's last test in 1990.
  - Russia, inheriting most of the Soviet nuclear arsenal, has abstained from conducting any nuclear tests.

UNITED NATIONS HUMAN RIGHTS COUNCIL (UNHRC)

CONTEXT

Recently, the General Assembly elected 15 New members to UNHRC: Albania, Brazil, Bulgaria, Burundi, China, Côte d'Ivoire, Cuba, Dominican Republic, France, Ghana, Indonesia, Japan, Kuwait, Malawi and the Netherlands.

WHAT IS THE HUMAN RIGHTS COUNCIL?

- The Human Rights Council, **a UN intergovernmental body, promotes and protects human rights**, investigates alleged violations in member states, and addresses issues like freedoms of association, expression, belief, women's, LGBT, and minority rights.
- **Secretariat**: Office of the High Commissioner for Human Rights (OHCHR)
- **Members**: **47 members** (13 for the African Group, 13 for the Asia-Pacific Group, 6 for the Eastern European Group, 8 for the Latin American and Caribbean Group, 7 for the Western European and Others Group.)
  - The term of each seat is three years, and no member may occupy a seat for more than two consecutive terms
- **2022**: Russia was only the second Human Rights Council member to be suspended from the UN body, after Libya in 2011, and it was the first permanent member of the UN Security Council to be suspended from any United Nations body.
- **Headquarters:** Geneva, Switzerland.
- **Established by:** General Assembly resolution 60/251

History of the Council

- The Human Rights Council was established on **15 March 2006** by the United Nations General Assembly.
- It replaced the former **Commission on Human Rights**, which had been criticised for being ineffective and politicised.

Activities of the Council

- The Human Rights Council holds three regular sessions each year
- It meets at the United Nations Office at Geneva (UNOG).
- It also holds special sessions to address specific human rights concerns.

The Council's work is carried out by a number of different bodies, including:

- **The Universal Periodic Review:** This is a process by which the human rights records of all UN member states are reviewed every five years.

- **Fact-finding missions**: These are missions that are dispatched by the Council to investigate specific human rights situations in different countries.
- **Advisory Committee**: Acts as the Council's "**think tank**," offering expertise and guidance on thematic human rights matters.
- **Complaint Procedure**: Enables individuals and organisations to report human rights violations to the Council.
- **UN Special Procedures**: Comprises special rapporteurs, representatives, independent experts, and working groups to monitor, analyse, advise, and publicly report on thematic issues or specific country human rights situations.

Notable Actions Regarding Human Rights Issues Around The Globe

Issue	Action Taken
Myanmar Rohingya Issue	❒ In 2018, the UNHRC released a report concluding six Myanmar generals should be prosecuted for war crimes against the Rohingya Muslims. ❒ Conducted 875 interviews, confirming a program by the Myanmar army that claimed over 10,000 Rohingya lives.
Israel, Human Rights Abuse	❒ In 2015, UNHRC voted on a resolution for accountability and justice in the Occupied Palestinian Territory. ❒ Since 2006, the council has been reviewing alleged human rights abuses by Israel.
2006 Lebanon Conflict	In 2006, established a High-Level Commission of Inquiry to probe allegations of targeted killings of Lebanese civilians by Israel during the conflict.
Climate Change	❒ Adopted a resolution on human rights and climate change. ❒ At the 48th session, recognized the human right to a clean, healthy, and sustainable environment.
India and UNHRC	❒ Re-elected to the UNHRC for 2022-24 term in 2021, pledging to continue human rights promotion and protection. ❒ In 2021, abstained from a vote on Sri Lanka's rights record and on a resolution on Palestine, but supported three other resolutions against Israel. ❒ Criticised Pakistan for supporting terrorism and the OIC for raising the Kashmir issue at the UNHRC.

India And UNHRC

- **Re-election**: India rejoined the UNHRC for 2022-24, pledging to uphold human rights via **"Samman, Samvad and Sahyog"** (Respect, Dialogue, Cooperation).
- **Voting**: In 2021, India didn't vote on Sri Lanka's rights at UNHRC, abstained on a Palestine resolution, but backed three resolutions against Israel's actions in Golan Heights, settlement expansions, and supporting Palestinian self-determination.
- **48th Session Remarks:** India accused Pakistan of supporting terrorism and, along with the OIC, of wrongly raising the Kashmir issue at the UNHRC.

ECONOMY

ANDHRA PRADESH GUARANTEED PENSION SYSTEM

CONTEXT:

- The Andhra Pradesh Guaranteed Pension System Bill, 2023 was passed recently.

ABOUT THE ANDHRA PRADESH GUARANTEED PENSION SYSTEM (GPS)

- It is a **hybrid model** combining features of both the **Old Pension Scheme (OPS)** and the **New Pension Scheme (NPS).**
- **Contributory Guarantee:** This system ensures government employees a monthly pension equivalent to **50% of their last-drawn salary,** including dearness allowance relief.
- **Reason for Introduction:** It was introduced as a response to **resistance against NPS,** which was viewed by many as inferior to the earlier scheme. The **return to OPS** was considered **fiscally unsustainable,** with the potential to drive the state's fiscal deficit to 8% by 2050.
- **Broader significance:** The adoption of GPS signifies the state's effort to **balance fiscal prudence** with the **welfare of its employees,** offering them a secured pension while keeping the **state's financial health in check.**

BACKGROUND:

Comparison Pension Scheme (OPS) and the New Pension Scheme (NPS)

Particulars	Old Pension Scheme	New Pension Scheme
Eligible employees	Only government employees	Government employees, individual citizens between 18-60 years and NRIs
Pension payment basis	Provides pensions to government employees based on their last drawn salary plus DA	Provides pension based on the investments made in the NPS scheme during their employment
Pension amount	50% of the last drawn salary plus DA or the average earnings in the last 10 months of service, whichever is more, is given as a pension	60% lump sum after retirement and 40% invested in annuities for getting a pension
Contribution amount	Employees don't contribute any amount	Government employees contribute 10% of their salary (basic + dearness allowance), and the government contributes 14%
Income tax benefits	No tax benefits	Employees can claim tax deductions of up to 1.5 lakh under Section 80C of income tax and up to Rs.50,000 on other investments under 80CCD (1b)
Tax on pension amount	The pension amount is tax-free	60% of the NPS corpus is tax-free, while the remaining 40% is taxable

REASONS FOR THE INTRODUCTION OF NEW PENSION SCHEME (NPS)

- **Limited coverage:** The Old Pension Scheme (OPS) covered only government employees (12% of workforce), while the National Pension Scheme (NPS) aims to provide pension coverage to all workers, including unorganized sector workers (voluntary).
- **Burden on the future generation:** Under the OPS, current taxpayers fund the pensions of current retirees. This directly transfers resources from current taxpayers to pensioners, burdening future generations.
- **Fiscal burden:** Old Pension Scheme (OPS) burden on the central and state governments increased with new pay commissions, raising basic salaries and pension payments.
  - India Pension Research Foundation found that pension expenditure was 2.31% of GDP in 2004-05, and the government's implicit pension debt was 56% of GDP.
- **Disincentivized early retirement:** The OPS pension, fixed at 50% of the last drawn salary, discouraged government employees from retiring early, even disinterested ones, leading to underutilization of human resources.

- **Encourages Saving Habit:** By mandating regular contributions, NPS inculcates a saving habit among individuals, which is crucial for their financial security post-retirement.
- **Investment flexibility:** NPS subscribers can choose their fund manager and investment option, including 100% government bonds. Market-linked returns under the scheme could provide higher amount than traditional pension schemes.
- **Portability:** NPS subscribers receive a Permanent Retirement Account Number (PRAN) that remains valid for their entire life and is portable across jobs.

WHY IS THERE DEMAND TO RETURN TO OPS?

There has been increased demand in various states to return to the Old Pension Scheme in states such as Rajasthan, Chhattisgarh, Jharkhand, Punjab etc.

- **Enhanced Social Security:** OPS provides guaranteed, inflation and pay commission-indexed pension payments to retired government employees and their spouses.
- **Defined Benefit Scheme:** Unlike NPS (a defined contribution scheme), the OPS defined benefit structure offer predictable income stream to retirees ensuring they do not outlive their savings.
- **More stable than NPS:** Unlike the NPS, the investment risk under OPS is born by the employer/government which means that govt. employees are shielded from market volatility.
- **Simpler Administration:** The pension benefits under OPS are easier to understand, due to their straightforward nature, as opposed to more complex market linked NPS.
  - This is beneficial for employees in lower-income brackets who might not have the financial literacy or resources to manage investments
- **Issues with National Pension System (NPS):** There are some concerns associated with NPS:
- **Market volatility/uncertainty:** Fund managers invest NPS contributions in the markets, which can be volatile and uncertain. This could impact returns, as seen in the recent Ukraine-Russia conflict, which has affected NPS asset growth and may cause it to fall short of its target**.**
- **Increased burden on employees:** Old pension scheme had no employee contributions, giving employees greater disposable income and assured pension. NPS deducts 10% of basic pay and DA, decreasing disposable income.
- **No GPF (General Provident Fund) benefits:** OPS guaranteed fixed returns for GPF contributions, but NPS has no GPF provisions.

CONCERNS RAISED AGAINST RE – IMPLEMENTATION OF OPS

- **No proper funding mechanism:** Unlike the New Pension Scheme which is a funded scheme, the OPS lacks a separate corpus or clear funding mechanisms for pension payments, making it financially unsustainable in the long run.
- **Unsustainable Scheme:** OPS is unsustainable because pension liabilities will keep increasing due to rising Dearness Allowance (DA) and life expectancy.
  - According to RBI Report, the expenditure to reverting back would increase by more than 4x for states like Rajasthan, Chhattisgarh and Jharkhand.
  - In **Himachal Pradesh**, pension payments consume nearly 80% of the state's own tax revenues.
- **Increased burden on taxpayers:** Old Pension Scheme (OPS) is a financial burden on taxpayers as it requires them to fund the pensions of current retirees. Re-implementing OPS could make the transfer of resources more pronounced, further burdening taxpayers.
- **Crowding out effect:** The OPS can crowd out other government spending, such as spending on education, healthcare, and infrastructure as the government has to allocate a significant portion of its budget towards pension payments.
- **Reduced fiscal flexibility:** The OPS reduces the government's fiscal flexibility, as it limits the government's ability to adjust its spending in response to economic shocks.
- **Unfunded Pension liabilities:** Unfunded nature of OPS creates obligation in current and future taxpayers to honor the pension promises made by past governments.
  - This could create inter-generational equity issues and potential fiscal instability.

Case Study – Greece Financial crisis

The case of Greece serves as a stark example where generous pension schemes contributed to a severe fiscal crisis. The high pension expenditures strained public finances, leading to austerity measures, which included pension cuts.

WAY FORWARD

- **Combined pension scheme:** A new pension framework could be designed by combining the defined-contribution element of NPS with the defined-benefit element of OPS e.g. Andhra Pradesh Guaranteed Pension System.

OPS, NPS and Andhra Pradesh's Guaranteed Pension Scheme (GPS)

Aspect	Old Pension Scheme (OPS)	New Pension Scheme (NPS)	Guaranteed Pension Scheme (GPS)
Pension Guarantee	Provides fixed pensions	Does not guarantee fixed pensions, and offers returns based on market condition	Guarantees a fixed pension component
Contribution	Funded through the budget	Contributions from employees and employers are invested	Employees contribute 10% of their basic salary, matched by the state government
Pension Amount	Fixed, based on salary and length of service	Variable, dependent on corpus returns	Fixed at 50% of the last drawn basic salary
Fiscal Impact on States	Unsustainable growth in pension liabilities leading to high fiscal deficit	Fiscally sustainable	Any shortfall in the returns from NPS is funded by the government

- **Awareness Programs**: Launch comprehensive awareness and financial literacy campaigns for NPS clarity e.g. Countries like Australia have successfully used financial literacy programs to enhance understanding of superannuation schemes.
- **Periodic Reviews**: Implement regular evaluations of pension systems, aligned with market trends and financial forecasts e.g. World Bank's Pension Conceptual Framework recommends frequent assessments of pension systems to remain adaptable and resilient.
- **Investment Diversification**: To Shield NPS from market fluctuations further diversifying asset classes and region e.g. Norway's Government Pension Fund Global minimizes risks by investing in a mix of equities, real estate, and fixed-income securities globally.
- **Regulatory Oversight**: Establish a robust independent body for continuous pension system oversight and enhancement e.g. The US has the Pension Benefit Guaranty Corporation (PBGC) ensuring the integrity of private-sector pension plans.
- **GPF Benefits Integration**: Consider the inclusion of GPF benefits within NPS or other similar plans. Various state governments in India already provide GPF with fixed interest rates to their employees, ensuring a steady retirement fund growth.

SEMICONDUCTOR INDUSTRY IN INDIA

CONTEXT:

- Qualcomm plans to outsource chip manufacturing to India once semiconductor fabrication (fab) and assembly and testing (Osat) facilities are established in the country.

ABOUT SEMI – CONDUCTORS

- Semiconductors are materials that have electrical conductivity between that of a conductor (e.g., Copper) and an insulator (e.g., Rubber).
- **Composition:** Semiconductors are typically made from materials such as **silicon, germanium, and gallium arsenide**
- **Characteristics**: Their conductivity can be varied by changing conditions such as temperature, applied voltage, and dopant concentration.
- **Usage:** Semiconductors are essential for modern electronics, used to fabricate devices such as transistors, diodes, integrated circuits, solar cells, and LEDs.
- **Global leaders:** According to the Semiconductor Industry Association, China leads in semiconductor production with 24% of global output, followed by Taiwan (21%) and South Korea (19%).

NEED FOR SEMICONDUCTOR MANUFACTURING IN INDIA

- **Reduce import dependency:** India is currently importing around 90 percent of chips to meet domestic needs, primarily from China and Hong Kong.
- **Crucial for Industry 4.0:** Semiconductors play a pivotal role in advancing Information and Communications Technology (ICT), crucial for India to benefit from the 4th industrial revolution.
- **National Security:** Semiconductors are integral to critical infrastructure, including communication and power transmission, with direct implications for national security.
  - These are integral to the Defence and Aerospace Industry, thus amplifying their strategic importance.
- **Strategic Independence**: Domestic semiconductor manufacturing reduces India's vulnerability to supply chain disruptions (as seen during the COVID-19 pandemic).
- **Economic Growth Potential**: Semiconductor industry's growth is projected to contribute 8.2% to India's GDP, reaching USD 400 billion by 2025.
- **Boost Domestic manufacturing**: Semiconductor industry is a major driver of economic growth and job creation.
  - According to the Semicon Talent Building Committee, the semiconductor manufacturing industry will create demand for 12 lakh jobs
- **Global Supply Chain:** India can leverage its strengths in specific areas like Chip design, fabrication etc. of the semiconductor value chain to tap into global supply chain and opportunities.

SEMICONDUCTOR MANUFACTURING – INDIA'S POTENTIAL & OPPORTUNITIES:

- **Large Consumer Base:** India's growing middle class (580 million by 2025) presents a vast market for electronics, making local semiconductor units crucial to meeting domestic demand and reducing imports.
  - As per IDC, India shipped 144 million smartphones in 2022.
- **Existing strengths & Capacities**: India has certain strength and capabilities;
  - **Chip design**: India has a significant number of chip designers, the largest outside the US.
  - **EDA tools**: Indian professionals have robust skills in Electronic Design Automation (EDA) tools, laying a foundation for manufacturing expansion.
- **Special Economic Zones:** India's SEZs, rich with incentives, can drastically cut operational expenses, making the country enticing for semiconductor enterprises.
  - India is home to over 270 operational SEZs (PIB).
- **Policy Support:** Government initiatives like PLI are enhancing India's appeal for semiconductor manufacturing, potentially leading to cost reductions and increased profitability.
  - E.g. Apple's suppliers, such as Foxconn, are capitalizing on India's PLI scheme.
- **Competitive Labor Costs**: India's economically competitive labor can significantly drive down semiconductor production expenses.
  - Compared to China's $8-$10/day, India's minimum wage is around $2-$3/day.
- **Government push for Self- Reliance:** India's 'Atmanirbhar Bharat' agenda signals support for strategic sectors like semiconductors, evident from a 10% growth in domestic manufacturing in pivotal sectors in 2021.

GOVERNMENT EFFORTS – TOWARDS SEMI - CONDUCTOR MANUFACTURING

Semicon India Program	With a total outlay of INR 76,000 crore, it aims to provide financial support to companies investing in semiconductors, display manufacturing and design ecosystem.
India Semiconductor Mission (ISM)	It has been setup as an Independent Business Division within **Digital India Corporation** to drive **long-term strategies for** semiconductor design ecosystem in the country
SPECS Initiative	Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECS): It provides a **financial incentive** to boost domestic manufacturing and **attract large investments** in the electronics value chain including **electronic components and semiconductors.**

Modified Special Incentive Package Scheme (M-SIPS)	M-SIPS provides **financial incentives** for setting up new semiconductor manufacturing units in the country. Under the scheme, companies can get a subsidy of up to **25% of their** capital **expenditure**.
SEWFAP	Semiconductor Wafer FAB Acquisition Program (SEWFAP) provides **financial assistance** to Indian companies for **acquiring semiconductor fabrication facilities (fabs) outside India.**
National Electronics Policy (NEP) 2019	The NEP promotes the **growth of the electronics industry** in the country, including the **semiconductor industry.**
International Collaboration	❒ **U.S.-India initiative on Critical and Emerging Technology:** It aims to promote collaboration in critical and emerging technology areas, including AI, quantum computing, semiconductors, and wireless telecommunication. ❒ **Indian and Japan,** have signed a **Memorandum of Cooperation (MoC)** to build a resilient semiconductor ecosystem.

CHALLENGES TO SEMICONDUCTOR MANUFACTURING IN INDIA

- **Huge Investment requirement:** The setting up of a semiconductor fab (fabrication unit) can cost upwards of $10 - $15 billion.
- **Infrastructure Deficit**: In comparison to semiconductor hubs like Taiwan and South Korea, India lacks the necessary infrastructure, such as specialized facilities and clean rooms required for chip manufacturing.
- **Need for Skilled manpower**: India's talent pool at present is much less than the estimated need of around 1.5 million skilled workers in the semiconductor industry by 2026-27 (India Brand Equity Foundation report).
- **Specific Raw Materials:** Semiconductor fabrication requires specific raw materials such as silicon, germanium, gallium arsenide etc which India needs to import.
  - China had threatened to impose export curbs (August 2023) on key chip manufacturing material such as Gallium and Germanium which could have adversely impact industry.
- **Huge Power requirements:** Semiconductor manufacturing facilities require a massive amount of energy to support their facilities and manufacturing processes.
  - Large fabs use as much as 100 megawatt-hours of power each hour and any disruption can lead to losses in millions.
- **Bureaucracy hurdles:** Delays in licensing, land allocation, and approval processes can extend the setup time, discouraging foreign investments.
  - Cancellation of Hindustan Semiconductor Manufacturing Corporation (HSMC) permit after years of paperwork delays.
- **Competitive Global Market:** Countries like Taiwan, South Korea, and China have already established themselves as major players in the semiconductor market.
  - TSMC (Taiwan Semiconductor Manufacturing Company) currently dominates the foundry market with a share of over 50%.

WAY FORWARD:

- **Strategic Investment and Funding:** Allocate a significant portion of the national budget to aid semiconductor manufacturing, as demonstrated by South Korea's strategic investment in Samsung during its early days.
- **Infrastructure Development:** Prioritize the development of specialized infrastructure, such as facilities and clean rooms, for chip manufacturing, similar to Taiwan's Hsinchu Science Park.
- **Skill Development and Training**: Collaborate with educational institutions to offer **tailored courses** on semiconductor technology.
  - Singapore's IME partners with universities and industries to provide training in advanced semiconductor technologies, cementing its position as a global semiconductor hub.
- **Build Supply Chain resilience**: Diversify raw material import sources and explore domestic extraction, similar to Japan which diversified its imports reduce its rare earths dependency on China.
- **Guaranteed Power Supply**: Invest in dedicated power grids for semiconductor manufacturing zones to ensure uninterrupted power supply
  - Intel's chip manufacturing facilities in Arizona benefit from dedicated power lines ensuring uninterrupted power supply.

- **Streamlined bureaucratic process:** Implement a single-window clearance system for faster approvals, land allocation, and licensing.
  - E.g. Singapore's Economic Development Board's model of attracting multinationals like GlobalFoundries.
- **Promote Domestic Innovation and R&D**: Offer incentives for R&D in emerging semiconductor technologies.
  - Israel's government-backed incentives fueled its startup ecosystem, positioning it as a semiconductor innovation powerhouse.
- **Risk Management Strategy**: Develop strategies to handle geopolitical tensions that might affect the supply chain.
  - E.g. Japanese firms obtained stakes in overseas mines and increased stockpile of the minerals, vital to the technology and defense industries.

52ND GST COUNCIL MEETING

CONTEXT:

- The 52nd GST Council met under the Chairpersonship of the Union Minister for Finance.

KEY RECOMMENDATIONS OF 52ND GST COUNCIL MEETING

Recommendations relating to GST rates on goods and services:

- **Changes in GST rates of goods:**
  - **Nil rate for millet flour:** Food preparation of millet flour in powder form, containing at least 70% millets by weight, will be exempt from GST **when sold in loose form.** This is aimed at promoting the consumption of millets.
  - **5% GST for packaged millet flour:** If the millet flour is **sold in pre-packaged and labeled form,** it will be subject to a 5% GST. This encourages the packaging and sale of millet flour in a consumer-friendly manner.
- **Exemption of Extra Neutral Alcohol (ENA):** Extra Neutral Alcohol (ENA) used for the manufacture of alcoholic liquor for human consumption will be kept **outside the ambit of GST.** This simplifies the taxation structure for alcoholic beverages.
- **Reducing GST on molasses:** GST on molasses, which was previously taxed at a rate of **28%,** will now be **reduced to 5%.**
- **Conditional IGST exemption for foreign-going vessels:** Foreign-flagged foreign-going vessels, when they **convert to coastal run (domestic routes),** will receive conditional IGST exemption. This exemption is subject to the condition that the vessels must be converted back to foreign-going vessels **within six months.** This measure aims to **promote tourism and coastal shipping.**

MEASURES FOR FACILITATION OF TRADE:

- **Amnesty Scheme for filing appeals:** This scheme will allow taxpayers to file appeals against such orders up to January 31, 2024, subject to the condition of payment of a pre-deposit of 12.5% of the disputed tax amount.
- **Clarifications on guarantees and corporate guarantees:** Clarifications have been provided regarding the taxability of personal guarantees offered by directors to banks and corporate guarantees provided for related parties. These clarifications aim to simplify the taxation treatment of such transactions.
- **Automatic restoration of provisionally attached property:** A provision has been recommended for the automatic restoration of provisionally attached property after the completion of one year.
- **Clarifications on the place of supply:** The GST Council has recommended issuing a circular to clarify the place of supply for various services, including transportation of goods, advertising services, and co-location services.
- **Export remittances in Special INR Vostro account:** A circular will be issued to clarify the admissibility of export remittances received in Special INR Vostro accounts, as permitted by the Reserve Bank of India (RBI), for the purpose of considering the supply of services as an export of services.
- **Supplies to SEZ units/developers:** Amendments have been recommended to allow supplies to Special Economic Zone (SEZ) units and developers for authorized operations, making them eligible for IGST refund.

OTHER MEASURES PERTAINING TO LAW AND PROCEDURES:

- **GST Appellate Tribunals:** These changes relate to the appointment of the President and Member of the **proposed GST Appellate Tribunals.**

- an advocate for ten years with substantial experience in litigation under indirect tax laws in the Appellate Tribunal, Central Excise and Service Tax Tribunal, State VAT Tribunals, by whatever name called, High Court or Supreme Court to be eligible for **the appointment as judicial member;**
- the **minimum age for eligibility for** appointment as **President** and Member to be 50 years;
- **President** and **Members** shall have **tenure** up to a maximum age of 70 years and 67 years respectively.

❒ **Law amendment for Input Service Distributor (ISD):** Amendments have been recommended in the CGST Act, 2017 to make the ISD procedure mandatory for distributing input tax credit (ITC) when the supply involves the Head Office (HO) and Branch Office (BO). This is aimed at streamlining the ITC distribution process.

What is GST Appellate Tribunal (GSTAT)?

❒ The Central Goods and Service Tax Act, 2017 (CGST Act) in Section 109 mandates for the constitution of a GSTAT and its Benches.

❒ The GSTAT will be the specialized appellate authority for resolving disputes under the GST laws.

❒ Composition:

- The GST Tribunal will have one principal bench in New Delhi and as many benches or boards in states as decided by each state, subject to approval of the council.
- North-eastern states could opt for one bench for 2-3 states and an additional bench for very far-flung areas.
- The principal bench and state boards would have two technical and two judicial members each, with equal representation from the Centre and states.
- All four members would not sit for hearing each case. It depends on the threshold or value of dues involved.

CRITICAL MINERALS

CONTEXT:

❒ The Centre has approved **royalty rates** of 3% each for **lithium** and **niobium** and 1% for **Rare Earth Elements (REEs).**

MORE ON THE NEWS

❒ **Prior to this decision,** there was **no royalty rate** specified for these minerals and it was pegged at **12% of the average sale price (ASP),** similar to other unspecified ones.

❒ It has now been decided that royalty for lithium will be **3% of London Metal Exchange price.**

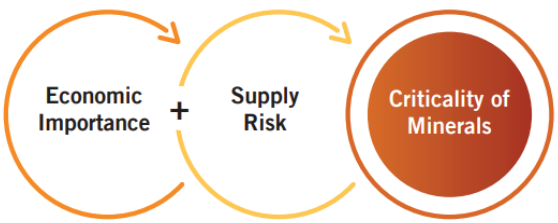
❒ **Significance of the move:** These changes enable **competitive royalty rates** for critical minerals and open the doors to **private sector participation** through concession auctions.

WHAT ARE CRITICAL MINERALS?

❒ Critical minerals are those minerals that are essential for **economic development** and **national security.**

❒ They include a wide range of elements, such as **Rare earth** elements (REEs), **Lithium, and Cobalt, Germanium etc.**

❒ The **lack of availability** of these minerals or concentration of extraction or processing in a **few geographical locations** may lead to **supply chain vulnerabilities** and even **disruption of supplies.**



SIGNIFICANCE OF CRITICAL MINERALS

❒ **Economic advancement:** They are essential for the advancement of many sectors, including high-tech electronics, telecommunications, transport, and defence.

❒ **Digital transition:** The future global economy will be underpinned by technologies that depend on minerals such as lithium, graphite, cobalt, titanium, and rare earth elements.

❒ **Renewable energy and climate action:** Critical minerals are vital for the production of renewable energy technologies like solar panels and wind turbines.

- **National Security:** Critical minerals are vital for defense applications, including aerospace, communication systems, and advanced weaponry.
- **Medical Technologies:** Critical minerals are crucial components in medical equipment and diagnostic devices. For instance, rare earth elements are used in MRI machines and other high-tech diagnostic tools.
- **Automotive Evolution**: As the automotive industry transitions to electric vehicles (EVs), minerals like lithium, cobalt, and nickel become central to battery technologies.
- **Space Exploration**: Minerals like titanium, used for its high strength-to-weight ratio, play a role in spacecraft design and other aerospace applications.
- **Consumer Electronics:** Devices like smartphones, tablets, and laptops depend heavily on these minerals for their batteries, displays, and internal components.
- **Supply Chain Resilience:** Ensuring a stable supply of these minerals reduces dependency on single-source suppliers, thus strengthening economic resilience against geopolitical uncertainties.

SEVENTEEN RARE EARTH ELEMENTS

Rare earth name	Discovery year	Atomic name & number	Light/heavy REE	Critical/ Uncritical
Yttrium	1788	Y-39	Heavy	Critical
Cerium	1803	Ce-58	Light	Excessive
Lanthanum	1839	La-57	Light	Uncritical
Erbium	1842	Er-68	Heavy	Critical
Terbium	1843	Tb-65	Heavy	Critical
Ytterbium	1878	Yb-70	Heavy	Excessive
Holmium	1878	Ho-67	Heavy	Excessive
Scandium	1879	Sc-21	Heavy	Critical
Samarium	1879	Sm-62	Light	Uncritical
Thulium	1879	Tm-69	Heavy	Excessive
Praseodymium	1885	Pr-59	Light	Uncritical
Neodymium	1885	Nd-60	Light	Critical
Dysprosium	1886	Dy-66	Heavy	Critical
Europium	1886	Eu-63	Heavy	Critical
Gadolinium	1886	Gd-64	Heavy	Uncritical
Lutetium	1907	Lu-71	Heavy	Excessive
Promethium	1947	Pm-61		

Source: Author

- **Innovation and R&D:** As technology evolves, the research and development in new materials and applications will increasingly rely on the availability of these critical minerals.
- **Infrastructure Development:** Modern infrastructure, especially in urban settings, uses advanced materials that require these minerals.
  - E.g. smart cities and their infrastructures may rely on sensors and technologies made from these minerals.
- **Job Creation**: Exploration, mining, processing, and trading of these minerals can lead to job creation in various sectors related to the mineral industry.

MAJOR CHALLENGES FOR INDIA WITH RESPECT TO CRITICAL MINERALS

- **Limited Reserves**: India lacks abundant domestic reserves of many critical minerals.
  - **E.g.** Recently, India had discovered lithium reserves in Rajasthan and J&K, which are yet to exploited otherwise it is heavily dependent on Australia and Argentina.
- **Geopolitical Dependence:** Dependence on specific countries can lead to supply chain vulnerabilities.
  - **E.g.** India relies on China for nearly 90% of its rare earth element imports, creating potential supply chain disruptions in geopolitical conflicts (such as Russia – Ukraine war).
- **Lack of Advanced Technology:** Advanced extraction and processing technologies are pivotal but often unavailable.
  - **E.g.** Despite having thorium reserves, India has been slow in developing advanced technologies to harness it for nuclear energy efficiently.
- **Regulatory Challenges:** Regulatory hurdles, such as delays in environmental clearances and land acquisition, can impede mining initiatives, as seen in the Odisha bauxite mining project for Vedanta.
- **Inadequate Infrastructure**: Infrastructure required for exploration, extraction, and processing is often not up-to-date.
  - Many mining regions face transportation bottlenecks due to inadequate rail and road connectivity.
- **Market Dynamics**: Global market fluctuations can affect India's access and costs.
  - **E.g**. The surge in prices of Cobalt has an adverse impact on India's EV (Electric Vehicle) Market.

INDIA'S CRITICAL MINERAL POLICY

- **List of 30 Critical Minerals:** An Expert Committee under Ministry of Mines has identified a **set of 30 critical minerals for India (see image).**

- The Committee also recommended creation of a **Centre of Excellence for Critical Minerals (CECM)** in the Ministry of Mines.
- The CECM will **periodically update the list** and notify the **critical mineral strategy** from time to time.

❒ **The Mines and Minerals (Development and Regulation) Amendment Act, 2023:**
- **Allows the private sector** to mine **six out of 12 atomic minerals,** such as lithium, beryllium, niobium, titanium, tantalum, and zirconium.
- Introduces an exploration license for **deep-seated and critical minerals.**

❒ **Mines and Minerals (Development and Regulation) Amendment Act 2021:** It ensured **transparency in the auction process** of mines and enhances domestic and foreign investment in mining sector.

❒ **Initiatives taken with respect to Critical Minerals:**
- **India- Australia Critical Minerals Investment Partnership:** It was launched in 2022 to promote investment and collaboration in the critical minerals sector between the two countries.
- **Minerals Security Partnership (MSP):** India has joined MSP which is a US-led collaboration of 14 countries that aims to catalyse investment in critical mineral supply chains globally.
- **Supply Chain Resilience Initiative (SCRI):** India, Japan, and Australia unveiled SCRI to enhance the resilience of supply chains in Indo-Pacific Region and reliance on China.
- **Khanij Bidesh India Limited (KABIL):** It was created in 2019, by the Ministry of Mines. The company's goal is to identify, acquire, develop, process, and commercialize strategic minerals in overseas locations for supply in India.

WAY FORWARD

❒ **Recommendations made by the Ministry of Mines:**
- Create a **separate wing** in the Ministry of Mines and establish a **Centre of Excellence** for Critical Minerals.
- Collaborate with international agencies for **strategic acquisition** of foreign assets.
- An **innovative funding mechanism** to focus on processing and refining technologies.
- **Update the list** of critical minerals **periodically,** preferably every three years.

❒ **Strengthening International Partnerships:** Building strategic alliances with countries rich in critical minerals, ensuring a consistent supply chain.
- **India-Australia Critical Minerals Investment Partnership** is a significant step towards securing critical minerals from a stable ally.

❒ **Streamlining Regulatory Processes:** Delays faced by the Vedanta bauxite mining project in Odisha highlight the need for regulatory clarity to ensure speedy extraction and processing of minerals.

❒ **Infrastructure Development:** Improving transportation and processing infrastructure can mitigate logistical challenges.
- **'**Pit to port infrastructure projects' of Australia been linked to a boom in mining and resources sector.

❒ **Building Domestic Capacities:** Focusing on enhancing domestic exploration and extraction capabilities can reduce external dependencies.
- Discoveries of lithium reserves in Rajasthan and J&K are potential game-changers if harnessed correctly.

❒ **Diversifying Import Sources:** Relying on one or few countries for crucial supplies can make supply vulnerable, therefore, it is essential diversify its rare earth material supply.

❒ **Asset Allocation:** A fair and innovative system for allocating mining assets of critical minerals is needed to incentivize private explorers.

❒ **Encouraging Deep-seated Mineral Exploration:** through collaboration between the government, junior mining companies, and major mining corporations.

PERIODIC LABOUR FORCE SURVEY ANNUAL REPORT 2022 – 23

CONTEXT:

❒ The Periodic Labour Force Survey (PLFS) Annual Report 2022-2023 was released by the National Statistical Office (NSO).

ABOUT THE PERIODIC LABOUR FORCE SURVEY (PLFS)

- **About:** It is a quarterly survey conducted by the **National Statistical Office (NSO)** of India to collect data on the labour force and employment.
- The PLFS was **launched in 2017-18** to provide more **timely and regular data on the labour market.**
  - The first annual report was published in 2019, utilising data from July 2017 to June 2018.
- **Objective:** To estimate the key employment and unemployment indicators in:
  - Short time interval of three months for the **urban** areas **only** in the **'Current Weekly Status' (CWS).**
  - Both **'Usual Status' and current weekly status** in both rural and urban areas annually.

KEY INDICATORS OF PLFS (PERIODIC LABOUR FORCE SURVEY)

- The survey covers **both urban and rural areas**, and provides data on a variety of indicators.
- Data is provided in the survey on a variety of indicators, including:

Key Indicators	Meaning
Labour Force Participation Rate	The percentage of persons in the labour force in the population (working or seeking or available for work)
Worker Population Ratio	Actual percentage of employed people in the population.
Unemployment Rate	The percentage of persons unemployed among the persons in the labour force.
Activity Status	It is based on the activities pursued by the person during the specified reference period. **Usual Status:** Usual activity status is determined based on the reference period of the **last 365 days** preceding the survey date. **Current Weekly Status:** The number of persons either employed or unemployed on **average in the week** preceding the survey date (worked for one hour or were seeking work for one hour). ***Usual status employment is always lower than Current Weekly Status (Greater probability the person would find work in a year compared to a week).
Employment Status	Survey divides the employment status in three broad categories 1. Self Employed 2. Regular wage or Salaried employees 3. Casual labour

KEY FINDINGS OF PLFS ANNUAL REPORT 2022- 2023

Estimates of key labour market indicators in usual status

Trend for persons of age 15 years and above	Rural-Urban				Gender Wise			
	Rural		Urban		Male		Female	
	2017-18	2022-23	2017-18	2022-23	2017-18	2022-23	2017-18	2022-23
Increasing Trend in LFPR	50.7%	60.8%	47.6%	50.4%	75.8%	78.5%	23.3%	37.0%
Increasing Trend in WPR	48.1%	59.4%	43.9%	47.7%	71.2%	76.0%	22.0%	35.9%
Decreasing Trend in UR	5.3%	2.4%	7.7%	5.4%	6.1%	3.3%	5.6%	2.9%

Estimates of key labour market indicators in Current Weekly Status (CWS)

Trend for persons of age 15 years and above	Rural-Urban				Gender Wise			
	Rural		Urban		Male		Female	
	2017-18	2022-23	2017-18	2022-23	2017-18	2022-23	2017-18	2022-23
Increasing Trend in LFPR	48.9%	56.7%	47.1%	49.4%	75.1%	77.4%	21.1%	31.6%
Increasing Trend in WPR	44.8%	54.2%	42.6%	46.0%	68.6%	73.5%	19.2%	30.0%
Decreasing Trend in UR	8.4%	4.4%	9.5%	7.0%	8.7%	5.1%	9.0%	5.1%

KEY FINDING OF THE REPORT

- The **Unemployment rate** (above 15 years of age) has fallen significantly — from 6.6% to 5.1% over the last year (2022 – 23).
- **India's LFPR (labour force participation rate)** has increased significantly in the past year to 54.6% (2022 – 23)
- **LFPR for women** shows that it increased to 31.6% (2022 – 23) in comparison to 27.2% in the last year.
- **Worker Population rate** (actual % of people actually employed) has increased to 51.8%.
- **Worker population rate** for women has also increased to 30%

RELATED INFORMATION: TREND ANALYSIS

- Has the unemployment rate consistently decreased since 2017 – 18? No (increase in 2019-20)
- Has the labour force participation rate consistently increased since 2017 – 18? No (decrease in 2021 -22).
- Has the LFPR for women consistently increased since 2017 – 18? No (decrease in 2021 – 22)
- Has the Worker Population rate (actual % of people actually employed) consistently increased since 2017 – 18? Yes
- Has the Worker population rate for women consistently decreased? No (decrease in 2021 – 22).
- Only Muslims have experienced a decline in their Labour force participation rate (LFPR) and worker population ratio (WPR).
- Majority of workers in rural areas are self - employed, while In urban areas it is regular wage worker.

FARMER PRODUCER ORGANIZATIONS (FPOS)

CONTEXT:

- Farmer Producer Organizations (FPOs) in Uttar Pradesh are becoming agents of change, enhancing agricultural productivity, diversification, and value addition, while also improving the economic well-being of farmers in the region.

MORE ON THE NEWS

- **Uttar Pradesh Government's Support to FPOs:**
  - A **dedicated FPO cell** to provide guidance and assistance to these organizations.
  - A scheme to form FPOs in each of the **826 blocks in Uttar Pradesh.** The goal is to create **10,000 FPOs in the state.**
  - **FPO Shakti portal,** which serves as a one-stop solution for active FPOs in UP.
  - **Financial incentives** for FPOs to encourage the development of post-harvest infrastructure, such as warehouses, cold storage facilities, and cold chains.
- **Success of FPOs in Uttar Pradesh:**
  - FPOs in Uttar Pradesh are actively involved in **crop diversification** and **value addition.**
  - Succeeded in managing **paddy stubble** and promoting **climate-resilient** strategies like direct seeding of rice.
  - They are also involved in **improving nutrition** by developing value chains for high-nutrient agri-products like millets, mushrooms, moringa, and fortified cereals.
  - Some FPOs in UP have succeeded in registering local agricultural products under **Geographical Indication (GI) protection.**

WHAT IS A FARMER PRODUCER ORGANISATION (FPO)?

- It is a **group of small and marginal farmers** who come together to **pool their resources** and **negotiate better prices** for their produce.
- FPOs typically **buy** produce from farmers at **wholesale prices** and then **sell it to retailers or processors** at a higher price.
- In addition to negotiating better prices, FPOs provide other services such **as storage, transport, and marketing support.**
- There are currently **over 1,000 FPOs operating in India,** and the government is working to promote their growth as a **key part of its rural development strategy.**

THE BENEFITS OF FPO

- **Economies of scale:** Farmers in FPOs can pool their resources, which allows them to buy inputs and services in bulk, saving money and improving efficiency.
- **Improved bargaining power:** FPOs give farmers a stronger voice in negotiations with buyers, allowing them to get better prices for their produce.
- **Reduced costs:** FPOs can negotiate bulk discounts on inputs, reducing costs for members.
- **Training and technical assistance:** FPOs can provide members with training and support on farming practices, business management, and marketing.
- **Risk mitigation:** By pooling resources and collaborating, FPOs can help members spread risk and reduce vulnerability to shocks.
- **Access to finance**: FPOs can help members access loans and other financing options to invest in their farms.
- **Better market access:** FPOs help connect farmers to local and export markets for their produce.
- **A stronger voice in policy debates:** FPOs represent the interests of small-scale farmers, advocating for policies that benefit their members.
- **Value addition:** FPOs can invest in processing facilities, allowing farmers to sell processed goods with higher market value than raw agricultural products.

Case Studies of Farmer Producer Organizations

Vrutti livelihood Resource Centre (FPO) demonstrated a new red gram transplanting method to the farmer of Karnataka which helped in developing Climate resilience in Karnataka.

In **Maharashtra**, Farmer Producer organization have been involved in aggregation of finer cotton from Small holders, ensuring that it is grown under scientific guidelines and cotton produced is of fine quality, in terms of fibre length and strength.

Sakhi Mahila Milk Producer company, aims to bring socio economic change through animal husbandry and gives its members the best prices for their milk in the area.

Sahaja Aharam Producer Company Limited, is a federation of 23 organic farmer producer organizations through their end-to-end supply chain, provide high organic produce and leading to price realization for the farmers.

STEPS TAKEN BY THE GOVERNMENT TO PROMOTE FPOS

- **Creation of a Dedicated FPO Promotion Scheme**: The government launched a dedicated FPO promotion scheme, managed by SFAC and NABARD, with clear strategy and financial support to form and promote 10,000 FPOs.
- **Financial Assistance:** Under the Central Sector Scheme of "Formation and Promotion of Farmer Producer Organizations (FPOs)", the government provides financial assistance up to Rs. 18 lakh per FPO for a period of 3 years.
- **Small Farmers' Agri-Business Consortium (SFAC)**: SFAC is a government agency that provides technical assistance and support to FPOs. SFAC has also developed a number of training programs for FPOs
- **Producers' Organization Development and Upliftment Corpus (PRODUCE) Fund:** A fund of Rs 200 crores was created by the Government of India in **NABARD** in 2014-15 for building 2,000 Farmer Producer Organizations (FPOs) in the country.
- **Credit Guarantee Facility:** To encourage lending to FPOs, the government provides credit guarantee facilities to FPOs (Rs. 2 crore of project loan per FPO) for loans availed from financial institutions.
- **Cluster-Based Approach:** The government promotes a cluster-based approach to support FPOs, focusing on the end-to-end solution in terms of backward linkage with input suppliers and forward linkage with the market.

- **Tax exemption:** Farmer producer organizations are provided with tax exemptions e.g. 2018 -19 announced tax exemption of 5 years for promotion of FPO's.

SEVERAL CHALLENGES FACED BY FPOS IN INDIA

- **Lack of Professional Management:** Inadequate understanding of market dynamics, financial management, and business planning can lead to poor decision-making in FPOs.
- **Access to Finance:** FPOs have limited access to finance due to stringent collateral requirements and perceived risks, constraining their ability to invest and grow.
- **Market Linkages**: Despite platforms like e – NAM, FPOs struggle to establish strong market linkages due to limited volume and bargaining power**.**
- **Quality and Certification:** High cost and complex procedure limit FPO's ability to adhere to quality standards and obtain certification like GAP (Good agricultural practices). This adversely impacts their access to premium markets and export opportunities.
- **Insufficient technical and financial support** makes it difficult for FPOs to attract and retain members and effectively carry out their activities.
- **Poor governance and management** often leads to inefficiency and corruption, discouraging farmer participation and engagement.
- **Legal and Regulatory Challenges:** The multiplicity of laws governing agriculture and related activities, increase compliance burden on FPO's.
- **Limiting Scalability:** Many FPO's remain in scale, limiting their ability in achieving economies of scale, risk diversification, as well as investment capabilities.

Case Studies of Successful Farmer Producer Organisations (FPOs)

- Bhangar Vegetable Producers' Company (FPO) in West Bengal: This FPO, with 1750 marginal farmer members, improved crop yields and quality, increasing a farmer's income from Rs 22,000 to Rs 85,000 in 120 days. They established efficient market linkages, ensuring rapid delivery of fresh produce to Kolkata.
- VAPCOL (Vasundara Agricultural Horticultural Producer Company Ltd.): Operating in five Indian states, VAPCOL, with over 41,000 members, achieved a remarkable turnover of Rs 34 million in its first year. They process and market mangoes, cashew nuts, and other products under their brand 'Vrindavan,' benefiting both farmers and the community.
- Smallholder Cooperative Model for Poultry in Madhya Pradesh: PRADAN's intervention increased income for smallholder tribal households by linking them to the poultry value chain. They organized over 5,306 women broiler-farmers into 15 cooperatives and one producer's company, collectively generating a turnover of about Rs 400 million.
- Developing Climate Resilience in Karnataka with Krishikabandhu Farmers Producer Company: This FPO introduced a new technology for red gram cultivation, reducing input costs, increasing yields, and mitigating risks due to late rainfalls. Farmers reported significant improvements in profitability and plan to expand their production.

WAY FORWARD

- **Strengthening Capacity and Management Skills**: Government can collaborate with educational institutions and management organization, to provide FPO's training in business management, governance, financial literacy, strategic planning etc.
- **Enhancing Access to Finance**: To increase FPO's access to finance, innovative financial instruments like value chain financing, warehouse receipt financing, crop receivable financing can be utilized.
- **Improving Market Linkages:** Technology can be leveraged to connect FPO's with more buyers, along with partnerships with private sector entities for market intelligence and long-term contracts.
- **Scaling up Value Addition Activities:** Encourage FPOs to process and brand their produce to increase value and garner premium pricing.
- **Infrastructure Development**: Increasing investment in rural infrastructure (via PPP Model), particularly storage and processing facilities, to reduce post-harvest losses.
- **Technology adoption and Innovation:** Promote the adoption of precision farming, quality inputs, climate-resilient practices, and digital technologies through knowledge dissemination and subsidies.
- **Policy Advocacy and Reforms:** Streamline policies impacting FPOs to make them enabling and give FPOs a platform to voice concerns and participate actively in policy-making.

- **Streamline conflict resolution**: Develop clear conflict resolution guidelines and external support mechanisms for legal and financial mediation within FPOs.
- **Institutionalizing Best Practices:** Document and disseminate best practices from model FPOs, also establish a national repository of resources and case studies for FPOs to learn from each other.

WOMEN LABOUR FORCE PARTICIPATION IN INDIA

CONTEXT

- India has low women labor force participation rate at 31.6% **(PLFS Data 2021 -22).** In comparison, Labor force participation for men is more than 2.5x at 80.7%.
- Indian women's participation in the formal economy is among the **lowest in the world**—only parts of the Arab world fare worse **(World Bank report).**
- According to ILO report 2018, **82 percent** of the total number of working women in India are concentrated in the **informal sector**.
  - More women than men contribute to the total workforce in the unorganized sector **(eShram national database).**
- **World Inequality Report 2022:** Men in India capture 82% of labour income, while women earn just 18%

PRESENT STATUS - CHALLENGES FACED BY FEMALE LABOR FORCE:

- **Gender Wage Gap:** Women in India earn significantly less than men for the same work.
  - **ILO report 2018**, gender pay gap in India is 34% (compared to the World average of 20%).
- **Workforce Participation:** India has one of the lowest female labor force participation rates in the world.
  - Women labor force participation rate in India stand at 31.6% **(PLFS Data 2021 -22).**
- **Informal Employment:** A majority of women are employed are in the informal sector, which impacts their job security, benefits, or adequate labor rights.
  - According to ILO report 2018, **82 percent** of the total number of working women in India are concentrated in the **informal sector**.
- **Lack of Representation in Leadership Roles:** Women are underrepresented in managerial and leadership roles in India.
  - In 2021, women held only 10% of management roles and were only 5% of CEOs in India.
- **Education and Skill Development:** Access to education and skill development for women is still a significant issue, especially in rural areas (impacting their employability in skilled professions).
  - The literacy rate for females in rural India stood at 65% (**NSS 75th report**)
- **Workplace Harassment and Safety Concerns:** Safety concerns are major barriers for women in the workforce. Despite laws like the Prevention of Sexual Harassment (POSH) Act, implementation and awareness are lacking.
- **Childcare and Domestic Responsibilities:** The disproportionate burden of childcare and domestic work on women restricts their work opportunities.
  - Women spend **577%** more time in a day on household work than men (OECD data).
- **Social and Cultural Barriers**: Deep-rooted social norms and cultural expectations about the roles of women as homemakers hinder their career aspirations and mobility.
- **Discrimination and Biases:** There is a pervasive bias and discrimination against women in hiring and promotion processes.
  - The lower wages for salaried women are due to 67 percent of discrimination and 33 percent due to lack of education and work experience (Oxfam 'India Discrimination Report 2022')

NEED FOR INCREASING FEMALE LABOUR FORCE PARTICIPATION IN INDIA:

- **Economic Growth:** Women's participation can substantially boost the GDP.
  - E.g.: The IT sector in India has thrived partly due to an increase in the female workforce.
- **Demographic Dividend:** Utilizing the large youth population includes tapping into the potential of young women.
  - E.g.: Educational initiatives in Tamil Nadu have created a more skilled female labor force.
- **Poverty Reduction:** Women's income is pivotal for decreasing poverty rates.

- E.g.: SEWA has successfully empowered women, contributing to family income and reducing poverty.

- **Improved Health Outcomes:** Employment can improve healthcare access for women and their families.
  - E.g.: In Kerala, better employment opportunities for women correlate with lower infant and maternal mortality rates.
- **Empowerment and Agency:** Income contributes to women's self-confidence and decision-making power.
  - E.g.: Microfinance institutions enable women to make significant decisions regarding family planning (by increasing their economic position, independence in household)
- **Fulfilling International Commitments:** Increasing women's employment is aligned with achieving the SDGs (SDG 1 - No Poverty, SDG 5 - Gender Equality, SDG 8 -Decent Work and Economic Growth and SDG 10 - Reduced inequalities).
  - E.g.: The MGNREGA scheme's impact on women's workforce participation demonstrates India's efforts to meet its international obligations.
- **GDP Enhancement:** Gender workforce parity is linked to increased economic output.
  - E.g.: McKinsey's estimate that India's GDP could grow significantly with equal opportunities for women (can add US$ 700 billion to the economy).
- **Reduced Inequality**: Women earning competitive wages can lead to a more equitable society.
  - E.g.: Initiatives like the Bharatiya Mahila Bank promote financial inclusion for women, reducing economic disparities.
- **Dignity and Self-Worth:** Financial independence is tied to dignity and higher self-esteem among women.
  - E.g.: Participation in self-help groups has shown improvements in women's perceptions of their social status and self-worth.
- **Political and Social Engagement:** Working women are more likely to engage in political and social issues.
  - E.g.: Women leaders in Panchayati Raj institutions have been instrumental in advocating for community welfare and governance reforms.

GOVERNMENT INITIATIVES TAKEN TO PROMOTE WOMEN IN WORKFORCE

- **Education and Skill Development:** Government programs such as Pradhan Mantri Kaushal Vikas Yojana (PMKVY), National Apprenticeship Promotion Scheme (NAPS), provide skill development and vocational training to women, laying the foundation for a skilled female labor force.
- **Economic Empowerment:** Schemes like **Pradhan Mantri Mudra Yojana (PMMY)** and **Stand-Up India** scheme offer easy finance for starting and expanding businesses, thereby encouraging more women to enter the business domain.
- **Health and Maternity Benefits: Pradhan Mantri Matru Vandna Yojna** provides financial incentives to working pregnant and lactating mothers, ensuring they can afford to take time off work without economic hardship.
- **Safety and Accommodation:** The **Working Women Hostel (WWH)** initiative provides safe and affordable accommodation to working women, including daycare facilities for their children, making it easier for women to pursue sustained employment.
- **Entrepreneurship:** The **Mahila e-Haat platform** allows women artisans and entrepreneurs to market and sell their products online, improving their access to wider markets and business opportunities.
- **Gender budgeting:** Implemented in the 2005 Union Budget, allocates funds for women's development, ensuring sustained investment in women-centric programs across sectors.
- **Labour code reforms:**
  - The Code on Social Security 2020: paid maternity leave from 12 weeks to 26 weeks provided by the Maternity Benefit (Amendment) Act, 2017.
  - Code on Occupational Safety, Health and Working Conditions (OSH), 2020: allowed for women to work at night.
  - Code on Wages, 2019: No discrimination on the grounds of sex.

ISSUES WITH GOVERNMENT INITIATIVES:

- **Implementation Gaps**: There's often a discrepancy between policy formulation and its effective implementation at the grassroots level.
  - For e.g. 'Pradhan Mantri Matru Vandna Yojna' has seen varied implementation across states, with delays and paperwork issues denying some women full benefits.

- **Inadequate Reach**: A report on Janani Suraksha Yojana found that only 60% of the women respondent were aware of the scheme (National Institute of Health report).
- **Cultural Barriers**: India's skewed sex ratio, a sign of persistent son preference, impacts girls' enrollment in education and vocational programs.
- **Skill-Job Mismatch**: Women trained in certain traditional skills (such as USTAAD initiative) under various government schemes often find that the demand for such skills is declining in the market.
- **Limited Scope**: Initiatives like 'Mahila e-Haat' have limited reach, as many women entrepreneurs in rural areas are not digitally literate to take advantage of online marketplaces.
- **Safety Concerns**: Despite the 'Sexual Harassment of Women at Workplace Act', many women still report facing harassment, indicating a gap in the implementation of safety policies.

WAY FORWARD

1. **Enhanced Awareness Campaigns:** The 'Sukanya Samriddhi Account' scheme saw a boost in enrollment after targeted awareness campaigns in both urban and rural areas.
2. **Cultural Change Initiatives:** The **'HeForShe' campaign by UN Women** engages men and boys as advocates for gender equality and has inspired similar national movements.
3. **Market-Aligned Training:** Wheebox along with CII (Confederation of Indian Industries) came up the **India Skill report 2023** to identify talent demand – supply mismatch
4. **Comprehensive Safety Measures**: The 'Nirbhaya Fund' has been utilized for initiatives like 'Safe City Projects', which aim to enhance the safety of women in public spaces in major cities.
5. **Expanded Childcare Solutions:** Creches and centre-based childcare was found to have a positive impact on women's engagement in economic activities across the world as well as in the local context (**61st Labour Economics Conference)**
6. **Inclusive Financial Services**: The 'Self Help Group' (SHG) movement has facilitated women's access to credit and encouraged micro-entrepreneurship.
7. **Monitoring and Evaluation**: Tamil Nadu's 'Amma Two-Wheeler Scheme' regularly assesses beneficiaries to gauge the impact on women's mobility and employment.
8. **Public-Private Partnerships:** The partnership between the Government of India and Tata Trusts for vocational training programs is a case in point for successful PPP models.
9. **Legislative Support:** Iceland's equal pay standard, which mandates that companies prove they pay men and women fairly, could be a legislative model to explore.

WATER USE IN INDIAN AGRICULTURE

CONTEXT:

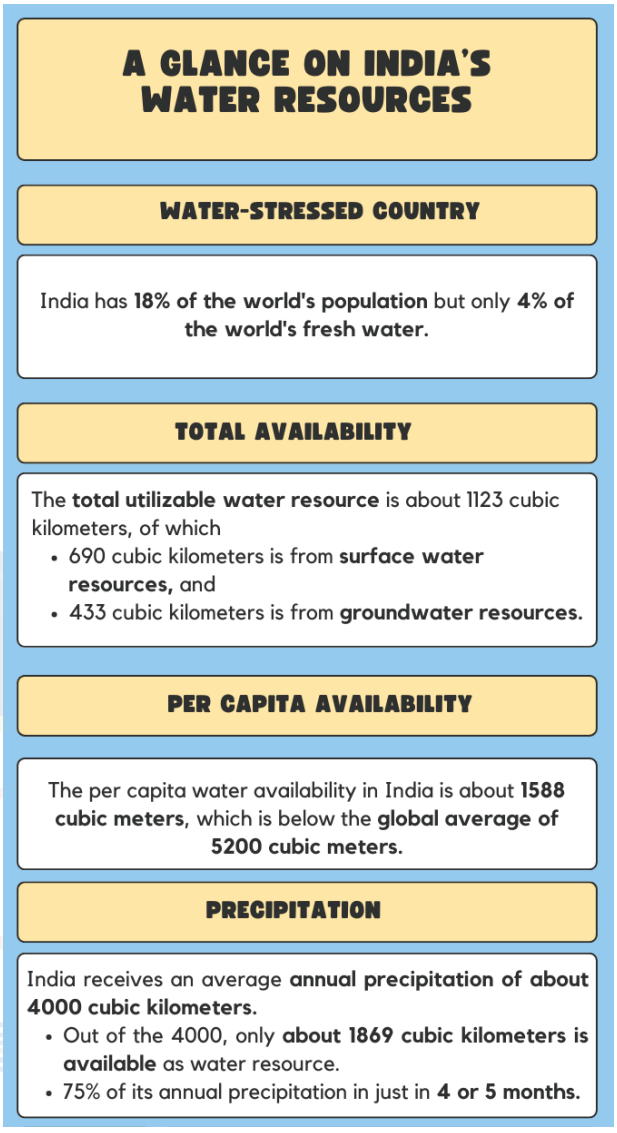
In the context of the World Food Day 2023 theme **"Water is Life. Water is Food,"** India's **water use in agriculture** becomes increasingly important.

CURRENT STATE OF WATER USE IN INDIAN AGRICULTURE

- **Main sources of water for agriculture in India:**
  - Groundwater (65%)
  - Canals (24%)
  - Tanks (3%)
  - Other sources i.e., rivers, lakes, and rainwater harvesting (8%)
- **Share of agriculture in total water consumption:** Agriculture accounts for around 80% of total water consumption in India.
- **Groundwater extraction:** Agriculture is responsible for over 90% of groundwater extraction in India.
- **Top states:** Punjab, Haryana, and Uttar Pradesh account for over 40% of the total water used for agriculture in India.

MAJOR CHALLENGES WITH THE WATER USE IN INDIAN AGRICULTURE

- **Low water use efficiency:** Water use efficiency in Indian agriculture is relatively low, with only about 38% of water used for irrigation actually reaching the crop roots.
- **Water-Intensive Crops:** The cultivation of water-intensive crops, such as rice and sugarcane, remains widespread.
  - According to the National Water Mission, paddy and sugarcane crops uses **more than 60% of irrigation water** available in the country.
- **Inefficient irrigation practices:** Prevalence of **traditional** irrigation practices, such as **flood irrigation and furrow irrigation**, waste a lot of water through evaporation and runoff.
- **Agro-climatic mismatch:** Many farmers grow crops that are not suited to the local agro-climatic conditions. This leads to low yields and high-water use.
  - For example, the cultivation of **paddy in Punjab** and **sugarcane in Maharashtra**, even though these states are semi-arid.
- **Water subsidies:** Central and state governments provide **heavy subsidies on electricity and water** used for agriculture, leading to the overuse of water by farmers.
  - Nearly 80% of groundwater exploitation in **Punjab** and 60% in **Haryana** is a direct result of power subsidies.
- **Lack of Water Management:** Many regions lack proper **water storage and distribution** systems, leading to inefficient use of available resources.
- **Water Pollution:** According to a study by the Central Pollution Control Board (CPCB), agriculture is the largest source of non-point source pollution in India, accounting for over 70% of the total.
  - Sources of agricultural pollution include fertilizers, pesticides, animal waste and irrigation runoff.



INITIATIVES TO IMPROVE WATER USE EFFICIENCY IN INDIAN AGRICULTURE

- **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY):** Per Drop More Crop is a sub-component of the PMKSY scheme and is aimed at promoting micro irrigation practices among farmers.
- **National Water Mission:** The mission has set a target of **increasing water use efficiency by 20% by 2030.**
- **Micro Irrigation Fund:** This fund was set up to provide financial assistance to farmers for the purchase of micro irrigation equipment, such as **drip irrigation** and **sprinkler irrigation** systems.
- **Watershed Development Programs:** The government has implemented watershed development programs to conserve **rainwater**, improve **soil moisture retention**, and **recharge groundwater**.
- **National Mission for Sustainable Agriculture (NMSA):** It promotes climate-resilient agricultural practices, including the **efficient use of water resources.**
- **Jal Shakti Abhiyan (Water Power Campaign):** It was launched in 2019 to promote water conservation and water resource management through **five targeted interventions viz.**
  - water conservation and rainwater harvesting,
  - renovation of traditional and other water bodies,
  - reuse of water and recharging of structures,

- watershed development and
- intensive afforestation.

WAY FORWARD

- **Adoption of Modern Agricultural Technologies:** Such as Drip irrigation, Direct Seeded Rice (DSR) technique, and Drip with Fertigation.
- **Sustainable Pricing Policies:** should be adopted for Agricultural Inputs like Water and Electricity.
- **Community Engagement:** Encourage community-driven efforts for watershed management and groundwater recharge to improve local water availability.
- **Role of technology:** Through systems such as precision agriculture, soil moisture censors and drought-resistance crop varieties etc.
- **Policy Integration:** Ensuring that water conservation measures are integrated into all aspects of agricultural policy-making, including crop selection, fertilization, and disaster management.
- **Farmer Participatory Research:** Involving farmers directly in water use research to develop more applicable and locally-tuned water-saving practices.
- **Virtual Water Trade Concept:** Promoting the understanding and application of the virtual water trade, where water-intensive crops are grown in water-abundant regions and traded to water-scarce regions.
- **Inter-sectoral Water Allocation:** Developing frameworks for the allocation of water between agriculture, industry, and domestic use to maximize the economic return on water used.
- **Climate-Resilient Varieties:** Investment in research for developing crop varieties that are resilient to climate change and require less water.

Successful case studies:

Saur Sujala Yojana, Karnataka	It promoted precision agriculture and efficient water use in sugarcane cultivation, a water-intensive crop.
Jain Irrigation's Success Story, Maharashtra	Jain Irrigation, a private company, has been at the forefront of promoting drip and sprinkler irrigation in Maharashtra
Ganga Aamantran Abhiyan, Uttar Pradesh	Several villages have implemented rainwater harvesting and groundwater recharge measures to address water scarcity in agriculture.

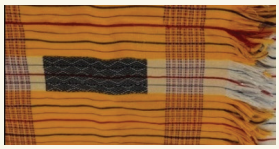
GEOGRAPHICAL INDICATION (GI) TAG

CONTEXT:

- Arunachal Pradesh has recently received the Geographical Indication (GI) tags for Arunachal Yak Churpi, Khaw Tai (Khamti rice), and Tangsa textile.

MORE ON THE NEWS

	Arunachal Yak Churpi - It is a naturally fermented dairy product made from the milk of Arunachali yaks. - The Arunachali yak is a unique breed found in the West Kameng and Tawang regions of Arunachal Pradesh. - Yak Churpi is rich in protein and is used as a substitute for vegetables by tribal yak herders.
	**Khaw Tai (Khamti rice)** - It's a chewy sticky rice variety, hails from the Namsai region. - Cultivated by traditional Khampti tribal farmers.



Tangsa textile

- The Tangsa Textile products crafted by the Tangsa tribe of Changlang district.
- They are renowned for their exotic designs and vibrant colors and reflects the cultural richness of the region.

UNDERSTANDING THE GEOGRAPHICAL INDICATION (GI) TAG

- A Geographical Indication (GI) tag is a sign that identifies a product's geographical origin. The product must have qualities or a reputation that are due to its origin.
- For example: Kanchipuram silk saree, Nagpur orange, Bikaneri bhujia, Agra petha etc.
- International Recognition: Geographical indications are recognized as a part of intellectual property rights (IPRs) under:
  - Articles 1(2) and 10 of the Paris Convention, and
  - Articles 22 to 24 of the Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement.

How a geographical indication is different from a trade mark?

- A trade mark is a sign which is used in the course of trade and it distinguishes goods or services of one enterprise from those of other enterprises.
- Whereas a geographical indication is an indication used to identify goods having special characteristics originating from a definite geographical territory.

GI TAGS AND INDIA

- **Mechanism:**
  - In India, the GI tag is regulated by the Geographical Indications of Goods (Registration and Protection) Act of 1999.
  - The Ministry of Commerce and Trade maintains the register for GI tags.
  - A GI registration is given to an area, not a trader, but once a product gets the registration, traders dealing in the product can apply for selling it with the GI logo.
  - A GI tag is valid for ten years and must be renewed.
- **First GI Tag:** The first Indian product to get the geographical indication tag was Darjeeling Tea in 2004.
- **Total GI Tags**: India has 432 registered GI tags.
- **The top 5 states holding the maximum number of GIs are: Karnataka,** Tamil Nadu, Uttar Pradesh, Karnataka, Kerala.

BENEFITS OF GI TAG

- **Legal Protection to the Products:** GI Tag prevents unauthorized use of GI tag products by others**.**
- **Reputation & Trust**: The association of a specific region with the product adds value and establishes instant trust, loyalty, and reputation.
- **Market Differentiation:** Offering valuable opportunities for businesses to differentiate their products in the marketplace, GIs highlight the uniqueness and qualities of the product**.**
- **International Trade:** GIs open doors of international trade by protecting products' names and reputation in foreign markets which in turn increase exports.
- **Tourism and Destination Marketing:** Unique regional products attract visitors seeking authentic experiences, fostering economic growth and cultural exchange.

CHALLENGES ASSOCIATED WITH GI TAG:

- **Consumer Awareness & Education**: Many consumers still do not fully understand the added value and distinct characteristics associated with GIs.
- **Counterfeiting & Imitation**: Businesses need to implement robust measures to combat infringements related to GI Violation.

- **International Recognition:** Documentation and legal procedures to achieve international recognition for GIs is a complex process.
- **Legal Frameworks**: Regions lacking robust legal systems or with limited resources can inhibit the ability to enforce GI rights.
- **Sustainability & Conservation:** Climate change, pollution, and unsustainable practices pose threats to the ecosystem that support the production of GI tagged products.
- **Small-Scale Producer Participation**: Limited resources, lack of knowledge, and difficulties in meeting regulatory requirements, limits the small-scale producers from participating in GI tagging.
- **Lack of Commercial Strategy**: There are not enough strategies for using GIs to gain a competitive advantage in global markets.
- **Quality Control Neglect**: The focus is on identifying the source of GIs rather than ensuring their quality, as seen in the case of Alphonso Mango.
- **State Conflicts**: There are ongoing disputes between states over the ownership of GIs.
  - For example, Navara Rice is known for its medicinal properties and originated from Kerala, but there was contention from Tamil Nadu regarding the claim.

INITIATIVES TAKEN BY GOVERNMENT TO PROMOTE THE GI TAG PRODUCTS

- **GI Fair:** The DPIIT organizes the annual India Geographical Indications (GI) Fair to promote GI tagged products to domestic and international buyers.
- **Launch of GI Store:** India's 1st Geographical Indication (GI) Store at Goa International Airport in Dabolim, with an eye over for the global tourists.
- **GI Export Promotion Scheme:** The Agricultural and Processed Food Products Export Development Authority (APEDA) provides financial assistance to exporters of GI tagged products.
- **Financial Assistance:** In accordance with the objectives of national IPR policy, Government of India will provide financial assistance to eligible agencies for undertaking initiatives for Promotion of GIs.

WAY FORWARD

- **Strengthening Legal Frameworks**: Government should establish robust legal frameworks that clearly define the criteria for obtaining and maintaining a GI tag.
- **Enhancing Enforcement Mechanisms**: Adequate resources and dedicated teams should be allocated to enforce and monitor the proper use of GI tags.
- **Technical Assistance:** Provide technical assistance and resources to producers to help them obtain and enforce GI tags.
- **Infrastructure Development**: Develop infrastructure like common facility centers and testing labs to support producers of GI-tagged products.
- **Market Promotion and Branding:** Proactive marketing strategies and branding initiatives can enhance the visibility and market access of GI products.
- **Quality Inspection:** Implement rigorous quality inspection mechanisms to ensure the authenticity, reputation, and quality of GI products.
- **Strengthening International Cooperation**: International cooperation is crucial for the recognition and protection of GI products across borders.
- **Promoting Innovation and Product Development:** Encouraging innovation within the framework of traditional practices can help address the challenge of balancing tradition and market dem

PRELIMS POINTER

TURMERIC BOARD

CONTEXT

The Government of India today the constitution of the National Turmeric Board.

ABOUT TURMERIC

- Turmeric (known scientifically as **Curcuma longa**), also known as Indian saffron or Haldi, is a perennial herbaceous plant indigenous to the tropical regions of South Asia.
- **Usage:** It serves multiple purposes including being used as a condiment, dye, drug, cosmetic, and a significant element in religious ceremonies.
- **Varieties**: India cultivates more than 30 different varieties of turmeric across over 20 states (IISR-Pragati, IISR-Kedaram, Prathibha, Prabha, Suguna, Sudharsana, Suvarna, Duggirala, Tekurpeta, Sugandham, Amalapuram, Alleppey, and Muvattupuzha, IISR-Alleppey Supreme, etc.).
- **Conditions For Cultivation:** The turmeric plant needs temperatures between 20°C and 30°C.
  - It needs an annual rainfall of 150 cm or more.

Turmeric In India

- **Production and Global Share**: For the year 2022-23, India cultivated turmeric over an area of 3.24 lakh hectares, producing 11.61 lakh tonnes, which constitutes over 75% of the global turmeric production.
- **Trade**: India dominates the international turmeric trade with more than a 62% share, showcasing its significant impact on the global market.
  - The primary states contributing to turmeric production include Maharashtra, Telangana, Karnataka, Tamil Nadu, and Andhra Pradesh.

Other Boards and Their Headquarters

Board	Headquarters
Coffee Board of India	Bengaluru
Tea Board of India	Kolkata
Rubber Board of India	Kottayam
Spice Board of India	Kochi
National Jute Board	Kolkata
Tobacco Board of India	Guntur (AP)
Central Silk Board	Bengaluru

EXPORTER STATUS CERTIFICATE

CONTEXT

The Ministry of Commerce & Industry has introduced a new system for automatically issuing 'Status Holder' certificates under the Foreign Trade Policy (FTP) 2023.

ABOUT THE NEW SYSTEM OF STATUS CERTIFICATE

- **Automatic Export Recognition**: Exporters no longer need to apply to the Directorate General of Foreign Trade (DGFT) for a Status Certificate.
  - The IT system provides recognition using Directorate General of Commercial Intelligence and Statistics (DGCIS) data and risk parameters.
  - This will be based on shipment details and e-BRC (bank realisation certificate) collected online from banks.
- **Status Modification for Eligible Exporters**: Exporters qualifying for an elevated status due to additional export data related to services export, deemed exports, or double weightage for specific entities like MSMEs can apply online to modify their status at a later time.

PROCESS

- **Exporter Application Process**: Exporters must submit an online application with an export certificate from a chartered accountant to obtain status.
- **DGFT Response Time**: The DGFT Regional Offices are expected to issue the certificate within three days.

BENEFITS

- **Ease of Business and Reduced Compliance**: The new system minimises compliance burdens, promoting a more straightforward business approach.
- **Automatic Certification Process**: No applications required from exporters. Annual certifications are granted every August using export data from DGCIS.
- **Supporting Smaller Exporters:** This approach allows the government to guide a broader range of smaller exporting entities, fostering a dynamic export ecosystem and aiding in reaching the $2 trillion export goal by 2030.
- **Efficiency Improvements:** The changes lead to reduced transaction costs and time, marking a progression in automation.
- **New System Rollout**: With the new system, the ministry will recognize about 20,000 exporters as Status Holders under FTP, up from 12,518.

Export House Star Ratings by the Indian Government

To encourage and recognize international trade leaders, the Indian government has established a Status Category for Export Houses based on their contributions to the country's foreign trade.

- **One Star**: Exports worth $3 million USD (FOB/FOR value)
- **Two Star**: Exports valued at $25 million USD (FOB/FOR value)
- **Three Star**: Achieving exports of $100 million USD (FOB/FOR value)
- **Four Star**: Hitting the $500 million USD mark in exports (FOB/FOR value)
- **Five Star**: Leading with exports totaling $2000 million USD (FOB/FOR value)

BIMA VAHAK

CONTEXT

The **Insurance Regulatory and Development Authority of India (IRDAI)** has declared that the **Bima Vahak** guidelines, a distribution channel **focused on women**, will come into effect with the introduction of **Bima Vistaar** (an all-in-one standard insurance product).

ABOUT BIMA VAHAK

- Bima Vahak is a program initiated by IRDAI under its vision of "**Insurance for all by 2047.**"
- It is designed to **broaden the reach and accessibility** of insurance products throughout India.
- **Acting as the final bridge for insurance providers**, the initiative will employ **a team of both corporate and individual agents**, termed as Bima Vahaks, who will distribute and manage insurance products.
- This strategy integrates with IRDAI's Lead Insurers concept, which aims to effectively allocate resources for comprehensive coverage of Gram Panchayats, India's grassroots level governance units.

Objectives

- The program prioritises incorporating women into the role of Bima Vahaks, leveraging their potential to gain community trust and ensure deeper insurance penetration.
- By interacting directly with local residents, Bima Vahaks aspire to elevate both the accessibility and understanding of insurance across every region.

About IRDAI

- **Establishment and Nature**: Established on 19 April, 2000.
  - IRDAI stands as an independent regulatory body committed to protecting the rights of insurance consumers.
- **Operational Framework**: Working under the framework of the **IRDA Act 1999**, IRDAI functions within the domain of the Ministry of Finance.

- **Core Responsibilities:** The primary mandate of IRDAI includes regulation, guidance, and supervision of the insurance industry, ensuring its operation with integrity and ethics.
- **Legal Foundations:** The powers and functions of IRDAI are outlined in both the IRDAI Act, 1999 and the Insurance Act, 1938.
- **Composition:** As stated in **Section 4 of the IRDAI Act 1999**, it comprises a team of ten members:
- **Chairman**: One individual appointed as the Chairman (Mr Debasish Panda- Current Chairman).
- **Whole-Time Members**: Five individuals serve in this capacity.
- **Part-Time Members**: Four individuals take on part-time roles.

Note: All members are appointed by the Government of India.

NATURAL RUBBER

CONTEXT

The Association of Natural Rubber Producing Countries (ANRPC) held its yearly rubber conference in Guwahati.

ABOUT NATURAL RUBBER

- Natural rubber is derived from **the latex of various tropical trees**, with the **Para Rubber tree (**Hevea brasiliensis**)** being the most significant.
- It is a **polymer of isoprene**, a unique organic compound.
- **Rubber Usage**: Natural rubber is favoured over its synthetic counterpart because of its superior tensile strength, vibration damping capabilities, and resistance to tearing.
- **Age**: The typical age for rubber trees in plantations is around 32 years.

Rubber Plantation Requirements

- **Soil:** The trees thrive in well-drained and well-weathered soils, especially the lateritic, alluvial, and sedimentary types.
- **Climate**:
  - Rainfall: An average of 100 rainy days per year is optimal.
  - Temperature: Ideal temperatures range from 20°C to 34°C.
  - Other Conditions: The trees require about 80% humidity, 2000 hours of sunlight annually, and should be in areas with minimal strong winds.

Major Rubber Producers

- **Global Leaders**: Thailand, Indonesia, and Malaysia are the top producers worldwide.
- **India's Contribution**:
- Kerala is the leading producer in India, contributing over 75%, followed by Tamil Nadu and Karnataka.
- India stands as the **fifth-largest producer** globally and is the **second-largest consumer of natural rubber**.
  - ✓ However, India relies on imports to meet 40% of its natural rubber needs.

ORGANISATIONS RELATED TO RUBBER IN INDIA

- **Rubber Research Institute (RRI)**: Operates under the Rubber Board's supervision.
- **Rubber Board of India:** Established in 1955 with its headquarters in Kottayam, Kerala. This board, falling under the Ministry of Commerce and Industry, oversees the development of the rubber industry in India.

Natural Rubber Producing Countries (ANRPC)

- ANRPC is an inter-governmental body.
- **Established**: 1970
- **Aim:** To foster collaboration among countries producing natural rubber.
- **Member Countries**: The organisation made up of 13 member nations comprises India, Bangladesh, Cambodia, China, Indonesia, Malaysia, Myanmar, Papua New Guinea, Philippines, Singapore, Sri Lanka, Thailand, and Vietnam.
- **Mission and Objectives**: ANRPC champions the interests of its member countries in the realm of natural rubber. Its primary objective is to facilitate cooperation, share best practices, and advocate for sustainable production and consumption of natural rubber.

ICRISAT JOINS CGIAR GLOBAL INITIATIVE

CONTEXT

The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) has become a part of the One CGIAR integrated partnership.

ABOUT CGIAR

- Established in 1971, CGIAR (Consortium of International Agricultural Research Centres) is a publicly-funded network dedicated to agri-food systems research.
- **Founded By:** Forrest F Hill
- **Aim**: Its mission revolves around reducing rural poverty, bolstering food security, enhancing human health and nutrition, and promoting the sustainable use of natural resources.
- **Membership**: CGIAR comprises 15 global agricultural research institutes.

INSIGHT INTO ICRISAT

- The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, apolitical entity established in 1972(with support from the Ford and Rockefeller foundations), endorsed by the FAO and the UNDP.
- **Aim**: ICRISAT is devoted to agricultural research that benefits regions in Asia and sub-Saharan Africa.
- **Status**: In India, ICRISAT is recognized as a UN organisation, granting it certain immunities and tax benefits.
- **Location:** The institute's headquarters is located in Patancheru, Hyderabad. Additionally, it has regional hubs in Mali and Kenya, along with various research stations across multiple African nations.
- **Accolades**: In acknowledgment of its efforts towards enhancing food security in 13 sub-Saharan African countries, ICRISAT received the 2021 Africa Food Prize.

A- HELP PROGRAM

CONTEXT

The Department of Animal Husbandry and Dairying, Government of India launched the 'A-HELP' (Accredited Agent for Health and Extension of Livestock Production) programme in the State of Jharkhand.

A-HELP PROGRAM

- **Initiated By**: Department of Animal Husbandry and Dairying (DAHD) via MoU with **National Rural Livelihoods Mission (NRLM)** under the Ministry of Rural Development (MoRD), Government of India..
- **Objective**: Enhancing livestock health and empowering women in various states.
- **Key Element:** Empowerment of **Pashu Sakhis** for veterinary care and breeding assistance to livestock.

Pashu Sakhis

- Reside in rural areas.
- Receive training to provide veterinary care, breeding assistance, and medication to local livestock.
- **Selection:** It is based on basic literacy and communication skills.
- **Working:** Collect a modest fee from livestock owners for their services.

NAVRATNA STATUS

CONTEXT

Ircon International Limited (IRCON) and RITES Ltd (RITES), both Central Public Sector Enterprises (CPSE) operating under the Ministry of Railways, have been declared the **15th and 16th Navratna companies** among CPSEs, respectively.

ABOUT THE STATUS

Status Category	Criteria
Maharatna	Must have Navratna status.
	Listed on the Indian stock exchange with specified public shareholding.
	Average annual turnover > Rs. 25,000 crores (last 3 years).
	Average annual net worth > Rs. 15,000 crores (last 3 years).
	Average annual net profit after tax > Rs. 5,000 crores (last 3 years).
	Significant global presence/international operations.
	Examples: Bharat Heavy Electricals Limited, Bharat Petroleum Corporation Limited, Coal India Limited, GAIL India Limited, Hindustan Petroleum Corporation Limited, etc.
Navratna	Must be a Miniratna Category I or Schedule 'A' CPSE.
	'Excellent' or 'Very Good' rating for 3 of the last 5 years.
	Composite score of 60+ from six performance indicators (e.g., Net Profit to Net Worth).
	Examples: Bharat Electronics Limited, Container Corporation of India Limited, Engineers India Limited, Hindustan Aeronautics Limited 5. Mahanagar Telephone Nigam Limited, etc.
Miniratna Category-I	Profitable for the last 3 years.
	Pre-tax profit > Rs. 30 crores in at least one of the last 3 years.
	Positive net worth status.
	Examples: Airports Authority of India, Antrix Corporation Limited, Balmer Lawrie & Co. Limited, Bharat Coking Coal Limited, Bharat Dynamics Limited , BEML Limited, Bharat Sanchar Nigam Limited, etc.
Miniratna Category-II	Profitable for the last 3 years consecutively.
	Positive net worth status.
	No default on loan/interest payments to the government.
	Independent of government guarantees or budgetary support.
	Examples: Artificial Limbs Manufacturing Corporation of India, Bharat Pumps & Compressors Limited, Broadcast Engineering Consultants India Limited, Engineering Projects (India) Limited, FCI Aravali Gypsum & Minerals India Limited, etc.

REGIONAL RAPID TRANSIT SYSTEM (RRTS)

CONTEXT

Prime Minister Modi will inaugurate the initial section of India's innovative Regional Rapid Transit System (RRTS), a high-speed rail network designed to improve regional connectivity.

ABOUT RRTS PROJECT

- **Integrated Mass Transit Network:** The RRTS is an integrated mass transit network that enhances connectivity and accessibility across the National Capital Region (NCR), promoting balanced and sustainable urban development.

- **Origin of the Idea:** The idea for RRTS emerged from a study initiated by Indian Railways in 1998-99, envisioning fast commuter trains connecting various NCR locations.
- **National Capital Region Planning:** The National Capital Region Planning Board (NCRPB) adopted the RRTS concept while developing the "Functional Plan on Transport for NCR-2032" and recommended eight RRTS corridors to connect NCR towns.
- **Development Agency:** The project is overseen by the National Capital Region Transport Corporation (NCRTC), a joint venture involving the Central government, Delhi, Haryana, Rajasthan, and Uttar Pradesh. It operates under the Ministry of Housing and Urban Affairs.
- **Scope of the Project:** The RRTS project spans the extensive NCR, covering around 55,000 square kilometres and serving a population of over 46 crore with a combined GDP of approximately $370 billion.

Objectives of the RRTS Project

- **Enhancing Connectivity:** The RRTS seeks to enhance multi-modal connectivity at existing transportation hubs.
- **Decongesting Roads and Rails:** A primary goal is to reduce congestion on roads, highways, metro, and railway networks by promoting public transportation.
- **Economic Growth:** By reducing travel times, the RRTS aims to stimulate economic productivity in the region, fostering economic activity in suburban areas of Uttar Pradesh, Rajasthan, and Haryana.

Corridors under the RRTS Project

- The RRTS project encompasses **eight corridors**, with **three developed in Phase I**:

a. Delhi-Ghaziabad-Meerut (82 km)

b. Delhi-Gurugram-SNB-Alwar (164 km)

c. Delhi-Panipat (103 km)

- Future development includes corridors like

d. Delhi – Faridabad – Ballabgarh – Palwal,

e. Ghaziabad – Khurja,

f. Delhi – Bahadurgarh – Rohtak,

g. Ghaziabad-Hapur, and

h. Delhi-Shahdara-Baraut.

- The **Sarai Kale Khan Hub** will serve as the **central hub**, connecting all three Phase I corridors, bridging the gap between Delhi and Uttar Pradesh, Haryana, and Rajasthan.

VIZHINJAM PORT

CONTEXT

The Hong Kong-based ship, Zhen Hua 15, has the distinction of being the inaugural vessel to dock at Vizhinjam International Seaport.

ABOUT THE PORT

- India's **first deepwater container transhipment port** (a port facilitating the transfer of cargo between vessels).
- Situated close to **Thiruvananthapuram, Vizhinjam Port**
- **Adani Ports and SEZ Private Ltd**, the nation's leading commercial port operator, is constructing this versatile seaport based on a **Design, Built, Finance, Operate & Transfer (DBFOT) model**– (a Public-Private Partnership (PPP) framework).
- Strategically located near international shipping lanes linking Europe, the Gulf, and East Asia.
- Capable of accommodating ultra-large vessels, symbolising India's debut in the transhipment arena.
- Holds the promise to rival major global ports such as Colombo, Singapore, Port Klang, and Jebel Ali.
- In its initial phase, it has a capacity of 1 million TEU(twenty-foot equivalent units), with the potential to expand up to 6.2 million TEU.

TELECOS LICENSE FEE TAX

CONTEXT

The Supreme Court's decision to change how telecom companies account for licence fees has major consequences for the telecom industry.

AN OVERVIEW

- The Supreme Court has ruled that telecom companies must treat the fees they pay to the government for the right to operate their businesses (licence fee) as investments, rather than expenses.
  - Currently, telecom companies treat licence fees as a revenue expenditure.Based on this, they claim deductions for computing their tax liability.

Cash Flow and Business Environment Repercussions

- **Short-term Effect**: Telecom companies are poised to experience a steeper tax liability as the immediate expense deduction of licence fees is revoked, possibly diminishing funds that could be allocated for investment or operational purposes.
- **Long-Range Financial Effects:** Over the long term, amortising the licence fee will lessen the intensity of initial cash flow impact. Nonetheless, this will limit the immediate recoupment of these costs for reinvestment, possibly restricting financial agility to support new projects.

Corporate Operational Hurdles

- **Augmented Operating Expenses:** As a consequence of this judicial decision, the cost of conducting business for telecom firms in India is expected to rise, which could erode profit margins and curtail the allocation of resources for network improvements, technology upgrades, and service enhancements.
- **Capital Investment Roadblocks:** The ruling may curtail the telecom sector's capacity to channel funds into essential infrastructure and technological advancements, which is critical for maintaining competitive viability and addressing escalating consumer demands.

Aggregate Sectoral Impact

The directive intensifies pre-existing pressures within the Indian telecom sector, such as substantial indebtedness and rigorous market rivalry, by adding another layer of financial strain through altered licence fee accounting practices.

Amortization

Amortization typically refers to the process of writing down the value of either a loan or an intangible asset.

Revenue expenditures

It refers to the routine expenses incurred in the day-to-day functioning of a business. They cover short-term spending necessary for maintaining the current operations of a company, such as the payment of staff salaries and wages.

Capital expenditures

It involves significant one-time investments in physical assets that will contribute to the company's income-generating capabilities over an extended timeframe, such as acquiring property or buildings.

SECURITY

DEFENCE INDIGENISATION IN INDIA

CONTEXT:

- The Defense Ministry recently released the **fifth Positive Indigenization List** and the Navy's updated indigenization roadmap, **"Swavlamban 2.0."**

MORE ON THE NEWS

- The fifth Positive Indigenisation List comprised of **98 items** which include **highly complex systems, sensors, weapons and ammunition etc.**
- **About the Positive Indigenisation List (PIL):**
  - The PIL essentially means that the Armed Forces—Army, Navy, and Air Force—will **only procure the listed items from domestic manufacturers.**
  - The manufacturers could be **private sector players or** Defense Public Sector Undertakings.
  - This concept was first rolled out in **the Defence Acquisition Procedure (DAP) 2020.**
    - ✓ The DAP 2020 is a comprehensive document that outlines the process for the **procurement of defense equipment and services in India.**
    - ✓ **The DAP replaced** the erstwhile **Defence Procurement Procedure (DPP).**
  - The PIL is published by the **Ministry of Defense** and is updated on a **regular basis.**
  - The PIL is a key component of its **"Atmanirbhar Bharat" (**self-reliant India) initiative.
- **Swavlamban 2.0:** The roadmap aims to achieve self-reliance in the design, development, and construction of **naval warships and submarines.**

ABOUT DEFENCE INDIGENISATION

- Defence indigenisation is the process of **developing and manufacturing defence equipment** and systems **within the country.** It is also known as **self-reliance in defence.**
- Defence Research & Development Organisation (**DRDO**), Defence Public Sector Undertakings (**DPSUs**), and **private organisations** are playing a critical role in indigenisation of defence industries.

Army	Navy	Airforce
❒ **Dhanush-:** first indigenous long-range artillery gun also called the "desi Bofors". It has 81% of its components are indigenously sourced. ❒ **Akash Missile System**: A surface-to-air missile system that provides defensive aerial coverage for the army. ❒ **Intercontinental ballistic missile (ICBM)**- AGNI V AS ICBM missiles have also contributed to indigenisation of defence. ❒ **Nag Missile:** An anti-tank guided missile system developed for use by the Indian Army.	❒ **INS Vikrant**- also known as Indigenous Aircraft Carrier 1 (IAC-1), is the first aircraft carrier to be built in India for the Navy. ❒ **Project 75:** Indian Navy aimed to build six advanced stealth submarines including INS Kalvari, INS Khanderi INS Kharanj, INS Vela, INS Vagir, INS Vagsheer, with the help of France. ❒ **INS Arihant:** first indigenous nuclear submarine developed in association with BARC and DRDO	❒ **Pinaka Multi Barrel Rocket Launcher:** was developed by armament Research Development Establishment (Pune), Pinaka is a precision system with near zero-error probability. ❒ **BRAHMOS:** is a Joint-Venture contribution of India (50.5%)and the Russian (49.5%). ❒ **Dhruv Helicopter:** An advanced light helicopter that serves various roles, including those for the air force. ❒ **Tejas**: single engine, light multirole fighter designed by Hindustan Aeronautics Limited (HAL)

GOVERNMENT EFFORTS TOWARDS DEFENSE INDIGENISATION

Initiative/Policy	Description
Budgetary Support	In the Union Budget 2022-23, 68% of the defense budget is reserved for indigenous defense production.

Initiative/Policy	Description
Make in India - Defence Industrial Corridors (DICs)	Two Defence Industrial Corridors have been established in Uttar Pradesh and Tamil Nadu to promote indigenous defense manufacturing under the Make in India initiative.
Defence Acquisition Procedure (DAP) 2020	Introduces "Buy (Indian - IDDM)" category prioritizing indigenous design, development, and manufacturing with specified indigenous content.
Defence Production and Export Promotion Policy 2020	The DPEPP 2020 is a draft by the Ministry of Defence to provide a structured thrust to defense production capabilities for self-reliance and exports.
SRIJAN Portal	A non-transactional online marketplace to partner the private sector in indigenisation efforts of DPSU's and the Armed Forces.
Offset Policy	Mandates that foreign defense vendors invest in the Indian defense and aerospace sector, introduced as part of the Defence Procurement Procedure (DPP) 2005.
Innovation for Defence Excellence (iDEX)	Provides funding and other support to startups and individuals to develop new defense technologies.
Technology Development Fund (TDF)	Established to encourage public/private industry participation in developing technology for defense applications.
Foreign Investment	FDI up to 74% allowed under the automatic route and up to 100% through the Government route in the defence sector.

SIGNIFICANCE OF REFORMS

- **Develop Self - Reliance:** It will help in reducing dependency on foreign vendors for critical defence technology and equipment e.g. **DRDO-developed Arjun tank** demonstrates the capability to produce complex defence systems indigenously.
  - India's Defence Indigenisation efforts have led to the reduction of arms imports by 33% between 2016-2020 compared to the previous five years, according to SIPRI.
- **Strategic Autonomy:** The Indigenously developed nuclear submarine **INS Arihant** has enhanced strategic deterrence by providing **'assured retaliatory capability'.**
- **Technological Advancement:** Fostering innovation and technological advancement through increased R&D investment in the defence sector.
  - The DRDO's development of the **Prithvi** and **Agni missile series** reflects India's strides in missile technology.
- **Regional Power Status:** To act as a **'net security provider'** in South Asia, India must develop advanced defense capabilities, contributing to regional stability.
  - For example, India exported Akash missile defence system to Philippines.
- **Employment generation:** As per government estimates, a reduction in 20-25% in defence related imports could directly create an additional 100,000 to 120,000 highly skilled jobs in India.
- **Economic Growth:** Boosting the domestic defence industry which contributes to the GDP and creates high-skilled jobs.
  - **HAL's Tejas** contracts have bolstered domestic aerospace manufacturing, contributing to the aerospace sector's growth.

CHALLENGES FOR DEFENCE INDIGENISATION IN INDIA

- **Low funding on R&D:** India is funding 6% on defence Research & Development (R&D) of the Defence Budget whilst, USA and China are spending approximately 12% and 20%, respectively.
- **Over-reliance on Public Sector:** There is red tapism in defence production and export due to over -reliance on Defence Research and Development Organisation (DRDO), Ordnance Factory Boards, Hindustan Aeronautics Ltd (HAL) etc.
- **Limited Private Sector Participation:** The defence sector's capital intensity and risk factors limit the entry of private entities.
- **Lack of Overarching Organization:** The absence of a centralized organization for coordinating defense indigenization efforts leads to a lack of synergy among agencies such as DRDO, and DPSUs.
- **Infrastructure Lapses:** Due to lack of adequate infrastructure, the demand of importer is not met on time. This forces them to look towards other countries.
- **Skilled Workforce**: The lack of skilled labour is a roadblock for complex defence manufacturing sectors such as aerospace.

- **Economic Viability Challenges:** Developing specialized materials and niche technologies domestically may not be cost-effective due to limited scale.
- **Fragmented Coordination:** A unified command is lacking to steer diverse indigenisation efforts towards a common objective.
- **Complex Partnering Processes:** Engaging SMEs (Small & Medium enterprises) in defence production is hampered by intricate selection and assurance processes.
- **'3L' Policy Barriers**: related to Land, Labour and Laws policies i.e. Land acquisition, labor laws, and offset requirements present significant policy impediments.

WAY FORWARD

- **Enhanced R&D Funding and Autonomy:** Emulate the **French DGA's model** by boosting R&D funding and granting autonomy to defence research entities for more innovative outcomes.
- **Integration of Private Sector:** Follow the **Tata-Lockheed partnership model** to facilitate technology transfer and bolster defense expertise through public-private-foreign collaborations.
- **Streamlining Policies and Processes:** Simplify the Defense Procurement Procedure to reduce bureaucracy and expedite procurement processes.
- **Establishing a Central Coordination Agency:** Create a centralised body to align the efforts of various entities involved in defense production and indigenisation.
- **Infrastructural Development:** Invest in infrastructure that supports defense production, including the enhancement of transportation, logistics, and manufacturing facilities.
- **Skill Development Programs**: Launch specialized skill development programs to create a workforce capable of meeting the technical demands of the defense industry.
- **Fostering Innovation Ecosystem:** Expand the iDEX initiative, learning from Israel's defence innovation systems, to bolster startups and technological breakthroughs.
- **Market Creation and Export Incentives:** Provide incentives for the export of defense equipment and create a favorable environment for domestic companies to compete internationally.
- **Public-Private R&D Collaboration:** Encourage collaborative R&D projects involving DPSUs, private sector companies, and academic institutions to leverage diverse expertise.
- **Revision of '3L' Policies:** Use the example of GIFT City's policy reforms to ease land, labor, and legal constraints, thus aiding the defense manufacturing sector.
- **Review and Update Offset Policy:** Periodically review the offset policy to ensure it remains relevant and beneficial for boosting indigenous capabilities.
- **Defence Budget Utilization Transparency:** Increase transparency in the utilisation of the defence budget, especially regarding indigenisation projects, to foster accountability and trust.
- **Dispute Resolution Mechanisms:** Establish clear dispute resolution mechanisms to resolve conflicts efficiently within the defence procurement and manufacturing process.
- **International Collaboration for Technology Access:** Leverage successful models like the BrahMos Aerospace JV with Russia to forge technology-sharing partnerships that benefit India's strategic and technological landscape.

LEFT WING EXTREMISM

INTRODUCTION:

- Left Wing Extremism (LWE) in India, also known as Naxalism, represents one of the most longstanding internal security challenges confronting the nation. Drawing its ideological strength from the **Marxist-Leninist philosophy,** the movement seeks to overthrow the government through a combination of armed insurgency and mass mobilization. LWE has managed to sustain and sometimes expand its influence, particularly in the tribal and rural heartlands of central and eastern India, exploiting local grievances and state vulnerabilities.

REASONS FOR GROWTH OF LEFT-WING EXTREMISM IN INDIA

- **Socio-Economic Disparities e.g**. joblessness in rural areas, decline of traditional livelihoods are driving young people towards militancy.

- **Administrative Shortcomings**: Governance gaps, such as corruption in the PDS (Bihar and Jharkhand), have exacerbated Left-Wing Extremism in the 'Red Corridor'.
- **Exclusion from Political Processes:** The political marginalization of tribal populations exacerbates their susceptibility to extremist ideologies.
- **Issues of Land and Displacement:** Inadequate land reforms and land acquisition practices for infrastructure and industrial projects leading to displacement have fueled Naxalite movements.
  - **E.g.** Dongria Kondh tribe's resistance to bauxite mining by Vedanta Resources in the Niyamgiri Hills of Odisha.
- **Tribal Rights and Disregard**: Ineffective enforcement of tribal land protection laws and unjust rejections of Forest Rights Act claims have exacerbated Left-Wing Extremism.
  - **E.g.** Bastar tribes' struggle for land rights under the Forest Rights Act and the ensuing state repression.
- **Resource Exploitation:** The misappropriation of tribal resources without fair compensation fuels resentment and which the extremist capitalize on.
- **Cultural Alienation:** The erosion of tribal cultures and languages due to mainstreaming policies can lead to a loss of identity and form a fertile ground for Left-Wing Extremism to take place.
- **Security Forces' Actions:** Heavy-handed tactics by security forces, including human rights abuses, have created a vicious cycle of violence and retaliation, exacerbating conflicts and fueling support for Left-Wing Extremist groups.
- **Informal Economy and Illicit Activities:** The presence of a large informal economy and engagement in illicit activities, like mining and logging, provide financial avenues for Left-Wing Extremists, bolstering their operations and appeal to impoverished locals.
- **Judicial Inaccessibility:** In areas where the judicial system is perceived as inaccessible or biased, Left-Wing Extremists often set up parallel courts, gaining legitimacy among the disenfranchised.
- **External Influence and Support:** There is evidence to suggest that Left-Wing Extremist groups occasionally receive ideological, material, and tactical support from external sources, which helps in sustaining and expanding their activities.

CHALLENGES POSED BY LEFT-WING EXTREMISM (LWE) IN INDIA

- **Security Risks:** Left-wing extremism creates grave internal security threats in India, evidenced by Maoist ambushes in areas like Dantewada.
- **Developmental Setbacks:** Maoist actions undermine development, targeting schools and infrastructure to wield control.
  - **E.g.** Maoists blast on railway tracks, blowing up mobile tower in Jharkhand (2022)
- **Coercive Recruitment:** Maoists forcibly recruit locals, including children, violating human rights and disrupting lives.
- **Financial Extortion:** LWE groups fund their cause through extortion, stifling local economies.
- **Governance Challenges:** LWE breeds political instability, shaking trust in democratic institutions and governance for e.g. Maoists in Jharkhand gunned down MP, Sunil Mahto.
- **Human Rights Infringements:** LWE is synonymous with human rights abuses, harming civilians and India's global standing.
- **Marginalization of Tribals**: LWE exploits and alienates tribals, deepening violence and mistrust, and hindering peace efforts.
- **Displacement of Populations:** Conflicts instigated by LWE lead to the displacement of communities, creating clusters of internally displaced persons who struggle to access basic necessities.
- **Erosion of Legal Authority**: LWE's parallel governance structures in certain areas challenge the legal authority of the state, undermining the rule of law.
  - E.g. 'Jan adalats' or people's courts set up by in regions like the Gadchiroli district of Maharashtra, showcase a parallel legal system
- **Influence on Electoral Processes:** LWE can influence electoral processes through violence and intimidation, affecting the democratic rights and freedoms of citizens.
- **Environmental Degradation:** The involvement of LWE in illegal mining and logging activities contributes to environmental degradation and biodiversity loss.

WHAT ARE THE VARIOUS GOVERNMENT POLICIES TO CONTROL LWE IN INDIA?

Security Operations and Capacity Building:

- Paramilitary forces, notably the CRPF and CoBRA, are deployed for operations in affected areas, with a focus on regaining and maintaining control through the **'Secure, Hold, and Develop'** strategy.
- Training initiatives, including those by INCT-CI, are reinforcing capabilities, while intelligence-sharing is streamlined via MAC and a Unified Command to inform strategy and operations.

Surveillance, Rehabilitation, and Tactical Response:

- Advanced surveillance methods, such as UAVs and satellite imagery, are active.
- Surrender and rehabilitation programs support the disengagement of LWE members, coupled with comprehensive tactical missions like 'Operation Green Hunt'.

Infrastructure and Socio-Economic Progress:

- The IAP and PMGSY are critical in improving infrastructure and connectivity, aiming to foster development.
- Financial inclusion and vocational training are being used to diminish LWE influence by providing alternatives to extremism.

Governance, Legal Frameworks, and Community Welfare:

- Enforcement of PESA and FRA, along with enhancements in education and healthcare, target historical injustices and aim to win loyalty from local communities.
- Governance reforms and the implementation of the National Policy and Action Plan are designed to improve transparency and service delivery, counteracting corruption.

Public Engagement and Counter-Extremism Measures:

- Public-private partnerships, alongside the SAMADHAN doctrine, form a composite approach to tackle extremism, focusing on smart leadership, technological leverage, and financial controls.
- Efforts to engage local communities, ensure representation in governance, and enhance national identity through cultural initiatives contribute to counteracting LWE narratives.

Inter-State Cooperation and Media Strategy:

- Enhanced inter-state coordination ensures a unified response to the LWE challenge, supported by media strategies that promote accurate reporting and counter propaganda, along with engagement programs for reintegration of former LWE cadres.

CONCERNS WITH GOVT STEPS TO CONTROL LEFT-WING EXTREMISM (LWE)

- **Rights Infringement Concerns**: The fight against Left-Wing Extremism (LWE) has raised concerns about potential violations of civil liberties, including unauthorized detentions and civilian disturbances.
- **Flaws in Development Project Execution:** Despite numerous development initiatives, poor implementation due to governance issues, mismanagement, and fragmented coordination leaves local communities underserved.
- **Security Personnel Training Gaps:** Frontline security forces lack advanced training, tactical support, critical equipment, and intelligence, leading to strategic setbacks and endangering their lives.
- **Overemphasis on Military Tactics**: Overreliance on military tactics risks neglecting dialogue and reconciliation, potentially escalating conflict and hindering peaceful resolution.
- **Rehabilitation Program Shortcomings**: Current reintegration programs for former insurgents often lack adequate skill development and economic support, hindering their successful reintegration into society.
- **Trust Deficit and Collaborative Barriers**: Distrust between the government and LWE-affected communities impedes development and security efforts, necessitating mutual trust for effective problem-solving.
- **Political Dynamics and Manipulation:** Political maneuvering often exploits the LWE issue for electoral gains, hindering consistent policy implementation and constructive resolution efforts.

WAY FORWARD

Comprehensive Development Initiatives:

- Focus on holistic development in LWE-affected areas, ensuring that infrastructure projects are sensitive to local needs and do not displace communities without adequate compensation and rehabilitation.
- Prioritize the delivery of basic services, such as education and healthcare, to fill the void exploited by extremists and gain local support.

Strengthening Governance and Political Inclusion

- Improve governance by addressing administrative shortcomings and corruption, particularly in essential services like the PDS.
- Facilitate the political inclusion of marginalized communities, particularly tribal populations, to ensure their concerns are represented in the political process.

Land Rights and Tribal Empowerment:

- Ensure effective enforcement of land protection laws, such as the PESA and FRA, to address tribal rights and grievances.
- Empower tribal communities by involving them in decision-making processes, especially in matters related to resource exploitation.

Human Rights and Security Measures:

- Implement human-rights-oriented training for security forces to prevent abuses and win the trust of local populations.
- Balance security measures with civil liberties, ensuring actions by security forces do not alienate the local populace.

Robust Rehabilitation and Reintegration Programs:

- Strengthen rehabilitation programs for insurgents, offering comprehensive vocational training and financial assistance to ease their transition into mainstream society.
- Encourage community-based rehabilitation to foster local support and reintegration.

Addressing Economic Drivers of Extremism:

- Tackle the informal economy and illicit activities that fund LWE by offering alternative livelihoods and cracking down on corruption.
- Provide economic opportunities that can reduce the attractiveness of joining extremist groups.

Legal and Judicial Accessibility:

- Enhance the accessibility and fairness of the judicial system in LWE-affected areas to undermine the legitimacy of parallel courts established by extremists.
- Increase legal awareness among local populations about their rights and the mechanisms available to protect them.

Dialogue and Peaceful Resolution:

- Pursue dialogue with LWE groups where possible, aiming for a peaceful resolution and addressing the root causes of the conflict.
- Adopt a multi-pronged approach that includes political, social, and economic strategies rather than relying solely on military solutions.

Inter-State and Center-State Coordination:

- Improve coordination between states and the central government to ensure a unified and consistent approach to tackling LWE.
- Share intelligence, resources, and best practices across state boundaries to strengthen collective efforts.

Media and Information Strategy:

- Support responsible media reporting that accurately portrays the challenges and successes in combatting LWE.
- Counteract LWE propaganda by disseminating information on government initiatives, success stories, and opportunities for local communities.

INTEGRATED THEATRE COMMANDS

CONTEXT:

The defence ministry is working on an ambitious plan on **theaterisation process** to ensure **jointness among the three services.**

BACKGROUND: INDIAN ARMED FORCES

- The Indian Armed Forces are the **military forces of the Republic of India.**
- **Three branches of Indian armed forces:** Army, Navy and Airforce.

- With strength of over **1.4 million active personnel,** India has the **world's second-largest** military force and has the world's largest volunteer army.
- **The President of India** is the Supreme Commander of the Indian Armed Force, but they work under the management of the **Ministry of Defence** of the Government of India.
- The **'Global Firepower Index 2022'** report ranks Indian Armed Forces as the **fourth most-powerful military** in the world, after the U.S.A, Russia and China.

CURRENT COMMAND STRUCTURE OF INDIAN ARMED FORCES

- **Each branch** of the Indian Armed Forces consists of **various commands**, each responsible for a specific **geographical region or functional area.**
- **Indian Army Commands:**
  - **Total 7 commands:** 6 operational commands and one training command.
  - Each command is headed by a general officer **commanding-in-chief (GOC-in-C),** known as the army commander.
  - Each command directly reports to the army **headquarter at New Delhi.**
- **Indian Navy Commands:**
  - **Total three Commands**, each under the control of a Flag Officer Commanding-in-Chief.
  - The Western and the Eastern Naval Commands are **'Operational Commands',** and exercise control over operations in the **Arabian Sea and the Bay of Bengal** respectively.
  - The Southern Command is the **Training Command.**
- **Indian Air Force Commands:**
  - **Total five operational commands,** each of which is headed by an AOC-in-C (Air Officer Commander-in-Chief) with the rank of Air Marshal.
  - The IAF also has **two additional commands** – Training Command and Maintenance Command – to maintain a uniform standard in training and maintenance.

WHAT ARE INTEGRATED THEATRE COMMANDS (ITCS)?

- ITCs are **unified commands of the three services** (Indian Army, Indian Navy, and Indian Air Force) under a **single commander** for geographical theatres (areas) that are of **strategic and security concern.**
- The **commander of such a force** will bear **all resources at his disposal,** from the Army, the Navy and the Indian Air Force, with **harmonious efficacy.**
- ITCs were first suggested by the **military reforms commission headed by Lt. General (ret.) DB Shekatkar**. It recommended the creation of **three ITCs:**
  - **Northern Command:** responsible for the India-China border.
  - **Western Command:** responsible for the India-Pakistan border.
  - **Maritime Command:** responsible for India's maritime interests.

NEED OF INTEGRATED THEATRE COMMANDS IN INDIA

- **Lack of Centralized Decision-Making**: The existing command structure involves multiple independent commands for each service (Army, Navy, Air Force). This decentralized decision-making process can sometimes lead to **delays, inefficiencies, and coordination challenges**, particularly during joint operations.
- **Limited Interoperability:** The current command structure, with separate service-specific commands, can result in limited interoperability and **coordination between the different branches** of the armed forces.
- **Duplication of Efforts and Resources:** With separate commands for each service, there can be duplication of **efforts, resources, and infrastructure.** This duplication can lead to inefficiencies, unnecessary costs, and suboptimal resource allocation.

ADVANTAGES OF INTEGRATED THEATRE COMMANDS

- **Achieving jointness:** It will boost overall fighting capabilities and will also create capacities along with seamless command centres to meet future challenges.

- **Better synergy:** Military assets will be fused into one single command under one operational head who will be responsible for directing and controlling their activities.
- **To meet hybrid warfare requirements:** As a potential conflict with a major military power like China will extend beyond the typical theatres into the domains of cyber, space, nuclear and covert capabilities.
- **Greater efficiency:** Major military powers like the US and China, operate via theatre commands as it is seen to be a better means of pooling resources, providing coordinated logistics planning and improving efficiency.
- **Systematic planning in acquisition of resources:** Integrated approach towards procurement will end piecemeal approach to purchase done by individual services and the requirements of the military as a whole would be formulated.
- **Reducing redundancies:** By integrating manpower within theatre commands has the potential of redirecting a sizeable portion towards maintenance and modernization of equipment and capabilities.

CHALLENGES WITH THE CREATION OF INTEGRATED THEATRE COMMANDS

- **Command Structure and Reporting:** One of the primary challenges is determining the command structure and the reporting relationships within the integrated theatre commands. The transition requires careful planning and coordination.
- **Inter-Service Competition:** The intense focus of each service on its own assets and the desire for a larger portion of the defense budget and influence can hinder the creation of synergy among the services.
- **Perception of Army Dominance:** There are concerns that integrating the commands may perpetuate the perceived dominance of the army and provide it with greater operational control.
- **Limited Experience:** India has limited experience with integrated theatre commands. The implementation of such commands may require mid-course corrections and adjustments as challenges and issues are identified and addressed.
- **Infrastructure and Logistics:** Coordinating and synchronizing the infrastructure and logistics requirements across different services can be a complex and resource-intensive task.

EFFORTS TAKEN SO FAR TOWARDS THEATERISATION OF THE INDIAN ARMED FORCES

- **Joint service commands:** At present, there are two joint services commands in India, the first one is **Andaman and Nicobar Command (ANC)** and the second, being **Strategic Forces Command (SFC).**
  - ANC is the only **tri-service theatre command** of the Indian Armed Forces, based at Port Blair. It was created in 2001 to safeguard India's strategic interests in Southeast Asia and the Strait of Malacca by increasing rapid deployment of military assets in the region.
  - The Strategic Forces Command (SFC), sometimes called **Strategic Nuclear Command,** forms part of **India's Nuclear Command Authority (NCA).** It is responsible for the management and administration of the country's tactical and strategic nuclear weapons stockpile.
- **Common format for ACR:** Recently, the Indian Armed Forces has decided to introduce a common format for the **annual confidential report (ACR)** for senior officers.
  - This new rule shall apply to **Major Generals, Lieutenant Generals and the equivalent ranks** in the Indian Air Force and Navy. It will be implemented **within the next three months.**
  - **At present,** the three forces have different and **distinct parameters** for recording the ACR.
  - The ACR stands for an **objective and impartial assessment** of the character, conduct, capabilities and performance **of an Official** throughout the year.
- **Inter-services Organisations:** Recently, the Rajya Sabha passed the Inter-Services Organisation (Command, Control & Discipline) Bill 2023.
  - The bill allows the central government to constitute an Inter-services Organisation with personnel from at least two of the three services: the army, the navy, and the air force.

In conclusion, while the establishment of integrated theatre commands is a **necessary step,** addressing **operational and conceptual challenges** is crucial for these reforms to **realize their full potential** and effectively **transform the Indian military** into a modern, **integrated fighting force.**

PRELIMS POINTER

UNITED NATIONS CONVENTION AGAINST TRANSNATIONAL ORGANIZED CRIME

CONTEXT

The Union Minister of State for Home Affairs participated in the two-day UN Convention against Transnational Organized Crime Ministerial Conference in Palermo, Italy.

ABOUT UNTOC

- The United Nations Convention against Transnational Organized Crime (UNTOC), also known as the **Palermo Convention**, represents a significant international agreement aimed at **addressing transnational organised crime**.
- **Establishment**: The convention was adopted by the UN General Assembly through resolution 55/25 on 15 November 2000.
- **Enforcement**: It was **enforced in the year 2003,** upon securing the necessary 40 ratifications.
- **Members**: By October 2023, 190 member states, with India included.
- **Significance:** UNTOC is recognized as the primary international instrument in the fight against transnational organised crime, providing a legally binding global agreement for the 190 parties involved.
  - It represents the first comprehensive treaty aimed at combating various forms of transnational organised crime including human trafficking, migrant smuggling, and illicit firearms trafficking.
- **Structure and Implementation**:The United Nations Office on Drugs and Crime (UNODC) acts as the guardian for the implementation of UNTOC, assisting states in translating their commitments into actions

What Is Organised crime?

Organised crime is a complex and multifaceted phenomenon including drug trafficking, human trafficking, money laundering, cybercrime, environmental crime, arms trafficking, piracy, counterfeiting and terrorism.

ASTRA MISSILES

CONTEXT

The Indian Air Force is on track to incorporate the domestically-produced Astra Beyond Visual Range Air-to-Air Missile into its arsenal by the end of 2023.

ASTRA MISSILES: AN OVERVIEW

The Astra missile is a family of Indian **beyond-visual-range air-to-air missiles** developed by the **Defence Research and Development Organisation (DRDO)**.

General Description

- Astra missile, signifying “throwing weapon” in Sanskrit, is an Indian all-weather beyond-visual-range air-to-air missile family.
- It’s been designed to engage targets at distances ranging from 500 m up to 340 km, depending on the variant.
- The missile has been recognized as a marvel of engineering and serves as a potent weapon in the Indian Air Force and Navy’s arsenal, designed for modern aerial combat with ranges from 85 km to up to 340 km.

Variants

- There are several variants of the Astra missile including Astra Mk-1, Astra Mk-2, Astra Mk-3, and Astra-IR, each with different capabilities and stages of development.
  - **For instance**, Astra Mk-2 missile is a next-generation air-to-air missile with **a dual pulse solid rocket motor** designed to strike at up to 160 kilometres.

Specifications

- **Physical Specifications**: The Astra Mk-1 missile has a length of 3.84 m, a diameter of 178 mm, and weighs 154 kg. It carries a 15 kg high-explosive pre-fragmented warhead5.
- **Operational Range**: The operational range varies with each variant.

- **For instance,** the Astra Mk-1 has a range of 110 km, Astra Mk-2 has a range of 160 km, and Astra Mk-3 has an extended range of 350 km.

- **Propulsion**: The Astra Mk-1 utilises a solid-propellant rocket, the Mk-2 employs a dual-thrust pulsed rocket motor, and the Mk-3 utilises a Solid Fuel Ducted Ramjet for propulsion.
- **Speed and Altitude**: The Astra missile can achieve speeds of up to Mach 4.5 and operate from a maximum altitude of 20 km.

Guidance and Control

- The Astra missile uses mid-course inertial guidance driven by a **fibre-optic gyroscope**, with terminal guidance through active radar homing.
- It's capable of receiving course corrections through a secure data link.

Development and Production

- The development of Astra Mk-1 began around 1990, with the missile being revealed to the public at Aero India 1998.
- The project was officially sanctioned in 2004, with a budget of ₹955 crore.
- The missile was tested for the first time in May 2003, and limited series production of Astra Mk-1 missiles began in 2017.

Service and Operational Usage

- The Astra missile has been integrated with the Indian Air Force's Sukhoi Su-30MKI and is planned to be integrated with Dassault Mirage 2000, HAL Tejas, and Mikoyan MiG-29 in the future.
- It entered service in 2019 and is used by both the Indian Air Force and the Indian Navy.

ISRAEL DEFENCE SYSTEM

CONTEXT

The militant organisation Hamas carried out its most severe assault on Israeli soil since 1948.

ABOUT ISRAEL DEFENCE SYSTEM

- Israel's defence system is most notably represented by the Iron Dome, which is a mobile all-weather air defence system (ground-to-air short-range air defence system)
- Developed by **Rafael Advanced Defense Systems** and **Israel Aerospace Industries.**
- The Iron Dome is designed to intercept and destroy short-range rockets and artillery shells fired from distances of 4 to 70 kilometres away.
- **Development and Operational History:** The development of the Iron Dome began in 2007, with the first batteries deployed in 2011. Since then, the system has been consistently upgraded and has been crucial in defending Israeli cities, achieving a high success rate of around 90% in intercepting threats.
- **Strategic Importance**: The Iron Dome has been a critical component of Israel's defence strategy, especially given the frequent rocket attacks from militant groups in the Gaza Strip.
  - It has been credited with saving countless civilian lives and preventing significant infrastructure damage.
- **International Interest:** Several countries have expressed interest in acquiring the Iron Dome system, including Germany, Romania, and India. The U.S. Army has also purchased batteries for its own use.

How Does It Work?

- The Iron Dome defence system employs a trio of integrated technologies to safeguard the region in which it's stationed, effectively neutralising numerous concurrent hazards.
- These components consist of:
  - A detection and tracking radar system that identifies incoming threats,
  - A battle management and weapon control system (BMC) that serves as an intermediary between the radar and the interceptor missile, and
  - A missile launch unit.
- The Iron Dome uses radar to detect incoming threats and a command-and-control system to assess the potential impact area of the projectile.

- If the incoming rocket is deemed a threat to a populated area or critical infrastructure, the system launches an interceptor missile to destroy the rocket in the air.

YASHASVINI: WOMEN BIKE EXPEDITION

CONTEXT

J&K's Lieutenant Governor initiated the CRPF Women's Motorcycle Journey, titled 'Yashasvini,' from Srinagar's Lal Chowk.

ABOUT THE EXPEDITION

- The rally is a **joint initiative** by the **CRPF and the Ministry of Women and Child Development**, celebrating women's empowerment.
- The event features 150 female CRPF officers riding 75 Royal Enfield bikes over a 10,000 km route.
- The journey spans 15 states and 2 Union Territories, concluding in Ekta Nagar, Gujarat, on the anniversary of Sardar Vallabhbhai Patel's birth.
- The expedition represents the spirit and tenacity of women (Nari Shakti) and supports the "Beti Bachao Beti Padhao" campaign.
- It showcases the bravery and resolve of CRPF's Veeranganas, upholding the nation's unity and sovereignty.

INS IMPHAL

CONTEXT

The Indian Navy has received its latest stealth destroyer of the Project 15B class, named INS Imphal.

ABOUT INS IMPHAL

- INS Imphal is an Indian Navy ship, specifically a **stealth guided-missile destroyer** of the **Project 15B class.**
  - Imphal is the **third of four warships** sanctioned under the P-15B project.
- **Designed by:** Indian Navy's Warship Design Bureau.
- **Built by:** Mazagon Dock Shipbuilders Limited (MDL).

Features

- First warship designed with **accommodations for female officers and sailors**.
- Capacity to carry a crew of 312.
- **Operational range** of 4,000 nautical miles.
- Equipped with **BrahMos supersonic cruise missiles**.
- Armed with **Barak-8 surface-to-air missiles**.
- Features **anti-submarine warfare capabilities**.

What is Project 15B?

- The Project 15B class destroyers, are designed to be improvements over the Kolkata-class destroyers with enhanced stealth features, land-attack capabilities, and advanced weaponry.
- Under this initiative, Visakhapatnam Class four warships (Visakhapatnam, Mormugao, Imphal, Surat) were planned.

ENVIRONMENT AND ECOLOGY

CORAL REEFS: THREATS AND CONSERVATION EFFORTS

CONTEXT:

The International Coral Reef Initiative (ICRI), in partnership with the Global Fund for Coral Reefs (GFCR) and the High-Level Climate Champions (HLCC) launched the Coral Reef Breakthrough at the 37th ICRI General Meeting in 2023

ABOUT CORAL REEF BREAKTHROUGH

- It is a **science-based initiative** for the **state and non-state actors** to collectively conserve, protect, and restore coral reefs.
- **Aim:** To secure the future of at least **125,000 km2** of **shallow-water tropical coral reefs by 2030.**
- **The initiative is based on four action points:**
  - **Action point 1:** Mitigate local drivers of loss including land-based sources of pollution, destructive coastal development, and overfishing.
  - **Action point 2:** Double the area of coral reefs under effective protection.
  - **Action point 3:** Innovative solutions for Coral Adaptation.
  - **Action point 4:** Investment of at least USD 12 billion by 2030 from public and private sources to conserve and restore corals.

Additional Information

- **Breakthroughs:** In 2021, at COP26, 45 world leaders launched the 2030 Breakthrough Agenda. It aims to deliver near-term significant change across every sector of the global economy in order to achieve a resilient, zero carbon future. The first set of government-led goals, called the **Glasgow Breakthroughs**, covered five key emitting sectors.
- **UN Climate Change High-Level Champions:** They are appointed by the United Nations to promote the engagement of non-state actors such as businesses, cities, regions, and investors in supporting the goals of the Paris Agreement on climate change

CORAL REEFS

- Coral reefs are large underwater structures composed of the skeletons of coral, which are marine invertebrate animals.
- Coral reefs thrive in warm (23-29°C), moderately saline (30-40 ppt), clear, shallow and moving water. For solidification of the Coral polyps, a semi-hard or hard surface is required.
- There are three major types of Coral Reefs:
  - **Fringing Reefs-** Parallel to coastline, separated from the shore by a shallow lagoon. E.g., Ningaloo Reef, Australia
  - **Barrier Reefs-** Parallel to coastline, separated by deeper, wider lagoons than fringing reefs. E.g., Great Barrier Reef, Australia
  - **Atolls-** Located in open ocean, horse-shoe shaped reef with lagoon located in the center. E.g., Chagos Archipelago (group of seven atolls)

SIGNIFICANCE OF CORAL REEFS

- **Biodiversity:** Occupying **less than one percent of the ocean floor**, coral reefs are **home to more than 25%** of all marine life- known as the **Rainforests of the Ocean**
- **Coastal Protection:** Act as first line of defense and protect coastlines from waves, storms, erosion, and flooding.
- **Food and Livelihood:** They are a **primary source of food** and protein for many coastal communities. Coral reefs support 6 million fishers in nearly 100 countries.

- **Medicine:** Many organisms found on reefs **produce chemical compounds** that have been used in treatments for cardiovascular diseases, ulcers, leukemia, lymphoma, and skin cancer etc.
- **Tourism (Cultural Services):** The economic contribution of tourism to coral reefs is estimated at $36 billion to the global economy each year.
- **Carbon Sequestration:** Coral reefs are an **important reservoir of carbon** and help in the sequestration of ocean carbon.

DISTRIBUTION OF CORAL REEFS

Most coral reefs are located between the Tropics of Cancer and Capricorn, in the Pacific Ocean, the Indian Ocean, the Caribbean Sea, the Red Sea, and the Persian Gulf. Over half of the world's coral reefs are found within six countries: Australia, Indonesia, Philippines, Papua New Guinea, Fiji, and the Maldives.

THREATS TO CORAL REEFS

Natural Threats	Anthropogenic Threats
Predators such as parrotfish, barnacles, sea star 'Acanthaster planci, crabs and crown-of-thorns starfish	**Overfishing and unsustainable fishing** techniques- For e.g., blast fishing destroys 64 square feet (5.9 square meters) of reef with a single blast.
Hurricanes or prolonged cold and rainy weather	**Coastal development** contributes to coastal erosion, sediment runoff that blocks sunlight for zooxanthellae, and nutrient-rich runoff that causes eutrophication.
El Niño weather pattern, which can result in lower sea level, altered salinity due to increased rainfall, and elevated sea-surface temperatures	**Pollution** from land, including hot water releases from power plants, pathogens, and trash
Diseases such as Black band disease and white band disease	**Careless Tourism** and harvesting for **aquarium trade**
Some **fungi, sponges, and snails** are capable of boring into the limestone of coral reefs.	**Impact of Climate Change:** ❒ **Coral Bleaching**- It occurs when corals expel their algae due to stress, making them vulnerable to disease, stunted growth, reduced reproduction, and death. Major bleaching events (especially in Great Barrier Reef) occurred in 1998, 2002, 2016, 2017 and 2020. ❒ **Ocean acidification:** It reduces coral reef biodiversity and calcium carbonate carrying capacity, eliminating key species and making it difficult for corals to build their skeletons. ❒ **Sea level Rise:** Coral reefs are expected to move to deeper water, reducing the amount of sunlight they receive and slow their growth. As shorelines erode, corals will be more exposed to polluted runoff and sedimentation.

INITIATIVES TO PROTECT CORAL REEFS

Global

- **Global Coral Reef Alliance:** Established in 1994, it is a US-based non-profit, environmental NGO that aims to save the world's coral reefs
- **International Coral Reef Initiative (ICRI):** Established in 1994, it is an informal partnership among nations, international organizations and non-government organizations to help protect coral reefs globally.
- **Global Coral Reef Monitoring Network (GCRMN):** It is an operational network of the ICRI. It aims to provide the scientific information on the status and trends of coral reef ecosystems for their conservation and management.
- **Global Fund for Coral Reefs:** It is the first UN fund dedicated to **SDG 14, 'Life Below Water'** and the only global blended finance instrument to mobilize action and resources to protect and restore coral reef ecosystems.

India

- **Legal Protection:** Protected under the Schedule I of the Wildlife Protection Act, 1992 and under the Coastal Regulation Zone 1 category.

- **Establishment of Marine Protected Areas**: Gulf of Mannar Biosphere Reserve, Mahatma Gandhi Marine National Park, Rani Jhansi Marine National Park in Richie's Archipelago, Gulf of Kutch Marine National Park
- **Conservation and Restoration Programmes** by CSIR-National Institute of Oceanography (NIO), Reef Watch Marine conservation.

Technology for Coral Reef Conservation

- **Biorock Technology:** Involves deploying electrically charged structures to promote coral growth and strengthen existing coral reefs. India's first biorock coral restoration project was taken up in the Gulf of Kutch off the Gujarat coast.
- **Cryomesh Technology:** Involves cryogenically freezing and storing corals which later can be reintroduced to the wild.

Related News: Geologists have discovered coral reef fossils in the Burtse region, Eastern Ladakh Himalayas. The discovery supports the idea that the Himalayas were formed by the collision of two continents, which caused the seabed of the Tethys Sea to rise up about 40 million years ago.

EIA IN INDIA: ISSUES AND THE SPECIAL NEEDS OF THE INDIAN HIMALAYAN REGION

CONTEXT:

The recent dam breach in Sikkim and landslides and floods in Himachal Pradesh are a stark reminder of the need for a robust Environmental Impact Assessment (EIA) process in the Indian Himalayan Region (IHR).

EIA AND ITS SIGNIFICANCE

It is a process of evaluating the likely beneficial and adverse environmental and inter-related socio-economic, cultural and human-health impacts of a proposed project or development.

Significance

- **Accomplishing long-term growth:** EIA establishes a crucial link between environmental protection and development, enabling both objectives to be addressed simultaneously.
- **Reduced environmental damage**: EIA provides a systematic framework for projects to minimize environmental damage.
- **Preventing natural calamities:** EIA helps prevent natural calamities by assessing and mitigating risks associated with projects.
- **Addressing issues of affected individuals:** Through processes like public hearings, EIA ensures the inclusion of individuals who will be impacted by the project.

EIA IN INDIA

Background

- **1976:** EIA initiated with the establishment of the Environmental Planning and Coordination Organization (EPCO).
- **1994:** First comprehensive EIA notification known as the Environmental Impact Assessment Notification, introduced.
- **2006:** EIA notification amended to strengthen the process.
- **2020:** Draft EIA notification put forward.
- **2022:** MoEFCC introduced new changes for the clearance process for development projects.

EIA Notification, 2006

- **Project categorization:** Projects are classified into Category A and Category B.
  - Category A projects require clearance from the central government and Category B requiring clearance at state level from the State Environmental Impact Assessment Authority (SEIAA) or State Expert Appraisal Committee (SEAC).
  - Category B projects are further divided into B1 (requires EIA) and B2 (does not require EIA).
- **EIA study and report:** A comprehensive EIA study report is required, including baseline data collection, impact prediction, assessment of alternatives, and formulation of an Environmental Management Plan (EMP).
- **Expert Appraisal Committees (EACs):** EACs are established at the central and state levels to review EIA reports, assess environmental impacts and mitigation measures, and evaluate project feasibility.
- **Environmental clearance:** The central or state government grants or denies environmental clearance to projects, based on the recommendations of the EACs.

- **Stages in EIA**
  - **Screening:** Projects are categorized into A or B based on size, capacity, and potential impacts.
  - **Scoping:** The scope and extent of the EIA study are determined, identifying environmental issues and assessing potential impacts. Terms of reference for the EIA study are also defined.
  - **Public Consultation:** Opinions, concerns, and suggestions of affected communities and stakeholders are collected and incorporated into the final draft of the EIA report.
  - **Review and Appraisal:** The EIA report, EMP, and public consultation inputs are reviewed by the Expert Appraisal Committee (EAC) to evaluate the EIA study, mitigation measures, and compliance with environmental norms.

ISSUES WITH EIA INDIA

- **Lack of a national regulator:** In the 2011 **Lafarge Umiam Mining (P) Ltd.; T.N. Godavarman Thirumulpad vs Union of India** case, the Supreme Court suggested establishment of a national regulator to assess and approve environmental clearances and monitor compliance. However, there is currently no such regulator in place.
- **Reactionary rather than anticipatory**: The EIA is often done after the project has already been conceived and planned, which can limit the ability to make meaningful changes to the project to mitigate its environmental impacts.
- **Biased Assessments:** EIAs are typically financed by the project proponent, which can lead to a bias in favor of the project.
- **Inadequate consideration of cumulative impacts:** The EIA process primarily focuses on individual projects and their immediate impacts. This is a major limitation, as the cumulative impacts of multiple projects can be much greater than the individual impacts of each project.
- **"Box ticking" approach:** In many cases, the EIA as a mere formality that needs to be completed before a project can be started. This can result in incomplete and inaccurate assessments that fail to properly identify or address project-related environmental impacts.
- **Inadequate EIA Focus on the Indian Himalayan Region (IHR):** The EIA process often overlooks the special needs of the IHR which serves as a water tower and provides essential ecosystem services.

WHY IHR NEEDS ITS OWN EIA?

- **Fragile Environment and Ecology:** The Himalayan region along with being a biodiversity hotspot, is very fragile and vulnerable. For e.g. Himalayan vertebrate populations have declined 43% in last 50 years due to human activities.
- **Increasing Disasters:** In the recent years, the number of disasters and their severity have increased. Example: Chamoli GLOF (2021), Joshimath Disaster (2023), Himachal Landslides (2023).
- **Climate Change:** Its impact can be seen in the form of retreating glaciers in the Himalayan region, and increase in extreme weather events.
- **Seismically Active:** The Himalayas are among the most seismically active regions in the world due to its location at the collision zone between the Indian and Eurasian tectonic plates.
- **Urbanization and Development Activities:** Unplanned urbanization and development projects has disrupted natural water flow, leading to frequent landslides and instability in the Himalayan slopes.

Initiatives taken to Protect Himalayan Region

- **National Mission for Sustaining the Himalayan Ecosystem (NMSHE):** Launched in 2010, it aims to enhance ecosystem resilience, promote sustainable livelihoods, and address the impacts of climate change on the region.
- **WWF Conservation Program:** Launched in 1961, it aims to preserve the distinctive biodiversity of the Himalayan region while promoting sustainable development.
- **ICIMOD Research Program:** Launched in 2011, by International Centre for Integrated Mountain Development, it aims at researching the impact of climate change on the water resources of the Himalayan region.

WAY FORWARD

- **National Regulator:** Establish a national regulator to independently and objectively assess and approve projects, and monitor compliance with EIA regulations
- **Expanding Scope of EIA:** Consider the cumulative impacts of multiple projects in an area when conducting EIAs.

- **Strengthen the EIA process:** ensure EI process is rigorous and comprehensive, and that EIAs are not simply a formality.
- **Foster transparency and accountability:** Promote transparent practices by ensuring the disclosure of relevant project information, EIA reports, and monitoring data.
- **Independent and expert evaluation:** Establish impartial expert committees with diverse expertise to review EIA reports.
- **Establish a separate EIA process for the IHR:** The EIA process for the IHR should be tailored to the region's unique ecological features and vulnerabilities.

BIOFUELS IN INDIA: GEARING UP FOR A SUSTAINABLE FUTURE

CONTEXT:

The Global Biofuels Alliance (GBA), formally launched at the G20 Summit in Delhi in September 2023, has intensified the discussion on biofuels in India.

ABOUT GLOBAL BIOFUELS ALLIANCE

It is an initiative which aims to bring countries together to **co-develop, accelerate** technological advances in production processes, and **advocate** for the use of biofuels particularly in the transport sector.

Key Objectives:

- Facilitate technology advancements in the biofuels sector
- Intensify the utilization of sustainable biofuels
- Shape robust standard setting and certification for biofuels
- Serve as a central repository of knowledge and an expert hub on biofuels

Member Countries and Organizations

- **G20 countries supporting the GBA**: Argentina, Brazil, Canada, India, Italy, South Africa, and the United States. India, Brazil, and the United States are the founding members of the GBA.
- **G20 invitee countries supporting the GBA**: Bangladesh, Singapore, Mauritius, and the United Arab Emirates.
- **Non-G20 countries supporting the GBA:** Iceland, Kenya, Guyana, Paraguay, Seychelles, Sri Lanka, Uganda, and Finland.
- **International organizations supporting the GBA:** World Bank, Asian Development Bank, World Economic Forum, World LPG Organization, UN Energy for All, UNIDO, Biofutures Platform, International Civil Aviation Organization, International Energy Agency, International Energy Forum, International Renewable Energy Agency, and World Biogas Association.

BIOFUELS

International Energy Agency (IEA) defines biofuels as **liquid fuels derived from biomass**, and are used as an alternative to fossil fuel based liquid transportation fuels such as gasoline, diesel and aviation fuels.

Classification of Biofuels

1st Generation	2nd Generation	3rd Generation	4th Generation
-Derived from food crops like wheat, sugarcane, soybean, etc. -Biochemical methods like fermentation or hydrolysis are employed to convert them to biofuels. E.g., Bioethanol	-Derived from non-food lignocellulosic materials like agricultural residues, wood and grasses. -Biochemical &/or thermochemical methods are used to synthesize biofuels. E.g., Cellulosic ethanol	-Produced from algae and other microorganisms that can grow in various environments. -Biochemical &/or thermochemical methods are employed. E.g., Algae fuel	-Produced using Bio engineered microorganisms & genetically engineered feedstock

NEED OF BIOFUELS PRODUCTION

- **Reduce greenhouse gas emissions:** Biofuels can reduce greenhouse gas emissions by up to 80% compared to fossil fuels. This is because biofuels are made from renewable resources, such as agricultural waste, used cooking oil, and processed animal residues.

- E.g. Biofuels could reduce global greenhouse gas emissions by up to 11% by 2050 (International Renewable Energy Agency).

- **Reduce dependence on imported oil:** Biofuels can help countries reduce their dependence on imported oil, which can save money and improve energy security.
- **Create jobs and boost rural economies:** The production and use of biofuels can create jobs and boost rural economies.
  - E.g., the production of 2G ethanol can use agricultural waste, which would otherwise go to waste.
- **Efficient Fuel:** Biofuels, made from renewable sources, are less flammable and have superior lubricating properties compared to fossil diesel.
- **Cost-Benefit:** Presently, biofuels are competitively priced with petrol in the market, with the potential for cost reduction through improved extraction and production methods in the future.
  - The RFA (Renewable fuel association) report from February 2019 points out ethanol as a high-octane, low-cost fuel.
- **Durability of Vehicle Engines:** Biofuels are compatible with existing engine designs and have been shown to improve engine longevity due to higher cetane numbers and lubrication properties.
- **Ease of Sourcing:** Biofuels can be produced from a diverse range of sources, including manure, crop waste, and algae, which are not subject to the same depletion risks as fossil fuels.
- **Renewable Nature:** Biofuel raw materials, such as manure, corn, and soybeans, are renewable, ensuring a sustainable supply that can be replanted and harvested continually.
- **Economic Security:** Countries without their own oil reserves can boost their economy and security by developing biofuel industries, thereby reducing their need to import oil.
- **Lower Levels of Pollution:** Biofuels result in lower levels of CO2 emissions than traditional diesel, contributing to lower particulate matter emissions and a reduction in overall pollution.
  - The CO2 produced in the biofuel production process is offset by the CO2 uptake of the biomass used to create the fuel, creating a cycle that is closer to carbon neutrality.

INDIA'S INITIATIVES FOR PROMOTION OF BIOFUELS

National Policy on Biofuels – 2018

The policy, under the Ministry of Petroleum and Natural Gas, promotes biofuels through various categorizations and incentives:

- **Basic Biofuels**: Includes first-generation biodiesel and bioethanol.
- **Advanced Biofuels**: Encompasses second-generation ethanol, bio-CNG, and biofuels from waste.
- Expands the scope of raw materials for ethanol to include non-traditional feedstock like damaged food grains and surplus food grains, subject to approval.
- Proposes viability gap funding for 2G ethanol Bio refineries and encourages supply chain mechanisms for biodiesel.

Recent Amendments in 2022:

- Advances the target for 20% ethanol blending in petrol to 2025-26.
- Permits export of biofuels and the use of additional feedstocks.
- Supports biofuel production under the "Make in India" program.
- Expands the composition of the National Biofuel Coordination Committee.

Initiatives:

1. **Ethanol Blended Petrol (EBP) Programme**: Aims to blend ethanol with petrol to reduce pollution and foreign exchange expenditure, with targets advanced to 2025-26.
2. **Pradhan Mantri JI-VAN Yojana (2019)**: Provides financial support for setting up 2G ethanol projects using renewable feedstock, with significant financial incentives for both commercial and demonstration projects.
3. **Biogas Power Generation (Off-Grid) and Thermal energy application Program (BPGTP)**: Promotes decentralized renewable power generation from biogas and supports the creation of biogas plants for rural stakeholders.
4. **New National Biogas and Organic Manure Programme (NNBOMP)**: Introduced to supply clean cooking fuel, improve organic manure systems, and reduce greenhouse gas emissions.
5. **National Bio Energy Program**: Continuation of the program focuses on energy from waste, biomass cogeneration, and support for family and medium-sized biogas plants.
6. **Sustainable Alternative Towards Affordable Transportation (SATAT) Scheme**: Launched to extract value from waste via

Compressed Biogas production, targeting the establishment of 5000 plants by 2023-24.

7. **Galvanizing Organic Bio-Agro Resources (GOBARdhan) Scheme**: Aims to manage organic waste in villages, transforming it into biogas and bio manure, while promoting health, reducing oil imports, and fostering organic farming.

CHALLENGES TO BIOFUEL PRODUCTION IN INDIA

1. **High Cost of Production**

- **Capital Investment:** The initial investment for biofuel production facilities is substantial, often hindering the expansion of biofuel use.
- **Production Expenses:** The cost of growing and processing renewable resources for biofuels typically exceeds that of extracting and refining fossil fuels.
- **Market Dynamics:** An increase in biofuel demand could lead to higher production costs before economies of scale are achieved.

2. **Monoculture**

- **Soil Depletion:** Repeatedly growing the same crops can lead to soil nutrient depletion, reducing land productivity over time.
  - E.g. Brazil where monoculture of soy for biodiesel production led to nutrient depletion.
- **Pest Resistance:** Monoculture increases vulnerability to pests, potentially leading to more chemical pesticide use and the associated environmental harm.
  - E.g. Corn rootworm resistance to transgenic Bt corn
- **Genetic Engineering:** While genetically modified crops can reduce pesticide use, they may not address all pest-related challenges and could lead to unforeseen ecological impacts.

3. **Use of Fertilizers**

- **Environmental Impact:** Fertilizers used in biofuel crop production can contaminate water bodies, contributing to eutrophication and harmful algal blooms.
- **Chemical Runoff:** The runoff of nitrogen and phosphorus from fertilizers into waterways can have detrimental effects on aquatic ecosystems.

4. **Shortage of Food**

- **Crop Allocation:** Utilizing crops like corn and sugarcane for biofuels could divert them from the food supply, potentially leading to food scarcity or price increases.
  - E.g. Substantial increases in biofuel production were thought to have contributed to the steep food price spikes witnessed in 2007-08.
- **Land Use:** The allocation of agricultural land for biofuel production may compete with food crop cultivation, which can exacerbate food shortages in vulnerable regions.

5. **Industrial Pollution**

- **Emissions from Production:** The manufacturing processes of biofuels can contribute to air pollution and greenhouse gas emissions.
- **Water Pollution:** Biofuel production facilities may lead to localized water pollution due to discharges and runoff.

6. **Water Misuse**

- **Irrigation Requirements:** Biofuel crops often require significant amounts of water for irrigation, which can strain water resources, especially in arid regions.
  - Water footprint of per L of biofuel ranges from 1,400 to 20,000 L of water
- **Water Resource Depletion**: In areas with limited water supplies, the additional demand for water for biofuel crops could lead to resource depletion and conflicts over water use.

7. **Future Rise in Price**

- **Technological Development Costs:** Ongoing research and development aimed at making biofuel production more efficient are costly, and these costs may be passed on to consumers.
- **Infrastructure Overhaul:** As technology advances, current production facilities may need significant upgrades, which could further increase the cost of biofuels.

WAY FORWARD

1. **Invest in Research & Development**
- ❒ Focus on developing cost-effective and efficient production technologies.
- ❒ Enhance yields of non-food biofuel crops with minimal environmental impact.
- ❒ **E.g**. Punjab has 11 biomass power plants with a total capacity of 97.50 megawatts, consuming 880,000 metric tonnes of paddy straw every year.

2. **Promote Agricultural Residue Utilization:**
- ❒ Encourage the use of agricultural waste for biofuel to prevent food vs. fuel competition.
- ❒ Support the development of supply chains for collecting and processing residues.

3. **Advance Water-Efficient Practices:**
- ❒ Implement irrigation technologies that reduce water consumption for biofuel crops.
- ❒ Develop drought-resistant biofuel feedstocks.
- ❒ **E.g. use of drip irrigation** in sugarcane cultivation in Maharashtra has resulted in a significant reduction in water usage.

4. **Expand Incentives for Advanced Biofuels:**
- ❒ Provide financial and policy support for 2nd and 3rd generation biofuel technologies.
- ❒ Set up a framework for the commercialization of advanced biofuels.
- ❒ **E.g. US Department of Agriculture** provides loan guarantees upto 250 million dollars to assist in development of advanced technologies such as advanced biofuels.

5. **Integrate Biofuels with Waste Management:**
- ❒ Link policies for waste management with biofuel production, particularly in urban settings.
- ❒ Utilize urban waste streams for biofuel production to reduce landfill use.
- ❒ **E.g.** Urban centers can develop 'waste to energy' products similar to Sweden.

6. **Strengthen Environmental Regulations:**
- ❒ Establish robust environmental guidelines for biofuel production facilities.
- ❒ Monitor and mitigate the impact of biofuels on biodiversity and water resources.

7. **Develop Infrastructure:**
- ❒ Invest in infrastructure to support the distribution and storage of biofuels.
- ❒ Upgrade existing fuel stations to accommodate higher biofuel blends.

8. **Foster Public-Private Partnerships:**
- ❒ Encourage collaboration between government, industry, and academia to scale up biofuel technologies.
- ❒ Leverage private sector expertise and investment for biofuel supply chain improvements.

9. **Enhance Farmer Participation:**
- ❒ Engage with farmers to diversify income sources through energy cropping.
- ❒ Provide training and support for sustainable biofuel crop cultivation practices.

10. **Boost International Collaboration:**
- ❒ Participate actively in global biofuel initiatives to share and adopt best practices.
- ❒ Leverage international partnerships for technology transfer and market development.

11. **Educate and Raise Awareness:**
- ❒ Launch awareness campaigns to promote the benefits of biofuels among consumers.
- ❒ Educate stakeholders about the economic and environmental advantages of biofuels.

12. **Policy Framework Revision:**
- ❒ Regularly update biofuel-related policies to reflect technological advancements and market dynamics.
- ❒ Ensure that policy measures are aligned with the sustainable development goals.

GREEN HYDROGEN MISSION

CONTEXT:

The Union Government approved a Rs 19,744 crore National Green Hydrogen mission

DIFFERENT FORMS OF HYDROGEN

Hydrogen is a colorless, odorless, flammable gaseous substance and it is the most abundant element in the universe. Hydrogen energy has the highest energy content by weight and it has the lowest energy content by volume.

Green Hydrogen: It is a form of hydrogen that is produced by splitting water by electrolysis using clean electricity from surplus renewable energy sources like solar or wind power. Water will split into hydrogen and oxygen through an electrochemical reaction.	**Blue Hydrogen:** It is produced from natural gas in a steam reforming process in which natural gas is treated with heated water. The output of this is hydrogen and carbon dioxide. This carbon is trapped through a carbon capture and storage process.
Grey Hydrogen: It is produced the same as blue hydrogen from natural gas and heated water. But the carbon capture and storage process is not used in this production method.	**Black or Brown Hydrogen:** It is a form of hydrogen that is produced from fossil fuels using a gasification process. Black coal or lignite is used in the hydrogen-making process.
Pink Hydrogen: This type of hydrogen is produced through an electrolysis process with the use of nuclear power. It can also be referred to as purple or red hydrogen.	**Turquoise Hydrogen:** It is a form of hydrogen that is produced by the use of the methane pyrolysis process in which the output is hydrogen and solid carbon.
Yellow Hydrogen: It is a form of hydrogen that is produced through electrolysis using solar power.	**White Hydrogen:** It is naturally occurring hydrogen found in underground deposits and created through fracking.

ROLE OF GREEN HYDROGEN IN DECARBONIZING SYSTEMS:

- **Energy Storage:** Green hydrogen serves as a reliable and sustainable energy storage solution, converting excess renewable energy into hydrogen.
  - For e.g., **The Orkney Islands**, Scotland utilise excess wind energy to produce and store hydrogen for electricity generation.
- **Power Generation:** Green hydrogen in fuel cells offers emission-free electricity generation, particularly for remote areas and off-grid locations.
  - For e.g., Remote islands **like Tilos** in Greece utilise hydrogen fuel cells for their entire electricity needs.
- **Remote Areas and Off-Grid Applications:** Green hydrogen offers clean energy solutions for remote areas, reducing dependence on diesel generators.
  - For e.g. The town **of Denham in Australia** relies on hydrogen produced from solar power for electricity supply, reducing reliance on diesel generators.
- **Industrial Processes -hard to abate sectors:** green hydrogen use reduces carbon emissions in industries like steel manufacturing, refining, and chemical production. Steel plants can use green hydrogen to reduce their carbon footprint.
- **Transportation**: Green hydrogen enables fuel cell vehicles, providing a clean alternative to fossil fuel-powered transportation.
  - For e.g., Cities like **London and Tokyo** deploy hydrogen fuel cell buses for zero-emission public transportation.
- **Heating and Cooling**: Green hydrogen provides clean and efficient solutions for residential and commercial heating and cooling needs.
  - For e.g., **Projects like Haeolus** in Rotterdam provide sustainable heating using hydrogen produced from renewable energy.

NATIONAL GREEN HYDROGEN MISSION

Aim: The mission aims to provide a comprehensive action plan for establishing a Green Hydrogen ecosystem and catalyzing a systematic response to the opportunities and challenges of this sunrise sector.

Objectives

- To make India the Global Hub for the production, usage, and export of Green Hydrogen and its derivatives.
- To contribute to India's aim to become Aatmanirbhar through clean energy and serve as an inspiration for the global clean energy transition.
- To reduce dependence on fossil fuel imports and decarbonize the economy.
- To enable India to assume technology and market leadership in Green Hydrogen.

Significance

- It can enable the utilization of domestically abundant renewable energy resources across regions, seasons, and sectors, feeding multiple usage streams, either as a fuel or as an industrial feedstock.
- It can directly replace fossil fuel-derived feedstocks in petroleum refining, fertilizer production, steel manufacturing, etc.
- Hydrogen-fueled long-haul automobiles and marine vessels can enable the decarbonization of the mobility sector.
- It can be useful as a versatile energy carrier for meeting the energy requirements of remote geographies, including islands, in a sustainable manner.

Likely Outcomes by 2030:

- Development of green hydrogen production capacity of at least 5 million Metric Tonne per annum with an associated renewable energy capacity addition of 125 GW
- Over Rs. 8 Lakh Crore in total investments
- Creation of over 6 Lakh jobs
- Cumulative reduction in fossil fuel imports over Rs. 1 Lakh crore
- Abatement of nearly 50 MMT of annual GHGs emissions.

Phased Approach: The policy is designed to be implemented in two phases, such as

- **Phase 1 (2022-23 To 2025-26):**
  - The focus will be on creating demand while enabling adequate supply by increasing the domestic electrolyzer manufacturing capacity.
  - A bouquet of incentives aimed at indigenization of the value chain and increasing Green Hydrogen production will be developed.
  - It will lay the foundation for future energy transitions in other hard-to-abate sectors by creating the required R & D impetus.
  - It will establish a framework of regulations and standards to facilitate the growth of the sector and enable harmonization and engagement with international norms.
- **Phase II (2026-27 to 2029-30):**
  - The potential of commercial-scale Green Hydrogen based projects in steel, mobility, shipping, railways, and aviation sectors will be explored.

Key Programs

The following key programs have been launched under the Mission to achieve the expected outcomes:

- **Strategic Interventions for Green Hydrogen Transition Program (SIGHT):** Under this, two financial incentive mechanisms will be provided-
  - Targeting domestic manufacturing of electrolyzes
  - Production of Green Hydrogen
- **Green Hydrogen Hubs:** Under this, regions capable of supporting large-scale production and/or utilization of Hydrogen will be identified and developed as Green Hydrogen Hubs.
- **Strategic Hydrogen Innovation Partnership (SHIP):** It is a public-private partnership framework for R&D that will be facilitated under this mission.

Recent Developments

- Oil India Limited commissioned India's First 99.99% pure Green Hydrogen pilot plant at its Jorhat Pump Station in Assam.
- GAIL (INDIA) Limited began India's maiden project of mixing hydrogen into the natural gas system at Indore, Madhya Pradesh.

GLOBAL EFFORTS FOR PROMOTING GREEN HYDROGEN

- In 2021, with the support of the governments of Austria, China, Germany, and Italy, UNIDO launched the "**Global Programme for Hydrogen in Industry".**
- Mission Innovation Hydrogen Challenge: Mission Innovation, a global initiative of 24 countries and the European Union, launched the Hydrogen Challenge to accelerate the development and commercialization of hydrogen technologies.
- **Green Hydrogen Catapult**: The Green Hydrogen Catapult is a global initiative comprising several leading companies and organizations. Its aim is to accelerate the deployment of green hydrogen at scale in order to reach a target of 1 terawatt (TW) of green hydrogen production capacity by 2030.
- **Hydrogen Valley Platform**: It is a joint initiative by the Clean Hydrogen Joint Undertaking and Mission Innovation. It is a global collaboration platform for all information on large-scale hydrogen flagship projects and aims to facilitate a clean energy transition by promoting the emergence of integrated hydrogen projects along the value chain as well as by raising awareness among policymakers.
  - In India, the Department of Science and Technology has committed to facilitating the delivery of three clean hydrogen valleys by 2030.

CHALLENGES ASSOCIATED:

- **Cost:** The production of hydrogen through electrolysis is currently more expensive compared to conventional fossil fuel-based energy sources.
- **Infrastructure:** Developing the necessary infrastructure to produce, store, and transport hydrogen safely and efficiently requires substantial investment.
- **Scalability:** Scaling up hydrogen production to meet the energy demands of various sectors is a challenge. The intermittent nature of renewable energy sources also presents challenges in matching hydrogen production with energy availability.
- **Storage and Transportation:** Hydrogen has a low energy density compared to traditional fossil fuels, making its storage and transportation complex. It requires compression, liquefaction, or other techniques to increase its density and enable efficient storage and transportation.
- **Safety:** Hydrogen is highly flammable and has a wide flammability range. Ensuring the safe handling, storage, and transportation of hydrogen is crucial.
- **Technology Maturity:** While hydrogen technologies have made significant progress, they are still relatively less mature compared to conventional energy technologies.

WAY FORWARD

- **The cost of electrolyzers**, which are used to produce hydrogen from water, **needs to be reduced,** and the **efficiency of the process** needs to be improved to make green hydrogen cost-competitive with other forms of energy.
- **Large-scale electrolysis facilities** and renewable energy sources need to be deployed to ensure sufficient hydrogen production capacity.
- **Safety standards and regulations** need to be established and implemented to mitigate risks and build public confidence in hydrogen technologies.
- **Research and development efforts** are required to improve the efficiency, durability, and reliability of hydrogen production, storage, and utilization technologies

RELATED INFORMATION

Hydrogen Valley Platform

The Hydrogen Valley platform is a joint initiative by the Clean Hydrogen Joint Undertaking and Mission Innovation. It is a global collaboration platform for all information on large-scale hydrogen flagship projects and aims to facilitate a clean energy transition by promoting the emergence of integrated hydrogen projects along the value chain as well as by raising awareness among policymakers.

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Hydrogen Fuel Cells

Under this form of energy, the electrochemical energy is converted into electrical energy to be used for various purposes. It

follows a simple process, such as:

- Hydrogen Fuel Cell uses hydrogen as a fuel in an electrochemical process.
- Hydrogen is fed to the anode of the fuel cell and air is fed to the cathode of the fuel cell.
- The electrons from hydrogen go through an external circuit, creating a flow of electricity.
- The chemical energy of hydrogen is used to generate electricity in a clean and efficient manner.
- Water and steam are the only byproducts.

Fuel Cell Electric Vehicles

Fuel Cell Electric Vehicles (FCEVs) are a type of zero-emission vehicle that uses hydrogen as a fuel to produce electricity through a chemical reaction in a fuel cell. FCEVs offer long driving ranges, and quick refueling times, and emit only water vapor as their byproduct. They hold promise for decarbonizing transportation and reducing dependence on fossil fuels, contributing to a more sustainable and cleaner future for mobility.

Advantages and Disadvantages of Hydrogen Fuel Cells

Advantages	Disadvantages
- It is environment friendly and does not emit harmful emissions - High energy density - Rockets can also use this as a fuel - It is renewable and can be produced again and again - Helps in achieving energy security and fulfilling de-carbonization goals	- Lack of infrastructure for the growth of hydrogen fuel cell powered vehicles. - These vehicles are quite expensive than conventional fuel vehicles. - Safety is also a major concern as both hydrogen and oxygen are flammable. - It has the problem of storage.

CONSERVATION OF WETLANDS

CONTEXT

- The Rajasthan government is working towards making Udaipur the first wetland city in India.

ABOUT WETLANDS:

According to Ramsar Convention's Article 1, wetlands encompass various types of areas such as marshes, fens, peatlands, and bodies of water, whether natural or man-made, that can be permanent or temporary, with water that can be stagnant or flowing.

TYPES OF WETLANDS

On the basis of their location, wetlands are categorized into- **Inland and Coastal.**

- **Inland Wetlands:** These wetlands are located in the interior of the continents away from the coastal areas. The Inland wetlands are further divided on the basis of their formation:
- **Natural Inland Wetlands:** These wetlands are formed naturally without any human intervention such as lakes, ponds, ox-bow lakes, waterlogged, etc.
- **Man-made Inland Wetlands:** These wetlands are formed through human intervention. For example, reservoirs, tanks, Ash ponds, etc.
- **Coastal Wetlands:** These are found along the coastlines of continents and islands. They are also further divided into natural and manmade based on their formation
- **Natural Coastal Wetlands**: Estuaries, lagoons, creeks, backwaters, coral reefs, mangroves, bays, tidal flats, salt marshes, etc. are examples of natural coastal wetlands
- **Man-made Wetlands**: Salt pans and aquaculture are examples of man-made coastal wetlands.

SIGNIFICANCE OF WETLANDS

Wetlands are known as the **Kidney of the Earth** as they hold immense significance for maintaining a balance in the ecosystem, including:

Biodiversity and Habitat:

- **Biodiversity Hotspots:** Wetlands are Earth's most diverse ecosystems, supporting many plants and animals, including rare and endangered species.
  - **E.g** Sundarban forest, act as a wetland refuge for diverse species including the endangered Bengal tiger
- **Nursery Grounds:** Wetlands are essential breeding, nesting, and feeding grounds for diverse aquatic and terrestrial organisms.
  - **E.g** Sturgeon populations in the Danube River showcase the importance of wetlands for breeding and survival of aquatic species.
- **Migration Routes:** Many migratory species rely on wetlands as stopover points during their long-distance journeys, ensuring their survival and successful completion of migration cycles

Water Regulation and Quality:

- **Flood Control:** Wetlands function as natural sponges, mitigating flood damage by absorbing excess water and slowing down floodwaters
  - **E.g.** Pichavaram Mangrove acts as a bio-shield during natural disasters, holds and stabilizes shorelines, retards erosion etc.
- **Water Filtration:** Wetlands improve water quality by naturally filtering pollutants, sediments, and excess nutrients.
  - **E.g** East Kolkata Wetlands in India showcase an impressive capacity for filtering pollutants from water.
- **Groundwater Recharge:** Wetlands contribute to replenishing groundwater by allowing water to percolate through the soil, enhancing the availability of freshwater resources.

Climate Regulation:

- **Carbon Sequestration:** Wetlands are carbon sinks, storing organic matter and sequestering carbon dioxide from the atmosphere to mitigate climate change.
- **Methane Emissions:** Certain wetland types, such as peatlands and marshes, emit methane (greenhouse gas), but restoration and sustainable management practices can mitigate emissions.

Ecosystem Services and Human Well-being:

- **Fisheries and Food Security:** Wetlands support commercial and subsistence fisheries, providing essential spawning grounds and feeding areas for fish and other aquatic species.
  - Mekong Delta support fisheries crucial for Vietnam's economy and food security.
- **Recreation and Tourism:** Wetlands offer recreational opportunities, attracting tourists and boosting local economies through ecotourism and nature-based activities.
- **Cultural and Indigenous Values:** Wetlands hold significant cultural and spiritual value for many indigenous communities, whose heritage and rights are supported by wetland preservation.
  - The Sundarbans are revered as the abode of the goddess Bonbibi, protector of the forest, and are central to the indigenous belief systems and traditional practices of the region.

Resilience and Disaster Risk Reduction

- **Coastal Defense**: Mangroves, salt marshes, and seagrass beds serve as natural shields, safeguarding shorelines and communities from storm surges and erosion.
- **Climate Adaptability:** Wetlands enhance environmental and community resilience, moderating water flow and providing a buffer against severe weather while aiding climate adaptation.

Wetlands and SDGs

The wetlands can play an important role in achieving various sustainable goals-

SDG	Role of Wetland
SDG 6: Clean Water and Sanitation	Wetlands contribute to water purification, filtration, and regulation, improving water quality and availability. They act as natural filters, removing pollutants and excess nutrients from the water.
SDG 13: Climate Action	Wetlands play a role in climate change mitigation and adaptation. They sequester carbon dioxide, mitigating greenhouse gas emissions. Wetlands also act as buffers against storms, floods, and sea-level rise, enhancing the resilience of ecosystems and communities.

SDG 14: Life Below Water	Wetlands, particularly coastal and marine wetlands, provide critical habitats for marine and aquatic species. They support fish populations, contribute to biodiversity, and serve as spawning and nursery grounds for various marine organisms.
SDG 15: Life on Land	Wetlands are part of terrestrial ecosystems and contribute to their biodiversity and ecological integrity. They support diverse flora and fauna, including endangered species, and help maintain healthy ecosystems through their water regulation and filtration functions.

THREATS TO WETLANDS:

Despite their significant role in the environment, they are continued to be impacted by natural and anthropogenic factors, that can have detrimental consequences on ecological integrity. Some of the threats are:

Habitat Loss and Degradation:

- **Conversion for Agriculture:** Wetland loss is a major concern in India, with 38% of wetlands lost between 1991 and 2011, primarily due to rice cultivation (Status of Wetlands in India).
- **Urbanisation and Infrastructure development:** Rapid urbanization and infrastructure development encroach on wetlands, leading to habitat loss. For instance, the Pallikaranai Marsh in Chennai has been severely impacted.

Pollution and Contamination:

- **Industrial and Municipal Discharges:** Untreated industrial and sewage effluents pollute wetlands, degrading water quality
  - E.g. wetlands around Bellandur Lake in Bangalore have been heavily polluted.
- **Agricultural Runoff:** Excessive use of fertilizers and pesticides in agricultural practices results in nutrient runoff, leading to eutrophication and harmful algal blooms in wetlands.
  - E.g. Vembanad-Kol Wetland in Kerala has faced eutrophication issues due to agricultural runoff.
- **Invasive Alien Species:** Invasive alien species, such as water hyacinth and water lettuce, outcompete native plants, alter wetland hydrology, and disrupt ecological balance.
  - E.g. Invasive water hyacinth has caused ecological imbalances and impacted the lake's biodiversity in Srinagar's Dal Lake.

Climate Change Impacts:

- **Sea Level Rise:** Climate change-induced sea level rise threatens coastal wetlands, e.g. the Sundarbans, a UNESCO World Heritage Site is at risk due to sea level rise.
- **Altered Precipitation Patterns:** Rainfall changes affect wetland hydrology, causing water scarcity or flooding e.g. Keoladeo National Park, a Ramsar site, has experienced fluctuations in water availability, impacting bird migration.

Unsustainable Resource Use:

- **Overfishing:** Unsustainable fishing practices can deplete fish stocks and disrupt the ecological balance in wetlands. Chilika Lake in Odisha, has faced challenges related to overfishing.
- **Sand Mining:** Unregulated sand mining in wetland areas can alter the hydrology, degrade habitats, and disrupt ecosystem functioning. The Thane Creek Flamingo Sanctuary near Mumbai has witnessed the adverse impacts of sand mining on its wetland ecosystem.

INITIATIVES TO CONSERVE WETLANDS

International Initiatives	
Ramsar Convention	An international treaty that was signed in 1971 in the Ramsar city of Iran and came into force in 1975. Aims to promote the conservation and sustainable use of wetlands. It has been ratified by 170 countries (including India), making it one of the most successful international environmental treaties.
Montreux Record	It was established by the Ramsar Convention on Wetlands in 1990. It is a register which lists wetland sites that are facing or have the potential to face significant environmental changes. These changes could be due to human activities such as technological developments, pollution, or other human interference.

World Wetlands Day	❒ It is celebrated on the 2nd of February every year to mark the date of the adoption of the Ramsar Convention. It is used to create awareness among the people and educate them about the wise use of wetlands.
Indian Initiatives	
Wetlands (Conservation and Management) Rules, 2017	❒ Provides statutory protection to the wetlands in India, and their development, usage, and protection are regulated by these rules. ❒ Creates state-level bodies to protect the wetlands at the state level ❒ Creates a National Wetland Committee as an advisory body to protect wetlands.
Action Plan of MoEFCC	❒ The Ministry of Environment, Forest and Climate Change (MoEFCC) supports the implementation of management action plans for over 250 wetlands under schemes such as the National Plan for Conservation of Aquatic Ecosystems, Mangroves and Coral Reefs, and Integrated Development of Wildlife Habitats.
Designation of Wetland sites under Ramsar Convention:	❒ India has designated 75 wetland sites in India under the Ramsar Convention for their sustainable use and coordinated protection.

WAY FORWARD

- **Integrated Wetland Policy Implementation:** Enforce and enhance existing policies like India's Wetlands (Conservation and Management) Rules, 2017, with a focus on integrated management that involves local stakeholders, including indigenous communities.
  - Community-led conservation of the East Kolkata Wetlands, has been recognized for its innovative approach to waste treatment and resource recovery.
- **Community Engagement and Education:** Engage local communities in conservation efforts through education and awareness programs.
  - Floating gardens in the wetlands of Kashmir are an example of sustainable agriculture that also conserves the wetland ecosystem.
- **Sustainable Agriculture Practices**: Promote and support sustainable agriculture practices in wetland areas to prevent habitat loss and degradation.
  - Sikkim's organic farming initiative in wetlands exemplifies sustainable agriculture.
- **Climate Resilience Building:** Strengthen climate adaptation measures, such as restoring mangrove buffers in coastal regions to combat storm surges and sea-level rise.
  - The restoration of the Pichavaram Mangrove Forest after the 2004 tsunami is an example of enhancing coastal resilience through wetland restoration.
- **Pollution Control Measures:** Implement strict industrial and municipal waste pollution regulations, modeling cleanup and restoration efforts in Vembanad Lake.
- **Control of Invasive Species:** Develop and apply strategies for the control and eradication of invasive species in wetlands.
- **Wetland Restoration Projects:** Encourage and invest in wetland restoration projects that can rejuvenate degraded wetlands.
  - IIT Madras project in the Ramsar site of Chilika Lake's led to a dramatic increase in the population of the Irrawaddy dolphins..

GREEN ENERGY CORRIDOR

CONTEXT

The Cabinet Committee on Economic Affairs, chaired by Prime Minister Narendra Modi, has approved the project on Green Energy Corridor (GEC) Phase-II – Inter-State Transmission System (ISTS) for 13 GW renewable energy project in Ladakh.

INTRODUCTION TO GREEN ENERGY CORRIDOR

- The Cabinet Committee on Economic Affairs (CCEA) recognized the necessity for augmenting the nation's renewable energy infrastructure.

- During the fiscal year 2015-16, the CCEA gave the nod for a pivotal scheme aimed at bolstering the **Intra-State Transmission System**.
- This scheme's primary focus is to **facilitate the seamless integration of substantial renewable energy capacities.**

Phases of Green Energy Corridor		
Attribute	**Green Energy Corridor Phase 1**	**Green Energy Corridor Phase 2**
Launch	2015-16	Following Phase 1
Estimated Completion	By 2022	Within 5 years from 2022 (by 2027)
Budget	Rs. 10,000 Crores	Rs. 12,000 Crores
Objective	Build infrastructure to integrate excess renewable energy with the national grid.	Similar to Phase 1, with additional infrastructure goals.
Infrastructure	22.6 GVA substations and 9,700 km of transmission lines to extract up to 24 GW of energy.	27.5 GVA substations and 10,750 km of transmission lines to extract up to 20 GW of energy.
Implementation States	Tamil Nadu, Rajasthan, Karnataka, Andhra Pradesh, Maharashtra, Gujarat, Himachal Pradesh, Madhya Pradesh	Same as Phase 1
Funding	40% Central Government, 20% State Government, 40% KfW loan	33% Central Government, remaining from other sources
Significance	Enhances energy efficiency, reliability, and caters to energy-deficient regions.	Supports sustainable development, energy security, job creation, emission reduction, and fulfills Paris Agreement commitments.

AMPHIBIAN CRISIS

CONTEXT

Recent findings from the **second global assessment of amphibians** indicate that climate change represents the most significant risk to their survival.

SECOND GLOBAL ASSESSMENT OF AMPHIBIANS (GAA2)

The second Global Amphibian Assessment (GAA2) commenced in 2015,managed by Amphibian Specialist Group's Red List Authority (2009) to maintain amphibian data on the IUCN Red List and is administered by **Re:wild**, an organization dedicated to the conservation of wildlife.

What were the findings of GAA2?

- **Climate Change**: Climate change threatens 39% of endangered amphibians.
  - Amphibians, sensitive to environmental shifts, become trapped by human-driven climate variations, hindering their survival during climate crises.
- **Habitat Destruction**: Impacts 93% of threatened amphibians, primarily due to agriculture (77%), logging (53%), and infrastructure (40%), highlighting the urgency for habitat conservation.
- **Extinctions**: Since 2004, four species have been recorded extinct, including the Chiriquí harlequin toad, sharp-snouted day frog, Craugastor myllomyllon, and the Jalpa false brook salamander, all native to specific regions like Costa Rica, Panama, Queensland, and Guatemala.
- **Chytrid Fungus**: Batrachochytrium dendrobatidis has significantly affected amphibian populations across Latin America, Australia, and the USA.
- **Most Endangered:** Salamanders are particularly at risk, with 60% classified as threatened.

- **Comparative Threat**: Amphibians face higher extinction (considered as critically endangered, endangered, or vulnerable) risks (41%) compared to mammals (26.5%), reptiles (21.4%), and birds (12.9%).
- **Distribution**: Highest numbers of at-risk amphibians found in global biodiversity hotspots including the **Western Ghats, Sri Lanka, Madagascar, the Caribbean, the Andes, Mesoamerica, Cameroon, and Nigeria.**

WATERMEAL

CONTEXT

Astronauts may use watermeal (the smallest flowering plant on Earth) as a source of food and oxygen.

WHAT IS WATERMEAL?

- Watermeal, belonging to the **genus Wolffia.**
- It is even smaller than its relative, **duckweed.**
- It is a **stemless, rootless, and oval form plant** that floats on still bodies of water.
- **Colour:** They are green in colour due to the presence of chlorophyll.
- **Reproduction**: The type of reproduction of Watermeal is asexual reproduction, predominantly through budding.
- **Significance:** It is a **prolific producer of oxygen and a rich source of protein.**
- **Distribution:** Thailand and other asian countries
- **Usage**: Provides a nutrient-rich dietary option for both people and animals.
  - Acts as a natural filter for water bodies.
  - Serves in the generation of biofuels, including ethanol and biodiesel.
  - Plays a role in bioremediation by detoxifying polluted soil and water.
  - Potential use in agricultural practices in space environments.

NANOPTA : NANOZYME

CONTEXT

A research team at IISc created a **platinum-based nanozyme** known as NanoPtA, capable of being transformed into a **powder form** for widespread industrial applications.

WHAT IS NANOZYME?

- Nanozymes are nanomaterials(a billionth of a metre) with **enzyme-like properties**.
- They can catalyse chemical reactions in a similar way to **natural enzymes**.
- Nanozymes can be made from a variety of materials, including metals, metal oxides, and carbon-based materials.
- **Advantages over natural enzymes**: They are more stable, less expensive, and easier to produce.
  - They can also work in a wider range of conditions, such as high temperatures and extreme pH levels.
- **Usage:** Nanozymes are being used to develop new technologies in a variety of fields, including healthcare, environmental remediation, food safety, and energy production.
  - **Biomedicine:** Nanozymes can be used to develop new diagnostic tools and treatments for diseases such as cancer, Alzheimer's, and diabetes.
    - ✓ **NanoPtA** can break down **neurotransmitters like dopamine and adrenaline,** which could be used to diagnose neurological and neurodegenerative diseases
  - **Environmental remediation**: Nanozymes can be used to clean up polluted water and soil.
    - ✓ **Example: NanoPtA** can quickly and effectively **degrade toxic chemicals** found in industrial wastewater (like **phenols and dyes** in wastewater), even in small amounts.
  - **Food safety:** Nanozymes can be used to detect and remove toxins from food.
  - **Energy production:** Nanozymes can be used to develop new catalysts for fuel cells and solar energy conversion.

What Are Enzymes?

- Enzymes are proteins that act as **biological catalysts**.
- They **speed up chemical reactions** in living organisms without being changed themselves.
- **Examples**:
  - **Amylase:** Breaks down starch into sugar
  - **Lipase:** Breaks down fats into fatty acids and glycerol
  - **Protease**: Breaks down proteins into amino acids
  - **DNA polymerase:** Copies DNA
  - **ATP synthase**: Produces ATP, the cell's energy currency.

DANDELI FOREST

CONTEXT

The **Dandeli forest is threatened by climate change** caused by rising temperatures and changing rainfall patterns.

ABOUT DANDELI FOREST

- The Dandeli forest is located within the **Kali Tiger Reserve (KTR)** in the Uttara Kannada district of Karnataka.
  - Along with neighbouring **Anshi National Park,** the sanctuary was declared part of the Anshi Dandeli Tiger Reserve in 2006.
- KTR is a **UNESCO World Heritage Site** and a **global biodiversity hotspot.**
- It is named after the **Kali River**, which flows through the region.
- The ecoregions found in KTR are the North Western Ghats montane rainforests and North Western Ghats moist deciduous forests.

CONCERNS RELATED TO DANDELI FOREST

- **Reduced Variety of Grasses:** A significant decrease in the variety of grasses in the forest, with over 100 types affected, leading to a diminished food source for herbivores.
- **Eupatorium Weed Invasion:** The spread of eupatorium weed, which is inedible for herbivores and highly flammable, is overtaking the native grass species.
- **Forest Composition Shift:** The forest is gradually changing from semi-evergreen to moist deciduous, influenced by both historical events and human activities.
- **Uncontrolled Wildfires:** Due to the prohibition of controlled fires during the British colonial era, the frequency and severity of uncontrolled forest fires have escalated, endangering the ecosystem.
- **Herbivore Population Decline:** The dwindling grasslands have led to a decrease in herbivore numbers, adversely affecting the food chain, particularly for large predators like leopards and tigers.
- **Challenges for Local Villagers:** Cattle herders in the area are experiencing a reduction in cattle numbers, attributed to predation by big cats and the scarcity of grazing lands.
- **Shift in Fruit Dynamics**: The changed flowering and fruiting schedules of fig trees are impacting bird species such as the Malabar pied hornbill that depend on fig fruits.
- **Decrease in Honey Harvesting:** The irregular flowering of ficus trees, crucial for honey production, has led to a decline in honey collection efforts.

PINK BOLLWORM

CONTEXT

Cotton farmers in Rajasthan and neighbouring regions are facing a severe problem due to the infestation of the pink bollworm (PBW).

Identification and Taxonomy

- Belongs to the **Gelechiidae family of moths**.

- Scientifically known as **Pectinophora gossypiella**.
- Adult moth has a wingspan of about 1.5 centimetres and is characterised by its pinkish colour.

Life Cycle

- Goes through **four distinct stage**s: egg, larva, pupa, and adult.
- Female moths lay eggs on cotton bolls in their early development stages.
- Upon hatching, larvae bore into the bolls, feeding on developing seeds, which causes significant yield losses.
- After the feeding stage, larvae spin a silken cocoon inside the boll, undergoing metamorphosis into pupae. Eventually, they transform into adult moths, ready to continue the cycle.

Origin and Presence Globally

- Originally native to India, the pink bollworm has spread worldwide mainly through the movement of infested cotton and textile materials.
- Currently prevalent in major cotton-producing countries like the United States, China, India, Pakistan, and Brazil.

Impact on Agriculture

- Larvae feed on the seeds within the cotton bolls, causing significant yield losses.
- Infestations lead to reduced cotton yields, increased production costs due to pest management strategies.
- Control measures include the use of insecticides, cultural practices, and the development of genetically modified cotton varieties resistant to the pest.

Control Measures

- Control measures include the use of insecticides, cultural practices, and the development of genetically modified cotton varieties resistant to the pest6.
- In 2021, Pink Bollworm was noted for damaging nearly 4 lakh acres of cotton, particularly observed in Bathinda and Mansa districts of Punjab, indicating the widespread damage it can cause.

BADIS LIMAAKUMI

CONTEXT

Scientists have discovered a new species of fish named Badis Limaakumi.

ABOUT BADIS LIMAAKUMI

- **Scientific Name:** Badis limaakumi.
- **Naming of the Species:** Named after **Limaakum**, an assistant professor and head of the zoology department at Fazl Ali College, Nagaland.
- **Common Names**: Hindu chameleon fish, dusky badis, Tepdang, Akngashi, Aokngatsu, and Sempi.
- **Family**: Badidae.
- **Distinct Features:** The fish exhibits unique characteristics, such as **10 pairs of vertical bars** and a **distinctive patch on the gill cover** (no patches on sides and fins)**.**
  - The fish is known for its **colour-changing ability**, especially when transferred from its natural habitat to an aquarium, where it changes from black to other colours.
- **Habitat**: Found in freshwater environments, particularly in streams with slow or moderate water flow.
  - Also found in ditches and stagnant water bodies across various countries including India, Bangladesh, Nepal, Pakistan, Thailand, and Myanmar.
- **Contribution to Biodiversity:** The discovery increases the known Badis species in India from 14 to 15.

AMAZON RIVER DOLPHIN

CONTEXT

It is suspected that a significant drought and elevated temperatures are the causes behind the demise of 120 river dolphins in an Amazon River tributary.

ABOUT AMAZON RIVER DOLPHIN

- **Scientific Name**: The Amazon River Dolphin is known in scientific terms as Inia geoffrensis.

Habitat and Distribution

- **Native Region**: This species is native to South America, predominantly found in the Amazon and Orinoco river basins.
- **Countries of Residence:** It resides in various South American countries, including Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, and Venezuela.

Characteristics

- **Common Names**: Referred to as boto, bufeo, or more commonly, the pink river dolphin.
- **Colour Variations**: Exhibits a range of colours from dull grey-pink to vibrant flamingo pink.
- **Water Clarity Influence:** The clarity of the water in their habitat affects their coloration.
- **Males' Colour Intensity:** The pink coloration intensifies in males as they mature, leading to the moniker "pink river dolphin".
- **Conservation Status:** IUCN status– Endangered.
- **Diet**: Amazon River Dolphins consume a diverse diet, including 53+ fish species, turtles, frogs, and crabs.

ASIATIC WILD DOG (DHOLE)

CONTEXT

Study suggests shared prey and habitat may promote coexistence between dholes and tigers.

OVERVIEW

- **Scientific Name:** Cuon alpinus
- **Family:** Canidae (the dog family)
- **Class:** Mammalia (mammals).
- **Size**: The length of a Dhole ranges between 76 and 100 cm, exclusive of the 28-48 centimetre tail.
- **Appearance:** Resembling a long-legged fox, Dholes are about the size of a German Shepherd. They are mostly red with a pale underside and white feet, although some variations in colour exist based on their habitat. The tip of their tail is black.
- **Geographical Range**: Dholes are found across Central, South, East, and Southeast Asia.
  - Historically, their range extended throughout southern Russia, across central Asia, south Asia, and southeast Asia.
- **Habitat Variety**: They inhabit a range of environments including mountains, forests, and grasslands.
- **Regions in India**: In India, Dholes are found in Western Ghats and central Indian forests, Eastern Ghats, northeastern states, some areas of Terai region in northern India & Sikkim.
- **Social Behavior**: Dholes are highly social animals living in multi-family groups known as 'clans', which can consist of between 5 and 40 individuals.
- **Conservation Status of Dholes**:
  - **IUCN List of Threatened Species**: Endangered
  - **Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)**: Appendix II
  - **Wildlife Protection Act, 1972** : Schedule II

PROPOSIS JULIFORA

CONTEXT

NSG has decided to take on the Prosopis Juliflora populating its Aravali hills campus after it was found to be responsible for depleting the water table.

About Prosopis Juliflora	
Prosopis Juliflora (Vilayati Kikar)	It is a thorny shrub or tree that is native to Central and South America. It has been introduced to many other parts of the world, including Africa, Asia, and Australia.
Adaptability	**Thrives In:** Most soils including sandy, rocky, poor and saline soils **Altitude:** 300-1900 m above sea level. **Root System:** Deep Tap roots
Introduces in India	**Year:** 1920s by Britishers
Positive Impact	❒ Control erosion and improve soil fertility ❒ Valuable source of food and fodder for livestock ❒ Used to produce firewood, charcoal, and other products. ❒ Provide habitat for wildlife.
Negative Impact	❒ Displaces native vegetation. ❒ Make it difficult for livestock to graze and for people to move through. ❒ Reduce biodiversity and disrupt ecosystem services. ❒ Harbour pests and diseases.

TILAPIA PORAVIRUS

CONTEXT

Tamil Nadu has recorded India's initial outbreak of Tilapia Parvovirus (TiPV), notably affecting the nation's aquaculture sector.

TILAPIA PORAVIRUS: AN OVERVIEW

- **Tilapia Parvovirus (TiPV)** is a **small, non-enveloped, single-stranded DNA (ssDNA) virus** that has been associated with heavy mortalities in tilapia, either as a single infection or in co-infection with Tilapia Lake Virus (TiLV)
- **Occurrence**: The virus was first reported in China in 2019 and Thailand in 2021, with India becoming the third country to report its occurrence.
  - In India, TiPV was first identified in Tamil Nadu, affecting farm-bred tilapia fish, leading to mortality rates between 30% to 50% in farms and 100% in laboratory settings.
  - It has also been detected in other regions of India like Maharashtra and Uttar Pradesh.
- **Impact on Tilapia Farming**: Tilapia, often referred to as a "poor man's fish," was introduced to Indian freshwater bodies in the 1950s.
  - The larger Nile tilapia variant, introduced in the 1970s, is now widely cultivated.
  - However, the emergence of TiPV has raised serious concerns for tilapia farming in India due to its high mortality rates, thus adversely affecting the livelihoods of fish farmers.
- **Ongoing Research**: There's ongoing research aimed at developing a vaccine to combat TiPV and mitigate losses for fish farmers, which would be crucial for securing the tilapia farming industry against such viral outbreaks5.
- **Global Context:** The detection of TiPV in different countries, including China, Thailand, and now India, indicates a wider geographic spread and potentially a growing threat to global tilapia farming.

GEOGRAPHY

GLACIAL LAKE OUTBURST FLOOD

CONTEXT

- Over 25 people died after a massive flood due to a South Lhonak glacier-lake outburst in North Sikkim.

LOF)

- **Definition:** A GLOF is a flood that occurs when a water dammed by a Glacial Moraine is released suddenly.
- **Features of GLOF:** Glacier Lake Outburst flood has **three main features**
- Involves sudden (and sometimes cyclic) releases of water.
- These are rapid events, lasting hours to days.
- These result in large downstream river discharges, which often result in catastrophic flooding or disasters
- **Examples of GLOF-related disasters**: Key examples of GLOF-related disasters include:
- 1926 Jammu and Kashmir deluge
- 1981 Kinnaur valley floods in Himachal Pradesh
- 2013 Kedarnath outburst in Uttarakhand
- **Sikkim GLOF event**: Due to inaccessible terrain, it is difficult to determine the real cause. A combination of excess rainfall + series of earthquakes in Nepal may have caused the Sikkim GLOF event.

Moraines, formed of unconsolidated rock, sediment, and other debris, can act as a natural dam trapping meltwater from glaciers and forming a glacial lake. When the moraine wall collapses, it results in a sudden release of lake water- a phenomenon termed as Glacier Lake Outburst Floods

The Sikkim GLOF event led to the destruction of the Chungthang dam (located on Teesta River).

Increased frequency of GLOF events is being seen due to climate change

- **Need for Early Warning systems**: Given the increased frequency of such events, Early warning systems, with a coordinated approach such as multiple agencies sharing satellite images (that are trained towards the Himalayas) and a network of sensors are needed.

Related Information

DAM SAFETY IN INDIA

The Glacial Lake Outburst Flood (GLOF) South Lhonak Lake in Sikkim destroyed the Teesta III dam, one of India's largest hydropower projects, at Chungthang.

STATUS OF DAMS IN INDIA

According to Central Water Commission's database of large dams- National Register of Large Dams (NRLD), 2019,

- Total number of large dams in India is 5,745 out of which, 5,334 dams are completed and 411 dams are under construction. India has the largest number of dams in the world after USA and China.
- There are 1,157 number of operational large dams in the country which are between 50 to 150 years old and carry safety risks.

DAM FAILURES IN INDIA

Dam failure refers to the catastrophic or unexpected breach of a dam structure, resulting in the uncontrolled release of water stored in the reservoir behind it.

RECENT EXAMPLES OF DAM FAILURES IN INDIA

Dam Incident	Location and Date	Consequences
Kopili Hydropower Dam Disaster	Assam, March 2022	Killed three employees of the hydroelectricity plant

Dam Incident	Location and Date	Consequences
Pulichintala Irrigation Project Incident	Krishna River, upstream of Prakasam Barrage, 2021	Flood-like situations
Tiware Dam Breach	Ratnagiri, Maharashtra, July 2019	Flooded seven villages, 20 people swept away

CAUSES OF DAM FAILURE

- **Natural causes:**
  - **Heavy rainfall** leads to excessive inflow of water exceeds the dam's capacity. For e.g., the Tiware dam failure in Ratnagiri, Maharashtra, 2019 occurred due to heavy rainfall.
  - **Earthquakes** cause ground shaking and damage to the dam structure. For e.g., Koyna Dam failure, 1967
  - **Landslides** impact the stability of the dam or block the flow of water
- **Technical**
  - **Foundation problems:** The dam may be unstable if the soil beneath it is weak or unstable. This could happen if the soil settles, erodes, or changes its water content.
  - **Seepage and internal erosion:** Excessive seepage of water through the dam or its foundation, cause erosion of the materials and potential weakening of the structure.
  - **Over-topping:** When water rises above the crest of the dam due to extreme inflow or inadequate spillway capacity, it results in uncontrolled flow over the top of the dam.
- **Human Error and Negligence**
  - **Design and construction flaws:** Poor design choices do not adequately consider the site conditions, hydrological factors, or potential risks. Inadequate construction practices, such as improper compaction of materials or insufficient reinforcement. For e.g., Karam dam failure in Madhya Pradesh, 2022
  - **Operational failures:** Improper operation of the dam, including inadequate release of water during periods of high inflow or failure to adjust for changing conditions.
  - **Ageing infrastructure:** Lack of regular inspections, maintenance, and repairs. For e.g., dam failure at Pulichintala Irrigation Project on Krishna River, Andhra Pradesh, 2021.

IMPACT OF DAM FAILURE

- **Loss of Life and Injuries**: Dam failures lead to loss of life, injuries, and trauma due to sudden water release.
- **Infrastructure Damage:** Failed dams severely damage downstream structures like buildings, roads, and bridges.
- **Floods and Displacement:** Dam failures cause downstream flooding, displacing people and impacting livelihoods.
- **Environmental Damage:** Dam failures have detrimental effects on the environment, including the destruction of ecosystems, habitats, and biodiversity.
  - The sudden release of water, sediment, and debris disrupt the natural flow patterns of rivers and streams, impacting aquatic life and vegetation.
  - Dam failures contaminate water with pollutants, affecting human and aquatic health.
- **Economic Costs:** They result in financial losses from property damage, disrupted transport, and costly recovery efforts.
- **Social and psychological impact:** Dam failures have profound social and psychological effects on affected communities, leading to trauma, displacement, loss of community cohesion, and long-term emotional distress.

INITIATIVES TAKEN IN INDIA FOR DAM SAFETY

- **Dam Safety Act 2021:** The Act aims to ensure surveillance, inspection, operation and maintenance of the specified dam for prevention of dam failure-related disasters.
  - **Institutions under this Act:** It establishes National Committee on Dam Safety (NCDS), National Dam Safety Authority (NDSA) and State Dam Safety Organizations (SDSO)

National Committee on Dam Safety (NCDS)	❒ Headed by- Chairman of Central Water Commission (CWC) ❒ Objective- To help evolve uniform dam safety policies, protocols and procedures

National Dam Safety Authority (NDSA)	❒ Headed by- Chairman ❒ Function: To function as a regulating body for ensuring the nationwide implementation of dam safety policies and standards, resolve disputes between SDSOs and dam owners

- **Dam safety unit and emergency action plan:** Dam owners must establish a dam safety unit within each dam. The unit will conduct inspections before and after the monsoon season, during and after calamities, and signs of distress. Preparation of emergency action plans and regular risk assessment studies are also required.
- **Dam safety evaluation and expert panels:** Dam owners must conduct comprehensive dam safety evaluations at specified intervals, involving expert panels.
- **Offenses and compliance:** The act address two types of offenses: obstruction of a person's duties and non-compliance with issued directions.

❒ **Dam Safety Rehabilitation and Improvement Project (DRIP):**

- Launched in 2012 by the Central Water Commission (CWC) with World Bank support, it aims at rehabilitation of old dams in the country that may be experiencing distress and are in need of attention for ensuring their structural safety and operational efficiency.
- The scheme focuses on **four areas**: rehabilitating dams for improved safety and performance, strengthening dam safety institutions at state and central levels, generating revenue for dam maintenance, and project management.

❒ **Dam Health and Rehabilitation Monitoring Application (DHARMA):** Developed by CWC, it is a web tool to digitize all dam related data effectively. It helps to document authentic asset and safety & structural information pertaining to the large dams in the country, enabling appropriate actions to ensure need-based rehabilitation.

❒ **Seismic Hazard Assessment Information System (SHAISYS):** Developed by CWC, it is a web based interactive application tool to for estimation of seismic hazard at any specific location in the country.

ISSUES WITH DAM SAFETY IN INDIA

❒ **Inadequate Risk-Based Decision-Making:** The Dam Safety Act (DSA) in India does not sufficiently promote risk-based decision-making, leading to blind spots in both legislation and implementation. This lack of focus on risk assessment contributes to recurring disasters.

❒ **Compromised Transparency in National and State Bodies:** The composition of national and state dam safety bodies, often consisting of government employees and engineers who have worked on the projects, hinders objective decision-making. This structure lacks independent voices and transparency, essential for effective dam safety management.

❒ **Inadequate Maintenance and Inspection**: There is often a lack of consistent and thorough maintenance and inspection routines, leading to unnoticed structural weaknesses and potential hazards.

❒ **Limited Public Access to Information:** Crucial information about dam safety, including reports, decisions, and committee actions, is not readily available to the public.

❒ **Lack of Standardization in Dam Safety Evaluations**: The Dam Safety Act's effectiveness is undermined by inconsistent standards in analyzing and reporting dam failures, leading to varied interpretations and approaches.

WAY FORWARD

❒ **Enhanced Maintenance and Inspection Routines:** Regular and thorough maintenance and inspection of dams must be mandated. This includes adopting modern technologies for monitoring dam health and early warning systems.

❒ **Establishing Standardized Protocols:** It is necessary to implement uniform standards for analyzing and reporting dam failures. This would ensure consistency in evaluations, facilitating better understanding and management of risks.

❒ **Risk-Based Decision Making:** It is important to incorporate risk-based decision-making in dam safety practices. This approach should prioritize dams based on their potential risk to life and property, ensuring that the most critical structures receive immediate attention.

❒ **Climate Change Adaptation:** Upgrade existing dams and design new ones to withstand the changing hydrological patterns due to climate change is crucial. This includes accommodating increased rainfall variability and flood events.

❒ **Promoting Transparency and Public Engagement:** Safety reports, committee decisions, and risk assessments should be made publicly available. Further, local communities should be involved in the decision-making process.

Best Practice-Dam Safety in Australia

The safety of Australian dams is managed by a set of best practice national guidelines, with varying levels of legislated regulations undertaken at the state level. Various measures include implementing a risk-based approach for dam safety, following comprehensive guidelines for dam design, construction, operation, and maintenance, conducting independent reviews, implementing robust monitoring systems, and developing emergency response plans.

ZEALANDIA (WORLD'S EIGHTH CONTINENT)

CONTEXT:

Scientists have recently discovered a new continent that had been missing from our knowledge for almost 375 years.

More on the News:

- Geoscientists have created a more **detailed map** of Zealandia **after centuries of it going unnoticed** and submerged into the ocean.
- The data for this was collected **by studying rock samples from the ocean floor**, and their findings were published in **the journal Tectonics**, which focuses on Earth's structure and evolution.

About Zealandia:

UNDERWATER CONTINENT:

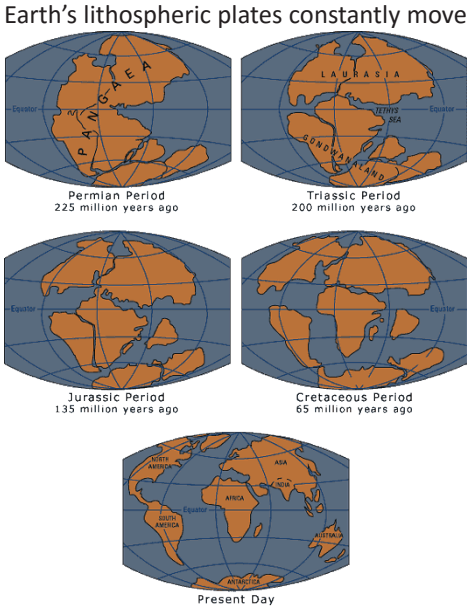
- This continent, called Zealandia, is mostly underwater, **consisting of a group of islands, similar to New Zealand**.
- It is a **long, narrow microcontinent** that is **mostly submerged in the South Pacific Ocean lying beneath 6,560 feet (2km) of water.**
- The part of Zealandia that is above water **forms the foundation of New Zealand's north and south islands** as well as the island of New Caledonia.
- Zealandia was **originally part of the ancient supercontinent Gondwana**, which existed about 1 billion to 542 million years ago.

Geological Formation of Gondwana:

- Approximately **335 million years ago**, during the late **Palaeozoic era,** Earth's landmasses coalesced into a **single vast supercontinent** known as **Pangea.**
- The name "Pangea" comes from Greek, meaning "**all lands**," as it was a time when most of the Earth's continents were connected into one enormous landmass.
- This supercontinent covered about **one-third of the Earth's surface.**

Formation of Pangea

- The formation of Pangea resulted from the **process of plate tectonics**, where the Earth's lithospheric plates constantly move on the semi-fluid asthenosphere beneath them.
- Over millions of years**, the movement of these plates brought the continents together,** leading to the creation of Pangea.



The Disintegration of Pangea

- Approximately **175 million years ago**, during the **early Mesozoic era,** Pangea began to break apart due to the movement of tectonic plates.
- **This gradual separation led to the formation of two new supercontinents:**
  - Angaraland in the north **(also called Laurasia)**
  - Gondwana in the south
- Laurasia, or Angara Land, drifted northward away from Gondwana, and the opening of the **Tethys Sea** occurred between them.

Angara Land

- Angara Land/**Laurasia**, represented the **northern portion** of the Pangea supercontinent.
- After the disintegration of Pangea, Laurasia consisted of the **landmasses that would** eventually become modern-day:

- North America
- Europe
- Asia

GONDWANA LAND

- Gondwana Land was **the southern supercontinent** that emerged from the breaking up of Pangea.
- It **comprised the landmasses** that would eventually become modern-day:
  - South America
  - Africa
  - Antarctica
  - Australia
  - Indian subcontinent
  - Arabian Peninsula

As Pangea broke apart, **Gondwana moved southwards and remained a cohesive landmass for millions of year**s before it too began to disintegrate. The fragmentation of Gondwana led to the eventual separation of its constituent landmasses to their present-day positions.

About New Zealandia

- **Location**: It is located in the **southwestern Pacific Ocean**, primarily to the **east of Australia** and to the **south of New Caledonia**. It **encompasses the region that includes New Zealand and New Caledonia.**
- **Size:** It is a vast continent, about **six times the size of Madagascar**, covering 1.89 million square miles or 4.9 million square kilometres and **about half the size of Australia.**
  - It's the **eighth continent discovered, and is the smallest, thinnest, and youngest one.**
- **Formation**:
  - Zealandia or **Te Riu-a-Māui in the Māori language** was **formally one of the constituent continents of the ancient supercontinent called Gondwana,** which also included Western Antarctica and Eastern Australia over 500 million years ago.
  - It **began to "pull away" from Gondwana roughly 105 million years ago.**
  - As Zealandia started pulling away, **it began to sink beneath the waves, with over 94 per cent remaining underwater for millennia.**
- **Tectonic Plate Boundaries**: Zealandia is **situated along the boundary of several tectonic plates**, including the Australian Plate, Pacific Plate, and Indo-Australian Plate.
- **The existence of Zealandia was first recorded in 1642 by Dutch businessman and sailor Abel Tasma**n, who was on a mission to find the "great Southern Continent," or Terra Australis.

EVIDENCE IN SUPPORT OF ZEALANDIA AS A CONTINENT:

Evidence	Explanation
Bathymetry	Zealandia's seabed is considerably shallower compared to the surrounding oceanic plates, indicating it's underlain by a continental rather than an oceanic crust.
Geological Composition	Analysis of rocks and sediments from Zealandia reveals continental characteristics, not typical of oceanic crust
Tectonic Separation	Zealandia separated from the Gondwana supercontinent and moved independently, forming its **distinct landmass**

Evidence	Explanation
Geological Fit	Geological features of Zealandia align with West Antarctica, suggesting that these regions were once connected as part of a larger continent
Magnetic Anomalies	Measurements of magnetic anomalies in the ocean floor around Zealandia provide insights into its stretching and thinning processes over millions of years

RELATED INFORMATION

Plate Tectonic Theory

- It describes the large-scale motion of **seven major and several minor plates of the Earth's lithosphere.**
- The theory builds on the **concept of continental drift,** which was first proposed by **Alfred Wegener in 1912.**
- The theory explains that the **Earth's lithosphere** is divided into a **number of plates** that are constantly moving. The plates are driven by **convection currents** in the **Earth's mantle**. The plates can move apart, collide with each other, or slide past each other.
- **Features of Continents as per the Theory:**
  - **The distribution of mountain ranges:** Mountain ranges are formed when plates collide. The Himalayas, for example, were formed when the Indian Plate collided with the Eurasian Plate.
  - **The distribution of volcanoes:** Volcanoes are often found along plate boundaries. The Pacific Ring of Fire, for example, is a region of intense volcanic activity that is located along the boundary of the Pacific Plate and several other plates.
  - **The distribution of earthquakes:** Earthquakes are also often found along plate boundaries. The San Andreas Fault in California, for example, is a plate boundary that is responsible for many earthquakes.
  - **The distribution of fossils:** Fossils of the same plants and animals can be found on different continents, which suggests that the continents were once joined together. For example, fossils of the dinosaur Mesosaurus have been found in South America and Africa.

SCIENCE AND TECHNOLOGY

2023 NOBEL PRIZE IN MEDICINE: MRNA VACCINES

CONTEXT

- The Nobel Prize in Chemistry 2023 has been awarded to Moungi G. Bawendi, Louis E. Brus, and Alexei I. Ekimov for discovering and synthesizing quantum dots.

BACKGROUND:

- **About mRNA:** It stands for "messenger RNA." It carries instructions from DNA to the ribosomes for protein synthesis.
- **What are mRNA vaccines?** These vaccines utilize the "messenger RNA." to instruct cells in the body to produce a specific viral protein, such as the spike protein of a COVID-19 virus.
  - The protein that is made by the mRNA vaccine is then displayed on the surface of the cells, which triggers an 'immune response', thereby building immunity against the virus.

COMPARISON OF MRNA AND DNA VACCINES

Parameters	mRNA vaccine	DNA vaccine	Inactivated vaccine
Genetic Material	Messenger RNA (mRNA)	Deoxyribonucleic acid (DNA)	Killed virus or bacteria
Stability	Relatively fragile and needs lipid protection to remain stable.	More stable and does not require lipid protection.	More stable than mRNA and DNA vaccines, but can still be degraded over time.
Delivery	Deliver instructions directly to the cell to produce viral proteins.	Often a harmless virus (vector) delivers DNA instructions to cells.	Injected into the body, where it is recognized by the immune system and triggers an immune response.
Storage	Require ultra-low temperatures (e.g., -90°C to -50°C) for storage and transportation.	Can typically be stored at less extreme temperatures (so more suited for tropical countries like India).	Can be stored at refrigerator temperatures (2-8°C), making them more practical for distribution and administration.
Flexibility	Both mRNA and DNA vaccines can be adapted quickly to address emerging variants and new diseases by changing the genetic code.	DNA vaccines offer flexibility but may require additional development steps for adaptation.	Less flexible than mRNA and DNA vaccines, as it requires the virus or bacteria to be killed and purified.
Examples	Pfizer/BioNTech and Moderna COVID-19 vaccines	Zydus Cadila's ZyCoV-D vaccine; Covishield (by Serum and Oxford) use DNA wrapped in another virus, which then instructs cells to make the spike protein	Polio, rabies, influenza, hepatitis A, and Japanese encephalitis vaccines.

ADVANTAGES OF MRNA VACCINE

- **Rapid Development:** mRNA vaccines can be developed more quickly (i.e. in months) than traditional vaccines which take years to develop.
  - E.g. Pfizer-BioNTech and Moderna COVID-19 vaccines were both developed in less than a year.
  - India's **first indigenous mRNA vaccine** was given emergency approval for use against the Omicron variant for use components, reducing the risk of causing the disease in vaccinated individuals.
- **Precision:** They can be designed with a high degree of precision to target specific viral proteins.
  - mRNA vaccines can be designed to target **specific variants** of a virus, which could be helpful in addressing emerging strains.

- **Scalability:** The production of mRNA vaccines can be scaled up more rapidly than traditional vaccine production. This will be particularly important during the Pandemic.
- **No Risk of Integration:** mRNA does not integrate into the recipient's DNA, making it safe from genomic integration concerns
  - Therefore, vaccines are safer for people with weakened immune systems, such as people living with HIV/AIDS or cancer.
- **Potential for Broad Applications:** mRNA vaccine technology holds promise for developing vaccines against a wide range of infectious diseases.
  - Can be used to develop vaccines against cancer, autoimmune diseases, and other non-infectious diseases.

DISADVANTAGES OF MRNA VACCINE

- **Limited Long-Term Data:** mRNA vaccine technology is relatively new, and there's limited long-term data on their efficacy and safety.
- **Storage Challenges:** mRNA is unstable and easily degraded, therefore mRNA vaccines, like the Pfizer-BioNTech vaccine, require ultra-cold storage, making distribution and administration more challenging.
- **Safety issues:** mRNA vaccines have strong immunogenicity, triggering unnecessary immune response.
  - Rare reports of severe allergic reactions (anaphylaxis) have been reported.
- **Public Acceptance:** Misinformation and public skepticism about mRNA vaccines can affect vaccine acceptance and coverage.

RELATED INFORMATION: DIFFERENCE BETWEEN RNA AND DNA

Feature	DNA	RNA
Structure	Double-stranded	Single-stranded (usually), can also be double-stranded
Sugar	Deoxyribose	Ribose
Bases	Adenine, thymine, cytosine, guanine	Adenine, uracil, cytosine, guanine
Function	Stores genetic information	Transmits genetic information, plays other roles in metabolism and gene regulation
Location	Nucleus (in eukaryotes)	Throughout the cell
Stability	Stable	Less stable
Replication	Self-replicating	Generated from DNA template
Form	B-form helix	A-form helix, can also form double-stranded helices

2023 NOBEL PRIZE IN CHEMISTRY: QUANTUM DOTS

CONTEXT

- The 2023 Nobel Prize in Chemistry was awarded for the discovery and synthesis of quantum dots, tiny particles with unique optical properties due to their small size.

WHAT ARE QUANTUM DOTS?

- The properties of all elements i.e. colour, hardness etc. are determined by their atomic structure. Atomic structure is the number and arrangement of electrons around the nucleus.
  - **E.g.** Every piece of elements like Iron, gold irrespective of size have the same properties
- However, at nanoscale the properties of material change in unexpected ways. This happens because the atoms are not packed together and electrons can move freely.
  - **E.g**. Gold nanoparticles can be different colours depending on their size
- **Quantum Dots:** These are semiconductor nanoparticles that are typically only a few nano - meters in diameter. The electrons are confined to a very small space, and their behaviour is governed by the laws of **quantum mechanics**.
- **Characteristics:** The size and composition of Quantum Dots give it unique optical and electronic properties.

- **E.g.** Quantum dots emit different colours depending on their size, making them ideal for brighter, more energy-efficient displays.

- Quantum dots constitutes a new class of materials that is neither molecular nor bulk material.
- They share the same structure and atomic composition as bulk materials, but their properties can be tuned by their size alone.

APPLICATIONS OF QUANTUM DOTS:

- **Display Technology**: Quantum dots can be used to enhance color purity and energy efficiency in display devices, such as Quantum Dot LED (QD-LED) TVs and monitors.
  - E.g. QD-LED TVs and monitors provide more vibrant colours and consume less energy compared to conventional LED displays.
- **Biomedical Imaging:** Quantum dots enable targeted imaging and diagnostics in medical applications through bright, stable fluorescence for precise cell and biomolecule tracking in living organisms.
  - E.g. QD-based imaging can be used for identifying cancer cells at an early stage.
- **Photodetectors and Sensors:** Enhanced sensitivity and tunable properties of Quantum Dots make them suitable for photodetectors and sensors.
- **Quantum Dot Computing:** These Quantum dots can be used as qubits (quantum bits) in quantum computers, which are more powerful than traditional computers.
- **Telecommunications**: Quantum dots can be used to amplify and transmit optical signals efficiently, leading to faster and more reliable telecommunications.
- **Environmental Remediation:** The Quantum dots have applications in environmental remediation, such as removing pollutants from water and soil through photocatalysis.
  - Photocatalysts can remove heavy metals from wastewater, or to break down organic pollutants in soil.
- **Security and Authentication**: Quantum dots can be used to create anti-counterfeiting measures for documents and products because their tunable properties.
  - Tunable properties mean that the properties of a material can be changed by adjusting certain parameters, such as size, shape, or composition.
- **Solar Cells:** The technology can be used in solar cells to potentially increase their efficiency.

Do You Know?

Quantum Dot TVs:

One of the commercial applications of Quantum Dots has been in enhancing the display technology of televisions. E.g., Samsung introduced the QLED TV, which utilizes Quantum Dots to provide a more energy-efficient display with better color accuracy and brightness compared to traditional LED TVs.

ISSUES AND CONCERNS

- **Toxicity:** Quantum dots, particularly those containing heavy metals such as cadmium and lead, can be toxic to living organisms
  - e.g. **Cadmium selenide quantum dots** were found to be toxic to human liver. Also, Sulfide quantum dots can accumulate in the brains of fish and cause damage to nerve cells.
- **Environmental impact**: The release of quantum dots into the environment during their use or disposal could pose a risk to ecosystems.
  - A potential adverse impact of quantum dots was seen on growth and production of algae, earthworms etc.
- **Cost:** Quantum dots are currently relatively expensive to produce (high per gram cost). This could limit their adoption for some applications.
- **Scalability:** The manufacturing of quantum dots is currently a batch process, which limits the scalability of production.

RELATED INFORMATION

National Quantum Mission (NQM)

Category	Details
Purpose	Spearhead the advancement and proliferation of Quantum Technologies within India.

Category	Details
Duration	8 years (2023 to 2031)
Key Focus Areas	1. **Quantum Computing:** Roll out qubit computers (50-1000 qubits) in 3-8 years. 2. **Quantum Communication:** Establish satellite-driven communication (3000 km radius) and quantum key distribution channels (2000 km) in 3-8 years. 3. **Quantum Sensing & Metrology:** Develop high-sensitivity quantum sensors for various sectors in 8 years 4. **Quantum Materials & Tools:** Design and craft innovative devices and materials for quantum technology in 3-8 years.
Key Stakeholders	Department of Technology, Atomic Energy, Telecommunications, DRDO, and ISRO.
Additional Objective	Establish four specialized hubs (T-Hubs) at premier research entities and development centers, aligned with the core focus areas.
Impact	India aims to be among the top six global frontrunners in quantum technology research, alongside countries like the US, Canada, France, Finland, China, and Austria.
Parallel Initiatives	National Mission for Quantum Technologies and Applications (NM-QTA), Quantum-Enabled Science & Technology (QuEST) program, and C-DOT's Quantum Communication with Quantum Key Distribution (QKD).

INDIAN SPACE ECONOMY

CONTEXT

- The Indian National Space Promotion and Authorization Centre (IN-SPACe) has released a 10-year plan to significantly grow the Indian space economy.

ABOUT IN-SPACE'S DECADAL VISION AND STRATEGY:

Parameters	Details
8% Target	Target to increase its global space economy share from 2% to 8% by 2033.
Increase Domestic and Export Share	India aims to grow its domestic space market share from $8 billion to $33 billion and its export market share from $0.3 billion to $11 billion by 2033, capturing 8% of the global space economy worth $546 billion.
Collaborations	Emphasizing collaboration among stakeholders and promoting private sector participation.
Investment	India plans to invest ₹17,600 crore ($22 billion) in the space sector over the next decade.
Focus Areas	IN-SPACe will focus on three areas: Space-for-Earth, Access-to-Space, and Space-for-Space.
10 Key Capabilities	The decadal vision includes 10 key capabilities: Demand generation, Earth observation, Communication, Navigation, Research, Talent Development, Finance, International Cooperation, Collaboration, and Policy regulation.

CURRENT STATUS OF THE INDIAN SPACE ECONOMY:

- **Market Size and Growth:** The Indian space economy is a nascent but rapidly growing market, accounting for 2% of the global space economy.
  - A report by Indian Space association valued the Indian Space Economy at 9.6 billion dollars in 2020.
- **Private Sector Momentum:** The private sector is playing an increasingly pivotal role in the Indian space economy, with the emergence of several innovative startups e.g. **Agnikul Cosmos, Skyroot Aerospace etc.**
- **Upstream and Downstream Activities:** India is actively engaged in both upstream (satellite manufacturing, rocket launches) and downstream (satellite-based services) activities in the space economy.
  - **E.g.,** ISRO's build and launch of GSAT-30 (upstream), and providing satellite imagery for agricultural monitoring (downstream).

- **Space Startups:** The Indian space startup ecosystem is thriving, with over 100 startups operating in the sector.
  - **Skyroot Aerospace's Vikram I** is an example of Startup innovation.
  - **SpaceTech startup Dhruva** is also coming up with a state of the art manufacturing facility in Hyderabad to develop Space products.
- **Commercialisation:** Antrix Corporation Limited, the commercial arm of ISRO contributes to the Indian economy in terms of revenue generation, foreign exchange earnings, and employment creation
  - **E.g**. In 2022-23, Antrix's revenue stood at ₹11,051 crore,
- **Space exploration**: India's growing capabilities in the space sector and its commitment to space exploration can be seen through its Mars Orbiter Mission, Chandrayaan-2 and Aditya-L1, India's first mission to study the sun.
- **Satellite Launch Services:** India's Polar Satellite Launch Vehicle (PSLV) and Geosynchronous Satellite Launch Vehicle (GSLV) are reliable and affordable launch vehicles for satellites.
  - **E.g**., PSLV-C37 Successfully Launched 104 Satellites in a Single Flight.

NEED TO FOCUS ON INDIAN SPACE ECONOMY:

- **Technological Advancements**: Space technology is a key driver of innovation in other fields, such as communications, navigation, and Earth observation.
  - **E.g.,** GSAT-7A enables Indian Air Force to interlink different ground radar stations, airbases and AWACS aircraft.
- **National Security:** Space technology plays a vital role in national security, providing surveillance, communication, and navigation capabilities for the military.
  - **E.g.,** Cartosat series of satellites known as 'India eye in the sky' caters to India's military requirements.
- **Economic Diversification**: A thriving space economy can contribute to economic diversification and resilience.
  - **E.g.** India's space industry is predicted to be worth approximately **USD 13 billion** by 2025 (Indian Space Association).
- **Education and Skill Development**: Space science and technology education can help to create a more skilled workforce and stimulate academic pursuits.
  - **E.g. IIST (Indian Institute of Space Science and Technology)** fostering space science education.
- **Global Positioning:** A well-established space economy can enhance India's position on the global stage and help India earn international recognition through its space program.
  - **E.g.,** the successful completion of the Mars Orbiter Mission enhanced India's global standing in space exploration.
- **Disaster Management:** Satellite technology plays a crucial role in disaster prediction, management, and recovery.
  - **E.g.,** INSAT-3DR aiding in cyclone prediction and weather forecasting.

MEASURES TAKEN TO BOOST SPACE INDUSTRY:

Steps taken by Government	
Formation of IN-SPACe	Aims to facilitate and promote private sector involvement in the space sector
New Space India Limited (NSIL)	A Central Public Sector Enterprise (CPSE) under the administrative control of the Department of Space (DoS) to commercially exploit the research and development work of ISRO centres and constituent units of DoS.
ISRO Startup Hub	Launched in 2019, a platform for startups to collaborate with ISRO, access ISRO's facilities, and benefit from ISRO's expertise.
Indian Space Policy – 2023	An overarching, composite and dynamic framework to implement the Space reform vision of the government.
Space Activities Bill	The bill aims to regulate and promote private participation in the space sector.
Budget allocations	The latest budget allocation for the Department of Space in 2023-24 is ₹12,544 crores.

Steps taken by Government	
International Collaborations	Engaging with other countries for joint space project for example Indo-French collaboration on Trishna satellite for Earth observation.

CHALLENGES IN THE DEVELOPMENT OF THE SPACE ECONOMY

- **High upfront costs:** The high cost of developing and launching satellites and launch vehicles is a major barrier to entry for new companies in the Indian space sector.
- **Lack of regulatory clarity:** The Indian government is still developing the regulatory framework for the private space sector. This lack of clarity is making it difficult for companies to invest in the sector and to bring new products and services to market.
  - **E.g.** pending finalization of the Space Activities bill creates regulatory uncertainty for the private sector.
- **Need for skilled workforce:** The Indian space sector is relatively new and there is a shortage of skilled workers. This makes it difficult for companies to find skilled talent.
  - There is a need for more specialized programs in space technology to foster talent.
- **Access to cutting-edge technology**: Indian companies need access to cutting-edge technology to develop competitive products and services. However, this technology is often expensive and difficult to obtain.
- **Lack of infrastructure:** India needs to develop more testing and launch facilities to support the growth of the private space sector.
  - India is aiming to set up a 'Bharatiya Antariksha Station' (Indian space station) by 2035.
- **Global market access**: The Indian private space sector is competing with established players in the global satellite launch service market. This makes it difficult for Indian companies to break into the global market.

WAY FORWARD

Policy Evolution and Regulation

- Regularly update policies to accommodate new technologies and address emerging issues.
- Align space policies with global standards and emerging trends.

Funding Mechanisms and Financial Support

- Establish dedicated space technology funds and other financial mechanisms to support startups and innovative projects.

International Partnerships and Global Cooperation

- Enhance partnerships with space-faring nations like USA, France for joint technology development and international space exploration missions.
- Collaborate internationally to address global challenges like space debris.

Education, Training, and Skill Development

- Establish more institutions for specialized training such as Indian Institute of Space Science and Technology (IIST) in space science and engineering.
- Support incubators and accelerators focusing on space technology.

Public-Private Partnerships (PPPs) and Market Development

- Encourage private sector involvement through PPP models.
- Develop a domestic market for satellite-based services.

Stakeholder Engagement and Dialogue

- Establish forums for dialogue between the government, private sector, academia, and other stakeholders.

Space Tourism

- Space Tourism, with both suborbital and orbital together, has a potential market value of $3 billion by 2030. ISRO is planning to start its Space tourism program by 2030.

Long-term Vision and Sustainable Growth

- Draft a 10-year roadmap for the growth of the space sector with a focus on sustainable growth.

Innovation and Entrepreneurship

- Foster a culture of innovation and entrepreneurship through supportive policies, funding mechanisms, and a conducive ecosystem.

SHUKRAYAAN 1

CONTEXT:

After the success of Chandrayaan 3, ISRO's target missions are: Shukrayaan-I, Mars Lander Mission, Bharatiya Antariksha Station (Indian Space Station) by 2035, First Indian to the Moon by 2040.

ABOUT SHUKRAYAAN 1

- Shukrayaan-I will be Venus Orbiter mission i.e. it will orbit Venus to collect data and transmit it to Earth.
- The mission will have the following objectives:
  - Study Venus's geological structure and composition and volcanic activity
  - Study the structure, composition, and dynamics of the atmosphere
  - To investigate the solar wind interaction with the Venusian Ionosphere
- **Payloads (Instrumentation Onboard):**
- Advanced synthetic aperture radar.
- Ground-analysis radar.
- Venusian Neutrals Analyzer (VNA) for scrutinizing the Venusian atmosphere and exosphere's reactions to solar particle emissions.
- **Launch vehicle:** The mission will be launched either on GSLV Mk II or GSLV Mk III.

WHY THE LAUNCH DATE OF SHUKRAYAAN 1 BEING SHIFTED TO 2031?

- Shukrayaan I was expected to launch in December 2024, however, the launch date might get shifted to 2031 for getting optima window for minimal fuel liftoff.
- Optimal launch window for a spacecraft traveling from Earth to Venus occurs every 19 months because of the relative positions of the two planets in their orbits around the Sun.
  - Venus orbits the Sun more quickly than the earth, therefore, in 19 months both planets are aligned in a manner which requires least amount of energy for travel.
- However, the optimal launch windows that **minimises liftoff fuel needs every 8 years**.
- Every 8 years, Earth and Venus are aligned in a way that allows for a spacecraft to travel from Earth to Venus with the least amount of fuel. This is known as a **Hohmann transfer orbit**.

REASONS WHY VENUS ATMOSPHERE IS DIFFICULT TO STUDY:

- **Extreme heat and pressure:** Venus is the hottest planet in the solar system, with surface temperatures reaching up to 464°C. It also has the densest atmosphere, which exerts 90 times the pressure of Earth's atmosphere**.**
- **Dense cloud cover:** The planet is shrouded in thick sulfuric acid clouds that obscure visible light and hinder surface observation from space.
- **Harsh surface conditions:** Venus' surface is extremely hostile to landers and rovers due to scorching temperatures, acidic rain, toxic gases, and a corrosive environment.
- **Limited data transmission:** Proximity of Venus to the Sun poses challenges for transmitting data to Earth due to solar radiation interference.

About Venus

- It is similar in size and mass to Earth and is often described as Earth's "twin" or "sister".
- Second planet from the Sun
- Terrestrial planet.
- Part of Inner planets i.e. those closest to the Sun: Mercury, Venus, Earth, and Mars.
- Venus is the third smallest planet in the Solar System.

Expedition	Kind	Organization	Milestone Achievement
Mariner II	Reconnaissance	NASA	Initiated planetary flybys with success
Venera IV	Atmo Probe	Lavochkin (USSR)	Achieved Venusian atmosphere entry
Venera VII	Surface Probe	Lavochkin (USSR)	Landed gently on a different planet (Venus)
Venera IX	Dual Mission	Lavochkin (USSR)	Venus' inaugural orbiter & relayed the first alien surface snapshots
Galileo Swoop	Reconnaissance	NASA	Used Venus as a stepping stone towards Jupiter
Cassini Cruise	Reconnaissance	NASA	Brief visit to Venus prior to reaching Saturn
MESSENGER Path	Reconnaissance	NASA	Swooped by Venus on its journey to Mercury
BepiColombo's Route	Reconnaissance	ESA/JAXA	Multiple Venus encounters en route to Mercury

R2I/MATRIXM: NEW MALARIA VACCINE

CONTEXT

The R21/MatrixM malaria vaccine developed by the University of Oxford, manufactured by the Serum Institute of India, has been recommended (but yet to be prequalified) by the WHO.

R2I/MatrixM: New Malaria Vaccine	
About	❒ Second Malaria Vaccine for Young Children after RTS,S in 2021.
Type	❒ Recombinant protein vaccine
Developed by	❒ Oxford University and Serum Institute of India (SII)
Target	❒ Plasmodium falciparum ❒ Does not work on infections caused by other malaria parasites like plasmodium vivax (widespread in India).
Approval	❒ Approved for use **in Burkina Faso, Ghana, and Nigeria** for children under 36 months. ❒ For use in Children under the Age of 5.
Dosing Schedule	❒ Three primary doses and a booster shot after a year
Availability in India?	❒ No, as the vaccine is meant for high burden countries like Africa. ❒ Most cases in Africa are caused by Plasmodium falciparum ❒ In India, the main concern is vivax (the vaccine does not work here)
Efficacy	❒ 75% in areas with seasonal prevalence ❒ 68% in areas with perennial malaria transmission
Benefits	❒ Half the price of RTS,S, the only other malaria vaccine available. ❒ Can be produced on mass scale by Serum Institute of India ❒ Major impact in reducing disease burden in Africa.

RELATED INFORMATION

Scenario of Malaria – Global and India

World Malaria Report 2022 – WHO

- ❒ The rate of increase in malaria cases was slower between 2020 and 2021.
- ❒ Despite decrease **high incidences of cases:** 247 million malaria cases and 619,000 malaria-deaths worldwide were estimated in 2021.

- **African Region**: Highest Malaria burden (95% of cases) and Global Malarial Death (96% of Global deaths)
- **WHO South-East Asia Region:** Decreasing trend for malaria cases and deaths.
  - 2% of the global malaria cases are contributed by India.
  - 79% of the estimated malarial cases in South east region in India
  - 83% of the estimated malarial death in South east region in India.
  - Dominant parasite species in India: Plasmodium falciparum

CHALLENGES TO MALARIA CONTROL

- **Drug resistant parasites:** Malarial Parasites are becoming resistant to drugs used to treat them, which is making it difficult to cure and treat infections.
  - WHO report from Africa of emerging parasite resistance to artemisinin – the core compound of medicine to treat Malaria
- **Insecticide resistance:** Increasing Mosquito resistance to insecticides, is becoming a major challenge to reduce malaria transmission.
  - According to World Malaria Report 2021, of the 88 countries that have provided data all found high insecticide resistance.
- **Climate Change:** Over half of human pathogenic diseases are going to aggravate due to Climate Change.
  - The Journal Nature Climate Change found that climate change could lead to an increase of 15% in the global population at risk of malaria by 2050.
- **Increasing Political instability and conflict:** These can disrupt malaria control efforts by making it difficult to deliver malaria prevention and treatment services.
  - **E.g**. In conflict ridden Yemen 18.8 million people living in malaria risk areas, generating 1 million cases per year (2020 World Malaria Report).
- **Limited Funding:** In 2022, the global funding gap for malaria control and elimination was estimated to be US$1.5 billion (2022 World Malaria Report).
- **Weak health systems:** Especially In Sub Saharan Africa which has the highest Malaria burden.
  - The region with 25 % of the global burden of disease, has only 3 % of the world's health workers (WHO).

GLOBAL AND INDIAN EFFORTS FOR ELIMINATION OF MALARIA

Global Efforts	
Global Malaria Program	❒ Launched by WHO ❒ Coordinates WHO's global efforts to control and eliminate malaria ❒ Guided by Global technical strategy for malaria 2016–2030 ❒ Reduce malaria case incidence and mortality rates by at least 40% by 2020, at least 75% by 2025 and at least 90% by 2030 against a 2015 baseline.
Malaria Elimination Initiative	❒ Launched by Bill and Melinda Gates Foundation ❒ Eliminate malaria in certain regions of the world ❒ Strategies: Increase access to effective treatments, Reduce mosquito population, Develop new tools and technologies to fight malaria.
E-2025 initiative	❒ Launched by WHO the initiative to halt the transmission of malaria in 25 identified countries (India is not a part) by 2025.
Indian Efforts	
National Framework for Malaria Elimination in India (2016-2030)	❒ In line with WHO Global Technical Strategy for Malaria 2016–2030 (GTS) and the Asia Pacific Leaders Malaria Alliance Malaria Elimination Roadmap. ❒ Goal: 1) Eliminate malaria (zero indigenous cases) throughout the entire country by 2030. 2) Maintain malaria–free status in areas where malaria transmission has been interrupted and prevent re-introduction of malaria

National Vector Borne Diseases Control Program	❒ Umbrella programme for prevention and control of vector-borne diseases. ❒ Under National Health Mission. ❒ Diseases under it include: Malaria, Dengue, Lymphatic Filariasis, Kala-azar, Japanese Encephalitis and Chikungunya
(MERA) India' 'Malaria Elimination Research Alliance	❒ By Indian Council of Medical Research ❒ A conglomeration of partners working on malaria control - in order to prioritise, plan and scale up research to eliminate the disease from India by 2030.

RELATED INFORMATION

Overview of Malaria

- **Origin:** Transmitted by mosquitoes, affecting humans and other animals.
- **Causative Agent:** Tiny organisms from the Plasmodium group (a type of protozoan).

Plasmodium Species: Five species cause Malaria in humans

- **Major Threats:** Plasmodium falciparum and Plasmodium vivax.
- Drug Resistant Emerging data shows resistance in Plasmodium Falciparum**.**
- **Milder Forms**: P. ovale and P. malariae cause less severe versions of the disease.
- P. knowlesi infections are uncommon in humans.

Transmission:

- **Vector:** Infected female Anopheles mosquitoes.
- **Process:** Parasites enter through mosquito bites, grow within the liver, and damage red blood cells.

Symptoms:

- Fever, cold spells, jaundiced skin, and possible convulsions**.**

Management:

- **Prevention:** Specific medications and mosquito eradication efforts.
- **Curable:** Effective treatments are available for those infected.

PRELIMS POINTER

INDIA NAVIC TO BE SUPPORTED BY DRY CHIPS

CONTEXT

- Chipsets are capable of receiving and processing signals from NavIC, India's indigenous navigation system.
- In a joint effort between the **Ministry of Science & Technology and the Ministry of Electronics & Information Technology, an Indian company**, based in Hyderabad, will design and commercially produce these chipsets.

ABOUT

- Navigation with Indian Constellation (NavIC) is India's autonomous regional satellite navigation system.
- **Developed by: Indian Space Research Organisation (ISRO)**.
- NavIC aims to provide two types of services – **the Standard Positioning Service (SPS) for all users and an encrypted Restricted Service (RS)** for authorised users, which includes the Indian military.
- **Satellite Constellation**: NavIC constellation consists of **seven satellites**—three geostationary and four geosynchronous satellites that orbit the Earth.
- **Coverage Area:** While it primarily focuses on the region extending up to 1,500 km from India's boundary, the system's signal footprint extends beyond this range.

- **Applications:** NavIC is intended for use in terrestrial, aerial, and marine navigation, disaster management, vehicle tracking and fleet management, navigation aid for hikers and travellers, visual and voice navigation for drivers, etc.
- **Accuracy:** The system is designed to provide a position accuracy of 5 metres, surpassing GPS's 15-20 metres.

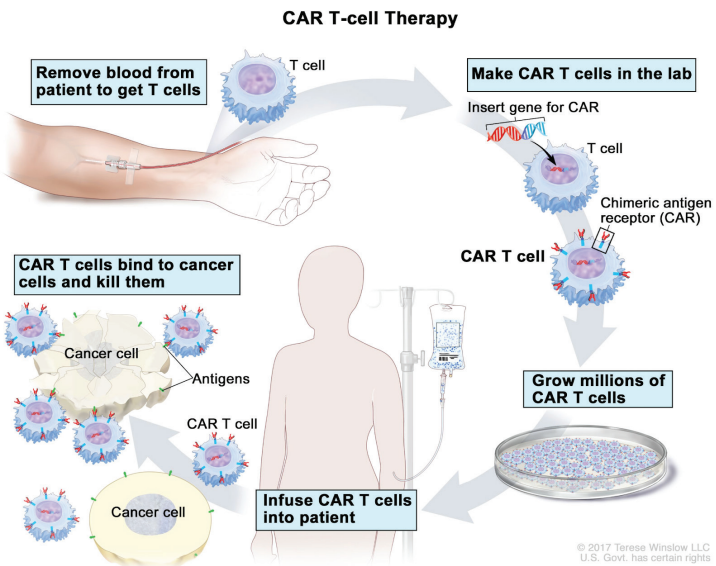
CAR- T CELL THERAPY

CONTEXT

The **Central Drugs Standard Control Organization (CDSCO)** has granted approval for India's indigenously developed Chimeric Antigen Receptor (CAR) T Cell Therapy.

ABOUT CHIMERIC ANTIGEN RECEPTOR (CAR) T CELL THERAPY

- CAR T-cell therapy is a **form of cancer treatment that modifies T cells**, a critical component of the immune response.
- These T cells are extracted from the patient's own blood.
- In a laboratory, the T cells are genetically altered by introducing DNA to carry a special protein known as a chimeric antigen receptor (CAR).
- This CAR enables the T cells to detect and attach to specific antigens found on the surface of cancer cells.
- After the genetic engineering process, the modified T cells are reintroduced into the patient's body.
- Once administered, the CAR T cells proliferate and hone in on the cancer cells, recognizing and killing them based on the presence of the target antigen.



WHY IS CAR T CELL THERAPY IS DIFFER FROM OTHER THERAPIES?

- **Specificity:** It targets only cancer cells with specific antigens, sparing most healthy cells.
- **Living Drug:** Uses modified living T cells as a therapeutic agent rather than chemicals or radiation.
- **Personalization:** Tailored to each patient's immune system and cancer profile.
- **Potential for Long-term Efficacy:** Might only require a single administration due to the T cells' ability to persist and proliferate in the body.
- **Engages the Immune System:** Directly utilises the body's immune cells to fight cancer.
- **Specialised for Blood Cancers**: Particularly effective for certain leukemias and lymphomas.

PSYCHE MISSION

CONTEXT

NASA has launched a six-year mission with the 'Psyche' spacecraft to study a unique metal-rich asteroid, also named 'Psyche.'

PSYCHE MISSION: AN OVERVIEW

- **Psyche**, **a metal asteroid** situated in the **asteroid belt between Mars and Jupiter** follows its orbit around the Sun.
- It is about 280 kilometers wide at its largest point.
- It is largely composed of metal, as suggested by Earth-based telescopic studies.
  - This suggests that Psyche might be the exposed iron-rich core of an early planetesimal whose rocky exterior was stripped away by numerous high-velocity impacts during the solar system's formative years.
- The spacecraft is outfitted with:
  - A **Multispectral Imager** to photograph the surface.

- A **Gamma-Ray and Neutron Spectrometer** to identify elements.
- A **Magnetometer** to detect magnetic fields.
- A **Radio Science System** to probe the asteroid's internal structure.
  - ✓ These tools will unlock the secrets of Psyche's metal composition, surface characteristics, and potential magnetic field.

❒ **Significance of the Mission**: This pioneering mission aims to offer insights into the solar system's early days and the metallic cores of planetary bodies, by investigating an object that's vastly different from the typical rock and ice bodies usually studied.

HEMOCHROMATOSIS

CONTEXT

Health experts reveal all about Hemochromatosis or 'bronze diabetes', the rare genetic disorder that causes organ dysfunction.

UNDERSTANDING HEMOCHROMATOSIS

Hemochromatosis is a genetic disorder where excessive iron is absorbed from food and subsequently stored in the body's organs and tissues, potentially causing damage over time.

Types of Hemochromatosis

❒ **Hereditary Hemochromatosis (HFE):** This type is often caused by mutations in the HFE gene, particularly the **C282Y variant**, which impairs the body's ability to regulate iron absorption in the intestines, leading to progressive iron accumulation.

❒ **Secondary Hemochromatosis:** This form results from external factors such as frequent blood transfusions, overconsumption of iron supplements, or specific medical conditions, causing a more rapid accumulation of iron in the body.

Symptoms and Complications

❒ **Symptoms:** The symptoms can be silent or severe, affecting daily activities, and may include joint pain, diabetes, heart problems, and sexual dysfunction.

❒ **Impact On Organs:**
- **Liver**: Risks include cirrhosis and an increased chance of liver cancer.
- **Pancreas**: Excessive iron can lead to diabetes.
- **Joints:** Iron buildup can cause arthritis-like symptoms.
- **Heart:** The heart may fail or develop arrhythmias due to iron deposits.
- **Reproductive System:** Hypogonadism from iron overload can lead to sexual dysfunction.
- **Skin:** Hyperpigmentation can occur as a result of combined iron and melanin deposition.

❒ **Diagnosis of Hemochromatosis**: A blood test that indicates elevated iron levels can prompt further diagnostic tests, such as genetic testing, to confirm hemochromatosis.

❒ **Treatment and Management:** Phlebotomy This is the primary treatment, which involves periodic blood withdrawal. The frequency of sessions is higher initially and then adjusted based on the patient's iron levels.

❒ **Prevention and Early Detection:** While hemochromatosis cannot be prevented due to its genetic nature, early detection and treatment are crucial to avoid severe complications. Regular monitoring and management can help maintain iron levels and prevent organ damage.

SOCIAL JUSTICE

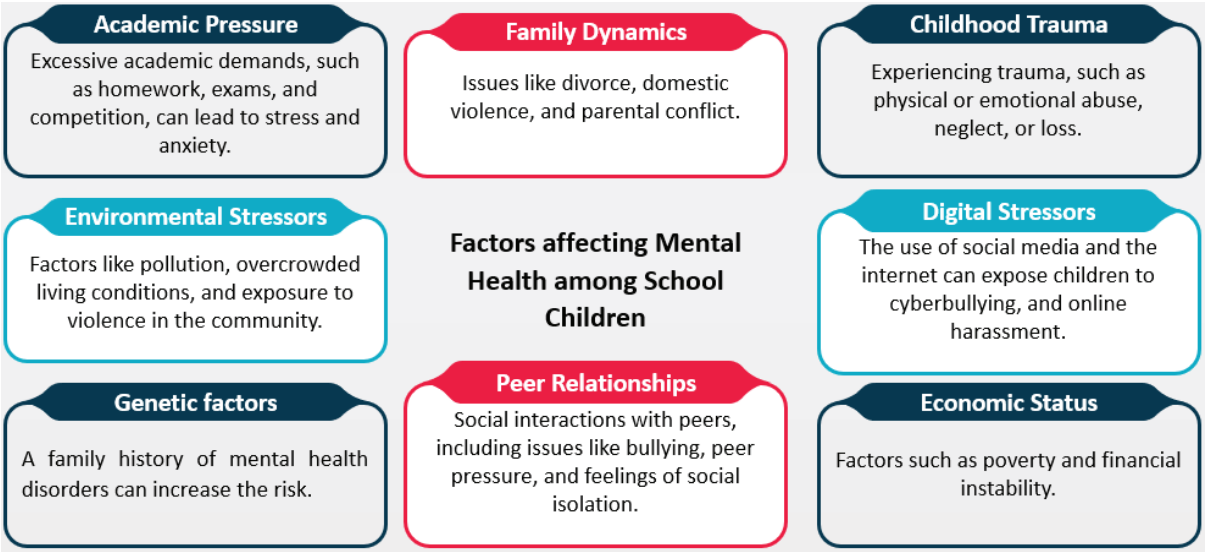
MENTAL HEALTH AMONG SCHOOL CHILDREN

CONTEXT:

Over the past decade, India has made significant progress in tackling **mental health challenges** across various segments of its population, with one notable exception being **school children.**

UNDERSTANDING MENTAL HEALTH

- The **World Health Organization (WHO)** defines mental health as a state of **mental well-being** that enables people to **cope with the stresses of life,** realize their abilities, learn well and work well, and contribute to their community.
- Mental health is an **integral part of health;** it is **more than the absence of mental illnesses**.
- It is the foundation for well-being and effective functioning of individuals.
- Mental disorders are now **among the top leading causes of health burden worldwide.**



STATE OF MENTAL HEALTH AMONG SCHOOL CHILDREN IN INDIA

- **As per the National Mental Health Survey (NMHS) conducted in 2015-16:**
  - The **prevalence of mental disorders** among children between ages 13-17 was 7.3% in both genders.
  - Further, 26.8% girls were **getting married below the legal age**, while 8% of girls between ages 15-19 were **already mothers or pregnant.**
  - The survey also found that 37% of women between ages 15-24 have experienced **physical, sexual, or emotional violence** by their husbands— this includes children technically of school-going age.
- **According to statistics from the National Crime Records Bureau (NCRB):**
  - Since 2011, the **number of suicides** among students has steadily increased from 7696 students (2011) to 13,089 students (2021).
  - For those below 18, 1408 cases saw **illness** cited as the **reason for suicide**; 58% of these illnesses were **related to mental health.**
  - Other than this, 1495 cases listed **'love affairs'** as the cause and 864 listed **'failure in exams.'**

INITIATIVES TO ADDRESS MENTAL HEALTH AMONG SCHOOL CHILDREN

- **National Mental Health Programme (NMHP):** Launched in 1982, to ensure access to **minimum mental healthcare for all** and integrating mental health knowledge into general medical services. It also encourages community participation in mental health service programs.

- **District Mental Health Program (DMHP):** Launched in 1996, under the NMHP. It covers elements such as early detection and treatment of **mental illnesses**, training general physicians to diagnose and treat mental health issues, **public awareness** campaigns, and monitoring efforts.
  - Over time, the DMHP's scope was expanded to include improving medical infrastructure, **dedicated mental hospitals,** life-skill education and counselling in schools and colleges, address work-related stress and suicide prevention.
- **National Mental Health Policy (2017):** This policy aims to **destigmatize mental illnesses**, prevent them, and ensure the inclusion of individuals with mental health issues in society.
- **School Health Program (2018):** Launched under the **Ayushman Bharat scheme**, this program has a broad focus, including screening children's health, conducting classroom activities on health and wellness, and organizing thematic school assemblies.
  - The programme promotes activities like meditation and yoga, bullying prevention, internet safety and media literacy, prevention of substance abuse, violence and **mental health awareness**.
  - **Coordination committees** at the block, district, State and national levels have been tasked with the implementation of the programme.
- **Teacher and Counselor Training:** In 2022, the Union Health Ministry issued a handbook for schools to train teachers, and counselors to identify, detect, and intervene in cases of **mental health issues.**
- **Manodarpan Portal:** Launched during the **COVID-19 pandemic**, it provides guidelines, FAQs, posters, and videos for support to students facing **psychosocial issues,** loneliness, and withdrawal behavior.
- **NCERT Counseling Services:** The National Council of Educational Research and Training (NCERT) offers free **counseling services for children**, employing 270 counselors across regions to address mental health issues among students through live interactive sessions.

SEVERAL ISSUES IN INDIA'S SCHOOL MENTAL HEALTH PROGRAM (SHMP)

- **Inadequate Manpower:** As per the World Mental Health Atlas (2017), India had 0.29 psychiatrists per lakh population (plp) and zero child plp.
  - Among other professionals, there were 0.8 **mental health nurses** plp and 0.07 **psychologists** plp.
  - In total, there were only 25,312 **mental health professionals** in India, with only 49 **child psychiatrists**, as of 2017.
- **Lack of Nationwide Structure:** Despite a school health programme under the NMHP, there is no comprehensive, uniform SMHP to deal with mental health and well-being of **all school children uniformly across the nation.**
- **Exclusion of Key Stakeholders:** Such as non-governmental organisations (**NGOs**), **private hospitals**, **mental health research** facilities and **pharmaceutical companies** in implementing a nation-wide SMHP.
- **Insufficient Funding:** As per the World Mental Health Atlas (2017), the Indian government spends only **1.3% of its health expenditure on mental health.**

WAY FORWARD

- **UNICEF's Framework:** As per the United Nations International Children's Emergency Fund (UNICEF), any **mental health programme in schools** must include **five pillars of support:**
  - an enabling learning environment,
  - access to early intervention and mental health services,
  - teachers' well-being,
  - targetted mental health programmes using educational workforce in national, state and local levels, and
  - meaningful collaboration between school, family and community.
- **NITI Aayog is planning to set up a comprehensive school healthcare programme:** the programme will cover students in both **government and private schools** via policy intervention to existing health promotion and disease prevention measures under the **Ayushman Bharat scheme.**

ART AND CULTURE

500TH BIRTH ANNIVERSARY OF RANI DURGAVATI

CONTEXT

Indian Prime Minister laid the foundation stone of the **Veerangana Rani Durgavati Memorial and Garden in Jabalpu**r to commemorate the 500th birth anniversary of Rani Durgavati.

WHO WAS RANI DURGAWATI?

- **Rani Durgavati (1524-1564)** was the **queen of Gondwana**, a kingdom in central India, from **1550 to 1564.**
- She was born into the **Chandela dynasty of Mahoba**.
- She is best known for her defence of Gondwana against the Mughal Empire.
- She married Dalpat Shah, the son of Gond King Sangram Shah of the Garha-Katanga kingdom, one of the most powerful kingdoms of the Gond tribe.
- However, Dalpat Shah died in 1550, and Durgavati took over as regent for her young son Vir Narayan.
- **Battle:** Defending her realm from a Mughal general named Khwaja Abdul Majid Asaf Khan, (sought Akbar's permission to invade).

Recent Recognition: Indian Coast Guard in 2018 commissioned **ICGS Rani Durgavati, the third Inshore Patrol Vessel (IPV)** of its kind.

SHYAMI KRISHNA VARMA

CONTEXT

The Prime Minister honoured revolutionary freedom fighter Shyamji Krishna Varma on his birth anniversary.

ABOUT SHYAMI KRISHNA VARMA

- Shyamji Krishna Varma was born on **October 4, 1857**, in Mandvi, Kachchh district, Gujarat.
- He was the **first Indian M.A. and a scholar in Sanskrit and English.**
- Varma was influenced by Bal Gangadhar Tilak, Swami Dayanand Saraswati, and Herbert Spencer.
- He established the **Indian Home Rule Society, India House, and The Indian Sociologist in London.**
- The Indian Home Rule Society and India House motivated young people in Britain to engage in revolutionary activities against British representatives in India.
- **The Indian Sociologist served as a platform** for promoting nationalist ideas.
- He was the **first President of Bombay Arya Samaj**.
- He also held the position of **Divan in various Indian states**.
- He moved from England to Paris, then to Geneva(after the outbreak of World War I), where he died in 1930.

SIR SYED AHMED KHAN

CONTEXT

The passing of the Women's Reservation Bill coincided with the 125th birth anniversary of Sir Syed Ahmad Khan.

ABOUT SIR SYED AHMED KHAN

- Sir Syed Ahmed Khan was a complex figure with evolving views on women's empowerment and education.
- He was born on October 17, 1817 in Delhi to a family that was close to the Mughal court.
- He established the **Mohammedan Anglo-Oriental College at Aligarh**, but advocated a "disorganised tutor-based home education" for women.

- He served the British administration before the revolt of 1857.
- Sir Syed was knighted by the British in 1888.
- He denounced **purdah, polygamy and easy divorce.**
- **Publications**: Sir Syed Ahmad Khan wrote a paper called "The Reasons for the Indian Revolt" ("Asbab-e-Baghawat-e-Hind")
  - He founded a magazine called Tahzeebul Akhlaq (Social Reformer in English).
  - He published The Aligarh Institute Gazette(a magazine)
  - He also supported interfaith understanding and was a scholar of Christianity, writing a book called "Commentary on the Holy Bible."
- He died on **27 March 1898 in Aligarh**.
- The biography of Sir Syed, Hayat-e-Javed (1901), was published three years after his death.

SARDAR VALLABH BHAI PATEL

CONTEXT

October 31 is celebrated as National Unity Day in India to honour the legacy of Sardar Vallabhbhai Patel

LIFE OF SARDAR VALLABH BHAI PATEL

- **Born on**: October 31, 1875
- **Birthplace:** Nadiad village, Gujarat
- **Nickname:** 'Iron Man of India'
  - Reasons for the Title: His firm stance on unifying princely states, advocacy for women's empowerment, and instrumental role in shaping modern India
- **Passed Away:** December 15, 1950
- **The title of 'Sardar' bestowed by**: Mahatma Gandhi
  - Earned following the Bardoli Satyagraha, especially recognized by the women of the village for his active role
- **Other Names and Titles: 'Bismarck of India'**: For his role in uniting princely states
  - Founder of Modern All India Services
- **Role in India's Freedom Struggle:** Unifying princely states into the Indian Union
- **Association with Indian National Congress (INC)**
  - **Secretary of the Gujarat Sabha** (Gujarat Wing of INC)
  - **President of the INC Karachi** Session in 1931
- **Role in Independent India**
  - First Home Minister
  - Deputy Prime Minister of Independent India
- **The Statue of Unity:** World's tallest statue, depicting Sardar Patel
  - **Location:** Sadhu Bet on the Narmada river, Kevadiya town, Gujarat
  - **Unveiled:** 2018

ETHICS

CASE STUDY: THE DILEMMA OF ELECTORAL BONDS IN POLITICAL FUNDING

Laxman is a senior income tax official who have come across significant financial transactions during a routine audit. These transactions indicate that a major infrastructure company of the country has made substantial contributions to the ruling political party through electoral bonds. Coincidentally, the same infrastructure company has recently secured the largest government project in the country.

a) Based on the above case study, discuss the ethical issues involved in the misuse of electoral bond scheme.

b) Suggest reforms that are needed to mitigate such misuse of the electoral bonds.

DISCUSSION:

The Electoral Bond Scheme is a financial instrument introduced by the Government of India in 2018 to facilitate anonymous political donations to political parties. It aims to make the process of political funding more transparent and curb the use of black money in elections. One of the unique features of electoral bonds is that the donor's identity is kept confidential. Individuals and companies can purchase these bonds and donate them to the political party of their choice without revealing their identity.

(a) Ethical Issues in the Misuse of Electoral Bond Scheme in India:

- **Conflict of Interest:**
  - The case raises concerns about a potential conflict of interest where financial contributions align with the company securing a significant government project, suggesting a quid pro quo arrangement.
- **Opacity in Funding:**
  - The anonymity provided by electoral bonds obscures the transparency of political funding, making it challenging to identify the motives behind substantial contributions and raising questions about the integrity of the process.
- **Fair Competition in Projects:**
  - The fairness of the bidding process for government projects is compromised when political contributions influence decisions, potentially giving undue advantages to certain companies over others.
- **Abuse of Political Power:**
  - The ruling political party's potential misuse of power to favor contributors can lead to suspicions of unethical practices and erode public trust in the fairness of governance.
- **Democratic Principles at Risk:**
- The case poses a risk to democratic principles when financial support appears to be linked to the allocation of government projects, threatening the core tenets of a transparent and accountable democratic system.

Reforms needed to Mitigate Electoral Bond Misuse:

- **Enhance Transparency:** Increase transparency in political funding by mandating the disclosure of the sources of electoral bond donations. Providing the public with information about donors and their contributions can help build trust and ensure accountability.
- **Strengthen Regulatory Framework**: Review and strengthen campaign finance laws to close existing loopholes and ensure that the electoral bonds scheme aligns with ethical and legal standards. This may include reevaluating donation limits and implementing more rigorous reporting requirements.
- **Robust Oversight**: Establish an independent oversight mechanism to monitor the issuance and use of electoral bonds. Independent bodies can help ensure compliance with ethical and legal standards.
- **Ethical Banking Practices**: Encourage banks and financial institutions to adopt ethical practices that prioritize compliance with the law while also considering moral responsibilities. This includes conducting due diligence on the donors and supporting efforts to prevent misuse of the system.
- **Public Awareness**: Raise awareness among the public about the importance of transparent

political funding and the potential ethical implications of anonymous donations. Informed citizens are more likely to demand accountability.

- **Political Will:** Encourage political parties and leaders to demonstrate their commitment to ethical and transparent political funding. Leading by example can set the tone for responsible behavior.
- **Comprehensive Reform**: Consider broader campaign finance reform that addresses not only the electoral bonds scheme but also other aspects of political funding. Comprehensive reform can help create a more ethical and accountable political finance system.
- **International Best Practices**: Study international best practices in campaign finance and transparency and adapt relevant ideas to the Indian context.
- **Civil Society and Media:** Civil society organizations and the media can play a vital role in advocating for transparency and accountability in political funding. Support their efforts to investigate and report on campaign finance practices.

As a conscientious public servant, Laxman faces a complex ethical dilemma in navigating his duties to uphold the integrity of financial transactions and the broader principles of ethical governance. Addressing such challenges requires thoughtful reforms in the electoral financing framework to mitigate the misuse of electoral bonds and ensure a more transparent and accountable political funding system in India.