



# ENSURE IAS

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# INDEX

## A. POLITY & GOVERNANCE (3-15)

1. Preventive Detention..... 3
2. Curative Petition ..... 4
3. 1st General Election of India (1951-52) ..... 6
4. Supreme Court Supported EVM..... 7
5. Vote-From-Home Facility ..... 8
6. Right to Privacy for Election Candidate ..... 9
7. Right Against Climate Change Is A Fundamental Right..... 10
8. SC Allows Abortion of 30-Week Foetus.....11
9. UP Board of Madarsa Education Act, 2004 ..... 12
- 10 Original Jurisdiction of Supreme Court..... 14
11. Internet Freedom in India..... 14

## B. INTERNATIONAL RELATIONS (16-23)

1. India Gains Sittwe Port Access ..... 16
2. India Rejects China's Claim Over Arunachal Pradesh..... 17
3. 1976 Agreement Gave India Sovereign Rights In Wadge Bank ..... 18
4. Instability In West Asia ..... 19
5. UK Passes Bill to Deport Asylum Seekers to Rwanda ..... 21
6. US Priority Watch List: India's Placement and Concerns ..... 22

## C. SECURITY (24-29)

1. Russian Peacekeepers Withdrawal from Nagorno-Karabakh..... 24
2. Andaman & Nicobar: India's Strategic Island .... 24
3. India delivers 1st batch of BrahMos to Philippines..... 26
4. C-Dome, Israel's Naval Defense System..... 26
5. MHA Extended AFSPA for 6 Months ..... 28

## D. ECONOMY (30-46)

1. Redistribution of Wealth ..... 30
2. MPC Keeps Repo Rate Unchanged ..... 33
3. Reform by RBI for Financial Inclusion and Digital Innovation ..... 34
4. PayU Gets Approval as Payment Aggregator ..... 36
5. Banks can't seek LOCs to stop debtors from going abroad..... 37
6. CDP-SURAKSHA Platform ..... 38
7. What is the T+0 Trading Settlement Cycle? ..... 39
8. Balanced Fertilisation ..... 41
9. Global Unicorn Index 2024 ..... 42
10. RBI Guidelines for Asset Reconstruction Companies..... 43
11. 30 Years of Marrakesh Agreement..... 44
12. India Gaming Report 2024..... 45
13. REER & NEER..... 46

## E. SCIENCE & TECHNOLOGY (47-67)

1. Cancer-Causing Chemicals Found in Indian Products..... 47
2. Surya Tilak: Science behind the ceremony ..... 47
3. Total Solar Eclipse: A Celestial Event ..... 48
4. Higgs Boson: A Journey of Discovery and Significance..... 49
5. Korean Sets Record At A Temperature 7 Times Hotter Than The Sun's Core. .... 51
6. World's First Satellite-Enabled Smartphone Direct Calls: Tiantong ..... 52
7. 125th anniversary of Kodaikanal Solar Observatory ..... 53
8. PRATUSH Telescope..... 54
9. PSLV Orbital Experimental Module-3..... 55
10. Satellite Technology Day 2024 ..... 55



11. Atomic Clocks for One-Nation, One-Time .....	56	2. Disability As a Basis for Discrimination .....	86
12. India TB Report 2024 .....	57	3. No Age Bar for Health Insurance in India: A Game Changer with Challenges .....	87
13. Global Hepatitis Report 2024 .....	59	4. Patient Safety Rights Charter in Focus .....	89
14. Inflammatory Bowel Disease (IBD) .....	61	5. UNHRC Adopts Landmark Resolution on Intersex Rights .....	90
15. 50 years of the Expanded Programme on Immunization .....	62	6. Food Waste Index Report 2024.....	91
16. 3-D Map of the Universe .....	64	7. Muria Tribe .....	92
17. Geofencing: Security by Obscurity.....	65	8. Malas And Madigas: Telangana's SC Community	93
18. Ozone On Jupiter's Moon.....	66	9. 50 Years of the Chipko Movement: A Legacy of Environmental Activism .....	93
19. DURGA II Laser Weapon.....	66		

## F. GEOGRAPHY & ENVIRONMENT (68-84)

1. Drought in East-Flowing Rivers .....	68
2. India's Second Artificial Reef Installation .....	69
3. Africa's Afar Triangle: A Rift Valley of Geological Significance .....	70
4. Magnetic Fossils .....	72
5. Volcanic Vortex Rings.....	73
6. India's Biggest Climate Clock .....	73
7. India's Post Office in Antarctica .....	74
8. NABARD's Climate Strategy 2030.....	75
9. Marine Cloud Brightening .....	76
10. 28th South Asian Climate Outlook Forum.....	78
11. Kallakkadal: High Swell Waves.....	80
12. Taiwan Earthquake.....	81
13. New Category for Cyclones.....	82
14. Agriculture Greenhouse Gas Emissions Must Drop 30% to Align with the Paris Agreement.....	84
15. Kalesar Wildlife Sanctuary .....	84

## G. SOCIETY AND CULTURE (85-102)

1. Most Indians Believe In Country's Plurality: CSDS Survey .....	85
---	----

10. 900-Year-Old Chalukyan Inscription Discovered in Telangana .....	95
11. Delisting of Monuments.....	96
12. 2550 <sup>th</sup> Lord Mahavir Nirvana Mahotsav.....	97
13. 134 <sup>th</sup> Dr. Ambedkar Jayanti.....	98
14. NCERT's Recent Textbooks Updates .....	99
15. Goldman Environmental Prize.....	101
16. India records highest number of failed dope tests among countries.....	101

## H. ETHICS (103-106)

1. Jainism: An Ancient Guide to Good Living.....	103
2. Case Study 1: .....	104
3. Case Study 2: .....	105

## I. ESSAY (107-109)

A Society Which Has More Justice Is The One That Needs Less Charity .....	107
---	-----

## J. SCHEME (110-112)

1. PRERANA Program .....	110
2. Rashtriya Arogya Nidhi Scheme.....	110
3. Janani Suraksha Yojana.....	111

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## A. POLITY & GOVERNANCE

### 1. Preventive Detention

In April, 2024 the Jammu and Kashmir High Court ruled in favor of releasing Jaffar Ahmad Parray, who had been detained under the state's Public Safety Act, 1978 (PSA).

#### What is PREVENTIVE DETENTION?

- Preventive detention is, when the government locks someone up because they think that person might commit a crime. It's a way to stop bad things from happening, even before they do.
  - In other words**, it is the act of detaining or imprisoning a person without a trial or conviction by a court. It is not meant to punish someone for a past offense but to prevent them from committing a future crime.
- The grounds for preventive detention include ensuring the security of the state, maintaining public order, safeguarding essential services and defense, and protecting foreign affairs or the security of India.

#### Constitutional Safeguards

- To prevent misuse of preventive detention, the Constitution has some safeguards under **Article 22**:
  - Time limit:** Individuals can only be held in preventive custody for a maximum of 3 months initially. If the detention extends beyond this period, it must be referred to an Advisory Board.
  - Reason for Detention:** Detainees are entitled to be informed of the grounds for their detention, although the state may withhold this information if it deems it in the public interest to do so.
  - Right to Challenge:** Detaining authorities must afford the detainee the earliest opportunity to make representations against their detention.

#### Arguments Supporting Preventive Detention

- Detaining individuals** involved in activities like sedition or spying **helps safeguard the integrity and sovereignty of the nation.**

- Given the threats of **internal and external security threats** facing India, such as terrorism and insurgency, preventive detention is deemed essential to address these challenges effectively.
- It also **helps to keep the peace** by stopping riots, religious conflicts, and other public disturbances.
- And just having these laws in place, even if they're not used all the time, can scare people who are thinking about doing something illegal, and stop them from actually doing it.

#### Arguments Against Preventive Detention

- These **laws come from the time when the British ruled India**, and they were used to silence those fighting for freedom. This makes you wonder if they really belong in a democracy.
- Unlike other countries that only use these laws during wars, **India uses them even in peacetime**. This raises questions about if they're really needed and if they're being used too much.
- These laws **seem to go against the basic rights guaranteed by our Constitution**, which could lead to the government misusing its power.
- Letting the police arrest people just because they think they *might* do something wrong, without any real proof, is a bit **worrying and could lead to unfair arrests**.

To avoid problems with locking people up before they've done anything wrong, we need stronger rules to make sure this power isn't abused. Judges should keep a close eye on the government to make sure they're following the law. It's important to find a middle ground between keeping the country safe and protecting people's freedoms.

#### Q. Consider the following statements:

**Statement-I:** A person arrested under Public Safety Act, 1978 (PSA) will not get the procedural protection under Article 22.





**Statement-II:** Protection against arrest and detention is available to all the persons except those who are arrested under a preventive detention law or they are enemy alien.

Which one of the following is correct in respect of the above statements?

- (a) Both Statement-I and Statement-II are correct and Statement-II is the correct explanation for Statement-I
- (b) Both Statement-I and Statement-II are correct and Statement-II is not the correct explanation for Statement-I
- (c) Statement-I is correct but Statement-II is incorrect
- (d) Statement-I is incorrect but Statement-II is correct

Ans. A

## 2. Curative Petition

In April, 2024 the **Supreme Court ruled that the Delhi Metro Rail Corporation (DMRC) will not have to pay nearly Rs 8,000 crore to the Delhi Airport Metro Express Private Limited (DAMEPL), an Anil-Ambani owned Reliance Infrastructure company, which was awarded by a 2017 arbitral award.**

- a. The ruling overturned the Supreme Court's September 2021 judgement that upheld the arbitral award.
- b. A month after the 2021 decision, the court rejected a petition seeking review, the final stage of the appeals process after which a Supreme Court decision becomes final.

### Background:

- 1. **2008:** DAMEPL wins 30-year build, operate, transfer contract
- 2. **FEB 2011:** Line becomes operational
- 3. **APR 2012:** DAMEPL seeks to delay payment to DMRC
- 4. **OCT 2012:** DAMEPL formally initiated termination of agreement
- 5. **JUNE 2013:** Arbitration proceedings begin
- 6. **MAY 2017:** Arbitration panel decides in favour of DAMEPL
- 7. **MAR 2018:** Single judge Delhi HC Bench refuses to interfere with the arbitral award.

- 8. **JAN 2019:** 2-judge Bench of the HC sets aside the arbitral award
- 9. **SEPT 2021:** 2-judge SC Bench restores arbitral award
- 10. **NOV 2021:** SC dismisses **review petition against its judgement**
- 11. **AUG 2022:** Centre files curative petition
- 12. **APR 2024:** SC restores 2019 HC ruling

### What is a Curative Petition?

- 1. A curative petition is a last legal remedy available to individuals seeking to address errors or grave injustices in final judgments of the Supreme Court of India. It serves as the final and last option for obtaining justice as guaranteed by the Constitution.
  - **In other words,** A curative petition is like a last-effort to correct a serious mistake or unfairness in a final court decision made by the highest court in India. It's the absolute last chance to get justice under the law.
  - **For example:** Imagine a baseball game where the umpire makes a very poor decision which causes one team to lose the game. A curative petition is like the team asking for a final review of the decision even after all normal challenges have been exhausted.

### Why it matters?

Curative petitions are important because they help make sure that:

- 1. **Mistakes are corrected:** Sometimes, even the highest courts make errors, and curative petitions provide a way to set things right.
- 2. **Justice is done:** They give people (who may have been wronged) a chance to have their case heard again.

### Origin of Curative Petitions

The concept of curative petitions emerged from the landmark case of **Rupa Ashok Hurra Vs. Ashok Hurra and another case (2002)**.

- 1. **A 5-Judge Constitution Bench recognised 'Curative Petitions' as a final remedy to reconsider dismissed review petitions.**
- 2. They held that the **Supreme Court could entertain a curative petition under the following grounds:**



- a. Violation of principles of natural justice,
  - b. Question of bias against the presiding judge,
  - c. Abuse of the process of the court.
3. These grounds were not complete. However, to prevent wasteful litigation the court should consider such petitions only in rare circumstances.

### Constitutional Basis:

1. **Article 137 of the Indian Constitution provides the constitutional foundation for curative petitions.** It empowers the **Supreme Court to review its own judgments in cases involving laws and rules made under Article 145.**

### Conditions for Admissibility:

1. Curative petitions are **admissible if the petitioner can prove violation of the principles of natural justice** or that he was **not heard by the court before passing the order.**
2. Additionally, curative petitions **may be admitted if a judge failed to disclose facts that could raise concerns about bias.**

### Hearing Process:

1. Curative petitions are **initially circulated to a bench composed of the 3 senior-most judges and the judges who passed the concerned judgement, if available.**
2. The **petition is listed for hearing only if a majority of the judges conclude that the matter requires further consideration.**
3. **Curative petitions are typically decided by judges in chambers unless a specific request for an open-court hearing is allowed.**
4. The bench may seek assistance from senior counsel.
5. If the petition is found to be baseless, the bench has the power to impose exemplary cost on the petitioners.

### Other Cases Related to Curative Petition:

1. **Union of India v Union Carbide Case (Bhopal Gas Tragedy):**
- a. In 2010, the Indian government submitted a curative petition, seeking higher compensation for victims of the Bhopal Gas Tragedy. However, in 2023, a five-judge bench rejected the petition, reasoning that the previously determined compensation was adequate.

- b. The bench emphasised that curative petitions are admissible only in cases of serious miscarriage of justice, fraud, or deliberate suppression of relevant information, none of which is applicable in this particular case.

2. **Navneet Kaur v State of NCT of Delhi Case, 2014:**

- a. In this historic death penalty case, the person sentenced to death presented strong arguments in a curative petition, claiming that **having a mental illness and an unusually long delay in considering a request for mercy** were valid reasons for reducing the sentence to life imprisonment.

### Q 1: In India, Judicial Review implies

- (a) The power of the Judiciary to pronounce upon the constitutionality of laws and executive orders.
- (b) The power of the Judiciary to question the wisdom of the laws enacted by the Legislatures.
- (c) The power of the Judiciary to review all the legislative enactments before they are assented to by the President.
- (d) The power of the Judiciary to review its own judgements given earlier in similar or different cases.

Ans: A

### Q 2: Consider the following statements with respect to curative petition.

1. A curative petition is a legal remedy available in the Indian judicial system to correct gross miscarriages of justice.
2. In a curative petition, a minimum of three senior-most judges of the Supreme Court must concur for it to be heard.
3. Curative petitions are limited to criminal cases and cannot be filed in civil matters.
4. The concept of curative petitions was introduced in the Indian Constitution during its original framing in 1950.

How many of the above statements are correct?

- (a) Only one
- (b) Only two
- (c) Only three
- (d) All four

Ans: (b)



**Explanation:**

- Statement 1 is correct:** A curative petition is a remedy to correct gross miscarriages of justice in the Indian judicial system.
- Statement 2 is correct:** In a curative petition, the three senior-most judges of the Supreme Court along with the judges who passed the judgement must concur for it to be heard.
- Statement 3 is incorrect:** Curative petitions can be filed in both civil and criminal cases.
- Statement 4 is incorrect:** The concept of curative petitions was not introduced during the original framing of the Indian Constitution but was developed through judicial precedents in **Rupa Ashok Hurra v Ashok Hurra case**.

**3. 1<sup>st</sup> General Election of India (1951-52)**

As India, the world's largest democracy, undergoes its 2024 general election, attention turns to the historic significance of the **country's first Lok Sabha election**, a crucial milestone in its democratic journey.

**Key Facts About India's First General Elections**

- Independent India's 1<sup>st</sup> general elections were held from **October 25, 1951, to February 21, 1952 (conducted over 4 months)**.
- It was a massive exercise, involving **1/6<sup>th</sup>** of the world's population, making it the **largest election globally** at that time.
- There were **53 political parties** in total, with **14** being **national**.
  - These included the **Indian National Congress**, the **Communist Party of India**, the **Socialist Party**, the **Kisan Mazdoor Praja Party**, and the **Akhil Bharatiya Hindu Mahasabha**, among others.
- Approximately 17 crore voters participated (excluding Jammu and Kashmir), with 45% being women, highlighting their significant participation in the democratic process.
- This election also introduced **universal adult franchise**, with **176 million** eligible voters aged **21 and above** (voting age lowered to 18 in 1989 through **61<sup>st</sup> Constitutional amendment Act**).
  - Notably, **82%** of these voters were **illiterate**.

- In **1951**, India's low literacy rate of **18.33%** led to the idea of using different coloured **ballot boxes** for each candidate, but this was considered impractical.
- Instead, it was decided to use separate **ballot boxes** for each candidate at all booths, each marked with the candidate's **election symbol**.
- To assist the largely illiterate electorate, coloured ballot boxes and ballot papers of the size of a Rs 1 currency note were used.
- The ballot papers were pink in colour, with "Election Commission India" and a serial number including two letters denoting the state – HY for Hyderabad State, BR for Bihar, AS for Assam, etc.
- More than **224,000 polling booths** were established nationwide, each booth serving approximately every **1000 voters**.

**Election Outcome**

- The **Indian National Congress**, under the leadership of **Jawaharlal Nehru**, emerged as the dominant political force securing **318** out of **489 Lok Sabha seats**.
- It solidified its position as the ruling party.
- The **Communist Party of India (CPI)** emerged as the runner-up in the **1<sup>st</sup> Lok Sabha election**, followed by the **Socialist Party** and other political parties.

**Legal Framework**

- Parliament enacted the Representation of the People Acts of 1950 and 1951 to establish voter qualifications, election procedures, and other electoral processes.
- The **Election Commission of India (ECI)** was established in **January 1950**, with **Sukumar Sen** appointed as the **Chief Election Commissioner**.

**2024: The Global Super Election Year**

- At least **64 countries and the European Union** are scheduled to conduct **national elections in 2024**.
- These countries collectively represent approximately **49%** of the global population.
- 2 billion voters** around the world, **highest** till now, will exercise their right to vote, representing **1/4<sup>th</sup>** of the global population.
- Major election activity is anticipated in countries like the **India, United States, the United Kingdom and Indonesia**.



## 4. Supreme Court Supported EVM

1. Recently, In **Association for Democratic Reforms (ADR) vs Election Commission of India (ECI)** (2024) the Supreme Court dismissed requests for full cross-verification of Electronic Voting Machines (EVMs) data with Voter Verifiable Paper Audit Trail (VVPAT) records.
2. In 2023, the ADR filed a petition in the Supreme Court about the possibility of manipulating the EVMs and made **3 requests to the court**.
  - a. return to the paper ballot system; or
  - b. the **printed slip** from the VVPAT machine be **given to the voter to verify**, and put in the ballot box, for counting; and/or
  - c. There should be **100% counting of the VVPAT slips** in addition to electronic counting by the control unit.

### Supreme Court Ruling

1. The court declined the request to provide electors with paper slips from Voter Verifiable Paper Audit Trail (VVPAT) units for leisurely examination before insertion into the ballot boxes.
2. It also rejected the proposal for 100% cross-verification of EVMs and VVPATs nationwide.
3. Currently, only five percent of EVM-VVPAT counts are randomly verified in each Assembly constituency.
4. Additionally, the court instructed the Election Commission of India (ECI) to “seal and secure” **the Symbol Loading Unit (SLU)** for 45 days post-election results declaration.
5. Presently, only the three main components of the EVM — the ballot unit, control unit, and VVPAT — are stored for this duration. The court permitted candidates to scrutinize the one-time programmable software in the Ballot Unit (BU), Control Unit (CU), and VVPAT for tampering, if any doubts arise regarding the result. This inspection involves examining the burnt memory/microcontrollers of these three components.

### Transition from Paper Ballot System to Electronic Voting Machine

1. **Electronic Voting Machines (EVMs)** are devices utilized to electronically record and count votes cast in elections.

2. Before the introduction of EVMs, a paper ballot system was used in India, where voters cast their votes on ballot papers printed with the names and symbols of the candidates.
  - Major issues associated with **Paper Ballot System** included invalid votes due to improper marking, ballot box stuffing, pre-marked ballots and manual counting errors.
3. EVM was **first conceptualized** by the Election Commission of India (ECI) **in 1977**.
4. The work of **designing and developing EVMs** was entrusted to Electronics Corporation of India Limited (**ECIL**) **in Hyderabad**.
5. A prototype was demonstrated in 1980, leading to consensus on its introduction.
6. Subsequently, Bharat Electronics Limited (BEL) was brought on board to manufacture EVMs in collaboration with ECIL.
7. EVMs were **first used in** a limited capacity in the **Paravur constituency of Ernakulam district** during the **1982 Kerala Legislative Assembly** election.
  - However, the Supreme Court struck down that election due to the lack of any specific law allowing their use.
8. Subsequently, the Representation of the People Act, 1951 was amended in 1989 to provide for the use of EVMs in elections.

### What is a VVPAT Machine?

1. The concept of the VVPAT machine was initially proposed in 2010 during a meeting between the Election Commission of India (ECI) and political parties to enhance transparency in the EVM-based polling process.
2. The **VVPAT machine** is attached to the ballot unit of the **Electronic Voting Machine (EVM)**, and provides visual verification for the vote cast by a voter by printing a slip of paper with the voter’s choice on it.
  - The **slip** of paper with the candidate’s details is briefly **displayed for verification behind a glass window**, giving the voter 7 seconds, before dropping into a compartment below.







3. **Distribution of Form 12D has already begun in Tamil Nadu districts**, which will head to the national polls on April 19.
4. **The form must be filled and submitted within 5 days of the polling date notification.**

### Multi Constituency Remote Electronic Voting Machine:

1. The Central government is also **exploring remote voting for domestic migrants**, as per a press release in December 2022.
2. The Multi Constituency Remote Electronic Voting Machine (RVM) would allow domestic migrants who relocate for employment and opportunities (approximately 450 million, according to the 2011 census) to vote for their home constituencies remotely.
3. Internal migrants face challenges due to the transient nature of their lives and livelihoods.
4. Many are hesitant to enroll multiple times, reluctant to have their names removed from the electoral rolls of their home constituencies, and face an emotional disconnect with their new locations.
5. The government believes that implementing this system can lead to a social transformation for migrants and help them stay connected to their roots.

### Assured Minimum Facilities (AMF) at Polling Stations:

1. **If a senior citizen or a person with a disability chooses to vote at the polling booth**, the ECI has mandated officials to provide Assured Minimum Facilities (AMF) such as ramps, wheelchairs, first aid, and toilets.
2. **Both new and existing measures are being highlighted**, including free transportation on poll day, appointment of State and District PwD icons, and Braille-enabled EVMs and EPICs.

## 6. Right to Privacy for Election Candidate

In April 2024, the Supreme Court of India ruled that candidates contesting elections don't need to declare every movable asset they own.

- a. The Court emphasized the **Right to Privacy** for candidates and states that they shouldn't have to expose every aspect of their lives to voters.

### Key Facts about the Case

1. In a legal case from Arunachal Pradesh, MLA **Karikho Kri** challenged a decision by the **Gauhati High Court** that invalidated his election.
2. Kri emerged as the winner in the elections held on **May 23, 2019**, running as an **independent candidate**.
3. The **Gauhati High Court** ruled against Kri for failing to disclose **three vehicles** as assets in his election affidavit submitted under **Form No 26** according to the **Conduct of Elections Rules 1961**.
4. The **Supreme Court** clarified that the failure to disclose these vehicles does not suggest an improper attempt by Kri to influence voters.
5. The Supreme Court concluded that the non-disclosure of the three vehicles does not breach **Section 123(2)** of the **Representation of People Act (RPA), 1951**.
  - a. This section addresses **corrupt practices** like **undue influence** on voters' free exercise of electoral rights, including threats, social isolation, or caste/community expulsion.
6. Non-disclosure of irrelevant information doesn't qualify as a "**defect of a substantial nature**" under the 1951 Act.
7. Voters have the right to essential information for making informed choices in elections.

### Right to Privacy

1. The **right to privacy** is a **Fundamental Right** that safeguards an individual's personal space from interference by both governmental and non-governmental entities, allowing individuals to freely make decisions about their lives.
2. In the **landmark case of K.S. Puttaswamy vs Union of India in 2017**, the **Supreme Court** highlights the significance of privacy, describing it as a fundamental and inalienable right (impossible to take away or give up).
3. The right to privacy is protected as an intrinsic part of the **right to life and personal liberty (Article 21)** under **Part III** of the Constitution.



## About the Representation of the People Act (RPA) of 1951

1. The **RPA of 1951** governs conduct of elections and the criteria for elected representatives.
2. It governs the conduct of **elections**.
3. It outlines the **qualifications** and **disqualifications** for being a member of parliament or legislative bodies.
4. It includes measures to tackle **corrupt practices** and other offenses.
5. It establishes procedures for resolving doubts and disputes arising from elections.
6. **Section 36(4)** states that nomination papers cannot be rejected for minor defects.

### Corrupt Practices under RPA 1951

1. **Section 123** defines ‘**corrupt practices**’ to include bribery, undue influence, spreading false information, and inciting hatred based on religion, race, caste, community, or language to gain electoral advantage.
2. In the **Abhiram Singh versus C. D. Commachen Case (2017)**, the **Supreme Court** ruled that candidates are prohibited from seeking votes not only based on their own religion but also on that of the voters.
3. The Act defines ‘**undue influence**’ as any form of direct or indirect interference, including threats, that obstructs voters’ free exercise of their electoral rights.
4. **Section 123(4)** allows for the **disqualification of elected representatives** for various offenses, corrupt practices, failure to declare election expenses, or having interests in government contracts or works.
7. According to the **Representation of People Act 1951**, an elected representative can lose their position for:
  - a. Being **convicted** of certain offenses.
  - b. Involvement in **corrupt practices**.
  - c. Failure to declare **election expenses**.
  - d. Having **interests** in government **contracts** or **works**.

### Significance of Representation of People Act 1951

1. The act holds great importance for the smooth functioning of **Indian democracy** by preventing individuals with **criminal backgrounds** from entering representative bodies, thus cleaning up **Indian politics**.

2. Every candidate must disclose their **assets** and **liabilities** and keep track of their **election expenses**, ensuring **accountability** and **transparency** in the use of public funds.
3. The act prohibits **corrupt practices** such as **booth capturing**, **bribery**, or **inciting enmity**, ensuring the **legitimacy** and **fairness** of elections.
4. Only political parties registered under **section 29A** of the **RPA Act, 1951** can receive **electoral bonds**, promoting **transparency** in **electoral funding**.

### 7. Right Against Climate Change Is A Fundamental Right

1. Recently, In the case of **MK Ranjitsinh v. Union of India**, the Supreme Court of India said that **individuals** have a **fundamental “right to be free from the adverse effects of climate change.”**
2. This right is recognized through a combined interpretation of Article 14 (Right to Equality) and Article 21 (Right to Life and Personal Liberty) of the Indian Constitution.

#### Mk Ranjitsinh V. Union Of India

1. **In 2019**, a **petition** (MK Ranjitsinh And Ors. v. Union of India) was filed to protect the Great Indian Bustards, a bird species whose population were declining.
2. **In April 2021**, the Supreme Court ordered all power lines in the bird’s habitat to be buried underground.
  - However, due to practical difficulties and the importance of renewable energy, the court agreed to reconsider this decision.
3. **In 2024**, while the Supreme Court underscored the importance of protection of Bustard, it modified its order with respect to conversion of overhead transmission line to underground transmission lines.
  - Court has further said that other factors such as low fertility, fragmentation, habitat loss, predators, and loss of prey must be addressed.

#### Court Observations

##### The court made several observations:

1. Overhead cables, particularly in solar parks, pose a significant threat to the survival of these birds.



2. **Power Line Mitigation, 2018** report highlighted that around 1 lakh birds die annually due to collisions with power lines.
3. **Ministry of Power acknowledged** the vulnerability of Great Indian Bustards to power lines due to their lack of frontal vision, emphasizing the risk of collision and electrocution.
4. Supreme Court held that **climate change affects the right to equality**, the Court reasoned that “If climate change and environmental degradation lead to acute food and water shortages in a particular area, poorer communities will suffer more than richer ones. The right to equality would be impacted in each of these instances”.
5. **Article 21** of the constitution states that “no person shall be deprived of his life or personal liberty except according to procedure established by law”.
  - Article 21 has received liberal interpretation from time to time after the decision of the Supreme Court in Maneka Gandhi vs. Union of India. Article 21 guarantees fundamental right to life, right to an environment, free of danger of disease and infection is inherent in it.

**Q1. Consider the following statements:**

1. Climate change might affect the right to equality.
2. Climate change might affect everyone’s Right to life.

**Which of the statements given above is/are correct?**

- (a) 1 Only (b) 2 Only  
(c) Both 1 and 2 (d) Neither 1 nor 2

**Ans. C**

**Q2. Which of the following Supreme Court cases deal with the protection of Environment:**

1. Rural Litigation and Entitlement Kendra vs. State
2. M.C. Mehta vs. Union of India
3. Subhash Kumar v. State of Bihar

Choose the correct answer from the code given below:

- (a) Only 1 (b) Only 2  
(c) All 3 (d) None

**Ans. D**

**8. SC Allows Abortion of 30-Week Foetus**

1. The **Supreme Court, led by Chief Justice of India D Y Chandrachud, has granted permission for a 14-year-old victim of sexual assault to terminate her almost 30-week pregnancy.**
2. The **decision was made based on the opinion of the dean of a municipal hospital in Mumbai**, who said that continuing the pregnancy could negatively impact the physical and mental well-being of the minor.
3. **Article 21 of the Indian Constitution protects reproductive choices as part of personal liberty.**

**Legal Framework for Abortion in India:**

The Medical Termination of Pregnancy Act (MTP Act), enacted in 1971, regulates abortions in India. The act outlines specific conditions and procedures for abortions:

Time Since Conception	MTP Act, 1971	MTP (Amendment) Act, 2021
Up to 12 weeks	On the advice of one doctor	On advice of one doctor
12 to 20 weeks	On advice of two doctors	On advice of one doctor
20 to 24 weeks	Not allowed	On advice of two doctors for special categories of pregnant women
More than 24 weeks	Not allowed	On advice of medical board in case of substantial fetal abnormality
Any time during the pregnancy	On advice of one doctor, if immediately necessary to save pregnant woman's life	On advice of one doctor, if immediately necessary to save pregnant woman's life





## Court's Decisions on Late-Term Abortions

1. In exceptional circumstances, such as **when the pregnancy endangers the woman's life or is the result of rape**, the Supreme Court has allowed abortion before 24 weeks.
2. In some cases, **courts have overturned medical board choices rejecting termination.**

## Foetal Viability and Rights of the Unborn Child

1. The concept of **"foetal viability,"** which refers to the **ability of a fetus to survive outside the womb**, has been a significant factor in abortion laws in various jurisdictions, including the United States.
2. In the US, the **landmark 1973 Supreme Court verdict in "Roe v Wade" legalized abortion up to the point of foetal viability, initially set at 28 weeks but now reduced to 23-24 weeks due to scientific advancements.**
3. In India, the **Medical Termination of Pregnancy (MTP) Act does not explicitly mention foetal viability as a criterion for abortion.** However, courts have considered it in certain cases, indicating a shift in legal interpretation.
4. Generally, the **Indian legal framework prioritizes a woman's autonomy in making reproductive decisions.**

## Foetal Viability and Rights of the Unborn Child

1. Critics of the MTP Act argue that requiring **doctors' approval for late-term abortions** takes away decision-making rights from women.
2. The emphasis on **medical evaluation instead of personal choice in the law has resulted in instances where women are forced to approach the court for approval at the last minute**, indicating a need for greater clarity and accessibility within the law.

## Conclusion

The **Indian legal perspective on abortion emphasizes women's rights to decide and choose, with courts often favouring the woman's autonomy over the rights of the unborn child.** While the law allows abortion in some circumstances, including late-term abortion in exceptional cases, there is ongoing debate about the **balance between women's rights and the rights of the unborn child.**

## 9. UP Board of Madarsa Education Act, 2004

On April 5, the Supreme Court granted a temporary stay on the Allahabad High Court (HC) judgment that had invalidated the Uttar Pradesh Madrasa Education Board Act, 2004, declaring it **'unconstitutional'**. Last month, the Allahabad High Court had directed the UP government to integrate existing students of madrasa boards into the mainstream education system under government or private institutions.

### Why did the Allahabad HC deem it unconstitutional?

1. The Allahabad High Court declared the Uttar Pradesh Madrasa Education Board Act 2004 as **"unconstitutional" for violating the basic principle of secularism guaranteed by the Constitution.**
2. The Act failed to ensure compulsory high-quality education up to the age of 14 or up to class eight in **violation of Article 21-A.**
3. It also lacked provisions for universal and **high-quality schooling for all madrasa students.**
4. Additionally, the Allahabad High Court recognized the **petitioner's argument that the Board's power to grant degrees violates jurisdiction of the University Grants Commission (UGC).**

### About the Act

1. **Aim: Enacted in 2004**, the Uttar Pradesh Madrasa Education Board Act was designed to streamline madrasa education and regulate and control the functioning of madrasas (Islamic educational institutions) in Uttar Pradesh.
2. **Framework:** It provided a framework for the **establishment, recognition, curriculum, and administration** of madrasas across Uttar Pradesh.
  - a. The Act created the **Uttar Pradesh Board of Madarsa Education** to **supervise and oversee** madrasas in the state.
  - b. **Madrasa education**, according to the act, includes instruction in **Arabic, Urdu, Persian, Islamic studies, Tibb** (traditional medicine), **philosophy**, and other specific subjects.

3. **Degrees and Diplomas:** The Madrassa Education Board grants undergraduate and postgraduate degrees called **Kamil** and **Fazil**, respectively.
  - a. Diplomas issued by the board are known as **Qari**, and it also issues certificates and other academic honors.
4. **Examinations:** The board conducts exams for courses like **Munshi** and **Maulvi** (Class X) and **Alim** (Class XII).
5. **Responsibilities of the Board:** Specifying the curriculum, textbooks, reference books, and other teaching materials for various courses including **Tahtania**, **Fauquania**, **Munshi**, **Maulvi**, **Alim**, **Kamil**, and **Fazil**.

### Concerns Regarding the Act:

1. **Constitutional Violation:** The Allahabad High Court found the Act to be **unconstitutional** because it promotes education based on religion, which goes against India's principle of secularism and **fundamental rights**.
  - a. The Court said the Act found to be a **violation of secularism**.
  - b. The state has **no power to create a board for religious education** or to establish **board for school education only for a particular religion** and philosophy associated with it.
  - c. It is the duty of the state to provide education, which is **secular in nature**, more particularly for minors, that is children up to the age of 18.
  - d. It **cannot discriminate and provide different types of education** to children belonging to different religions.
2. **Quality Education:** The Act failed to ensure **mandatory** education up to the age of 14, as required by Article 21 A of the Constitution.
3. **Exclusion from RTE Act:** There were concerns that madrasas being excluded from the **Right to Education (RTE) Act, 2009** could deny students access to **universal** and **quality school education**.
4. **Limited Curriculum:** The court found that **madrasa syllabi** heavily focused on **Islamic studies**, with minimal emphasis on **modern subjects**.
  - a. Students were required to study Islam and its doctrines to progress, with modern subjects often included as optional or offered minimally.
5. **Conflict with Higher Education Standards:** The Act was seen to conflict with **Section 22** of the **University Grants Commission (UGC) Act, 1956**, raising questions about its compatibility with **higher education standards**.

### Constitutional Provisions for Education in India

1. **Article 45:** The State must try to give **early childhood care and education** to all children until they turn six.
2. **Article 21A:** The **86<sup>th</sup> Constitutional Amendment Act of 2002** made **education** a fundamental right for children aged **six to fourteen**.
3. **Article 46:** The Constitution promotes education and **economic interests** of Scheduled Castes, Scheduled Tribes, and other weaker sections.
4. **Article 28:** There's freedom to attend **religious education** in certain educational institutions managed by the state.
5. **Article 29:** Focuses on the **education of minorities** and protection of their interests.
6. **Article 30:** Gives minorities the right to **establish and manage educational institutions**.
7. **Article 51A(k):** Parents and guardians must provide **educational opportunities** for children aged **six to fourteen**.

### Initiatives Related to Education

1. Sarva Shiksha Abhiyan (SSA), Rashtriya Madhyamik Shiksha Abhiyan, Rashtriya Uchhatar Shiksha Abhiyan (RUSA)
2. National Programme on Technology Enhanced Learning
3. PRAGYATA
4. Mid-Day Meal Scheme
5. Beti Bachao Beti Padhao
6. PM SHRI Schools



## 10. Original Jurisdiction of Supreme Court

Increasing number of states have been filing cases against the Central Government in the Supreme court under the provisions of original jurisdiction of Supreme Court as provided for in Indian Constitution.

### About Original Jurisdiction Of Supreme Court

1. **Article 131** of Indian Constitution provides for original jurisdiction of Supreme Court in following cases of dispute:
  - a. Government of India vs. one or more States
  - b. Government of India & one or more States vs. one or more other States
  - c. States vs. one or more other States
2. In the above federal disputes, Supreme Court has exclusive original jurisdiction.
  - **Exclusive means**, no other court can decide such disputes and original means, the power to hear such disputes in the first instance, not by way of appeal.

### Conditions For Filing Cases Under Original Jurisdiction Of Supreme Court:

1. **First**, the dispute must involve a question (whether of law or fact) on which the existence or extent of a legal right depends. Thus, the questions of political nature are excluded from it.
2. **Second**, any suit brought before the Supreme Court by a private citizen against the Centre or a state cannot be entertained under this.
3. Further, this jurisdiction of the Supreme Court does not extend to the following:
  - a. A dispute arising out of any pre-Constitution treaty, agreement, covenant, engagement, Sanad or other similar instrument.
  - b. A dispute arising out of any treaty, agreement, etc., which specifically provides that the said jurisdiction does not extend to such a dispute.
  - c. Inter-state water disputes.
  - d. Matters referred to the Finance Commission.
  - e. Adjustment of certain expenses and pensions between the Centre and the states.

- f. Ordinary dispute of Commercial nature between the Centre and the states.
- g. Recovery of damages by a state against the Centre.

**Note:** In 1961, the first suit, under the original jurisdiction of the Supreme Court, was brought by West Bengal against the Centre. The State Government challenged the Constitutional validity of the Coal Bearing Areas (Acquisition and Development) Act, 1957, passed by the Parliament. However, the Supreme Court dismissed the suit by upholding the validity of the Act.

## 11. Internet Freedom in India

Over the past 5 years, India has topped the globe in imposing internet shutdowns, accounting for more than 60% of all reported shutdowns between 2016 and 2022.

- a. While the government has justified these shutdowns as **necessary for national security or public order**, rights groups have criticized them as a violation of free speech and access to information.

### Internet Shutdowns in India:

1. The **Software Freedom Law Centre (SFLC)** reported that the Indian government imposed a total of 780 internet shutdowns from 2014 to 2023.
2. In 2023, **India shut down the internet for more than 7,000 hours**, contributing to over **70% of the total global economic losses due to internet disruptions**.
3. Internet shutdowns increased during significant events such as the **protests against the Citizenship Amendment Act in 2019**, the **abrogation of Article 370 in 2019**, and the **introduction of Farm Bills in 2020**.
4. Regionally, **Jammu and Kashmir (J&K)** witnessed the **highest number of shutdowns (433) in the last 12 years**.
5. The **longest shutdown in 2023 occurred in Manipur from May to December due to ethnic clashes**.
6. **As of February 15, 2023, internet shutdowns were active in Haryana amidst farmers' protests**.

### Comparing India's Position with the Global Trends:

1. The **latest report from Freedom House shows that global internet freedom has declined for the 13th**



**consecutive year.** Additionally, the online human rights environment has **worsened in 29 countries.**

- In India, the **majority of internet shutdowns throughout the last decade were limited to specific districts, cities, and villages.**
- The **causes of internet shutdowns differ on a global scale. Protests are the most typical cause,** followed by information control and political instability.

### Laws Invoked by the Union Government to Suspend Internet:

- The **Indian Telegraph Act allows Indian States and UTs to impose internet shutdowns only in specific cases, such as “public emergencies” or “public safety” concerns.**
- However, the **Act lacks a clear definition of what makes an emergency or safety issue.**
- During the period of 2015-2022, the Ministry of Electronics and IT, along with the Ministry of Information and Broadcasting, carried out the majority of content censorship under Section 69A of the IT Act.**
- URLs were blocked due to their association with organizations banned under the Unlawful Activities (Prevention) Act.**

The table lists scores on Internet freedom for select countries according to Freedom House’s “Freedom on the Net” report, 2023. Rankings are on a scale of 100 to 0 with 100 being most free

Country	Status	Total score
Iceland	Free	94
U.K.	Free	79
Germany	Free	77
U.S	Free	76
Brazil	Partly free	64
Sri Lanka	Partly free	52
<b>India</b>	<b>Partly free</b>	<b>50</b>
Pakistan	Not free	26

Conditions for human rights online deteriorated in 29 countries while 20 countries saw gains

### Criticism of the Indian Government:

- The central government used powers **derived from British-era laws to suspend mobile internet in Delhi in response to the ongoing protests by Punjab farmers.**
- Activists highlighted India’s failure to follow the international **‘3-part test’ when imposing internet shutdowns in Jammu and Kashmir, Manipur and other regions.**
- International law dictates that when access to content is restricted that violate fundamental rights are imposed, countries must:
  - Ensure that the action is authorized by law
  - Pursue a legitimate and justifiable purpose
  - Abide by standards of necessity and proportionality

### Way Ahead for the Indian Government:

- The Supreme Court’s landmark decision in **Anuradha Bhasin v. Union of India** confirmed that **internet shutdowns violate rights to fundamental freedom of expression.**
- The **apex court ruled that indefinite shutdowns are unconstitutional.**
- Governments are **required to make shutdown orders public, but this provision is often not followed.**

### What is Section 69A of the IT Act?

- As per Section 69A of the Information Technology (IT) Act 2000, the Government holds the authority to restrict public access to information in certain circumstances.**
- These circumstances include ensuring the sovereignty and integrity of India, maintaining state security, preserving friendly relations with foreign nations, and upholding public order, among other factors.

### How is the right to access the internet recognised in India?

According to the Supreme Court of India, the right to access internet is a fundamental right under Articles 19(1)(a) and 19(1)(g) of the Constitution, which provide protection to freedom of speech and expression as well as the freedom to engage in any profession/ business/ occupation via Internet.







## B. INTERNATIONAL RELATIONS

### 1. India Gains Sittwe Port Access

- In April 2024, the Indian government approved a proposal for India Ports Global Limited (IPGL), a wholly owned subsidiary of the Ministry of Ports, Shipping and Waterways, to take full control of the Sittwe Port in Myanmar's Rakhine State.
  - This marks India's second overseas port acquisition, following the Chabahar Port in Iran.
- The move not only strengthens bilateral ties with Myanmar but also significantly enhances trade connectivity and economic integration in the region.
- The acquisition of Sittwe port not only boosts bilateral ties with Myanmar but also enhances trade connectivity and economic integration within the region.

**Kaladan Multi Modal Transit Transport Project**



#### Background

- The Indian government initiated the **Kaladan Multi-Modal Transport Project (KMTTP)**, aiming to establish a vital transport corridor connecting Kolkata, India with Sittwe, Myanmar by sea and further to Mizoram by road and river.
  - The project was initially scheduled to be completed in 2014, but was delayed due to the Rohingya crisis and regional conflicts, including the activities of terrorist groups such as the Arakan Army and the Arakan Rohingya Salvation Army (ARSA).
- Furthermore, this project is funded by the Indian government which reduces the transportation distance between Kolkata and Sittwe by approximately 1,328 kilometres.
- The project encompasses multiple modes of transportation: -
  - Sea Route:** Shipping from Kolkata to Sittwe, inland waterways from Sittwe to Paletwa, and road connectivity from Paletwa to Zorinpui in Myanmar and further to Aizawl in India.
  - Road Route:** Enhancing river-road connectivity between Myanmar and Mizoram.
  - Railway Route:** Planned railway connections between Sittwe and Kyaikhto in Myanmar, Kyaikhto and Zorinpui in Myanmar, and Zorinpui and Sairang in India.

#### Significance of Sittwe Port:

- This Port is a crucial component of the KMTTP and its acquisition holds immense strategic significance for India:
  - Enhanced Connectivity:** It enables cargo to travel from Vizag and Kolkata to India's Northeastern states, bypassing Bangladesh.
  - Economic Benefits:** It significantly reduces the cost and distance of transportation, fostering trade and economic integration.
  - Reduced Reliance on Siliguri Corridor:** This route reduces dependence on the narrow Siliguri Corridor, known as the "chicken's neck," between Bhutan and Bangladesh.
  - Countering China's Influence:** It bolsters India's maritime presence and strategic influence in the region, countering China's "String of Pearls" strategy.

The acquisition of the Sittwe Port in April 2024 is a significant milestone in India's strategic engagement with Myanmar and the broader region. Despite the challenges and delays faced by the KMTTP, the port's development promises to enhance connectivity, boost trade, and foster economic growth in India's northeastern states.

## 2. India Rejects China's Claim Over Arunachal Pradesh

In April, 2024 India rejected as senseless China renaming of some places in Arunachal Pradesh.

- In recent years, the Ministry of Civil Affairs of China has issued a list of standardized geographical names in Zangnan, the Chinese name for Arunachal Pradesh which Beijing claims as part of south Tibet.
- The **first batch** of 6 names was released in 2017, followed by 15 in 2021, 11 in April 2023 and 30 in March 2024.

### Border Dispute between India and China

1. The border between India and China is not clearly demarcated throughout and there is no mutually agreed Line of Actual Control (LAC) along certain stretches. LAC came into existence after the 1962 Indo-China war.
  - The India-China border is divided into 3 sectors.
    - a. **Western Sector:** Ladakh
    - b. **Middle Sector:** Himachal Pradesh and Uttarakhand
    - c. **Eastern Sector:** Arunachal Pradesh and Sikkim
2. The India-China border dispute refers to the long standing and complex territorial disputes along their shared border of 3,488 kilometres.
3. The main **areas of dispute are Aksai Chin**, located in the western sector, and **Arunachal Pradesh**, in the eastern sector.
  - a. **Aksai Chin:** China administers Aksai Chin as part of its Xinjiang region, while India considers it part of its UT of Ladakh. The region holds strategic significance due to its proximity to the China-Pakistan Economic Corridor (CPEC) and its potential as a military route.
  - b. **Arunachal Pradesh:** China claims the entire state of Arunachal Pradesh, referring to it as "South Tibet". India administers this region as a northeastern state and considers it an integral part of its territory.

### Border dispute led to Military Standoffs

1. The border dispute has led to a number of military standoffs and clashes, including the **1962 Sino-Indian War**.
  - Both the countries have made efforts to manage the tensions, with various agreements and protocols aimed at maintaining peace along the border.
2. Since 2013, there have been heightened frequency of serious military confrontations between India and China along the Line of Actual Control (LAC).
  - The **most serious recent conflict- the 2017 standoff** in Doklam region, in Galwan Valley in Ladakh **in 2020** and in Tawang in Arunachal Pradesh **in 2022**.

### How is India Responding to China's Aggressive Measures?

1. India actively engages with like-minded nations to collectively address China's influence in the Indian Ocean Region.
  - a. **QUAD:** All four member nations (India, USA, Japan and Australia) find a common ground of being democratic nations and also support the common interest of unhindered maritime trade and security.
  - b. **I2U2:** It is a new grouping of India, Israel, the USA, and the UAE. Forming alliances with these countries strengthens India's geopolitical standing in the region.
  - c. **India-Middle East-Europe Economic Corridor (IMEC):** Launched as an alternative trade and connectivity corridor to China's One Belt One Road Initiative (OBOR), IMEC aims to strengthen India's presence in the Arabian Sea and the Middle East.
  - d. **International North-South Transport Corridor (INSTC):** INSTC, formed by India, Iran, and Russia, spans 7,200 km, linking the Indian Ocean, Persian Gulf, and Caspian Sea. With Chabahar Port as a key node, it strategically counters China, providing an alternative to CPEC's Gwadar port.



## India's Necklace of Diamonds Strategy:

1. In response to **China's String of Pearls strategy**, **India adopted the Necklace of Diamonds strategy**, emphasising the encirclement of China by enhancing its naval presence, expanding military bases, and strengthening diplomatic ties with regional nations.
2. This strategy aims to counter China's military network and influence in the Indo-Pacific and Indian Ocean regions.

## Infrastructure Projects Along Borders:

1. The Border Roads Organisation (BRO) has completed more than 80 infrastructure projects along the India-China border.
2. Recently, India has supported the development of the Gelephu mindfulness city in **Bhutan**.
3. In 2024, the India-Nepal countries signed a bilateral agreement for the export of 10,000 MW of power over the next 10 years.
4. They also inaugurated three cross-border transmission lines, including the 132 kV Raxaul- Parwanipur, 132 kV Kushaha-Kataiya, and New Nautanwa-Mainahiya lines.

## Previous Efforts to Settle Indo-China Border Disputes

1. **Shimla Agreement (1914)**
  - a. **Goal:** Set the border between Tibet and North East India
  - b. **Who:** British India, Tibet and China
  - c. **Problem:** China didn't sign, leading to disagreements between India and China that continue today.
2. **Panchsheel Agreement (1954)**
  - a. **Goal:** India and China agreed to respect each other's land and not fight.
  - b. **Problem:** This worked for a while, but the countries had a war in 1962, causing tension.
3. **Agreement on the Maintenance of Peace and Tranquility (1993)**
  - a. **Goal:** Both countries promised not to use force and to talk about border problems.
  - b. **Problem:** Some peace, but the border remains a problem due to changing political situations.

## 4. Agreement on Confidence Building Measures in the Military Field (1996)

- a. **Goal:** Avoid surprise attacks by sharing information and making sure both sides understand the border area.
- b. **Problem:** It has helped some, but there are still problems.

## 3. 1976 Agreement Gave India Sovereign Rights In Wadge Bank

1. Recently, Indian diplomats, with previous experience in engaging with Sri Lanka, emphasized that Delhi successfully gained access to Wadge Bank and its abundant resources.
2. India got formal sovereignty over Wadge Bank in 1976, two years after the agreement between India and Sri Lanka agreement over Katchtheevu as a part of Sri Lanka.

## About Wadge Bank



1. The Wadge Bank, located south of Kanyakumari, is a resource-rich submarine plateau.
2. It isn't just any underwater spot. It's a shallow plateau southeast of India, overflowing with marine life, especially fish.
  - That makes it a prime fishing spot, crucial for both big fishing companies and locals who depend on the sea.
3. The **India-Sri Lanka agreement of 1976** recognised the Wadge Bank as part of India's Exclusive Economic

Zone (EEZ), granting India sovereign rights over the area and its resources.

- Under the agreement, Sri Lankan fishing vessels and personnel were not allowed to engage in fishing activities in the Wadge Bank.

### Why Wadge Bank is India's Golden Ticket?

This deal is a big win for India for a few reasons:

- Money Maker:** The huge amount of fish in Wadge Bank will be a big boost for India's fishing industry, meaning more food and jobs for folks living along the coast.
- Energy Potential:** There might even be oil and gas hiding under Wadge Bank. If so, that's a big deal for India's energy plans.
- Strategic Power:** Having access to this area gives India more clout in the Indian Ocean, a key spot for trade and security.

### Challenges and Looking Ahead

While getting access is a huge step, there's still work to do. India and Sri Lanka need to figure out how to share the resources fairly and make sure the fish stocks stay healthy. They'll also need to team up on research and exploration to see what else Wadge Bank has to offer.

## 4. Instability In West Asia

Recently, after Israel's attack on the Iranian Consulate in Syria and Iran's retaliatory action, tension in West Asia has reached a new height.

### More on the news

- The attack by Iran was intercepted by Israel, which had deployed a multi-layered air defence, including the Iron Dome, the Arrow and David's Sling.
- Allegedly, Exoatmospheric missiles (EMs) were used to intercept the attack.
- Recently, attacks by Houthis in the Red Sea were also reported.
- Institutions such as the United Nations, IMF, and World Bank have warned about the threats these conflicts pose to the economies and politics across the regions, including India.

### Other Major conflicts in the West Asia

- Terrorism factions:** Hezbollah in Lebanon, ISIS in Syria etc.
- Civil Wars and Insurgency:**
  - Sudan:** Between two factions of military
  - Yemen:** Houthis conflict.
  - Egypt:** Insurgency in Sinai Peninsula.

## West Asian Region





**About Exoatmospheric missiles (EMs)**

1. EMs, also known as anti-ballistic missiles (ABMs), are designed to intercept and destroy incoming ballistic missiles during mid- course or terminal phase of their trajectory.
2. They use advanced sensors, such as infrared and radar systems, to detect and track incoming threats and use guidance systems to accurately manoeuvre and intercept targets travelling at high speeds in space.
3. **Different types of exoatmospheric missiles:**
  - a. **Kinetic kill vehicles:** Destroy their targets through physical impact.
  - b. **Directed energy weapons:** Use lasers or other energy beams to disable or destroy incoming threat.

3. **Competition between nations for arms race or possession of nuclear weapons** may lead to global instability issues
  - A global arms race could trigger a regional arms race, particularly with Pakistan and China, escalating tensions and increasing the risk of conflict.
  - Increased defense spending to keep pace with the arms race could strain India’s economy.

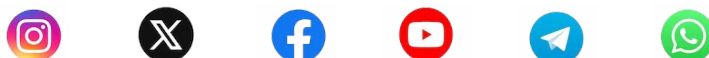
**What are the impacts of instability in the West Asia?**

At Global Level	On India
<p>1. <b>Diplomatic milestones</b> (E.g. Abraham Accords, Israel- Saudi) may get compromised.</p>	<ul style="list-style-type: none"> <li>• <b>India’s relationships</b> with countries in the Middle East, particularly those involved in the Abraham Accords, <b>could be strained.</b> This could complicate India’s efforts to balance its ties with Israel, Saudi Arabia, and other regional powers.</li> </ul>
<p>2. <b>Intensification of maritime security</b> challenges across the Indo-Pacific region in case of attacks on ships of USA, United Kingdom.</p>	<ul style="list-style-type: none"> <li>• India’s extensive trade routes through the Indo-Pacific could be threatened, impacting its economy and energy supplies.</li> <li>• India’s strategic partnerships with countries like the US and UK, crucial for maritime security cooperation, could become more complex.</li> </ul>

4. **Impact on Global Economy**
    - a. **Higher oil prices** may lead to higher food prices intensifying food insecurity in many countries.
    - b. Economies directly exposed may get downgraded and investment across the globe may suffer due to downgraded sentiment.
- Impact on Indian Economy**
- a. Higher oil prices **will increase inflation** in India, which will affect the cost of living and economic growth.
  - b. Negative global economic sentiment could deter foreign investment in India, slowing down economic development.

5. **International Humanitarian Crisis** due to loss of lives, forced displacements and instances of War Crimes (E.g. Rafah Offensive stance of Israel)
 

India’s large diaspora in conflict zones could be at risk, requiring diplomatic efforts for their safety and evacuation.



## Way Forward

1. **Enhance Diplomatic Engagements and negotiations** within all parties to refrain them from further violence and seek solutions through diplomacy.
2. **Building Normative Framework and Process** through arms control and security negotiations declaration of regional “Weapons of Mass Destruction Free Zone” leading to demilitarization.
3. **Resolution of the Israel-Palestine** issues based on the Two Nation Theory for long-term security, peace and stability.
4. **Safeguarding Fiscal and External Sustainability** by countries by strengthening policy buffers.
5. Opportunity for **India to emerge as a net security provider** and mediator for South-South cooperation.
  - **Maritime Security Operations** have been conducted by Indian Navy (Operation Sankalp) and USA (Operation Prosperity Guardian) in the regions of Gulf of Aden, Arabian Sea, off the East Coast of Somalia to protect from various non-traditional threats present in the region

## 5. UK Passes Bill to Deport Asylum Seekers to Rwanda

In April 2024, the **United Kingdom** government has passed a **controversial bill** to send **asylum seekers** to Rwanda in an effort to **curb** the **number of asylum seekers** crossing the **English Channel**.

### Rwanda Bill (Safety of Rwanda (Asylum and Immigration) Bill):

1. **Origin:** Policy initiated by former **UK PM in 2022**
2. **Aim:** Deport undocumented immigrants to Rwanda as a “**safe third country**”
3. **U.K.-Rwanda Deal:**
  - a. UK assesses asylum applications, arranges transport to Rwanda
  - b. **Rwanda provides shelter, decides on refugee status, returns those denied**

4. **Criticism:**
  - a. **Wider Ramifications:** Bypasses human rights laws, limits appeals
  - b. **Human Rights Concerns:** Rwanda’s record on human rights is questionable
  - c. **Lack of Safeguards:** Insufficient protection for asylum seekers’ rights
5. **Refugee Crisis:** Many refugees risk their lives to reach the UK due to various reasons.

### Other nations send asylum seekers abroad: -

**Several countries have used or explored this approach**, including the UK (Rwanda), Australia (Nauru and Manus Island), Israel (Rwanda and Uganda), the EU (consideration of deals with various African nations), and the US (discussions about agreements with Central American countries).

### Key Points:

1. The bill is **controversial due to ethical concerns and Rwanda’s questionable human rights record**.
2. It reflects a **broader trend of European countries seeking agreements with 3rd countries** to process asylum seekers.

### What is the Difference Between Asylum Seeker, Refugee, Illegal Migrant?

1. **Asylum Seeker:** According to the **United Nations High Commissioner for Refugees (UNHCR)**, an asylum-seeker is someone who has fled their home country and is seeking protection in another country. Their claim for refugee status has **not yet been decided**.
2. **Refugee:** The **1951 Refugee Convention** defines a refugee as someone who has been forced to flee their country because of a well-founded fear of persecution based on race, religion, nationality, political opinion, or membership in a particular social group.



- a. The **core principle** of the 1951 Convention is **non-refoulement**, which asserts that a refugee should not be returned to a country where they face serious threats to their life or freedom.
3. **Illegal Migrant:** The term “illegal migrant” is **not an official legal term**, but it generally refers to someone who is present in a country **without authorization**. This could include someone who entered the country without proper documentation or someone who has overstayed a visa.
2. India argues that **broadening the definition to include economic rights could overburden** developing nations.
3. India’s history of refugees into **India due to regional conflicts and open borders further raises concerns** about adherence to the convention as this could increase its responsibilities and resource demands for hosting refugees.
4. **By not signing the convention, India retains control over its refugee policies, safeguarding its sovereignty and domestic plans.**
5. Despite this, **India adheres to other international human rights treaties and customary law, demonstrating its commitment to upholding international legal norms.**

### Refugee Regulations in India

India has several regulations related to refugees, illegal immigrants, and foreigners overstaying their visas:

1. **Foreigners Act of 1946: Section 3** empowers the central government to detect, detain, and deport illegal foreign nationals.
2. **Passport (Entry into India) Act, 1920:** Section 5 allows authorities to forcibly remove illegal foreigners.
3. **Registration of Foreigners Act of 1939:** Foreign nationals (excluding overseas citizens of India) visiting India on a *long-term visa (more than 180 days)* must register with a Registration Officer within 14 days of arrival.
4. **Citizenship Act, 1955:** This act provides provisions for renunciation, termination, and deprivation of citizenship.
5. **Citizenship Amendment Act, 2019:** This amendment seeks to provide citizenship to Hindu, Christian, Jain, Parsi, Sikh, and Buddhist immigrants from Bangladesh, Pakistan, and Afghanistan who have faced persecution.

### What are the Reasons for India’s Not Signing the 1951 Refugee Convention?

1. The 1951 Refugee Convention defines refugees as those deprived of civil and political rights, excluding economic rights.

### 6. US Priority Watch List: India’s Placement and Concerns

The Office of the United States Trade Representative (USTR) released its 2024 Special 301 Report on the adequacy and effectiveness of U.S. trading partners’ protection and enforcement of intellectual property (IP) rights.

#### What is the USTR’s Special 301 Report?

1. **Overview:** The USTR’s 301 Special Report is an annual review mandated by the US Trade Act of 1974 to assess the IP protection and enforcement practices of US trading partners.
2. **Designation Criteria:** The USTR considers factors such as the severity of IP concerns, economic impact on US rights holders, and progress made in addressing identified issues when designating countries to the PWL or Watch List.
3. **US Government Initiatives:** The USTR uses various initiatives to promote IP protection with trading partners, including bilateral negotiations, WTO participation, and stakeholder engagement.



## Criteria for Inclusion:

Countries are typically placed on the Priority Watch List based on factors such as:

- 1. Piracy and Counterfeiting:** High levels of **copyright infringement, trademark counterfeiting,** and patent infringement.
- 2. Online Piracy:** Inadequate enforcement against **illegal streaming, downloading, and distribution of copyrighted content.**
- 3. Trade Secret Theft:** Weak protection and enforcement against the theft of trade secrets.
- 4. Patent Issues:** Discriminatory patent practices or **lack of effective patent protection.**
- 5. Market Access Barriers:** Unfair restrictions on market access for legitimate businesses that rely on IPR.

## India's Placement and Concerns:

- 1. Consistent Placement:** India has consistently been placed on the **'priority watch' list, indicating significant concerns** regarding IP protection, enforcement, and market access for **American IP stakeholders.**
- 2. Insufficient IP Enforcement:** The USTR report identifies **shortcomings in India's IP enforcement, including high rates of online piracy, trademark opposition case backlogs,** and insufficient legal mechanisms for trade secret protection.
- 3. Copyright Compliance Issues:** India is urged to **fully implement WIPO Internet Treaties and avoid extending copyright licenses** to interactive transmissions to protect copyright holder rights.
- 4. Trade Policy Forum Progress:** While some progress has been noted under the **US-India Trade Policy**

**Forum, several longstanding concerns remain unaddressed.**

## 5. India's Stance on Intellectual Property Rights:

India maintains that **its laws comply with the WTO's TRIPS Agreement and is not obligated to make changes based on other international rules.**

## Recommendations for Moving Forward:

- 1. Establishing a Joint IP Commission:** Create a permanent **India-US IP Commission with representatives from government,** industry, and academia to foster dialogue, identify areas of mutual concern, and develop joint action plans.
- 2. Capacity Building:** The US can offer **technical assistance to India's patent office** and judiciary to streamline patent application processes and enhance training on IP enforcement mechanisms.
- 3. Transparency and Stakeholder Engagement:** Both countries should **promote increased transparency in IP decision-making processes** through regular consultations with industry stakeholders.
- 4. Dispute Resolution through Arbitration:** Establish a streamlined arbitration mechanism for resolving IP disputes between companies, drawing on successful models like the **Singapore-India CEPA.**

## Conclusion:

By adopting a collaborative approach, **enhancing capacity building,** and establishing efficient dispute resolution mechanisms, **India and the US can overcome the 'Priority Watch List' narrative.** This innovative approach, inspired by successful global practices, can pave the way for a more harmonious and productive relationship, promoting innovation and economic growth for both nations.







## C. SECURITY

### 1. Russian Peacekeepers Withdrawal from Nagorno-Karabakh

Russian peacekeepers started withdrawal from Nagorno-Karabakh after Azerbaijan's recapture of the disputed territory from Armenian separatist control last year.

#### About Nagorno-Karabakh Region



1. It is a **landlocked mountainous region**, encircled by Azerbaijan.
2. The region is majorly **inhabited by ethnic Armenians**.
3. The region has been subject of territorial **dispute between Armenia and Azerbaijan**.
4. Nagorno-Karabakh region has been **under the self-declared Republic of Artsakh**.
5. In 2023, Azerbaijan attacked the Nagorno-Karabakh region. The attack resulted in the removal of institutions of Republic of Artsakh. **Nagorno-Karabakh was connected** to Armenia by a small corridor known as **Lachin Corridor**.
6. More than half the population of Nagorno-Karabakh region has fled to Armenia. Armenia has accused Azerbaijan of committing ethnic cleansing in the region.

#### What's Next for Nagorno-Karabakh?

1. As the Russian peacekeepers head home, a new chapter begins for Nagorno-Karabakh.
2. The future of Nagorno-Karabakh is still up in the air. Azerbaijan says it will protect the rights and safety of the Armenian people there, but things are still tense.

3. Everyone is hoping that Armenia and Azerbaijan can talk things out and find a peaceful solution that works for everyone.

#### Q. Consider the following pairs:

##### Regions often seen in news

1. Nagorno Karabakh
2. Mogadishu
3. Amhara

##### Location

- Armenia  
Somalia  
Iran

#### How many of the above pairs are correctly matched?

- (a) Only One                      (b) Only two  
(c) All three                      (d) None

Ans. A

### 2. Andaman & Nicobar: India's Strategic Island

Recently, The Indian government established a joint and **unified operational command** in the Andaman & Nicobar (A&N) Islands with the aim of strengthening maritime security.

#### Andaman & Nicobar: Historical Background

1. **After the 1857 War** of Independence, the **British set up a prison colony** in the A&N Islands and sent many Indian freedom fighters there for life.
  - These islands gained a grim reputation, known as **kalapani**, and were largely ignored by the Indian government in Delhi due to their remote location.
2. **During World War II**, the Japanese occupied the islands with plans to invade India. However, the British took back control after the war.
3. **Before India's independence**, there was a debate about the fate of these islands. British military leaders suggested keeping them as British territory due to their strategic location.
  - However, **British Prime Minister Clement Atlee** decided to give them to India, especially after the Partition plan was accepted.

4. In 1962, when the Indian Navy reported a possible Chinese submarine sighting near the islands, the government finally acted. They stationed 150 sailors there to form a naval garrison for security.
5. **During the 1965 India-Pakistan war**, Pakistan tried to get Indonesia's support. Indonesia even considered taking over the Andaman Islands, seeing them as part of Sumatra and in a strategic location between East Pakistan and Indonesia. However, the war ended before any action was taken.
  - **Further in 1976**, the A&N naval garrison, bolstered by army reinforcements, was elevated to the status of Fortress Andaman & Nicobar.
  - Following a security reassessment after the Kargil War in 2001, India inaugurated its inaugural joint/unified operational command — the Andaman Nicobar Command (ANC) (i.e., Theatre Command) situated in Port Blair.
4. **Unified approach to fighting any future war:** A potential conflict with a major military power like China may extend well beyond the typical theatres into the domains of cyber, space and nuclear, which requires a more integrated response from the Indian armed forces.
5. Moreover, all major countries globally have already restructured their armed forces on the lines of Integrated Theatre commands. E.g., China, USA, UK, Russia etc.

### Significance Of Maritime Security

1. **Freedom of Navigation:** Many nations rely heavily on maritime routes for the transportation of goods, energy resources, and raw materials. Seamless navigation allows ships to move efficiently and safely across the oceans, avoiding unnecessary delays and costs.
2. **Trade & Commerce:** Secure shipping lanes facilitate the movement of goods between nations, contributing to economic growth and stability.
  - Threats such as piracy, terrorism, and illegal activities can disrupt trade routes, leading to increased costs, supply chain disruptions, and economic losses. E.g., Houthi's attack in Red Sea impacted trade and commerce.
3. **Humanitarian assistance during disasters:** Secure maritime routes allow humanitarian organizations and governments to deploy relief supplies, medical assistance, and personnel to disaster-stricken regions efficiently. E.g., during cyclones, tsunami etc.
4. **Countering piracy and smuggling:** Piracy and smuggling pose significant threats to maritime security, endangering the lives of crew members, disrupting trade routes, and undermining regional stability.

As the primary security provider in the region, **the Andaman & Nicobar Command (ANC)** is tasked with preventing potential interference from a range of state and non-state actors.

To fulfil this role effectively, it must maintain a comprehensive awareness of maritime activities across three dimensions (3D), employing a diverse array of resources including radars, aircraft, satellites, and unmanned vehicles.

### Theatre Warfare And Theatre Command

1. The word '**theatre warfare**' means the entire land, sea and air areas are involved directly in war operations.
2. **Theatre command** refers to unified command under which all the resources of the Army, the Navy and the Air Force are pooled, depending on the threat perception.
3. There will be one commander who will control all the assets and forces of Air Force and Army which will lead to greater jointness and coordination in response.
4. The commands could be geographical — like looking at a border with a particular country — or thematic, like a command for all maritime threats.

### Need For Theatre Command

1. Enhanced **coordination between the armed forces** for prompt and effective military response during conflict or war.
2. Having a unified approach during defence acquisition will **reduce the cost of procurement**. E.g., Army and IAF acted in silos during procurement of Apache helicopters which increased their cost.
3. The theatre command system will help **remove redundancies, reducing duplication** of resources and bring **greater focus in the allocation of resources**.



### 3. India delivers 1<sup>st</sup> batch of BrahMos to Philippines

Recently, India has delivered the first batch of BrahMos, supersonic cruise missiles, to the Philippines, symbolising a significant milestone in bilateral defence cooperation between the 2 nations.

#### BrahMos Missile Deal between India and the Philippines:

1. In January 2022, the Philippines made history by signing a agreement with India for the purchase of three batteries of the shore-based, anti-ship variant of the BrahMos missile.
2. This landmark deal marks the Philippines as the inaugural export customer for this joint venture between India and Russia, showcasing the missile's advanced capabilities and the growing trust in India's defense industry.
3. Several other countries, including Indonesia and Thailand, have also shown their interest in acquiring BrahMos systems, and discussions are currently underway to explore potential partnerships and collaborations in the future.

#### About BrahMos Missiles

##### Development:

1. BrahMos is a collaborative project between the Indian Defense Research and Development Organization (DRDO) and Russia's NPO Mashinostroyeniya.
2. The name BrahMos is derived from the Brahmaputra River of India and the Moskva River of Russia.
3. The first successful test of the BrahMos missile was conducted in 2001 from a specially designed land-based launcher.

##### Capabilities:

1. BrahMos is a medium-range, supersonic ramjet cruise missile.
2. BrahMos can be launched from submarines, ships, aircraft, or land.
3. BrahMos is the fastest supersonic cruise missile in the world.

#### 4. BrahMos has two stages:

- a. The 1st stage consists of a solid fuel rocket booster.
- b. The 2nd stage consists of a liquid-fueled ramjet.

#### Warhead:

1. Ship-launched and land-based missiles can carry a 200 kg warhead,
2. Aircraft-launched variants (BrahMos A) can carry a 300 kg warhead.

#### Variants and Range

1. The BrahMos missile travels at speeds between Mach 2.8 and 3.0, with an upgrade to Mach 5.0 in development.
2. A hypersonic version of the missile, called BrahMos-II, is also being developed, with a speed of Mach 7-8 to boost aerial fast strike capability.
3. Initially restricted to a range of 290 km due to the Missile Technology Control Regime, the BrahMos missile's range was extended to 450 km after India's entry into the regime in June 2016.
4. Ongoing efforts aim to further extend the missile's range beyond 600 km, enhancing operational reach and effectiveness in various scenarios.

#### Strategic Implications of the move

In light of escalating tensions in the *South China Sea* between the Philippines and China, the Philippine government has placed extra emphasis on enhancing its defence readiness. The acquisition of BrahMos missiles under **Horizon 2 of the Revised Armed Forces of the Philippines Modernization Programme** will significantly enhance the defensive capabilities of the Philippine armed forces.

### 4. C-Dome, Israel's Naval Defense System

"For the first Israel time deployed its ship-mounted defence system, called the C-Dome, against a "suspicious" target that entered the country's airspace near the southern city of Eilat," the military said on April 9.

- a. The C-Dome is a naval version of the Iron Dome air defence system used to shield against rocket and missile attacks.

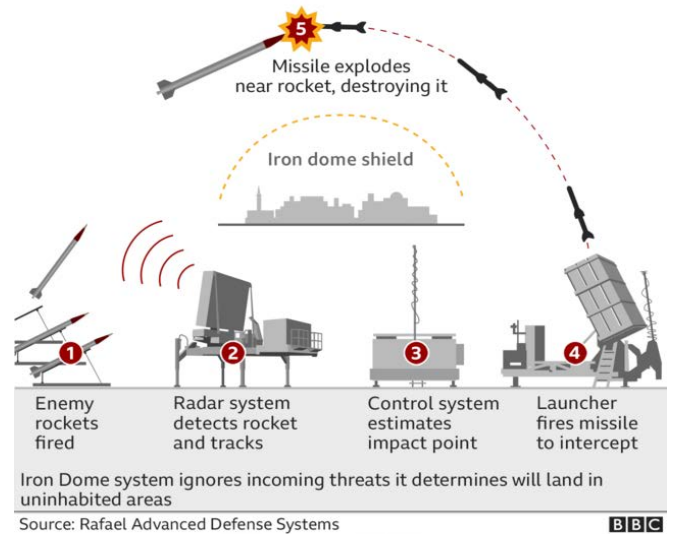
## About C-Dome:

- Naval Version of Iron Dome:** The C-Dome is a naval version of the Iron Dome air defence system used to shield against rocket and missile attacks. It is mounted on Sa'ar 6-class corvettes, German-made warships, and uses the same interceptor as the Iron Dome.
- Similar to Iron Dome:** Unveiled in 2014 and announced to be operational in November 2022, Sea-Dome shares some technology with Iron Dome, which works on similar principles but is mounted on ships.
- Sa'ar 6-Class Corvettes:** C-Dome is mounted on German-made Sa'ar 6-class corvettes, utilizing the same interceptor as the Iron Dome.
- Integrated Radar System:** Unlike Iron Dome, which has its own dedicated radar, C-Dome integrates with the ship's radar to detect incoming targets.
- Comprehensive Protection:** C-Dome provides full-circular ship protection with high lethality against a wide range of maritime and coastal threats.

## Iron Dome Key Facts:

- Air Missile Defense:** Iron Dome is Israel's air missile defense system, designed to defend against short-range rockets by intercepting them in the air.
- Multiple Rocket Handling:** Iron Dome can effectively handle multiple rockets simultaneously.
- Developers and Deployment:** Developed by Rafael Advanced Defense Systems and Israel Aerospace Industries, Iron Dome became operational in March 2011.
- Key Features:** Iron Dome comprises missile-defense batteries, has all-weather capabilities, can launch various interceptors, and is intended to shoot down missiles with a range of around 40 miles or less. It is also movable, allowing deployment on ships or on land. However, it requires reloading to constantly intercept incoming missiles.

## How Israel's Iron Dome defence system works



## The Iron Dome system:

- A radar detects incoming rockets
- A command-and-control system determines the threat level
- An interceptor seeks to destroy an incoming rocket before it can attack it.

## What is a Radar?

- Radar is short for **Radio Detection and Ranging**. It is an electromagnetic sensor that uses radio waves to detect, locate, track, and identify objects at a distance.
- Radar systems have a **transmitter that sends out radio signals and a receiver that catches any reflected energy from targets**.
- The **radar antenna emits a signal in the form of radar waves, which move at the speed of light and are not perceivable by humans**.
- When the waves hit objects, the signal changes and is reflected back to the sensor. The signal arriving at the antenna contains information about the detected object.

## Radars are used for many purposes, including:

- Detecting and tracking aircraft, spacecraft, and ships at sea
- Measuring the speed of automobiles
- Mapping the surface of the earth from space
- Measuring properties of the atmosphere and oceans





## 5. MHA Extended AFSPA for 6 Months

1. In April, 2024 The **Union Ministry of Home Affairs (MHA)** extended the **Armed Forces (Special Powers) Act (AFSPA), 1958** in parts of **Nagaland and Arunachal Pradesh** for another **6 months**.
  - a. The AFSPA has been extended in 8 districts and 21 police stations in **Nagaland** for 6 more months.
  - b. It will also remain effective in specific areas of **Arunachal Pradesh**.

### Brief Timeline about AFSPA

1. The **British colonial government** introduced the **Armed Forces Special Powers Ordinance** on **August 15, 1942**, to suppress the **Quit India** movement.
2. This led to four ordinances, including one for the **“Assam disturbed areas”** in **1947** to tackle security issues arising from Partition.
3. The **Armed Forces (Assam and Manipur) Special Powers Act, 1958**, came after the Assam Disturbed Areas Act of 1955 which aimed at **addressing unrest in the Naga Hills** and surrounding regions.
4. This Act was replaced by the AFSPA for broader application, with a similar Act specifically for Jammu and Kashmir enacted in 1990.

### What is AFSPA?

1. The **Armed Forces (Special Powers) Bill** was passed by both Houses of Parliament and approved by the President on **September 11, 1958**.
2. It became known as the **Armed Forces Special Powers Act (AFSPA), 1958**.
3. The Act was enacted due to **rising violence in North-eastern States** that local governments struggled to control.
4. **Key Provisions of AFSPA:**
  - a. AFSPA grants **extensive powers to the armed forces and Central Armed Police Forces** deployed in **“disturbed areas”** to take actions such as killing, arresting, and searching without a warrant.

- b. It also provides **protection from prosecution and legal suits** without the Central government’s sanction.
- c. **Both State and Union governments** can issue notifications regarding AFSPA.
- d. For **Arunachal Pradesh and Nagaland**, the **Ministry of Home Affairs (MHA)** issues periodic **“disturbed area”** notifications.

### 5. About Disturbed Areas:

- a. A disturbed area is declared by notification under **Section 3 of AFSPA** when armed forces assistance is considered necessary.
- b. The Act was **amended in 1972** to give **both the Central government and States the power to declare an area as “disturbed.”**
- c. Areas may become disturbed due to disputes between different groups based on religion, race, language, region, or caste.
- d. The **Central Government, State Governor, or Union Territory administrator** can declare a region as disturbed.
- e. Once declared disturbed, the area **remains so for three consecutive months**, as per **“The Disturbed Areas (Special Courts) Act, 1976”**.
- f. The state government can advise on whether AFSPA should be applied in the state.

6. **Current Status:** The Union Home Ministry issues periodic **“disturbed area”** notifications to extend AFSPA **only in Nagaland and Arunachal Pradesh**.

### Arguments in Support and Against of AFSPA

Arguments in Support	Argument Against
1. AFSPA is necessary to handle the security threats in disturbed regions. Armed groups and insurgent activities pose continuous dangers to public safety.	1. AFSPA grants officers powers to use firearms, raising concerns about excessive force and fatalities.



<p>2. AFSPA gives security forces legal authority to combat insurgency and terrorism effectively which helps them tackle complex security challenges.</p>	<p>2. AFSPA allows officers to arrest without warrant and search premises without warrant. This may violate civil liberties and bypass standard legal procedures.</p>
<p>3. AFSPA offers legal protections to security personnel shielding them from legal liability. This helps them perform tasks without fear of legal consequences.</p>	<p>3. AFSPA requires executive approval for prosecution of security forces. This lack of accountability allows human rights violations to go unpunished.</p>

### Supreme Court’s Guidelines

1. There were questions about the **constitutionality of AFSPA**, given that **law and order is a state subject**.
2. The Supreme Court has upheld the constitutionality of AFSPA in a **1998 judgement (Naga People’s Movement of Human Rights v. Union of India)**.
3. **Key Conclusions of the judgement:**
  - a. The Central government can declare areas under AFSPA, but it’s better to consult the state government first.
  - b. AFSPA doesn’t give unlimited powers to declare an area as ‘disturbed’.
  - c. Declarations should be time-limited and reviewed every six months.
  - d. Authorized officers must use minimal force necessary under AFSPA.
  - e. Officers must follow strictly to army guidelines.
  - f. The Supreme Court found AFSPA in line with the Constitution, stating the powers under sections 4 and 5 (powers to operate in “disturbed areas”) are not arbitrary or unreasonable.

### Recommendations from Various Committees

#### 1. Justice Jeevan Reddy Committee

##### Recommendations:

- a. In November 2004, a committee led by **Justice B P Jeevan Reddy** was appointed by the Central government to review the AFSPA in northeastern states.
- b. The committee suggested that **AFSPA should be revoked and replaced with appropriate provisions in the Unlawful Activities (Prevention) Act, 1967**.
- c. Modifications to the Unlawful Activities Act were proposed to define the powers of armed and paramilitary forces clearly.
- d. It also recommended establishing **Grievance cells** in districts where armed forces are deployed.

#### 2. Second ARC Recommendations:

- a. The **5th report on ‘Public Order’** of the **2nd Administrative Reforms Commission (ARC)** advocated for the repeal of AFSPA.
- b. However, this recommendation was considered but ultimately rejected.

#### 3. Santosh Hegde Commission Recommendations:

- a. The AFSPA should undergo review every six months to evaluate its necessity.
- b. This aims for a more humane implementation and increased accountability of security forces.
- c. The committee proposed amending the Unlawful Activities (Prevention) Act to address terrorism instead of solely relying on AFSPA.
- d. Additionally, it recommended that armed forces should not be exempt from investigation for any excesses committed during their duties, even in “disturbed areas”.





## D. ECONOMY

### 1. Redistribution of Wealth

A 9-judge Constitution Bench is hearing a reference to **Article 39 (b)** of the **Constitution’s Directive Principles of State Policy (DPSP)**, including whether privately-owned resources could be considered as **‘material resources of the community’**.

#### Constitutional Provisions about Property Rights

1. When the Constitution was enacted in 1950, it provided the **Right to Property** under **Article 19 (f)**.
2. **Article 31** of the Constitution states that if a state is going to acquire property, the person shall be adequately compensated.

#### Implementation of DPSP

1. **Article 38** directs the state to **minimize inequality** and **Article 39** for the **equitable distribution of wealth and property**.
2. To implement the above two Articles (DPSP), the government of India implemented the **1<sup>st</sup> Constitutional Amendment Act in 1951**. This inserted **Articles 31A and 31B**.
  - a. **Article 31A**: any law that is made for **the acquisition of property shall not be void** on

the ground that it violated fundamental rights including the right to property.

- b. **Article 31B**: if any such law is placed under the **9<sup>th</sup> Schedule** it is completely immune from the judicial review on the ground that it is violating the fundamental right.
  - i. This **blanket was removed** by the Supreme Court in the **IR Coelho Case 2007**.
  - ii. The Acts which are kept in the **9<sup>th</sup> Schedule after 1973** will be under **judicial review**.
- c. The **25<sup>th</sup> Constitutional Amendment Act of 1971** inserted the **Article 31C**.
  - i. The act provided that the Fundamental Rights (Articles 14 & 19) are **subordinate to the DPSP [39(b) & (c)]**. If the government is making any such law to implement the DPSP, it cannot be considered void on the ground that it violates Fundamental Rights.
  - ii. This provision of Article 31C was reviewed by the Supreme Court in the **Kesavananda Bharati Case 1973**. The SC upheld the validity of the Article 31C. But it has been put **under judicial review**.

#### Exceptions to fundamental rights

Considering the inadequate resources with the government and to provide greater flexibility in acquiring land for public welfare, various amendments were carried out curtailing the right to property. Notable among them are exceptions under Articles 31A, 31B and 31C.

Article	Amendment & year	Brief Explanation
31A	1 <sup>st</sup> amendment, 1951	1. Provide that laws made for acquisition of estates etc. shall not be void on the ground that it violated fundamental rights including right to property.
31B	1 <sup>st</sup> amendment, 1951	2. Made laws placed under the Ninth Schedule immune from judicial review on the grounds of violating any fundamental right. In Coelho case (2007), the SC held that laws placed in Ninth Schedule after April 1973 would be subject to judicial review.
31C	25 <sup>th</sup> amendment, 1971	3. Provided primacy to the DPSP under Articles 39(b) and (c). 4. Laws made to fulfil these principles shall not be void on the ground that it violated fundamental rights including right to property



3. The government then enacted the **44<sup>th</sup> Constitutional Amendment Act of 1978**.
  - a. This Act made the **Right to Property** as a '**Legal & Constitutional Right**' (not **Fundamental Right**) under **Article 300A**.
  - b. This Act also abolished Article 19 (1) (f) and Article 31.
  - c. This Article states that no person can be deprived of their property except by the authority of law. This means that a person can only be deprived of their property through an Act passed by the Parliament or State Legislature, and not by executive order.
4. Further in the **Minerva Mills Case of 1980**, the SC held that Constitution exists on the harmonious balance between Fundamental Rights and DPSP.
  - a. The government can bring the Acts to **implement the DPSP** but at the same time, it shall **not conflict with the Fundamental Rights**.
2. To enhance **financial inclusion** the nationalisation of bank and insurance sectors. So that even the marginalised sections of society can avail of loans and advances.
3. To overcome **income inequality**, a high rate of direct taxes has been introduced as an **inheritance tax on wealth**.
  - a. Inheritance tax on wealth means: if a father has bought 1 acre land five years back. Now the National Highway is being constructed on nearby land which increased the price of that land. Father has given this land under his will to his son, this wealth which originally belonged to his father was inherited by his son. Hence, the son needs to pay taxes to the government.
4. To prevent the privatisation of the larger sector there existed the **Monopolies & Restrictive Trade Practices (MRTP) Act 1969**. The Act ensures that one company does not excessively grow and monopolise the market.

### Can the government acquire property?

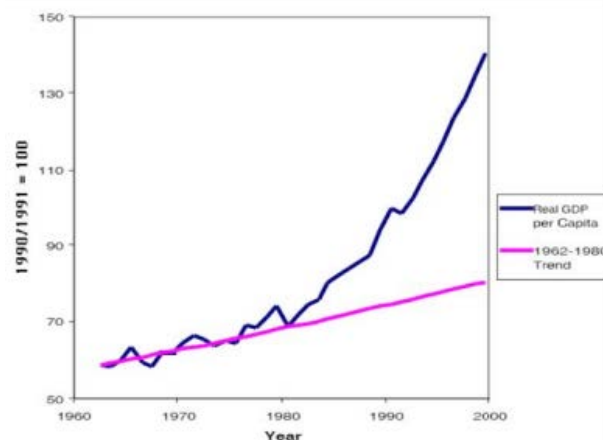
1. Yes, the government can acquire property but under **three conditions**:
  - a. Such acquiring of the property shall be for any **public purpose**.
  - b. The government shall provide you with the **compensation** on the land rate of time.
  - c. One can go to the court to challenge such enactment of the Act under the **judicial review** power of the SC provided under Articles 13 and 32 of the Constitution.

### Following the socialist principle, the government followed the Socialist Model of Governance (1951-1991)

1. **Redistribution of Property** (Land Reforms)
  - a. Zamindari Abolition Act of 1951
  - b. Tenancy Act: land is provided to farmers and cultivators who do not have land.
  - c. Land Ceiling Act 1961: it identified the family as a unit of 5 members.
    - i. A family can own 10-27 acres of irrigated land
    - ii. 35-54 acre of any dry land

### Is the socialist approach feasible in the long run?

1. High **intervention by the government** restricted the growth of an economy. This was observed after the economic reforms of 1991 when the GDP was boosted in India.



2. **High taxes** led to **tax evasion** which further increased the issue of black money in the economy.
3. There was a high **administrative cost** (more than revenue) to collect and maintain the high Estate Duty and Wealth Tax.





### 1991 Onwards

1. The government moved towards a **mixed economy** (socialist & capitalist) after 1991 and adopted the LPG Reforms of 1991.
2. Under the **New Industrial Policy of 1991**, the MRTP Act was abolished and replaced with the Competition Act of 2002.
  - a. Huge **reduction in Direct Taxes** (corporate tax has been reduced from 70% to 25%, no tax on buybacks and no enhanced surcharge).
  - b. **Estate Duty and Wealth Tax were abolished** in 1985 and 2016 respectively.

### Why the issue of redistribution of wealth has arisen again in 2024?

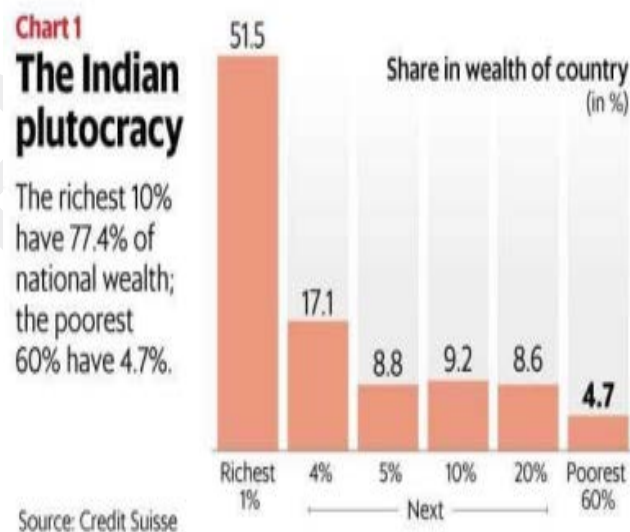
1. As per the **World Inequality Report 2022**, there has been a rampant rise in inequality in India.
2. The **top 1% of the highest income group** in India contributes 6% of national income in 1982-83. It has been increased to 22% in 2013-14.
3. The **top 10%** share in national income has been increased from 30% in 1983-83 to 55% in 2013-14.
4. The **bottom 50%** share of national income has declined from **24%** in 1982-83 to **15%** in 2013-14.
5. As highlighted in the report, **India's ultra-rich count** grows but so does the **inequality gap** in India.
6. The report uses the **Gini coefficient** – the measure of inequality, which signifies that India with 82.3% has higher levels of inequality.
7. The number of **millionaires** in India is growing significantly at the same time the number of multidimensional **poor** has also increased in India.
  - a. 1.3% of the world's millionaires are Indian and 23 crores of multidimensional poor in India (as per MPI).
8. India is moving towards **plutocracy** (wealthocracy or moneyed rule) where the richest 10% have 77.4% of national wealth and the poorest 60% have 4.7% of the wealth.

## India: Worsening of Income Distribution

Income group	% of national income	
	1982-83	2013-14
<b>Top 10%, of which,</b>	<b>30*</b>	<b>55*</b>
<b>Top 1%, of which,</b>	<b>6</b>	<b>22</b>
<b>Top 0.1%</b>	–	<b>9</b>
<b>Top 0.01%</b>	–	<b>4</b>
<b>Top 0.001%</b>	–	<b>2</b>
<b>Middle 40%</b>	<b>46</b>	<b>30</b>
<b>Bottom 50%</b>	<b>24</b>	<b>15</b>

\*Calculated as a residual

Source: Forbes/Chancel & Piketty



The above data has raised the debate revolving around that there is a **need for redistribution of wealth** in India. At the same, the SC is examining the provisions of Article 39B, whether the private properties that are held by individuals can fall under the category of **community resource** as well. Earlier India experienced that government intervention could negatively affect growth numbers. Hence, we need a balanced approach to ensure the principle of economic justice which has been enshrined in the Preamble of the Indian Constitution.



## 2. MPC Keeps Repo Rate Unchanged

1. In April 2024, the **Monetary Policy Committee (MPC)** of the Reserve Bank of India (RBI) decided to maintain the **same interest rates**. The repo rate remains at **6.5%**.
  - a. The committee also decided to concentrate on the **withdrawal of accommodation**.
    - An accommodative monetary policy means the central bank is ready to increase the money supply to stimulate (increase) economic growth.
    - The withdrawal of accommodative policy involves reducing the money supply in the system to control inflation.

### What is Monetary Policy?

1. **Monetary policy** refers to the policy of the central bank with regard to the use of monetary instruments under its control to achieve the goals specified in the Act.
2. **Aim:** To maintain price stability while keeping in mind the objective of growth.

## Outcomes of the MPC Meeting

1. **GDP Growth Forecast:**
  - a. The RBI has maintained the **GDP growth forecast** at 7% for **FY25**, differing from the 7.6% growth forecasted by the National Statistical Office (NSO).
  - b. Growth projections include 7.1% for Q1, 6.9% for Q2, and 7% each for Q3 and Q4 of FY25.
2. **Policy Rates:** The MPC decided to keep the policy repo rate unchanged at 6.50% under the **liquidity adjustment facility (LAF)** and the **standing deposit facility (SDF)** at 6.25%.
  - a. A **LAF** is a monetary policy tool used in India by the RBI through which it injects or absorbs liquidity into or from the banking system.
  - b. **SDF** is a monetary policy tool used by the Reserve Bank of India (RBI) to absorb excess liquidity from the banking system.
3. **Inflation Target:** The MPC remain committed to align inflation with the 4% target within a band of +/- 2% while also supporting growth objectives.

## Reasons for Holding Interest Rates Unchanged

1. **Food Inflation:**
  - a. High food inflation keeps headline inflation high even though the overall inflation in India was easing.
  - b. Uncertainties in food prices continue to pose challenges due to global factors and El Nino's impact.
  - c. Expectations of normal monsoon and rabi harvests may ease food prices, but inflation in food and beverages remains high, especially in vegetables, pulses, and spices.
2. **Festival Season:** Festive season increases demand and consumption thus boosting market liquidity.
  - a. High levels of liquidity arise when there is a significant level of trading activity and when there is both high supply and demand for an asset, as it is easier to find a buyer or seller. It happens during festival seasons.
3. **Crude Oil Prices and Input Costs:** Although crude oil prices have decreased, global uncertainties from regional conflicts and supply chain disruptions cloud the outlook.
4. **Resilient Economic Activity:** Despite challenges, the Indian economy has shown resilience. This has led to the decision to maintain benchmark rates, indicating confidence in economy's ability to handle potential shocks.
5. **Previous Policy Repo Rate Hikes:** Previous repo rate hikes are still influencing the economy which is one of the reasons to maintain rates.
6. **Inflation Risk Management:** Keeping rates unchanged serves as a precautionary measure to monitor and swiftly address any potential increase in inflationary pressures.



### What is Inflation Targeting?

- Inflation targeting** is a **monetary policy approach** where a central bank sets a clear goal for inflation and adjusts its tools, like interest rates, to reach that goal.
- The Reserve Bank of India (RBI) aims for an inflation rate of **4%**, with a margin of **+/- 2%**. This means RBI wants to keep inflation around 4%, but it allows it to be between 2% and 6%.

Advantages	Disadvantages
1. Inflation targeting makes the central bank's goals and decisions clear, which improves understanding and trust in monetary policy.	1. It may not be effective in dealing with structural constraints in the economy like shortages in infrastructure, which can cause inflation to rise.
2. Following inflation targeting can build trust in the central bank which leads to more predictable economic outcomes.	2. Inflation targeting might lead to unstable exchange rates in countries with open economies, as interest rate changes can affect how money moves in and out.
3. It gives the central bank room to adjust its strategies based on changing economic conditions, which helps in managing inflation effectively.	3. Successful inflation targeting relies on having accurate and timely data, which may not always be easy to get in every country, including India.
4. By setting targets for the medium term, inflation targeting encourages thinking about the economy's health in the long run, supporting sustainable growth.	4. Changes in interest rates under inflation targeting can affect things like jobs and incomes, which can have wide-reaching effects, especially on vulnerable groups.

### About Monetary Policy Committee (MPC)

- The **Finance Act of 2016** amended the **Reserve Bank of India Act, 1934 (RBI Act)** to establish a **statutory framework** for the MPC.
- As per the amended RBI Act, the central government can form a **six-member MPC** under **Section 45ZB**.
- Function:** The MPC's main task is to **set the benchmark policy rate (repo rate) to control inflation** within a specific target level.
- Composition:**
  - The MPC consists of six members:** the RBI Governor (Chairperson), the RBI Deputy Governor in charge of monetary policy, one official appointed by the RBI Board, and three members representing the Government of India.
  - External members serve a four-year term.
  - A meeting requires a quorum of four members, including either the Governor or the Deputy Governor, who is a member of the MPC.
  - Decisions are made by majority vote; in case of a tie, the **RBI governor** has the **casting vote**.
  - The MPC's decisions are **binding** on the RBI.

### 3. Reform by RBI for Financial Inclusion and Digital Innovation

In April 2024, The Reserve Bank of India (RBI) governor, during a press conference on monetary policy decisions announced multiple changes.

- These changes are aimed to promote **increased economic inclusivity** and improve the **use of information technology for economic activities**.

### Developments Proposed by RBI

- Cash Deposit Facility by Unified Payment Interface (UPI):**
  - Customers will have the option to deposit cash at **cash deposit machines (CDMs)** in banks and ATMs using the **UPI app**.
    - Presently, cash deposits at CDMs usually required a **debit card** at banks or ATMs.



b. UPI combines multiple bank accounts into a single mobile application, offering various banking features, **seamless fund routing**, and **merchant payments**.

- UPI is currently the largest system operated by the **National Payments Corporation of India (NPCI)**.
- It includes systems like **National Automated Clearing House (NACH)**, **Immediate Payment Service (IMPS)**, **Aadhaar enabled Payment System (AePS)**, **Bharat Bill Payment System (BBPS)**, and **RuPay**.

#### Prepaid Payment Instruments (PPIs)

1. PPI is a digital payment solution that allows users to store money electronically.
2. PPIs can be used for a variety of transactions, including online shopping, bill payments, money transfers, and making purchases without a physical bank account.

#### 2. Allowing Third Party App to access UPI for Prepaid Payment Instruments (PPIs):

- a. Presently, UPI payments from PPIs require using the web or mobile app provided by the PPI issuer.
- b. **RBI** has suggested allowing users to use **third-party UPI apps** to make **UPI payments** from PPI wallets.
  - **PPIs** are instruments that enable the purchase of goods and services, financial services, and remittance facilities using the money stored in them.
  - PPIs can be loaded or reloaded with cash, debited from a bank account, or through credit and debit cards.

#### 3. Permit Foreign Portfolio Investors (FPIs) to Invest in Sovereign Green Bond:

- a. To increase the participation of non-residents in **Sovereign Green Bonds**, the **RBI** has authorized eligible foreign investors in the **International Financial Services Centre (IFSC)** to invest in these bonds.
  - An **IFSC** serves **customers** who are located **outside** the jurisdiction of their domestic economy.

- These centers handle the movement of **finance**, **financial products**, and **services** across **international borders**.

b. At present, **FPIs** registered with **SEBI** can invest in **Sovereign Green Bonds** through various investment routes available for FPIs in government securities.

- **Sovereign Green Bonds** are issued by companies, countries, and multilateral organizations to exclusively finance projects with climate benefits.
- These bonds offer investors fixed-income payments (fixed interest or dividend payments until their maturity date).
- These projects can include **renewable energy**, **clean transportation**, **green buildings** and others aimed at environmental improvement.

#### 4. Mobile App for Retail Direct Scheme:

- a. The **RBI** has decided to launch a **mobile app** for its **Retail Direct scheme**, introduced in November 2021.
- b. This scheme enables individual investors to maintain **gilt accounts** with the **RBI** and invest in government securities.
  - A **Gilt Account** is an account opened and maintained specifically for holding **Government securities**.
  - A government security is a bond that is issued by a government with a promise of repayment upon the security's maturity date.

1. The **Statutory Liquidity Ratio (SLR)** is the minimum percentage of deposits that a commercial bank must keep in the form of cash, gold, or other securities before offering credit to customers.

2. The **Marginal Standing facility (MSF)** allows banks to borrow money with an interest rate above the repo rate and can be termed as the Marginal standing facility rate.

#### 5. Review of Liquidity Coverage Ratio (LCR):

- a. The **RBI** is set to review the **LCR framework** to better manage liquidity risk among banks.





- b. The **LCR** measures the proportion of **high-quality liquid assets (HQLA)** that financial institutions must hold.
- c. Banks covered under the **LCR framework** must maintain a stock of **HQLA** to cover 30 days' net outflow under stressed conditions, with a minimum **LCR** of **100%** since January 1, 2019.
- d. **HQLAs include:**
  - Cash, short-term bonds and cash equivalents
  - excess Statutory Liquidity Ratio (SLR)
  - Marginal Standing Facility (MSF) assets, and
  - Facility to Avail Liquidity for Liquidity Coverage Ratio (FALLCR), set at 15% of the bank's deposits since April 1, 2020.

## 4. PayU Gets Approval as Payment Aggregator

Fintech firm PayU recently announced that it has received in-principle approval from the Reserve Bank of India (RBI) to operate as a payment aggregator (PA) under the Payment and Settlement Systems (PSS) Act, 2007.

- a. In-principle approval from **RBI** allows **PayU** to onboard new merchants, yet final approval usually takes 6 months to a year.

### 1. About Payment Aggregators:

- a. PAs serve as **intermediaries between businesses and financial institutions**, handling payment processing on behalf of merchants.
- b. They **simplify the process of accepting electronic payments and streamline the payment acceptance process**, eliminating the need for businesses to establish **direct relationships with financial entities**.
- c. PAs enable **businesses to accept various payment methods, including credit cards, debit cards, e-wallets, and bank transfers, through a single platform**.
- d. Examples of PAs include **Google Pay, Amazon Pay, Phone pe, and PayPal**.

### 2. Capital Requirements for PAs:

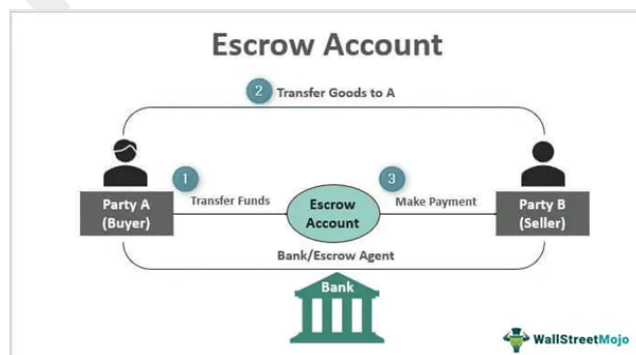
- a. **New PAs must meet specific capital requirements set by the Reserve Bank of India (RBI).**
- b. At the time of application, **PAs must have a minimum net worth of Rs. 15 crore**, which must reach Rs. 25 crore by the end of the third financial year following authorization.

### 3. Authorisation Process for PAs:

- a. Banks providing PA services as part of their banking relationships **do not require separate authorization**.
- b. However, **non-bank PAs must obtain authorization from the RBI under the Payment and Settlement Systems Act, 2007 (PSS)**.

### 4. Settlement and Escrow Account Management:

- a. **Non-bank PAs are required to maintain funds collected in an escrow account** with a scheduled commercial bank.
- b. **PAs must adhere to specific timelines for settling funds with merchants based on the transaction lifecycle and agreed-upon terms.**



### Note:

1. Unlike PAs, **Payment Gateways (PGs)** offer technological infrastructure to facilitate and route the processing of online payment transactions **without managing the funds**.
2. On the other hand, **Payment Aggregators allow merchants to provide multiple payment options** on their platforms, including the features of a payment gateway.



Basis of Distinction	Payment Gateway	Payment Aggregator
<b>Role</b>	A network bridging the gap between the merchant and the bank.	A solution streamlining end-to-end payment processes.
<b>Payment Options</b>	Primarily debit/credit card payments.	Offers multiple options: UPI, debit/credit cards, net banking, etc.
<b>Integration</b>	Merchants integrate each payment method or bank separately.	Integration requires partnering with just one service provider.
<b>Services Provided</b>	Transaction processing services.	Provides transaction processing along with additional services like access to reports, customer support, etc.
<b>Funds Handling</b>	Does not store funds; securely transmits encrypted payment data.	Handles funds through its Merchant Identification Number (MID). Transactions processed through the aggregator's system.
<b>Examples</b>	Axis Bank, HDFC Bank, MPGS (Mastercard Payment Gateways).	PhonePe PG, Stripe, Cashfree.

### Payment and Settlement Systems (PSS) Act, 2007

1. The **Payment and Settlement Systems (PSS) Act, 2007, governs the supervision and regulation of payment systems in India.** The Reserve Bank of India (RBI) is designated as the authority responsible for this and related matters.
2. The Act empowers the **RBI to form a committee within its Central Board called the Board for Regulation and Supervision of Payment and Settlement Systems (BPSS).** This committee exercises the powers, performs the functions, and discharges the duties of the RBI under the statute.
3. **As per Section 4 of the PSS Act, 2007, only the RBI can authorize the operation of a payment system.** Entities wishing to operate a payment system must apply for authorization **under Section 5 of the PSS Act, 2007.**
4. **The PSS Act 2007 does not prohibit foreign entities from operating a payment system in India.** The Act ensures equal treatment and does not discriminate or differentiate between foreign and domestic entities.
5. Operating a payment system without authorization, failing to comply with RBI directives, or violating any **provisions of the PSS Act, 2007 can lead to criminal prosecution initiated by the RBI.**

### 5. Banks can't seek LOCs to stop debtors from going abroad

1. A recent judgment of the Bombay High Court has said that **public sector banks cannot request or recommend issuance of Look Out Circular (LOC) against loan defaulters.**
2. This is a **Violation of Articles 14 and 21 of the Constitution.**

#### What are Look Out Circulars (LOCs)?:

1. LOCs are legal instruments issued by the **government directing immigration authorities to restrict the physical movement of individuals.**
2. The **Immigration Department is responsible for preventing individuals from leaving or entering the country.**
3. Law enforcement agencies use LOCs to **prevent wanted or suspected individuals from leaving or entering the country through designated ports.**
4. LOCs are typically issued by the **police, intelligence agencies, or authorized government bodies by the Ministry of Home Affairs (MHA).**
5. LOCs **lack clear statutory backing, but their issuance and regulation comes from the executive through an office memorandum issued by the MHA in 2021.**



### Guidelines for Issuing LOCs:

1. LOCs can **only be opened in criminal or penal cases**, with the reason for the LOC clearly indicated.
2. If **no criminal or penal case is pending, an LOC cannot be issued**, and agencies can only request to be informed of departure or arrival.
3. **In exceptional cases**, an LOC may be issued even when the case is not a criminal one, such as when it **negatively affects India’s sovereignty, security, integrity, bilateral relations, or strategic and economic interests**.
4. LOCs are also permitted when individuals are likely to **engage in terrorism, offenses against the state, or when departure would not be in the public interest**.
5. LOCs **cannot be issued unless basic details like name, parentage, passport number, and date of birth are available**.
6. The originators are responsible for continuously reviewing the LOC requests and providing additional parameters **to minimize the harassment of genuine passengers**.

7. Issued LOCs must be **reviewed quarterly and annually by requesting agencies**, with the results reported to the MHA.
8. The MHA has transferred the legal consequences of issuing an LOC to the originating agency, though OMs are issued by the Bureau of Immigration.
9. The power to issue such OMs and LOCs is **derived from The Passports Act, 1967, the key legislation for granting passports, travel documents, and endorsements**.

### What is Immigration?

1. Immigration refers to the **process of moving to a new country or region with the intention of residing there**.
2. People may immigrate for various reasons, including **employment opportunities, escaping violence or environmental factors, educational purposes, or family reunification**.

Immigration	Emigration
<ol style="list-style-type: none"> <li>1. Refers to the act of <b>coming into a new country</b> to live there permanently.</li> <li>2. People who immigrate are called immigrants.</li> <li>3. They go through the process of <b>obtaining residency or citizenship in the new country</b>.</li> </ol>	<ol style="list-style-type: none"> <li>1. Refers to the act of <b>leaving one’s own country</b> to live in another.</li> <li>2. People who emigrate are called emigrants.</li> <li>3. They are leaving their home country, often with the intention of making the <b>new country their permanent home</b>.</li> </ol>

**Here’s an easy way to remember the difference:**

1. **Think of “I” in immigrate as “In”** - moving into a new country.
2. **Think of “E” in emigrate as “Exit”** - leaving your own country.

## 6. CDP-SURAKSHA Platform

In April, 2024 the Government of India has launched a digital platform called **CDP-Suraksha** to provide **subsidies to horticulture farmers** under the **Cluster Development Program (CDP)**.

### CDP-SURAKSHA Platform:

1. **Acronym:** System for **Unified Resource Allocation, Knowledge, and Secure Horticulture Assistance (SURAKSHA)**.

2. **Purpose:** Instant disbursal of subsidies to farmers’ bank accounts **through e-RUPI vouchers from the National Payments Corporation of India (NPCI)**.
3. **Features:**
  - a. Database integration with PM-KISAN.
  - b. Cloud-based server space from NIC.
  - c. UIDAI validation.
  - d. eRUPI integration.
  - e. Local Government Directory (LGD).
  - f. Content management system.
  - g. Geotagging and geo-fencing.



#### 4. Working:

- a. **Access for farmers**, vendors, implementing agencies (IA), cluster development agencies (CDA), and officials of the National Horticulture Board (NHB).
- b. **Farmers can log in, place orders for planting material**, and contribute their share of the cost.
- c. **The system automatically calculates the subsidy amount.**
- d. **e-RUPI vouchers are generated and sent to vendors** who provide the planting material to farmers.
- e. Farmers verify delivery through **geo-tagged photos and videos.**
- f. The IA releases money to the vendor after verification.
- g. **The vendor uploads an invoice of the payment.**
- h. The IA collects documents and shares them with the CDA for subsidy release.

#### How is the new system different from the old one?

1. In the old system, a farmer had to buy planting materials on their own. They would then have to approach the officials concerned for the release of the subsidy.
2. The CDP-SURAKSHA platform, however, will provide subsidies to farmers upfront, at the time of purchasing the planting material. Vendors, who will supply planting materials to farmers, will receive their payment only after farmers verify the delivery of their orders.

#### What is e-RUPI voucher?

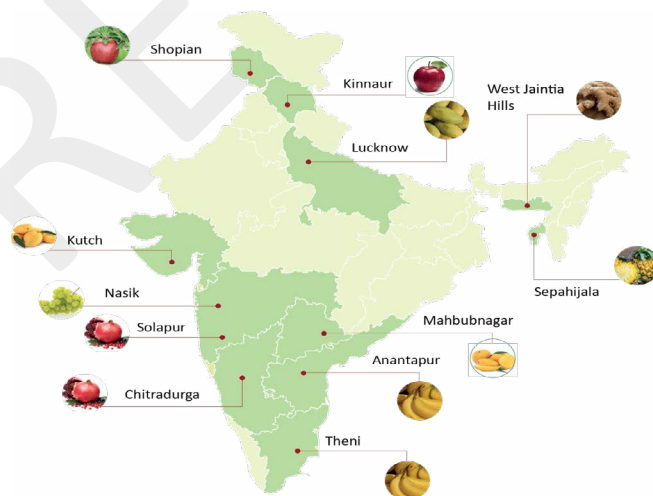
1. The CDP-SURAKSHA platform uses e-RUPI vouchers from the NPCI. The voucher is a one-time payment mechanism that can be redeemed without a card, digital payments app or internet banking access, at the merchants accepting e-RUPI.
2. According to the NPCI, the e-RUPI can be shared with the beneficiaries for a specific purpose or activity by organisations or government via SMS or QR code.

#### Cluster Development Program (CDP)

1. The Ministry of Agriculture and Farmers Welfare (MoA&FW), Government of India, has launched a

new programme for Horticulture Cluster Development to enhance the global competitiveness of the Indian horticulture sector.

2. The **National Horticulture Board** has been designated as the Nodal Agency for implementation of Cluster Development Programme as a component of Central Sector Scheme of NHB.
3. The Cluster Development Programme (CDP) is designed to leverage the geographical specialisation of horticulture clusters and promote integrated and market-led development of preproduction, production, post-harvest, logistics, branding, and marketing activities.
4. MoA&FW has identified 55 horticulture clusters, of which 12 have been selected for the pilot launch of the Programme.
5. Based on the learnings from the pilot project, the programme has been scaled up to cover all 55 clusters.



#### Conclusion

CDP-SURAKSHA and e-RUPI aim to streamline and simplify the process of subsidy disbursement to horticulture farmers, ensuring timely and efficient delivery of financial assistance.

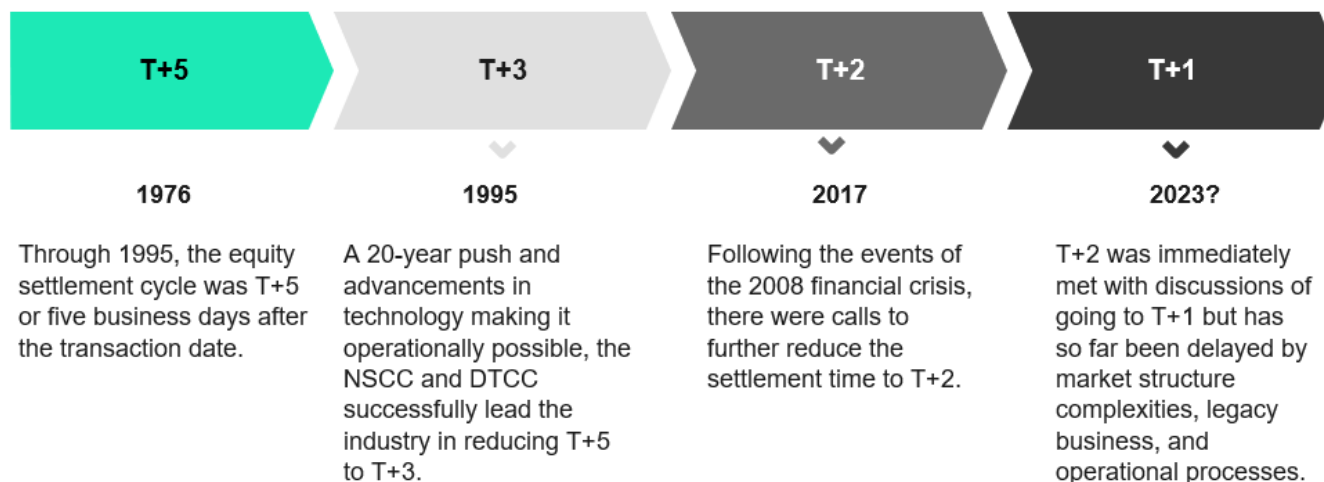
#### 7. What is the T+0 Trading Settlement Cycle?

India will be only the **second country after China** to be operating on a **short settlement cycle**. Currently, trade settlement in most other major economies is **completed within two days**.





## T+5 to T+1: Transaction Settlement in History



## T+0 Trading Settlement Cycle

1. **Bombay Stock Exchange (BSE)** and **National Stock Exchange (NSE)** have recently **introduced T+0 trading settlement cycle** in the equity segment on an optional basis.
2. This new settlement cycle **differs from the existing T+1 settlement cycle** by allowing same-day settlement of trades.

## What is the T+0 Trading Settlement Cycle ?

1. Under the T+0 trading settlement cycle, also known as **same-day settlement**, clearing and settlement of funds and securities takes place on the same day as the trade.
2. This process enables investors to receive funds **credited** to their accounts **on the same day of transaction** and buyers to receive shares in their demat accounts.

## Benefits of the T+0 Trade Settlement

The T+0 trade cycle offers several advantages to investors and the securities market ecosystem:

1. **Cost and time efficiency:** The shortened settlement cycle reduces the time and costs associated with settling trades.
2. **Transparency in charges:** Investors have better visibility of the charges associated with their trades.
3. **Stronger risk management:** The T+0 cycle enhances risk management at clearing corporations and the overall securities market ecosystem.

4. **Flexibility for investors:** Investors experience faster pay-out of funds for sellers and faster pay-out of securities for buyers, providing better control over their investments.
5. **Enhanced market efficiency:** Shorter settlement cycles free up capital in the securities market, thereby improving overall market efficiency.

## Eligible Securities for Trading in the T+0 Settlement Cycle

1. Stock exchanges have designated **25 stocks that are allowed to trade on the T+0 settlement cycle.**
2. These include major companies like **Ambuja Cements Limited, Bajaj Auto Limited, Bank of Baroda, Cipla Limited, Divi's Laboratories, Hindalco Industries, JSW Steel Limited, LIC Housing Finance, Nestle India and Vedanta Limited.**

## Eligibility for Participation in the T+0 Settlement Cycle :

All investors can participate in the T+0 trade settlement cycle if they meet the **timelines, process, and risk requirements** prescribed by the **Market Infrastructure Institutions (MIIs).**

### Market Infrastructure Institutions :

1. **(MIIs)** are financial institutions that provide the infrastructure for the daily operations of the stock market.
2. These include stock exchanges, clearing corporations and depositories.
3. MIIs are also known as **first-line regulators** as they are involved in almost all transactions taking place in the securities market.



### What's the T+1 settlement plan?

1. The **T+1 settlement cycle** means that **trade-related settlements** must be done within a day, or 24 hours, of the completion of a transaction.
2. **For example, under T+1**, if a customer bought shares on Wednesday, they would be credited to the customer's demat account on Thursday.
3. This is **different from T+2**, where they will be settled on Friday.
4. As many as **256 large-cap and top mid-cap stocks**, including Nifty and Sensex stocks, will come under the T+1 settlement from Friday.

### What was the earlier settlement system?

1. Until **2001**, stock markets had a **weekly settlement system**.
2. The markets then moved to a **rolling settlement system of T+3**, and then to T+2 in 2003.
3. In **2020**, Sebi deferred the plan to halve the trade settlement cycle to one day (T+1) following opposition from foreign investors.

### Trade Timings and Price Band

For the optional T+0 settlement cycle, there will be a continuous trading session from **09:15 AM to 1:30 PM**. The settlement of funds and securities will be completed on the same day by **4:30 PM**.

### Future Plans

The Securities and Exchange Board of India (SEBI) has plans to introduce optional instant settlement at a later stage, further shortening the settlement cycle and improving market efficiency.

#### The Securities and Exchange Board of India:

1. **(SEBI)** is a **statutory body** that regulates the securities market and protects investor interests.
2. It was established by the **Government of India in 1992** and has its headquarters in **Mumbai**.
3. SEBI's regulatory authority extends to various segments of the **financial market, including stock exchanges, mutual funds, portfolio managers, investment advisers, and other intermediaries**.
4. **SEBI's functions include:** Protecting investor interests, Promoting the development of the securities market, Regulating the securities market, Conducting investigations and enforcement action, and Passing rulings and orders.

## 8. Balanced Fertilisation

The FY 2023-24 saw a **16.9% increase in urea consumption** from 30.6 million tonnes in 2013-14 to 35.8 million tonnes in 2023-24.

### Dominant Fertilisers in India

Nutrient	Main Source
Nitrogen (N)	Urea
Phosphorus (P)	DAP
Potassium (K)	MOP

1. **Urea** – a rich source of nitrogen (N)
2. **di-ammonium phosphate (DAP)** – a major source of phosphorous (P) and
3. **muriate of potash (MOP)** – a rich source of potassium (K).
4. **NPK are the primary nutrients** that are required for the fertility of the crops.
5. The ideal ratio for the use of NPK is **4:2:1** respectively.

### Current Scenario in India

1. Among all the synthetic fertilisers, **Urea** is the most **produced** (85%) and most **consumed** (74%).
2. **High demand** for Urea because of its versatility. It can be applied for various types of **plant diseases and crops** across multiple kinds of terrains and soils.
  - a. **65%** of total Urea is being used by **industrial plants** and not by small and marginal farmers.
3. Urea is easy to **store and transport**.
4. It is made more **affordable** by the **subsidies** provided by the government. It is Rs. 5,625 per tonne; in the case of DAP, it is about Rs. 17000 per tonne; in the case of MOP, it is Rs. 34,000 per tonne.
  - a. There is a **high demand** for Urea among the small and marginal farmers. Therefore, the **ratio of 4:2:1 has been changed to 12:5:1**.
  - b. The market highly produces it because the government highly incentivises traders. This product attracts the highest amount of subsidy.

### Why do we need to balance fertilisation?

1. The excess of fertilisers will **degrade the quality of the soil**. The below graph shows that the crop yields and their response to fertilisers have degraded over time.



2. This may increase the **financial losses for the farmers** as they may not be able to cover the cost i.e., input and output costs.
3. Excessive amounts of **Nitrogen in the soil** make it **acidic** and making it **infertile** for the crops.
4. Increase in **environmental pollution**; leaching in water bodies, eutrophication, algal blooms, degrade the biodiversity, and make the water unfit for use.
5. Once entering the **food chain** (vegetables were sprayed by these fertilisers) can lead to **bioaccumulation** inside the body and can cause carcinogenic symptoms. Hence, increases the health risks.
6. It has created a **vicious cycle**; Indian farmers are dependent on fertilisers and the demand for Urea is increasing year by year.
  - a. India is the largest producer as well as the **largest importer of Urea**.
  - b. The reason for high demand is the **degrading fertility of the soil** and making India **import dependent** which is increasing the fiscal deficit in India.
4. India needs **advanced fertilisers** which should be sustainable, organic, and highly efficient. For example: Nano Urea and Sulphur coated Urea.
5. Reform in **Nutrient Based Subsidy scheme**:
  - a. Highly distorted ratio of NPK i.e., 12:5:1 – the government incentivise the use of phosphorous and potassium by promoting the subsidy on DAP and MOP. But not Urea based on subsidies.
  - b. There should be subsidies for both the secondary and micronutrient fertilisers.

## 9. Global Unicorn Index 2024

In April, 2024 the ‘Global Unicorn Index 2024’ released by research group Hurun.

### Key-findings of the report

1. In 2023, India had 67 unicorn startups (68 in 2022) and placed 3<sup>rd</sup> globally. E.g., Delhivery, Nykaa etc.
    - a. USA led with 703 unicorns, followed by China with 340.
    - b. The US has 50% of the world’s known unicorns followed by China (25%) and Rest of the World (25%).
  2. Founders from India produced more offshore unicorns than any other country, co-founding 109 unicorns outside of India compared with 67 in India.
  3. A unicorn startup is a privately held company, without any listing on public exchanges, valued at \$1 billion or more and supported with venture capital.
    - a. **Gazelles**: Start-ups most likely to ‘go unicorn’ within 3 years.
    - b. **Cheetahs**: Start-ups most likely to ‘go unicorn’ within 5 years.
1. Balanced fertilisation can be achieved by using **complex fertilisers**; containing not only the primary fertilisers (NPK) but also
    - a. **secondary fertilisers** (sulphur-S, calcium, magnesium) and
    - b. **micronutrients** (iron, zinc, copper, manganese, boron, molybdenum) in the right proportion.
  2. This can be achieved by improving the **Nitrogen Use Efficiency** (NUE). A lot of nitrogen gets leached into the environment because they are not appropriately absorbed by the plants; nitrogen is either evaporated or dissolved in the water.
    - a. The government mandated the use of **neem-coated Urea** in 2015. Once coated with neem, it slows down the absorption rate and hence increases the efficiency.
  3. Regular promotion of **soil testing** will help develop the profile of the soil. This will help to understand the requirements of soil and will not unnecessarily flood the soil with fertilisers.
1. **Sustainability of the models**: High cash burn rates and heavy discounts to attract customers have eroded profitability and raised concerns about the long-term viability of these companies.
  2. **Overvalued startups**: Several Indian startups were too richly valued and could not justify their valuations.
    - a. Paytm’s stock has gone down by 80 per cent since its 2021 listing.

### Factors behind decline of Unicorn in India



3. **Slowdown in funding:** Funding to Indian startups declined significantly in 2023 compared to last year.

#### Measures to be taken

1. **Sustainable business models:** Unicorns will need to prioritize profitability over rapid expansion, invest in technology and innovation, and diversify their revenue streams.
2. **Fair Valuation:** There is a need for better regulation of valuation.
3. **Regulatory environment:** Simplification and rationalization of legal and compliance requirements can provide stability and confidence to the Unicorns in future.

## 10. RBI Guidelines for Asset Reconstruction Companies

The Reserve Bank of India (RBI) has issued a direction outlining updated guidelines for Asset Reconstruction Companies (ARCs), effective from 24th April 2024.

### New RBI Guidelines for Asset Reconstruction Companies (ARCs):

#### Increased Minimum Capital Requirement:

1. ARCs must now maintain a minimum capital of **Rs 300 crore**, significantly higher than the previous requirement of **Rs 100 crore**.
2. Existing ARCs have a transition period **till March 31, 2026**, to achieve the **new net owned fund (NOF) limit of Rs 300 crore**.
3. As part of this transition, **ARCs must ensure a minimum capital of Rs 200 crore by March 31, 2024**.
4. Non-compliance with any of these steps may result in supervisory action, including a ban on doing incremental business until the required minimum NOF is reached.

#### Eligibility as Resolution Applicants:

- ARCs with a minimum NOF of **Rs 1000 crore** are eligible to act as resolution applicants in the

asset resolution process under the **Insolvency and Bankruptcy Code, 2016 (IBC)**.

#### Investment Opportunities:

1. ARCs can deploy funds in **government securities and deposits with scheduled commercial banks, Small Industries Development Bank of India (SIDBI), National Bank for Agriculture and Rural Development (NABARD)**, and other entities specified by the central bank from time to time.
2. ARCs can also invest in **short-term instruments like money market mutual funds, certificates of deposit, and corporate bonds/commercial papers**.
3. However, **there is a cap of 10% of the NOF** on the maximum investment in such short-term instruments.

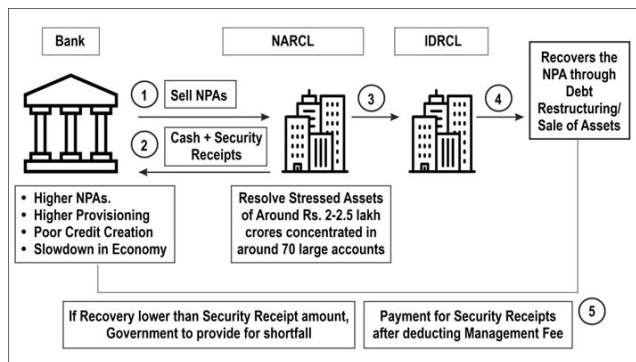
#### What are Asset Reconstruction Companies?

1. **About:**
  - a. ARCs, regulated by the Reserve Bank of India and incorporated under the Companies Act, 2013, are financial institutions that specialize in acquiring Non-Performing Assets (NPAs) or bad assets from banks and financial institutions.
  - b. By purchasing these NPAs, ARCs facilitate the cleansing of balance sheets of banks and financial institutions and contribute to the overall health of the financial system.
  - c. The legal framework for ARC operations is provided by the **Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest (SARFAESI) Act, 2002**.
2. **Examples:**
  - a. **National Asset Reconstruction Company Limited (NARCL)** is a company created by banks to gather and organize stressed assets for further resolution. It is mostly owned by **Public Sector Banks (PSBs)**, which hold a **51% stake**.
  - b. **India Debt Resolution Company Ltd. (IDRCL)** is another organization in charge of trying to sell the stressed assets on the market.





- **PSBs and Public Financial Institutes (FIs)** will hold a maximum of **49%** stake in **IDRCL**. Private-sector lenders will own the remaining **51%** stake.



**1. Function:**

- a. In accordance with the **SARFAESI Act of 2002**, **ARCs specialize in revitalizing and recovering stressed assets**. They **acquire non-performing or bad debts from lenders through cash** or a combination of cash and security receipts.

**2. Business Model:**

- a. **Acquisition of Stressed Loans:** Lenders can **free up their resources to focus on new loans** by selling stressed loans to asset recovery companies (ARCs) at a discount.
- b. **Security Receipts:** ARCs **issue security receipts to lenders**, which can be redeemed upon the recovery of a specific loan.
- c. **Management Fees and Earnings:** ARCs **charge a management fee of 1.5% to 2% of the asset value annually and earn from recoveries**, sharing the upside with the selling financial institutions.

**3. Challenges:**

- a. ARCs regularly handle chronic non-performing assets (NPAs), **creating valuation and recovery challenges due to long delays**.
- b. Consolidating loans from **multiple lenders to a single borrower often creates complexity**, requiring extensive coordination and agreement among stakeholders.

- c. ARCs face difficulties in **raising funds, limiting their ability to acquire distressed assets** or provide borrowers with the support they need for revival.
- d. Establishing the **fair value of distressed assets for acquisition and recovery can be difficult**, particularly in cases involving illiquid or complex structured assets.

**4. Recent Changes in ARC Regulations by RBI:**

- a. **Strengthened Corporate Governance:** To improve corporate governance in asset reconstruction companies (ARCs), the **Reserve Bank of India (RBI) mandated that at least half of the directors and the board chair must be independent directors**.
- b. **Transparency Enhancement:** ARCs must **disclose their track record of returns generated for security receipt investors**. Moreover, to enhance transparency for schemes launched in the last 8 years, they are required to engage with rating agencies.
- c. **Investment Requirements Modifications:** ARCs must invest in **security receipts (SRs) at a minimum of 15% of the transferors' investment in such receipts**, or 2.5% of the total receipts issued, whichever is higher. This requirement has been adjusted from the previous mandate of investing 15% of total security receipts in all cases.

**11. 30 Years of Marrakesh Agreement**

- 1. World Trade Organization (WTO) is celebrating 30 years of the Marrakesh Agreement.
- 2. Marrakesh Agreement was **signed in Marrakesh, Morocco, by 123 countries** in 1994 after the conclusion of the Uruguay Round.
  - It led to the establishment of the WTO in 1995, replacing General Agreement on Tariffs and Trade (GATT) as an international organization.



### About Marrakesh Agreement:

1. It serves as **basic framework for trade relations** among all WTO members.
2. It **expanded the scope beyond trade** in goods to trade in services, intellectual property, and other topics.
3. It established modern multilateral trading system, facilitating negotiations, dispute settlement, and economic cooperation among members.
4. It created WTO's governance, establishing the Ministerial Conference (highest decision-making body), General Council, and specialized councils.

### Achievements of WTO

1. **Lowering trade barriers:** Since 1995, real volume of world trade has expanded by 2.7 times and average tariffs have almost halved, from 10.5% to 6.4%.
2. **Rise of Global Value Chains:** Trade within these value chains today accounts for almost 70% of total merchandise trade.
3. **Growth in developing countries:** Fastest poverty reduction since 1995 and increased purchasing power in all countries.
4. **International Trade Agreements and Rules:** TRIPS Agreement, Nairobi Package, Trade Facilitation Agreement, Doha Development Agenda etc.

## 12. India Gaming Report 2024

Interactive Entertainment and Innovation Council (IEIC) and WinZO released India Gaming Report 2024.

### Key findings:

1. With 568 million users, India is officially the largest gaming market and accounts for every one in five online gamers globally.
2. Indian gaming market is expected to reach \$6 Billion by 2028.
3. Number of Indian gaming companies surged from 25 in 2015 to over 1400 in 2023.

### Factors responsible for boost in gaming industry:

1. Rise of affordable high-speed internet (\$0.17/GB) and increase in smartphone penetration (820 million users).
2. Burgeoning share of young population (~600 million) and rising disposable income.
3. Supply side factors include global investments in game development, rewarding gaming career, vernacular language content and gamification of Indian culture etc.

### Gaming's contribution to society

1. Reduction in social isolation, community building, especially for women gamers, and its role in enhancing research, education and skilling.
  - It also improves penetration of emerging technologies like Virtual Reality, Artificial Intelligence among others.

### Challenges to gaming sector

1. Sustainability issues from 'internet pollution' (3.7% of Greenhouse Gas emissions).
2. Financial literacy gaps, regulatory complexities, and data security challenges.
3. Gaming can have a detrimental impact on physical and mental health in certain cases. E.g., issues like 'Blue Whale Challenge'.

### Recommendations

1. Utilise green innovations and virtual environments for sustainable gaming.
2. Establish a global gaming cluster with policy support, supporting startups and talent development.
3. Prioritise R&D for online safety and digital literacy.



## 13. REER & NEER

The rupee has depreciated by 27.6% against the US dollar between April-end 2014 and now, from Rs 60.34 to Rs 83.38. This is marginally higher than the 26.5% from April-end 2004 to April-end 2014, where the rupee had fallen from 44.37 to 60.34.

### How Do We Measure A Currency's Strength?

1. India trades not only with the US. It exports goods and services to other countries as well, while also importing from them.
2. The strength or weakness of the rupee is, hence, a function of its exchange rate with not just the US dollar, but also with other global currencies.
3. In this case, it would be against a basket of currencies of the country's most important trading partners – what's called the rupee's "effective exchange rate" or EER.
4. **The EER is measured by an index similar to the consumer price index (CPI).**
  - a. The CPI is the weighted average retail price of a representative consumer basket of goods and services for a given month or year, relative to a fixed base period.
  - b. The EER is **an index of the weighted average of the rupee's exchange rates vis-à-vis the currencies of India's major trading partners.**
  - c. The currency weights are derived from the share of the individual countries to India's total foreign trade, just as the weights for each commodity in the CPI are based on their relative importance in the overall consumption basket.

### Nominal Effective Exchange Rate (Neer)

1. The NEER is a **summary index that captures movements in the external value of the rupee against a basket of global currencies.**
2. The Reserve Bank of India has constructed NEER indices of the rupee against a basket of 6 and 40 currencies respectively.

- a. The former is a trade-weighted average rate at which the rupee is exchangeable with a basic currency basket, comprising the US dollar, the euro, the Chinese yuan, the British pound, the Japanese yen and the Hong Kong dollar.
  - b. The latter index covers a bigger basket of 40 currencies of countries that account for about 88% of India's annual trade flows.
3. The NEER indices are with reference to a base year value of 100 for 2015-16.
  4. Increases indicate the rupee's effective appreciation against these currencies and decreases point to overall exchange rate depreciation.
  5. However, the NEER does not factor in inflation, which reflects changes in the internal value of the rupee.

### Real Effective Exchange Rate (Reer)

1. The REER is basically the NEER that is adjusted for the inflation differentials between the home
2. country and its trading partners.
3. If a country's nominal exchange rate falls less than its domestic inflation rate – as with India – the currency has actually appreciated in "real" terms.
  - a. **A decrease in REER denotes depreciation** in rupee's value, whereas an increase reflects appreciation.
  - b. **REER above 100 denotes that the home currency** is overvalued and more expensive compared to its competitors.

### Implications

1. **The rupee is overvalued today in terms of its REER.**
2. Any increase in REER means that the costs of products being exported from India are rising more than the prices of imports into the country. That translates into a loss of trade competitiveness – which may not be quite a good thing in the long run.





## E. SCIENCE & TECHNOLOGY

### 1. Cancer-Causing Chemicals Found in Indian Products

Some countries like the US and European Union have found problems with spices from India. They've discovered things like **Salmonella** (a bacteria that can make you sick) and too much **ethylene oxide** (a chemical used to kill pests) in these spices.

#### Salmonella Contamination

1. **Salmonella** is a rod-shaped gram-negative bacterium which commonly causes **food poisoning**.
2. It can be found in a variety of foods, including raw or undercooked meat, poultry, eggs, and dairy products, as well as fruits, vegetables, and processed foods.
3. Contamination usually occurs when food comes into contact with faecal matter from infected animals or humans. This can happen due to **lack of sanitary practices during** the production, processing, or handling of food products and spices.
4. Consuming food contaminated with Salmonella can lead to **symptoms such as diarrhoea, abdominal cramps, fever, nausea, and vomiting**.

#### Ethylene Oxide Contamination

1. **Ethylene oxide** is often used as a sterilising agent to kill bacteria, fungi, and insects in spices, dried vegetable products, and other food commodities susceptible to contamination during processing and storage. Improper or excessive use in the food supply chain has led to significant contamination issues.
2. **Carcinogenic properties:** Ethylene oxide is a bad chemical that can cause cancer. Being around it too much, even in small amounts, can raise your chances of getting lymphoma or breast cancer. Eating food with this chemical in it for a long time makes it even worse.

#### Measures To Ensure Food Safety

1. **Strict rules:** Indian regulatory authorities, such as the Food Safety and Standards Authority of India

(FSSAI), need to implement stringent monitoring mechanisms and regular testing of samples to detect and control the presence of unwanted high-risk chemicals in food items and ensure their compliance with safety standards.

2. **Good Manufacturing Practices and use of Technology:** Enhancing overall hygiene and storage conditions in the production process can reduce the need for chemical sterilant.

- Implementing Good Manufacturing Practices (GMP) and Hazard Analysis Critical Control Point (HACCP) systems can significantly mitigate microbial contamination risks.
- Technologies like cold plasma, pulsed light sterilisation, and high-pressure processing are innovative non-chemical methods that can effectively reduce microbial load without leaving harmful residues.

3. **Safer chemicals:** Scientists should look for safer chemicals that can kill germs without causing cancer. Things like ozone and heat could be good options.
4. **Follow international rules:** India should work with other countries to make sure everyone is following the same safety rules for food. This will make our food safer and easier to sell to other countries.
5. **Teach people about safety:** Need to teach food producers and sellers about the dangers of harmful chemicals and how to use them safely.

### 2. Surya Tilak: Science behind the ceremony

**In April, 2024 On the occasion of Ram Navami, 'Surya Abhishek' of Ram Lalla in Ayodhya temple was held precisely at noon for about three minutes on April 17.**

- a. The 'Surya Tilak' or 'Surya Abhishek' refers to a **ray of sunlight made to fall on the idol's forehead** on a designated day, in this case, Ram Navami, believed to be the birthday of Lord Ram that usually falls during March or April.





b. This is the first Ram Navami since the consecration of the Ram idol at the new temple on January 22. The system was tested by the scientists on Tuesday.

### 58 cm tilak, lasting a little over 3 minutes:

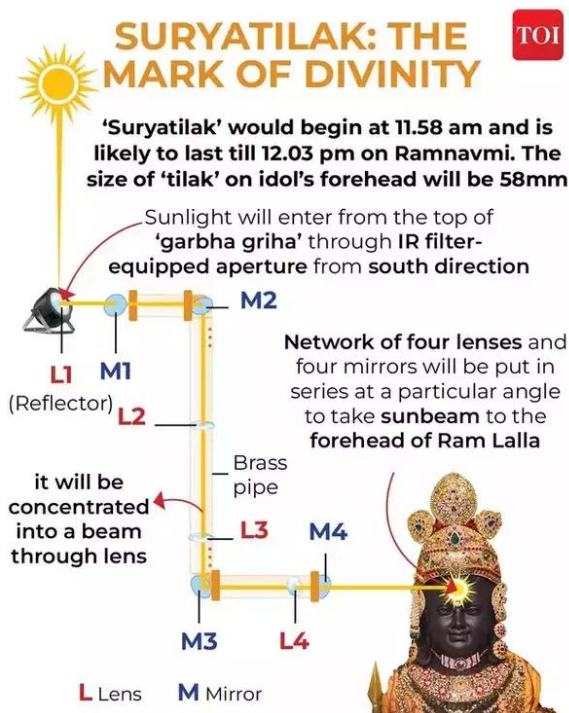
- The planned tilak size is 58 mm. The exact period of tilak on the forehead centre is about **three to three-and-a-half minutes**, with two minutes of full illumination.

### Developed by CBRI:

The detailed complete design in consultation with the **Indian Institute of Astrophysics (IIA), Bangalore, the CSIR-CBRI, Roorkee team has developed a mechanism for a period of 19 years for sunlight to reach from the third floor of the temple to the 'Garbha Griha'.**

- The fabrication of optical elements, pipes, tilt mechanism and other related components are carried out by **Optics and Allied Engg Pvt Ltd (Optica)**, a Bangalore-based company. **Pilot done**
- The **CSIR-CBRI, Roorkee team along with IIA Bangalore and Optica Bangalore** completed the installation in the first week of April, and repeated trials have been done.

### What is an opto-mechanical system ?



- The opto-mechanical system consists of **4 mirrors and 4 lenses fitted inside the tilt mechanism and piping systems.**
- The complete cover with **aperture for the tilt mechanism** is placed at the **top floor to divert the Sun rays through mirrors and lenses to the garbhagriha.**
- The final lens and mirror focus the Sun rays to the forehead of Shri Ram facing towards the east.
- The tilt mechanism is used to adjust the first mirror tilting for sending the Sun rays towards the north direction to the second mirror for making the Surya tilak every year on Shri Ram Navami day.
- All the piping and other parts are manufactured **using the brass material.**
- The mirrors and lenses which are **used are of very high quality and durable to sustain for a long period.**
- The inner surface of pipes, elbows and enclosures are black powder coated to avoid scattering of sunlight.**
- Also at the top aperture, **IR (infra red) filter glass** is used to restrict the Sun heat wave to fall on the forehead of the idol.

### 3. Total Solar Eclipse: A Celestial Event

In April, 2024, parts of the US went dark as viewers from Dallas to Canada. Total solar eclipse was witnessed across North America, surprising observers in Mexico, the United States and Canada.

#### Understanding Solar Eclipse:

**Definition:** A solar eclipse occurs when the **Moon comes between the Earth and the Sun, preventing sunlight from reaching some parts of the Earth.** Total solar eclipses is the one where the **Moon completely covers the Sun's disk, causing temporary darkness.**

Types of Solar Eclipses	
<b>Total Solar Eclipse:</b>	During a total solar eclipse, the <b>Moon's alignment with the Sun and Earth allows it to completely block the Sun's disk</b> . Totality, a temporary blackout, occurs in areas where the Moon's shadow falls centrally.
<b>Annular Solar Eclipse:</b>	In an <b>annular solar eclipse</b> , the <b>Moon passes directly between the Earth and the Sun but not close enough to completely cover the Sun's disk</b> . Instead, a ring of sunlight is visible around the moon's edges, creating a <b>"ring of fire"</b> effect.
<b>Partial Solar Eclipse:</b>	A partial solar eclipse happens when the <b>Moon passes between the Sun and Earth but the Sun, Moon, and Earth are not perfectly lined up</b> . Only a part of the Sun will appear to be covered.
<b>Hybrid Solar Eclipse:</b>	A hybrid solar eclipse, also <b>known as an annular-total eclipse</b> , is a rare type that <b>transitions between an annular eclipse and a total solar eclipse along its path</b> . Observers in different locations along the eclipse path may experience either an annular or a total eclipse.

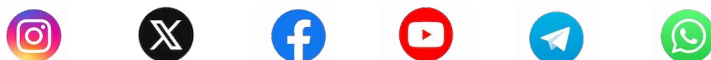
### Significance of Total Solar Eclipses:

- 1. Rare Occurrence:** Total solar eclipses are relatively rare events, with **certain locations on Earth experiencing them only once in several centuries or even millennia**.
- 2. Scientific Importance:** Solar eclipses provide valuable opportunities for scientists to study various aspects of the Sun, including its corona and magnetic field.
- 3. Cultural and Historical Relevance:** For many cultures throughout history, Solar eclipses have had religious, mythological, and astronomical significance, often influencing calendars, rituals, and beliefs.

Solar Eclipses: Frequency and Magnitude	
Frequency	Eclipse Magnitude
<ol style="list-style-type: none"> <li><b>1. Solar eclipses occur only during a new moon</b>, when the Moon and the Sun are on the same side of the Earth.</li> <li>A new moon occurs <b>approximately every 29.5 days</b>, which corresponds to the Moon's orbital period around the Earth.</li> <li>Solar eclipses usually <b>occur only two to five times per year</b>. This is because the <b>Moon's orbit around Earth is not in the same plane as Earth's orbit around the Sun</b>.</li> <li><b>Due to the Moon's five-degree tilt relative to Earth</b>, when it is between the Sun and Earth, its shadow often falls either too high or too low to intersect the Earth.</li> </ol>	<ol style="list-style-type: none"> <li>The magnitude of the eclipse refers to the <b>fraction of the Sun's diameter covered by the Moon</b>.</li> <li>This is a ratio of the diameter and should not be confused with eclipse obscuration, which measures the portion of the Sun's surface area covered by the Moon.</li> <li>The <b>magnitude of the eclipse may be expressed as a percentage or decimal fraction (e.g., 50% or 0.50)</b>.</li> </ol>

### 4. Higgs Boson: A Journey of Discovery and Significance

**Peter Higgs, the Nobel Prize-winning physicist who proposed the existence of the so-called "God particle" that helped explain how matter formed after the Big Bang, died on March 8, at the age of 94.**



- a. **Higgs won the 2013 Nobel Prize in Physics for his work, alongside Francois Englert of Belgium, who independently came up with the same theory.**

- Higgs predicted the existence of a new particle, which came to be known as the Higgs boson, in 1964.**
- He gave a theory that there must be a subatomic particle of a certain dimension that would explain how other particles, stars and planets in the universe acquired mass.**
- Without something like this particle, the set of equations that physicists use to describe the world, known as the Standard Model, would not hold together.**

### Background:

- Theoretical Prediction:** In 1964, British physicist Peter Higgs theorized the existence of the Higgs boson as **part of the Higgs mechanism**, explaining how particles acquire mass.
- Fundamental Force Carrier:** The Higgs boson is a fundamental force-carrying particle that interacts with other particles, imparting mass through the Higgs field.

### The Higgs Mechanism:

- Proposal:** In 1964, Higgs proposed a mechanism (now known as the Higgs mechanism) to explain how particles acquire mass.
- Key Concept:** Higgs mechanism involves a field that extends throughout the universe, the Higgs field, that causes particles to gain mass through interactions. The stronger a particle interacts with the Higgs field, the heavier it becomes.
- For example, photons do not interact with the Higgs field, so they have no mass.

### Discovery:

- Search at the LHC:** The Large Hadron Collider (LHC) at CERN in Switzerland became the primary research facility for the Higgs boson's discovery.
- ATLAS and CMS Experiments:** The ATLAS and CMS experiments at the LHC independently announced the detection of a particle consistent with the Higgs boson on July 4, 2012.

### Significance and Implications:

- Completing the Standard Model:** The discovery of the Higgs boson finalized the Standard Model of particle physics, providing substantial evidence for its accuracy.
- Understanding Mass:** Scientists gained deeper insights into the origin of mass and the fundamental forces governing the universe.
- Exploring New Physics:** This discovery opened the way to exploring phenomena beyond the Standard Model, including supersymmetry and dark matter.

### The Nickname “God Particle”:

- Origin:** The term “God Particle” was first used by Nobel laureate physicist Leon Lederman in his book, originally titled “The Goddamn Particle.”
- Significance of the Name:** The nickname emphasizes the Higgs boson's crucial role in providing mass to particles and shaping the structure of the universe.

### Controversy:

- Religious Sensitivities:** The nickname “God Particle” drew criticism from religious communities due to its association with divine creation.
- Scientific Discomfort:** Some scientists, including Peter Higgs himself, expressed discomfort with the nickname, considering it misleading.

### About Higgs Boson: God Particle and Force Carrier

- The Higgs boson is a fundamental particle that interacts with the Higgs field to gain mass. The Higgs field is a quantum field that gives mass to particles and exists throughout the universe.
- The Higgs boson acts as a wave in the Higgs field and helps give mass to other fundamental particles.

### Properties of the Higgs Boson:

- The Higgs boson has a mass of 125 billion electron volts — meaning it is 130 times more massive than a proton, according to CERN. It is also chargeless with zero spin.

### Conclusion:

The discovery of the Higgs boson significantly influenced particle physics, confirming the Standard





**Model and opening new avenues for scientific exploration.** It revealed the mechanisms by which particles acquire mass, providing information about the fundamental **building blocks of the universe.**

**Q. Consider the following statements:**

1. The Higgs boson is a fundamental particle responsible for the existence of gravitational field.
2. Particles which do not interact with the Higgs field are massless.

Which of the statements given above is/are correct?

- (a) 1 only
- (b) 2 only
- (c) Both 1 and 2
- (d) Neither 1 nor 2

Ans. B

## 5. Korean Sets Record At A Temperature 7 Times Hotter Than The Sun's Core.

1. South Korean scientists achieved a breakthrough in nuclear fusion research.
2. Their reactor, **Korea Superconducting Tokamak Advanced Research (KSTAR)**, successfully sustained plasma at a record-breaking temperature of **100 million degrees Celsius for 48 seconds.**

3. This is a significant leap as it's **seven times hotter than the Sun's core.**
4. The previous record, also held by KSTAR, was 31 seconds achieved in 2021.

### International Collaboration:

1. The **Tokamak (International Thermonuclear Experimental Reactor (ITER))** is a collaborative project launched in 1985 by 35 nations, including India.
2. Located in France, ITER aims to demonstrate the potential of nuclear fusion as a **large-scale and carbon-free energy source.**
3. KSTAR serves as a prototype for the **International Thermonuclear Experimental Reactor (ITER)** project in France, a global collaboration for developing fusion technology.

### Significance:

1. Nuclear fusion promises a clean and virtually limitless energy source by replicating the process that powers stars.
2. This achievement marks a major step towards developing commercially viable fusion reactors.
3. While challenges remain, this record demonstrates significant progress in harnessing fusion energy.

### What is a Fusion reactor ?

## THE HOLY GRAIL OF CLEAN ENERGY

**1** The ST40 tokamak heats hydrogen to 100 million°C – seven times hotter than the sun. A magnetic field keeps the hot gas away from any surfaces inside the reactor, which would otherwise melt.

**2** In the tokamak, hydrogen gas is heated to become a 'plasma' (referred to as the fourth state of matter after solid, liquid and gas).

**3** The plasma is trapped and pressurised by magnetic fields until the energised plasma particles start to collide.

**A fusion power station generating 1,500 megawatts of electricity would use ONE KILOGRAM of fuel a day.**

**This compares with 10,000 tonnes of fuel in a coal power station of a similar size.**

**4** As the particles fuse into helium, they release enormous amounts of energy.





1. Fusion reactors are devices designed to **harness the energy released during nuclear fusion reactions.**
2. Nuclear fusion is the process where **2 lighter atomic nuclei combine to form a heavier nucleus, releasing a large amount of energy in the process.**
3. This is the same process that **powers the sun and stars.**

### Types of fusion reactors:

There are **2 main types of fusion reactors currently being developed:**

1. **Magnetic confinement reactors:** These use **powerful magnetic fields to confine the plasma and keep it away from the reactor walls.** The most common type of magnetic confinement reactor is the **tokamak.**
2. **Inertial confinement reactors:** These use **high-energy lasers or particle beams to compress and heat a small pellet of fuel, causing it to explode and ignite fusion reactions.**

### Challenges and future prospects:

1. Fusion power has the potential to be a safe, clean, and virtually limitless source of energy.
2. However, there are still many challenges to overcome before fusion reactors can become a reality.
3. These challenges include achieving sustained fusion reactions, developing materials that can withstand the extreme conditions inside a fusion reactor, and finding ways to make fusion power economically viable.

Despite the challenges, there has been significant progress in fusion research in recent years, and many scientists believe that fusion power could be a major source of energy in the future.

## 6. World's First Satellite-Enabled Smartphone Direct Calls: Tiantong

1. **A team of Chinese engineers and scientists have developed the world's first satellite that lets smartphones place a call directly through it, instead of mobile towers.**
2. **The idea is, that in case of an emergency where mobile connectivity may be severely impacted because of a natural calamity or any other disaster, people can call for help directly, by connecting to an overhead communication orbiter.**

### Tiantong Satellite Initiative:

1. **About:**
  - a. **The Tiantong satellite initiative is a strategic response to the growing demand for connectivity, especially in remote and disaster-prone areas.**
  - b. **Each Tiantong satellite has a lifespan of 12 years and can withstand extreme temperature variations while transmitting and receiving electromagnetic waves.**
  - c. **The first satellite in the Tiantong-1 series was launched in 2016, followed by 2 more in 2020 and 2021.**
  - d. **The 3 satellites form a network in a geosynchronous orbit, covering the entire Asia-Pacific region.**
2. **Need:**
  - a. **The idea for such a satellite came about after 2008, when Sichuan, a province in southwestern China, was struck by a devastating magnitude-8 earthquake, resulting in the tragic loss of over 80,000 lives.**
  - b. **The Chinese government recognized the need for enhancing communication resilience in disaster-prone areas.**

Issues	Solutions
1. Satellite communication with mobile phones may face challenges due to signal interference.	1. China's Tiantong Project has gathered experts to address the issue of PIM.
2. Commercial communication satellite networks have faced significant disruptions because their signals overlap with the receiving frequency band.	2. Scientists have observed that different metal components in satellite antennas cause PIM.



<p>3. As the number of satellites increases, the <b>risk of passive intermodulation (PIM) occurring also increases.</b></p>	<p>3. Researchers have explored <b>microscopic physical mechanisms</b> and developed a physical model to predict PIM effects across different contact states and external factors.</p>
<p>4. <b>PIM can deteriorate satellite call quality and lead to system failure.</b></p>	<p>4. The team created <b>the world’s first universal PIM simulation software for numerical analysis</b> and evaluation of PIM generation in complex microwave components.</p>
<p>5. There is <b>currently no universally effective technology to suppress the occurrence of PIM.</b></p>	<p>5. <b>Engineers have developed effective PIM suppression techniques</b>, including dielectric isolation capacitors and optimized antenna wire preparation methods.</p>
	<p>6. <b>The world’s most sensitive PIM detection technology has been enhanced to pinpoint the source of weak PIM emissions</b></p>

- a. **Indian Institute of Astrophysics (IIA)**, an autonomous institute of the Department of Science and Technology (DST).

**Historical Background:**

1. The **Madras Observatory, established in 1792 by the British East India Company**, was the pioneer of solar observation in India.
2. The **Madras Observatory was merged with the KoSO following the reorganization of all Indian observatories on April 1, 1899.**

**Establishment of KoSO:**

1. **India, along with China, Egypt, Morocco, Ethiopia, southern Africa, Brazil, Columbia and Venezuela, suffered concurrent multi-year droughts during 1876-1878, later named the Great Drought, and an associated global famine that killed nearly 50 million.**
2. **The decision to establish the observatory came after a famine in Madras Presidency in 1893, which highlighted the need to study the sun to better understand monsoon patterns.**
3. The U.K. Secretary of State, Indian Observatories Committee, chaired by Lord Kelvin, **decided to establish the observatory in Kodaikanal**, which has favorable atmospheric conditions.
4. In response to evidence suggesting a **relationship between solar activity and seasonal rainfall in India**, the **Famine Commission of the British Raj recommended regular solar observations.**
5. **Charles Michie Smith surveyed hill stations in Tamil Nadu and selected Kodaikanal in the Palani Hills for its favorable atmospheric conditions.**
6. **The Government of India approved the establishment of the Solar Physics Observatory in 1893 and construction began soon after.**

**Early Contributions and Expansion:**

1. KoSO began **systematic observations in 1901**, initially focusing on solar physics.

**7. 125<sup>th</sup> anniversary of Kodaikanal Solar Observatory**

The 125th anniversary of the prestigious Kodaikanal Solar Observatory (KSO) was celebrated on 1 April 2024 by the Indian Institute of Astrophysics (IIA)



- Over time, its research areas expanded to include cosmic rays, radio astronomy, ionospheric physics and stellar physics, etc.

### Integration with the Indian Institute of Astrophysics (IIA):

- In 1971, KoSO was brought under the IIA, increasing its integration with the broader astrophysical research community in India.

### Legacy and Ongoing Research:

- Today, KoSO has a vast digital repository of over **1.48 lakh digitized solar images**, which provides valuable data for solar research.
- The observatory continues to play an important role in **solar research, conducting high-resolution imaging and contributing to our understanding of the Sun's behavior** and its influence on Earth's climate and space weather.

### Equipment and Facilities:

- KoSO utilizes various instruments, including a **20 cm refractor, twin spectroheliographs, a solar tunnel telescope**, and ionosondes for its research activities.

### Conclusion:

The Kodaikanal Solar Observatory stands as a tribute to **India's rich history of astronomical research**. Its contributions to **solar physics, ionospheric studies**. KoSO remains a vibrant center of solar research, constantly pushing the boundaries of our knowledge of the Sun and its role in the universe.

## 8. PRATUSH Telescope

Astronomers are looking forward to **opening a new window on the universe by posting high-resolution telescopes on the moon**, and in orbit around it. There are numerous proposals to do this from astronomers around the world **including one from India called PRATUSH**.

### About PRATUSH Telescope:

- Mission:** PRATUSH (**Probing ReionizATIOn of the Universe using Signal from Hydrogen**) is a radio

telescope designed to study the early universe from the far side of the moon.

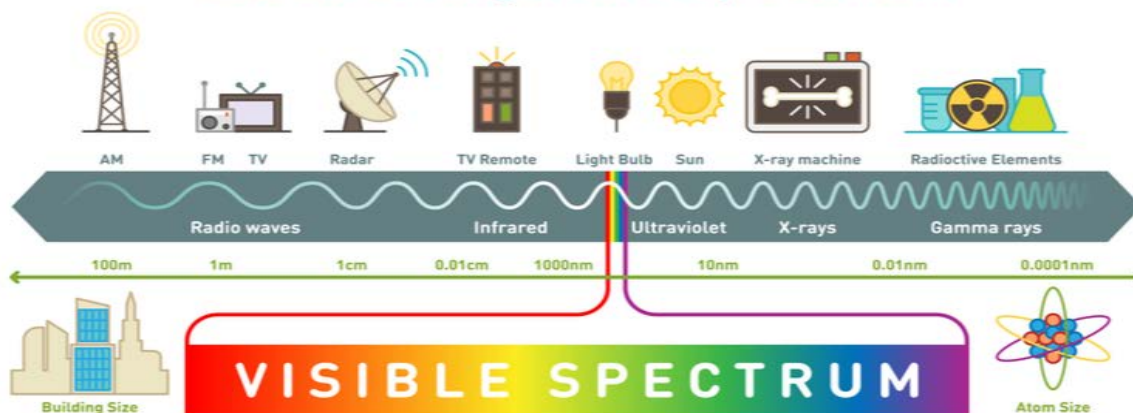
- Organization:** The telescope is being built by the **Raman Research Institute (RRI) in Bengaluru**, with active collaboration from the Indian Space Research Organisation (ISRO).
- Deployment:** Initially, **ISRO will launch PRATUSH into orbit around the Earth**. After fine-tuning, the space agency will send the telescope to the moon.
- Scientific Objectives:** Pratyusha's main goal is to **detect signals from the first stars and galaxies**, shedding light on the cosmic dawn of the universe. Specifically, it aims to answer questions about **when the first stars were formed**, their nature, and the characteristics of their light.
- Instrumentation:** The telescope will carry a **wideband frequency-independent antenna, a self-calibrating analog receiver, and a digital correlator to capture radio noise from the Dark Ages**, a critical period in the early universe.
- Sensitivity:** Without the limitations of systematic features, the **target instrument sensitivity is a few millikelvins**.

### What are Radio waves?

- Radio waves are a type of **electromagnetic radiation with the longest wavelengths** in the electromagnetic spectrum.
- They have a **frequency ranging from 3 kHz to 300 GHz**.
- Radio waves travel at a speed similar to light**.
- Radio waves are produced by astronomical objects that have a changing magnetic field. Radio telescopes are used to **study radio waves from planets, comets, stars, and galaxies**.
- Humans use radio waves for communication.
- A radio tower has antennas to transmit and receive radio frequency energy.
- Radio waves are used for transmitting data from radio, satellites, and radar**.



## Electromagnetic Spectrum



### 9. PSLV Orbital Experimental Module-3

1. Recently, The Indian Space Research Organisation (ISRO) achieved another milestone with the **successful PSLV Orbital Experimental Module-3 (POEM-3) re-entry** into the Earth's atmosphere without leaving any debris in orbit.
2. **Launched on January 1, 2024**, the **PSLV-C58/XPoSat** mission demonstrated ISRO's dedication to responsible space operations and debris mitigation.

#### POEM-3 Mission Goals and Payloads:

1. Equipped with **nine experimental payloads**, POEM-3 focused on technology demonstrations and scientific experiments on indigenous systems.
2. **Six payloads** were delivered by **Non-Government Entities (NGEs)** through **IN-SPACE**, and mission objectives were met within a month of launch.

#### Deorbiting and Re-entry Process:

1. After all the satellites were placed in their orbits, the **last stage of PSLV was converted into a 3-axis stabilized platform (POEM-3)**.
2. Deorbiting from **650 km to 350 km** facilitated **quick re-entry**.
3. Measures were taken to **deactivate the stage to reduce the risk of break-up**.

#### Impact Location and Tracking:

1. Due to natural forces affecting its orbital altitude, POEM-3 was projected to impact over the North Pacific Ocean on March 21, 2024.
2. **ISRO Telemetry Tracking and Command Network**

(ISTRAC) ground stations and **Multi-Object Tracking Radar (MOTR)** tracked POEM-3 until near re-entry.

#### Opportunities for Academia, Startups, and NGEs:

1. The cost-effective POEM platform opens up **opportunities for academia, startups and NGEs** to experiment with new payloads.
2. Various organizations used this opportunity to **conduct experiments such as electric thrusters and star-tracking**.

#### Responsible Space Operations:

Recognizing the **major threat of space debris**, ISRO resolved to address the challenge by **advancing debris tracking systems, developing deorbiting technologies** and promoting responsible satellite deployment practices.

### 10. Satellite Technology Day 2024

The **U R Rao Satellite Centre (formerly ISRO Satellite Centre, ISAC)**, Department of Space, in Bengaluru, recently celebrated **Satellite Technology Day (STD) 2024**.

- a. This marked the significant milestone of the **50th anniversary of India's first satellite launch, Aryabhata, on April 19, 1975**.

#### URSC's Achievements:

The event highlighted **URSC's achievements with recent missions like Chandrayaan-3, Aditya-L1, and X-ray Polarimeter Satellite**, which gained national and international recognition.





### Aryabhata Satellite Key Facts:

1. The Aryabhata spacecraft, named after the 5th century mathematician and astronomer, was India's first satellite.
2. Designed and fabricated entirely in India, it was launched from Kapustin Yar, Russia, on April 19, 1975.
3. India became only the world's 11th nation to send a satellite into orbit on that day.
4. Built by the Indian Space Research Organization (ISRO), Aryabhata conducted experiments in X-ray astronomy, aeronomics, and solar physics.

Aryabhata Satellite	
Payload	X-ray Astronomy Aeronomy and Solar Physics
Launch site	Volgograd Launch Station (presently in Russia)
Launch vehicle	C-1 Intercosmos

### U R Rao Satellite Centre:

1. The U R Rao Satellite Centre (URSC), named after the former ISRO Chairman Dr. Udupi Ramachandra Rao, is the lead center of the Indian Space Research Organization (ISRO).
2. URSC is responsible for the design, development, checkout, and integration of communication, navigation, remote sensing, scientific, and small satellite missions.
3. The center is actively involved in creating cost-effective space infrastructure for India.
4. URSC is responsible for the entire spacecraft project management, from the conceptualization phase to the in-orbit spacecraft operationalization phase.

## 11. Atomic Clocks for One-Nation, One-Time

India is deploying atomic clocks across the country to ensure the time shown on your digital watch, smartphone and laptop is truly based on Indian Standard Time.

- a. India will join an exclusive group of 4 other countries—the US, the UK, Japan, and Korea—to have their own atomic clocks
- b. An effort launched more than 2 decades ago after the Kargil war.
- c. Currently, most software operating modules in India rely on US-based Network Time Protocol servers.
- d. The government wants all software to instead be synchronised with indigenous atomic clocks, both for uniformity in time and as a defence mechanism, especially in times of war.

### Key Points:

#### Deployment Goal:

1. Synchronization of all digital devices with Indian Standard Time (IST) to ensure uniformity.
2. Deployment by the National Physical Laboratory (NPL) under the Ministry of Science and Technology and the Ministry of Consumer Affairs.

#### What are Atomic Clocks?

1. An atomic clock is the most accurate timekeeping device known to man. Unlike traditional clocks that use mechanical or quartz-crystal oscillations, atomic clocks measure time based on the natural vibrations of atoms.
2. Invented in 1955 by Louise Essen.
3. In India, currently operational in Ahmedabad and Faridabad in India.

#### Types of Atomic Clocks:

1. Common types include cesium atomic beam, hydrogen maser, and rubidium gas cell.
2. Cesium clock offers high accuracy and long-term stability.
3. Hydrogen maser has the best stability for short periods.

#### How it works:

1. **Atomic Resonance:** Atomic clocks use a specific type of atom, most commonly cesium-133. These atoms have a natural resonant frequency, which is the number of times they vibrate per second. This frequency is incredibly stable and consistent.



2. **Microwave Cavity:** The cesium atoms are placed in a microwave cavity, where they are exposed to microwaves at a frequency close to their natural resonant frequency.
3. **Energy Level Transition:** When the microwave frequency matches the cesium's resonant frequency, the atoms absorb the energy and transition to a higher energy level. This transition is detected and used to fine-tune the microwave frequency.
4. **Counting Oscillations:** A feedback loop continuously adjusts the microwave frequency to keep it in sync with the cesium's resonant frequency. By counting the oscillations of the microwaves, the clock accurately measures time.
5. **Second Definition:** The international standard unit of time, the second, is defined as 9,192,631,770 cycles of the radiation that gets cesium-133 atoms to vibrate between two specific energy levels.

### Why are atomic clocks so accurate?

1. **Atomic Stability:** The natural resonant frequency of atoms is incredibly **stable and unaffected by external factors** like temperature or pressure changes.
2. **High Frequency:** The vibrations of atoms occur at **extremely high frequencies (billions of cycles per second)**, allowing for very precise time measurements.

### Applications of Atomic Clocks:

1. **Timekeeping:** Atomic clocks are used to maintain the international standard for time and to synchronise clocks around the world.
2. **Navigation Systems:** **GPS and other satellite navigation systems rely on atomic clocks** for accurate positioning.
3. **Scientific Research:** Atomic clocks are used in various fields of research, such as physics, astronomy, and geology.

### Why is India Developing its Atomic Clocks?

- a. **Background:**
  - i. **Initiative sparked by the denial of Global Positioning System (GPS) information during the Kargil War.**

- ii. Independent timekeeping capabilities **crucial for defense, cybersecurity, and online transactions.**
- b. **Need for Enhanced Security Measures:**
  - i. **Efforts to connect atomic clocks via optical cables for enhanced security against potential disruptions.**
  - ii. Reducing reliance on foreign atomic clocks, especially for critical infrastructure like the **Indian Regional Navigation Satellite System (IRNSS) or NavIC.**

### Significance:

Developing indigenous atomic clocks grants India complete control over its navigation systems, ensuring national security and technological independence.

## 12. India TB Report 2024

In April 2024, the **Ministry of Health and Family Welfare** released the **India TB Report 2024**.

### Key Highlights

#### Trends in TB Cases and Deaths

1. The estimated number of TB cases in 2023 slightly **increased to 27.8 lakh** from 27.4 lakh in the previous year.
2. The number of deaths due to TB remained the same at 3.2 lakh in 2023.
3. India achieved its 2023 goal of starting treatment for **95%** of diagnosed patients.
4. Most TB cases are still reported by government health centres, but notifications from the private sector have increased.
5. In 2023, about 33% or 8.4 lakh of the 25.5 lakh cases came from the private sector. In 2015, only 1.9 lakh cases were reported by the private sector.

### Challenges in Meeting Targets

1. **Ambitious Goals:** Despite aiming to eliminate tuberculosis by 2025, India has faced challenges in meeting these targets.
2. **Recorded Cases and Deaths:** The number of cases and deaths in 2023 did not meet the set targets.
3. **Risk Factors:** Various factors affect TB incidence and treatment outcomes, including undernourishment, HIV, diabetes, alcohol use, and smoking.



4. **Undernourishment:** In 2022, nearly 7.44 lakh TB patients were undernourished.
  - a. To improve nutrition, the government provides monthly support of Rs 500 to nearly one crore beneficiaries.
  - b. The **Ni-kshay Mitra program** encourages the **donation of food baskets**.
5. **HIV:** People with HIV have a 20-times higher risk of developing TB symptoms compared to the general population.
  - a. In 2022, there were 94,000 TB patients with HIV.
6. **Diabetes:** In 2022, out of 3.70 lakh global TB patients with diabetes, 1.02 lakh were in India.
  - a. Diabetes increases the risk of getting TB by two-to-three times and is linked to a higher risk of **Multi-Drug Resistant TB**. TB treatment is less effective in diabetics.
  - b. In 2023, **92%** of TB patients were screened for diabetes, with **7.7%** diagnosed with it. About **63%** of those diagnosed began diabetes treatment.
7. **Alcohol and Tobacco Use:** Consuming more than 50 ml of alcohol daily raises the risk of TB infection, active infection, and recurrence.
  - a. In 2023, 18.8 lakh (74%) TB patients were screened for alcohol use, and 7.1% were identified as alcohol users.
  - b. About 19.1 lakh (75%) TB patients were screened for tobacco use, and 11% were identified as tobacco users. Of these, 32% were linked to tobacco cessation services (for quitting tobacco).

### What is Tuberculosis?

1. Tuberculosis is a **bacterial infection** caused by **Mycobacterium tuberculosis**.
2. It can affect any organ of the body, most commonly the **lungs, pleura** (lining around the lungs), **lymph nodes, intestines, spine, and brain**.
3. **Transmission:** TB is an **airborne infection**. It spreads through close contact with an infected person, especially in crowded and poorly ventilated spaces.

4. **Symptoms:** Common symptoms of active lung TB include:
  - a. Cough with sputum and sometimes blood
  - b. Chest pains
  - c. Weakness
  - d. Weight loss
  - e. Fever
  - f. Night sweats
5. **Infection Prevalence:**
  - a. Each year, **10 million people** get TB.
  - b. Despite being preventable and curable, **1.5 million people die** from TB annually, making it the **world's top infectious killer**.
  - c. TB is the **leading cause of death** for people with **HIV** and contributes to **antimicrobial resistance**.
  - d. Most TB cases are in **low- and middle-income countries**.
  - e. Half of all TB cases are in 8 countries: **Bangladesh, China, India, Indonesia, Nigeria, Pakistan, Philippines, and South Africa**.
6. **Treatment:**
  - a. TB is treated with a standard **6-month course of 4 antimicrobial drugs**.
  - b. Treatment involves **information, supervision, and support** from a health worker or trained volunteer.
  - c. Anti-TB drugs have been used for decades, and drug-resistant strains are present in every country surveyed.
  - d. **Multidrug-resistant TB (MDR-TB)** is caused by bacteria resistant to **isoniazid** and **rifampicin**, the two most powerful first-line drugs.
  - e. MDR-TB can be treated and cured with second-line drugs like **bedaquiline**.
  - f. **Extensively drug-resistant TB (XDR-TB)** is a severe form of MDR-TB and is resistant to the most effective second-line drugs, often leaving patients with few treatment options.
7. **Drugs for TB:**
  - a. **Isoniazid (INH):**
    - Key drug in TB treatment.
    - Inhibits (hinder) synthesis of mycolic acids in the bacterial cell wall.



b. **Rifampicin (RIF):**

- Essential drug in TB treatment.
- Hinders RNA synthesis in the bacteria.
- Used with other drugs to prevent drug resistance.

c. **Delamanid:**

- Newer drug for treating multidrug-resistant TB (MDR-TB).
- Often used with other drugs.

**Global Efforts to Combat TB:**

1. The WHO launched the **“Find. Treat. All. #EndTB” initiative** with the **Global Fund** and **Stop TB Partnership**. It’s an initiative launched in 2018 to improve detection, diagnosis, and treatment rates for tuberculosis (TB)
2. WHO publishes the **Global Tuberculosis Report**.
3. **The Global Plan to End TB, 2023-2030:** This plan aims to end TB as a public health issue by 2030. It outlines key actions and the financial resources needed to end TB.
4. **The End TB Strategy:** This strategy builds on and expands efforts within the framework of the UN Sustainable Development Goal 3.3.

**India’s Efforts to Combat TB:**

1. **Pradhan Mantri TB Mukh Bharat Abhiyan:** It’s an initiative of **Ministry of Health and Family Welfare (MOHFW)** to accelerate the country’s progress towards TB elimination by 2025.
2. **National Strategic Plan (NSP) for Tuberculosis Elimination (2017-2025):** The NSP’s vision is for a TB-free India with zero deaths, disease, and poverty due to tuberculosis.
3. **TB Harega Desh Jeetega Campaign:** It is a nationwide campaign to raise awareness about TB, encourage people with symptoms to seek medical attention, and ensure they continue treatment.
4. **Nikshay Poshan Yojna**
5. **RePORT India:** RePORT India (Regional Prospective Observational Research for Tuberculosis) is a joint effort established in 2013 under the **Indo-US Vaccine Action Program (VAP)**. It aims to address the TB threat in India and globally.

**13. Global Hepatitis Report 2024**

1. In April 2024, the **World Health Organisation (WHO)** released the **Global Hepatitis Report 2024**. The report highlights that India has a significant burden of viral hepatitis, especially Hepatitis B and C infections.

**Key Findings of the report****Global Hepatitis Burden:**

1. In 2022, around 304 million people globally had hepatitis B and C. WHO estimates that 254 million people had hepatitis B and 50 million had hepatitis C in 2022.
2. In 2022, **viral hepatitis** caused about **1.3 million deaths** worldwide, similar to tuberculosis.
3. **Hepatitis B** was responsible for **83% of these deaths**, and **hepatitis C** for **17%**.
4. The increase in deaths suggests more cases of **hepatitis-related liver cancer**.
5. New viral hepatitis infections dropped from 2.5 million in 2019 to 2.2 million in 2022.
6. **Children** made up **12%** of the hepatitis B cases.
7. **Lack of funding** and **limited decentralisation** have restricted the expansion of testing services.
8. Many countries are not buying hepatitis medicines at available generic prices which is resulting in high costs.
9. Patent issues still block access to affordable hepatitis C medicines in some countries.

**India’s Hepatitis Burden:**

1. **Prevalence in India:**
  - a. India is among the countries with the highest burden of viral hepatitis.
  - b. India is **2<sup>nd</sup> after China** in **hepatitis cases**, with **27.5%** of the world’s total, amounting to **84 million cases** in 2022. Together, **India and China** account for nearly **2/3<sup>rd</sup>** of the global hepatitis burden.
  - c. Hepatitis is the **2<sup>nd</sup> leading infectious cause** of death globally, after tuberculosis.
  - d. Approximately **2.9 crore people** in India have **Hepatitis B**.





- e. Around **0.55 crore people** in India have **Hepatitis C**.
- f. In 2022, India reported over 50,000 new cases of Hepatitis B and 1.4 lakh new cases of Hepatitis C.
- g. These infections led to 1.23 lakh deaths in India in 2022.

## 2. Drivers of Hepatitis Infections in India:

- a. Hepatitis B and C spread through **mother-to-child transmission, unsafe blood transfusions, contact with infected blood, and needle-sharing** among drug users.
- b. Despite better blood safety protocols, **mother-to-child transmission** is still a **main way** through which **Hepatitis B** spreads in India.

## 3. Demographic Trends of Infections:

- a. Half of chronic hepatitis B and C cases are in people **aged 30–54**.
- b. **Men** account for **58%** of all cases.
- c. **Chronic hepatitis** can lead to liver cancer, causing **80%** of all liver cancer cases.
- d. **Liver cancer** is the **3<sup>rd</sup>** most common cause of cancer deaths worldwide.

## 4. Diagnosis and Treatment Coverage:

- a. Only **2.4%** of **Hepatitis B cases** and **28%** of **Hepatitis C cases** in India are **diagnosed**.
- b. Treatment coverage is **0% for Hepatitis B** and **21% for Hepatitis C**, even though affordable generic medicines are available.

## 5. Barriers to Improving Hepatitis Outcomes:

- a. Limited reach and use of the **National Viral Hepatitis Control Program**.
- b. Need to improve access to affordable diagnostic and treatment services.
- c. Need to treat all diagnosed individuals to reduce health issues and transmission.

### About Hepatitis

1. Hepatitis means **liver inflammation**. It causes liver diseases like acute and chronic infections, liver failure, cirrhosis, and liver cancer.
2. **Mode of Transmission:**
  - a. **Infectious sources:** Virus, contaminated food and water, and sexual transmission.

- b. **Non-infectious sources:** Heavy alcohol use, toxins, some medications, and certain medical conditions.
3. There are five main strains of the hepatitis virus: **A, B, C, D, and E**. Each has different ways of spreading, severity, geographical spread, and prevention methods.
  4. **Hepatitis A:**
    - a. Caused by the Hepatitis A virus.
    - b. It is an acute infectious liver disease.
    - c. Symptoms often go unnoticed, especially in young people.
    - d. Symptoms include vomiting, nausea, fever, severe stomach pain, jaundice, and weakness.
  5. **Hepatitis B:**
    - a. Caused by the Hepatitis B virus.
    - b. It is contagious.
    - c. Spread through cuts, contact with infected blood, saliva, or secretions.
    - d. Symptoms include stomach pain, tiredness, and jaundice.
  6. **Hepatitis C:**
    - a. Caused by the Hepatitis C virus.
    - b. Spread through infected needles, at birth, body fluids, or sexual contact with multiple partners, especially those with HIV.
  7. **Hepatitis D:**
    - a. Caused by the **Hepatitis D virus**.
    - b. It is a serious liver illness.
    - c. Spread through infected blood or cuts.
    - d. Often occurs with Hepatitis B.
  8. **Hepatitis E:**
    - a. Caused by a virus.
    - b. It is a waterborne disease.
    - c. Spread through food, water, or tainted blood.
    - d. It can be acute or chronic.
  9. Types **B and C** are the leading causes of liver cirrhosis (Liver is scarred and permanently damaged), liver cancer, and deaths from viral hepatitis.
  10. Some types of hepatitis can be prevented by vaccines. By 2030, about **4.5 million premature deaths** could be prevented through vaccination, diagnostic tests, medicines, and education campaigns.



11. The **WHO's global hepatitis strategy** aims to cut new hepatitis infections by 90% and deaths by 65% between 2016 and 2030.

#### Symptoms and Severity:

1. **Hepatitis A, B, C, D, and E** can have mild symptoms or none at all.
2. Symptoms of **hepatitis A, B, and C** include fever, feeling unwell, loss of appetite, diarrhea, nausea, abdominal discomfort, dark urine, and jaundice.
3. **Chronic liver infection**, cirrhosis, and liver cancer can occur from hepatitis A, B, and C.
4. **Hepatitis D** occurs in people already infected with hepatitis B and can lead to a more severe infection and faster progression to cirrhosis. Chronic hepatitis D is rare.
5. Symptoms of **hepatitis E** include mild fever, loss of appetite, nausea, vomiting, abdominal pain, itching, skin rash, joint pain, jaundice, dark urine, pale stools, and enlarged liver or acute liver failure.

#### Global Interventions:

1. **World Hepatitis Day:** Observed on **28th July** each year
2. WHO's goal to **eliminate hepatitis by 2030**.
3. **World Hepatitis Summit (WHS):** The theme for the 2024 World Hepatitis Summit (WHS) is **"Integrate, Accelerate, Eliminate"**. It is organized by **WHO**.

#### India's Interventions for Hepatitis Control:

1. **National Viral Hepatitis Control Programme (NVHCP):** Launched in 2018, NVHCP aims to eliminate Hepatitis C by 2030.
2. **Hepatitis B Vaccine:** Shantha Biotech in Hyderabad developed the first recombinant DNA-based vaccine for Hepatitis B.
3. **COBAS 6800:** An automated coronavirus testing machine that can also detect viral Hepatitis B and C.
4. **Havisure:** India's first indigenously developed Hepatitis A vaccine.
5. **Universal Immunization Programme (UIP):** Hepatitis B is included in India's UIP, which provides free vaccines against eleven preventable diseases.

**Q. Consider the following statements with reference to Hepatitis Infection:**

1. Hepatitis is an acute inflammation of the small intestines caused by a virus.
2. Vaccines for Hepatitis B and C are provided under the Universal immunisation program of India.
3. The National Viral Hepatitis Control Program of India aims its elimination by the year 2030.

**How many of the statements given above are correct?**

- (a) Only one
- (b) Only two
- (c) All three
- (d) None

**Ans.A**

#### 14. Inflammatory Bowel Disease (IBD)

Recently, **inflammatory bowel disease (IBD)**, mainly including **ulcerative colitis and Crohn's disease**, has been increasing globally.

#### What is Inflammatory Bowel Disease (IBD)?

IBD is an **umbrella term** for **chronic inflammatory** conditions affecting the **gastrointestinal tract**.

#### Two main forms of IBD:

1. **Crohn's disease:** Inflammation can **occur anywhere in the digestive tract, from the mouth to the anus**. Healthy tissue may be **interspersed with inflamed areas**, and the inflammation often affects the **deeper layers of the bowel wall**.
2. **Ulcerative colitis:** Inflammation is **limited to the inner lining (mucosa) of the large intestine (colon) and rectum**. In severe cases, the **entire colon may be affected**.

#### Causes of IBD:

While the **exact cause of IBD remains unclear**, research points to a complex interplay of factors, **including genetics**, the immune system, and environmental factors.

#### Symptoms:

Abdominal pain and **cramps, diarrhoea**, frequent bleeding, urgent need to have a **bowel movement, weight loss and fatigue**.

#### Treatment:

There is **no cure for IBD**, but treatment aims to manage symptoms and provide relief. These include **medications, dietary changes, and surgery**.



## Challenges in India:

1. The incidence of IBD in India has **almost doubled over the past 3 decades**, creating an urgent need for early detection and improved treatment outcomes.
2. **Diagnosing IBD in India presents unique challenges**, particularly in distinguishing it from **intestinal tuberculosis** due to overlapping clinical symptoms.
3. Lifestyle changes, **such as the adoption of a Westernized diet**, are cited as contributing factors to the increasing prevalence of IBD in India.

### Note:

Inflammatory Bowel Disease (IBD) is a chronic condition characterised by inflammation of the digestive tract. It is influenced by a combination of genetic, immune, and environmental factors. In contrast, Irritable Bowel Syndrome (IBS) is a **non-inflammatory functional bowel disorder**. It is **believed to be linked to altered gut-brain interactions, heightened sensitivity of gut nerves, or issues with digestive muscle contractions**.

## 15. 50 years of the Expanded Programme on Immunization

1. The year 2024 marks **50 years since the World Health Organization (WHO) launched the Expanded Program on Immunization (EPI) in 1974**, now known as the **Essential Program on Immunization**.
2. This program has evolved to **provide protection against many vaccine-preventable diseases** and has made **significant contributions to global health**.

### About Essential Programme on Immunization:

1. **Established in 1974 by WHO**, the program initially **focused on protecting children from 6 childhood vaccine-preventable diseases**:
  - a. Bacillus Calmette-Guérin (BCG)
  - b. diphtheria
  - c. pertussis
  - d. tetanus
  - e. polio
  - f. measles

2. Over time, WHO **expanded** the program to **include 7 more diseases**:
  - a. Haemophilus influenzae type B (Hib)
  - b. Hepatitis B (HepB)
  - c. rubella
  - d. pneumococcal disease (PNC)
  - e. rotavirus (Rota)
  - f. human papillomavirus (HPV)
  - g. COVID-19 (for adults)

## India's Universal Immunization Programme (UIP):

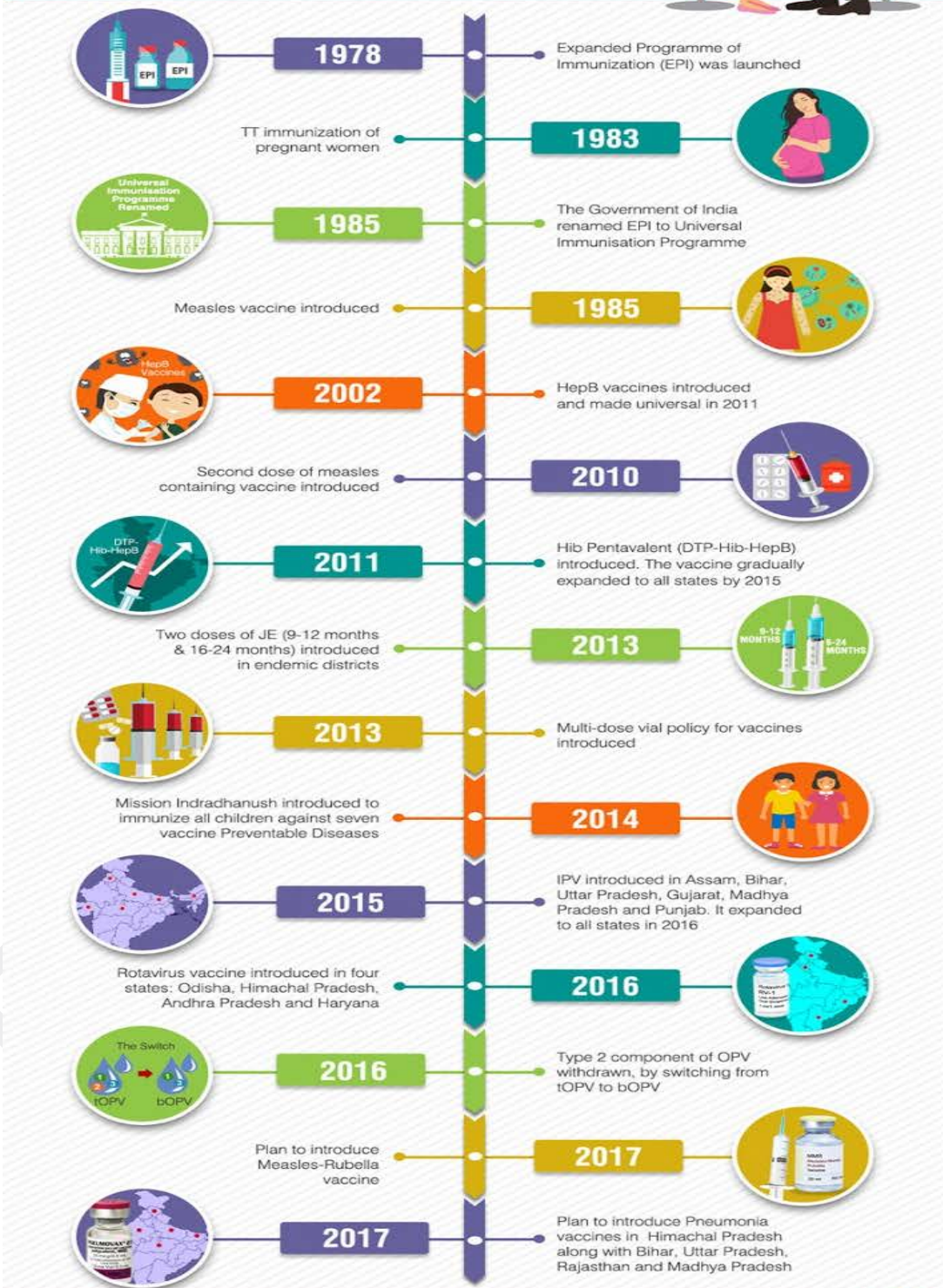
100% Funded by the central government, UIP is one of the key interventions for protection of children from life threatening conditions by providing vaccination.

- a. **Launched in 1978 as the EPI, India renamed the program as the Universal Immunization Programme (UIP) in 1985.**
- b. The UIP aims to **rapidly increase immunization coverage**, improve service quality, establish a reliable **cold chain system to health facilities**, monitor performance, and achieve self-sufficiency in vaccine production.
- c. All pregnant women and children can get vaccinated at government or private health facilities or designated immunization session sites.
- d. The UIP **provides high-quality vaccines to all sections** of society across the country.
- e. Under UIP, **free vaccination is provided against 12 vaccine-preventable diseases**.
- f. 9 diseases are covered nationally: **Diphtheria, Pertussis, Tetanus, Polio, Measles, Rubella, severe Childhood Tuberculosis, Hepatitis B, and Meningitis & Pneumonia caused by Hemophilus Influenza type B.**
- g. **3 diseases are covered sub-nationally**: Rotavirus diarrhea, Pneumococcal Pneumonia, and Japanese Encephalitis. Rotavirus vaccine and Pneumococcal Conjugate vaccine are in expansion, while JE vaccine is only provided in endemic districts.





# EVOLUTION OF UNIVERSAL IMMUNIZATION PROGRAMME (UIP)



Sources: <http://www.searo.who.int/entity/immunization/data/india.pdf>





## What is Immunization?

Immunization (also commonly called vaccination) is a process that helps your body develop protection against a specific disease.

- 1. Protection:** Immunization gives you **immunity to a disease without having to get sick with the disease first**. Immunity means you are protected from becoming ill if exposed to the disease-causing germs.
- 2. Vaccines:** Immunization works by introducing a vaccine into your body. Vaccines are created in a way that **mimics the disease-causing germ (virus or bacteria), but in a killed, weakened, or partial form that won't actually make you sick**.

## How does immunization work?

- 1. Exposure:** When you get a vaccine, your body is exposed to the safe, modified version of the germ.
- 2. Immune Response:** Your **immune system, designed to fight disease, is triggered. It recognizes the germ as foreign and starts making antibodies**.
- 3. Memory:** Your immune system remembers how to fight the specific germ. If you're ever exposed to the actual disease, **your body has the antibodies ready to fight it off before you get sick**.

## Why is immunization important?

- 1. Individual Protection:** Immunization helps you avoid getting seriously ill or having complications from preventable diseases.
- 2. Community Protection (Herd Immunity):** When enough people in a **community are immunized, it helps prevent diseases from spreading easily**. This protects those who cannot get vaccinated, like infants or people with weakened immune systems.

## Types of Vaccines

- 1. Live-attenuated:** Use a weakened form of the germ. (Examples: Measles, mumps, rubella (MMR) )
- 2. Inactivated:** Use a killed version of the germ. (Examples: Polio, hepatitis A)

- 3. Subunit, recombinant, polysaccharide, and conjugate:** Use specific pieces of the germ, such as its protein, sugar, or casing. (Examples: Whooping cough, Hib disease)
- 4. Toxoid:** Use a toxin created by the germ to build immunity. (Example: Tetanus, diphtheria)
- 5. mRNA:** Provide instructions to your cells to create parts of the virus, triggering the immune response (Example: some COVID-19 vaccines)

## 16. 3-D Map of the Universe

1. Recently, an **international team of researchers has unveiled the most comprehensive 3-dimensional map of the universe, providing valuable insight into the mysteries of dark energy**.
2. This development has great potential to uncover the fundamental components and **forces that shape our universe**.

## Components of the Universe:

- 1. The universe is composed of 3 primary components:**
- 2. Normal, visible matter:**
  - a. It accounts for **only 5%** of the universe's composition.
  - b. It comprises atomic particles like **protons, neutrons, and electrons**.
  - c. It can exist in various states, including **gas, solid, liquid, and charged particle plasmas**.
- 3. Dark matter:**
  - a. Estimated to make up **27% of the universe**.
  - b. It is **invisible** and does not interact with light, making direct observation impossible.
  - c. This applies **gravitational influence**, which affects the **movement of stars, gas and galaxies**.
  - d. Dark matter is believed to **form halos around galaxies and is more prevalent in smaller, dwarf galaxies**.
- 4. Dark energy:**
  - a. **Comprises around 68% of the universe**.



- b. It is a **mysterious force** that counteracts gravity, leading to the **accelerated expansion of the universe**.
- c. **Dark energy has an opposite effect to dark matter**, pushing galaxies apart rather than pulling them together.
- d. Its **discovery in 1998** was based on measurements of **cosmic expansion**.

### Dark Energy Spectroscopic Instrument (DESI):

1. **DESI is a unique piece of equipment capable of capturing light from 5,000 galaxies simultaneously.**
  - a. It is a collaboration of over 900 researchers from institutions worldwide.
2. Mounted on the **Mayall 4-Meter Telescope in Arizona, US**, DESI has enabled researchers to measure light from **6 million galaxies**, some of which existed over 11 billion years ago.
3. This **data was used to create the most detailed map of the universe to date.**

### Unravelling the Mysteries:

1. The **comprehensive 3-D map of the universe offers valuable insights into the spatial distribution of galaxies** and can shed light on the mysteries of Dark Energy.
2. Dark energy **may not remain constant throughout time** as previously thought, opening up further avenues of exploration.
3. The detection of **Dark Energy is based on its effect on the rate of universe expansion and large-scale structure formation.**
4. The 3-D map obtained from DESI observations is an important milestone, providing a glimpse into the inner workings of our universe and paving the way for further breakthroughs in uncovering the mysteries of dark energy.

## 17. Geofencing: Security by Obscurity

1. The **Election Commission of India (ECI) website has been blocked outside India for security reasons for several months.**
2. The affected geofenced sites include the **ECI's homepage, voter registration portal, and Right to Information portal.**
3. In contrast, the **results portal, which provides the outcomes of all polls administered by the ECI, remains accessible.**

### What is Geofencing?

Geofencing is a **location-based technology that creates virtual boundaries around real-world geographic areas.** These virtual boundaries can be used to trigger specific actions **when a device enters or exits the defined area.**

### Implications

1. **Limited Access for Overseas Voters:** The **geo-blocking of the ECI website could pose challenges for Indian citizens residing abroad who wish to access information or services related to elections.** This may include **registering to vote, checking voter information, or learning about candidates and parties.**
2. **Transparency Concerns:** While the **ECI's security concerns are understandable, the lack of access to the website from outside India may raise concerns about transparency and accessibility.** It may be seen as a barrier to participation for overseas voters and those interested in observing the Indian electoral process.
3. **Alternative Solutions:** The **ECI could explore alternative solutions to address security concerns while ensuring access for legitimate users outside of India. This could include implementing stricter security measures on the website or providing specific information and services through dedicated channels for overseas voters.**



## 18. Ozone On Jupiter's Moon

1. An international team of scientists, including from India, has discovered strong evidence indicating the **presence of ozone on Jupiter's moon, Callisto.**
2. The Scientists modelled the surface of Callisto icy surface conditions in a lab, and analysed the chemical reactions occurring on the surface of Callisto when sunlight hits its surface (caused by ultraviolet radiation). The ultraviolet absorption spectrum was recorded which revealed the formation of ozone.

### Importance Of Ozone

1. Ozone molecule is composed of three oxygen atoms bonded together.
2. Ozone layer is found in the lower part of the earth's stratosphere, around 15–35 km above ground, and serves as a shield as it completely absorbs ultraviolet-B and ultraviolet-C radiation.
3. Ultraviolet-B (wavelengths 290–320 nanometres) and ultraviolet-C (100-280 nanometres) can damage DNA, trigger mutations, inhibit plant growth and increase the risk of skin cancer and cataracts in humans.
4. Without the ozone layer, UV-radiation levels would be much higher on Earth's surface, rendering it uninhabitable for many species and disrupting entire ecosystems.
5. Rationale of the study: Scientists are currently studying various celestial bodies in the Solar System that show signs of ozone, suggesting the existence of stable atmospheric conditions and, by extension, their possibility of hosting life.

### Callisto And Its Unique Environment:

1. Callisto is one of Jupiter's largest moons and the third-largest moon in the Solar System after Ganymede (Jupiter's moon) and Titan (Saturn's moon).

2. It is primarily composed of water ice, rocky materials, sulphur dioxide, and some organic compounds. These substances make the moon a potential candidate for supporting life in the solar system beyond the earth.
3. Its surface is heavily cratered, indicating a long history of being struck by asteroids and comets.
4. It lacks the extensive seismic activity, which is present in some of Jupiter's other moons like Europa.
5. It has relatively few geological features which suggest that Callisto's surface is geologically inactive or relatively stable for a long time. This stability could be vital to preserve any subsurface ocean or potential habitats beneath the icy crust.

### Significance

The discovery of ozone on Callisto suggests the presence of oxygen, which in turn is a fundamental ingredient required for the formation of complex molecules required for life such as amino acids. The findings would help in understanding Callisto's environment and the potential habitability of icy moons in the Solar System.

## 19. DURGA II Laser Weapon

The Defence Research and Development Organisation (DRDO) recently requested \$100 million from the Ministry of Defence to develop DURGA II, a lightweight directed energy weapon (DEW).

1. This 100-kilowatt DEW is intended to provide cutting-edge technology to the Indian armed forces, enabling them to neutralise various threats, including drones, missiles, and artillery shells.
2. It is a lightweight weapon that can be used effectively by the armed forces.

### What are Directed-Energy Weapons (DEWs)?

1. **About:**
  - a. Directed Energy Weapons (DEWs) emit **highly focused energy, like lasers, microwaves, or**

particle beams, to incapacitate or destroy targets.

- b. DEWs differ from traditional firearms or explosives, which rely on kinetic energy (physical impact), as they utilize directed energy to achieve their effects.

## 2. Types:

- a. **Laser Weapons:** These weapons utilize a tightly focused beam of coherent light to heat up and damage targets.
- b. **Microwave Weapons:** Microwave weapons deploy electromagnetic radiation in the microwave frequency range to interfere with or damage electronic systems, including computers, sensors, and communication devices.
- c. **Particle Beam Weapons:** These weapons accelerate either charged or neutral particles to high speeds and direct them towards the target. The intended damage is caused by the transfer of kinetic energy or through ionization effects.

## 3. Advantages:

- a. Directed energy weapons (DEWs) offer precision targeting, rapid engagement, reduced collateral damage, and potentially lower costs per shot compared to traditional weapons.
- b. DEWs are believed to be the only effective countermeasure against hypersonic missiles, which are virtually unstoppable with current technology.
- c. DEWs have applications in military defense, space exploration, and law enforcement.
- d. DEWs transmit lethal force at the speed of light, making them extremely precise.

- e. DEWs are not affected by gravity or atmospheric drag, which enhances their precision and effectiveness.

## 4. Challenges:

- a. **Limited Range:** DEWs have a limited reach, and their impact decreases as the distance between the target and the weapon increases.
- b. **Costly Investment:** Developing and producing DEWs can be expensive, and in some cases, the cost may not justify their effectiveness.
- c. **Countermeasures:** Using reflective materials can reduce the effectiveness of DEWs.
- d. **Weather Conditions:** Atmospheric factors like fog, rain, and dust can impact the effectiveness of DEWs.
- e. **Arms Race Concerns:** The development of DEWs may trigger an arms race among nations, similar to the ongoing nuclear race.

## 5. Significance for India:

- a. The integration of Directed Energy Weapons (DEWs) into the defence industry has the potential to revolutionize warfare. It will enable India to create advanced platforms, weapons, sensors, and networks crucial for prevailing in future conflicts.
- b. DEWs can serve as a deterrent against hostile nations like China and Pakistan by enhancing India's defence capabilities.
- c. Several countries, including Russia, France, Germany, the United Kingdom, Israel, and China, are actively developing DEWs or Laser Directed Energy Weapons.
- d. In the past, the US accused Cuba of carrying out sonic attacks known as "Havana Syndrome."







## F. GEOGRAPHY & ENVIRONMENT

### 1. Drought in East-Flowing Rivers

According to an analysis of data released by the **Central Water Commission (CWC)**, at least 13 east-flowing rivers between the Mahanadi and Pennar rivers currently have no water.

#### Crisis faced by the East-Flowing Rivers

- At least **13 east-flowing rivers** between the Mahanadi and Pennar currently have **no water**, including the Rushikulya, Bahuda, Vamsadhara, Nagavali, Sarada, Varaha, Tandava, Eluru, Gundlakamma, Tammileru, Musi, Paleru, and Munneru.
  - These rivers traverse Andhra Pradesh, Telangana, and Odisha, draining directly into the Bay of Bengal.
- The **water storage** in the basin has been steadily declining this year, **reaching zero** on 21 March, 2024 compared to 32.28% of capacity at the same time last year.
- The Cauvery, Pennar, and east-flowing rivers between Pennar and Kanyakumari are also experiencing deficient or **highly deficient** water storage.
- The **Ganga basin**, the largest in the country, has recorded **water storage at less than half of its total capacity**, lower than the corresponding period last year.
- The Narmada, Tapi, Godavari, Mahanadi, and Sabarmati River basins have also recorded storage levels relative to their capacities.
- India's **150 major reservoirs have only 36%** of their total capacity in live storage, with at least six reservoirs recording no water storage.
- Around **286,000 villages** in 11 states located in the Ganga basin are experiencing a **decline in water availability**.
- Overall, at least 35.2% of the country's area is under abnormal to **exceptional drought** conditions, with 7.8% under **extreme drought** and 3.8% under exceptional drought.

- States like Karnataka and Telangana are struggling with drought and drought-like conditions due to **rainfall deficits**.

#### So, why are these east-flowing rivers drying up?

- Trees are disappearing:** When we cut down trees near rivers, the soil can't hold onto water as well. This means less water seeps into the ground and less water flows in the rivers.
- Climate change:** Climate change is messing with the weather, causing irregular rain and hotter temperatures. This can lead to long dry periods, which obviously means less water in the rivers.
- Dams and water diversions:** We build dams to store water and divert it for things like farming. While this is helpful for us, it means less water flows downstream, hurting the river's natural flow and the creatures living in it.
- Pollution:** We're dumping all sorts of nasty stuff into the rivers – industrial waste, chemicals from farms, and even sewage. This makes the water dirty and harms the fish and other wildlife. Plus, invasive plants like water hyacinths clog up the rivers even more.
- Digging up sand:** Taking too much sand from riverbeds messes with the river's flow and can cause erosion, which dries up parts of the river.
- Cities growing bigger:** As cities expand, they often build on riverbanks, changing the natural flow and taking away water from the river.
- Not enough care:** Many people aren't aware of how important it is to protect rivers, and we don't always have strong enough rules in place to prevent damage. All of these things add up, and over time, it means less water in our rivers. It's a big problem, and we need to take action to fix it before it's too late.

#### Necessary Measures to Address the Issue of River Drying

- Collecting Rainwater:** Gathering rainwater, managing where water flows, and keeping the soil



moist helps put water back into the ground. This means we rely less on rivers, which is good for keeping them flowing.

- 2. Helping Farmers Use Water Better:** Using drip hoses or sprinklers helps farmers use water better, so less is wasted and it stays around longer.
- 3. Planting More Trees and Plants:** More trees and plants stop soil from washing away and help the ground soak up more water.
- 4. Rules for Water Use:** We need rules to make sure people don't take too much water from underground. This helps keep rivers from drying out.
- 5. Connecting Rivers:** We can think about connecting rivers so water from one place can help another where there's not enough. This has been done in some places already.

### Difference Between East and West Flowing Rivers

East-flowing Rivers	West-flowing Rivers
1. Major rivers flowing eastwards: Mahanadi, Godavari, Krishna, Kaveri	1. Only two long rivers flow westwards: Narmada, Tapi
2. Flow into the Bay of Bengal	2. Flow into the Arabian Sea
3. Carry greater amount of sediments, so form	3. Carry a lesser amount of sediments, so
4. deltas at their mouths	4. form estuaries at their mouths
5. A greater number of tributaries	5. Lesser number of tributaries

### Central Water Commission (CWC)

- The Central Water Commission is the **apex technical organisation** in the country for the development of water resources and is an attached organisation of the Ministry of Water Resources.
- The Commission is responsible for **initiating, coordinating, and furthering**, in consultation with the State Governments, the schemes for control, conservation, development and utilization of water resources throughout the country for irrigation, flood management, power generation, navigation etc.

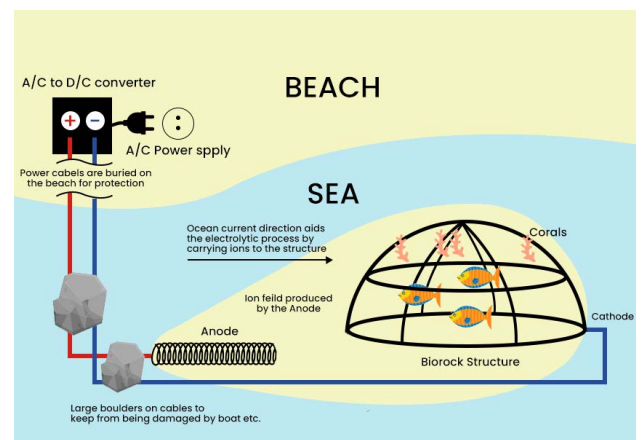
## 2. India's Second Artificial Reef Installation

In a first in Maharashtra, Mumbai is set to witness the installation of 210 artificial reefs in the Arabian Sea, near Worli Koliwada. This is the second artificial reef deployment in the country, the first was in Pondicherry.

- 1. Location:** Near Worli Koliwada, Mumbai
- 2. Purpose:** To boost marine life
- 3. Materials:**
  - a. 210 reef units made from recycled concrete and steel
- 4. Deployment:**
  - a. 500 meters offshore
- 5. Timeline:**
  - a. 3 months to show initial signs of a thriving ecosystem

### Artificial Reefs: Benefits and Significance

- Structures built by humans in freshwater or saltwater environments
- Uses biorock technology to attract and accumulate dissolved minerals, such as calcium and carbonate ions, forming a calcium carbonate layer similar to natural coral reefs.**
- Provide crucial hard surfaces for the attachment of algae, barnacles, corals, and oysters.**
- Create habitats for fish, absorb carbon dioxide, and benefit local fishing communities.**



### What is Biorock technology ?

- Biorock technology, also known as mineral accretion technology, is a method used to restore coral reefs and create artificial reefs.**



2. It works by passing a safe, low-voltage electrical current through seawater.
3. This process causes dissolved minerals, primarily calcium carbonate, to crystallise on a structure (usually made of steel).
4. These crystals gradually build up, forming a limestone layer similar to the natural material found in coral reefs.

#### how it works:

1. **Electrodes:** An anode (positive electrode) and a cathode (negative electrode) are placed in the seawater.
2. **Electrical Current:** A low-voltage electrical current is passed between the electrodes.
3. **Mineral Crystallisation:** In the current environment, dissolved minerals such as calcium carbonate are compelled to precipitate from the water and accumulate on the cathode, subsequently forming a layer of limestone.
4. **Coral Growth:** Coral larvae attach to the limestone and grow at an accelerated rate due to the increased mineral availability and the electric field's effects.
5. **Reef Formation:** Over time, the coral growth and mineral accretion create a strong, natural-looking reef structure.

#### Benefits of Biorock Technology:

1. **Accelerated Coral Growth:** Corals grow much faster on biorock structures than on natural reefs.
2. **Increased Resilience:** Biorock structures are more resistant to environmental stressors like warming waters and ocean acidification.
3. **Enhanced Biodiversity:** Biorock reefs attract a wide variety of marine life, contributing to ecosystem restoration.
4. **Coastal Protection:** Biorock structures can help protect coastlines from erosion.

#### Additional Information:

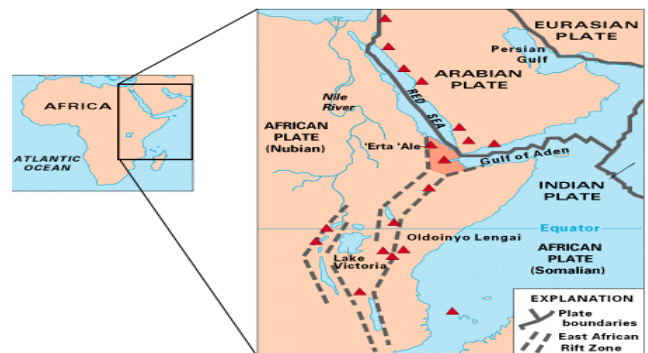
1. Biorock projects can be powered by renewable energy sources like solar or wind power.
2. Biorock technology has been successfully used in various parts of the world for reef restoration and coastal protection.

### 3. Africa's Afar Triangle: A Rift Valley of Geological Significance

1. Recent findings in geology suggest that in 5 to 10 million years, a new ocean could begin forming in Africa's Afar Triangle.
2. This event, occurring amid Africa's diverse landscapes, offers insight into the dynamic processes that shape the Earth's geography.

#### About Africa's Afar Triangle

1. The Afar Triangle, located in the Horn of Africa, is a low area in the ground where three big tectonic plates - the Nubian, Somali, and Arabian plates - come together.
2. It's part of the East African Rift system, which stretches from the Afar area down through eastern Africa.
3. Apart from its importance in geology, the Afar Triangle has a lot of fossils from some of the earliest humans.
4. The land in the Afar area has been moving slowly because of these big tectonic plates for millions of years.
5. In 2005, there was a big rift that opened in the Ethiopian desert, showing that Africa is still separating at a tectonic level.



#### Rift Expansion

1. For millions of years, the Afar region has been undergoing gradual shifts due to tectonic movements.
2. This ongoing process was dramatically highlighted in 2005 when a significant rift opened up in the Ethiopian desert.



- This event provided clear evidence of the **continuing separation** of the African continent at a tectonic level.

### What factors led to the expansion of Rift?

- One of the **main reasons** for the rifting process is thought to be a huge plume of **very hot rocks** rising from the mantle under East Africa.
- This plume might be **pushing against the Earth's crust** above it, causing it to **stretch and break**.
- Additionally, the volcanic activity in the area, especially at the **Erta Ale volcano**, provides clues about how the Earth's crust is changing, showing similarities to what happens at mid-ocean ridges.
- Magmatism**, which is the movement and formation of magma under the Earth's surface, plays a big role in various Earth processes, like filling cracks in the Earth's crust, forming mountains, and releasing heat from the Earth's core.
- The continuous expansion of the rift in this area might eventually create a new ocean, tentatively called the **"Alvor-Teide Atlantic Rift."**
- This new ocean would form if the **Red Sea** and the **Gulf of Aden** flood over the Afar region and into the East African Rift Valley.

### What are Tectonic Plates?

- Also known as **Lithospheric Plates**, are massive, irregularly shaped slabs of rock consisting of Crust and Upper Mantle.
- The concept of Plate Tectonic was put forward by **McKenzie, Parker and Morgan** in 1967.
- These Plates are of two types; **continental plate** and **oceanic plate**.



### Indian Plate

- It involves **Peninsular India** and parts of the **Australian continent**.
- Its **eastern extension** stretches from the Rakim Yoma Mountains in Muanrnar to the Java Trench.
- In the **west**, it reaches the **Makrana coast of Balochistan**, Pakistan.
- The **movement rate** is approximately 54 mm per year in a **northeast direction**.
- The boundary between the Indian and Antarctic plates is marked by an **oceanic ridge**, signifying a divergent boundary.
- The **formation of the Himalayas** is attributed to the collision between the Indian and Eurasian plates.

### Plate Movement

- The Earth's plates are **always shifting horizontally** over the asthenosphere.
- When plates collide or move apart, it can cause **earthquakes** and **volcanic eruptions**.
- The **asthenosphere** is a layer of Earth's mantle located just beneath the lithosphere.
- It's thought to be much hotter and more fluid than the lithosphere.
- Subduction** happens when tectonic plates move, and **one plate is pushed beneath another**.
- The **oceanic plate** going down is **pushed into the hotter mantle** plate.
- As it goes deeper, it **heats up and mixes** with volatile elements.
- This mixing creates magma, which can lead to a **volcanic eruption**.

### Types of Plate Boundaries

## PLATE BOUNDARIES



- Convergent or Destructive** boundaries occur when plates move towards each other, leading to subduction zones.





2. **Divergent or Constructive** boundaries occur when plates move apart, creating rift valleys.
3. **Transform or Conservative** boundaries occur when plates slide sideways about each other, forming faults.

### What is the Tectonic Movement?

1. Tectonic movement refers to the significant **motion of the Earth's lithosphere** resulting from the interactions between tectonic plates.
2. These interactions form 3 main types of boundaries: **Divergent Boundaries, Convergent Boundaries, and Transform Boundaries.**
3. As the **tectonic plates move apart**, tensional forces cause the lithosphere to **crack and break**, forming rift zones.
4. **Rifting** is a geological process in which the Earth's lithosphere, its outermost layer, **is stretched and thinned.**
5. This stretching leads to the formation of **rift valleys or basins.**

### What is the Mid-Oceanic Ridge?

1. A mid-oceanic ridge is a lengthy **underwater mountain range** that develops along **divergent boundaries** between tectonic plates in the oceanic crust.
2. These ridges are marked by **volcanic activity** and the upsurge of magma from the mantle, which then solidifies to create fresh oceanic crust.
3. They are crucial components of **seafloor spreading**, a process in which new crust forms continuously as tectonic plates separate.

## 4. Magnetic Fossils

1. Recently, scientists discovered a **50,000-year-old sediment**, a large magnetofossil, deep in the **Bay of Bengal**. This discovery is one of the **youngest of its kind.**
2. Researchers at CSIR-National Institute of Oceanography analyzed a sediment sample from the southwestern Bay of Bengal using magnetic analyses and electron microscopy.

### What are Magneto Fossils?

1. "Magneto fossils" are fossilized remains of **magnetotactic bacteria** that contain magnetic minerals.
2. These bacteria leave behind **fossilized magnetic particles** in geological records.

### About Magnetotactic Bacteria

1. Magnetotactic bacteria are primarily **prokaryotic organisms** that align themselves along the Earth's magnetic field.
2. Discovered by **Salvatore Bellini** in 1963, these **bacteria navigate** using the magnetic field to **locate areas with optimal oxygen levels.**
  - a. They achieve this through the presence of **iron-rich crystals** within their cells.
3. These bacteria produce small crystals of **magnetite or greigite** inside their cells, aiding **navigation** through changing oxygen levels and sediment saturation in water bodies.
  - a. These crystals are arranged in a chain configuration through **magnetotaxis.**
4. Although less common than conventional magnetic fossils, rare giant magneto fossils are likely **produced by eukaryotes** rather than bacteria.

### Origin of Magnetofossils

1. Most giant magnetofossils have been found in sediments dating to two geological periods—the **Paleocene-Eocene Thermal Maximum** (approximately 56 million years ago) and the **Middle Eocene Climatic Optimum** (about 40 million years ago).
2. Both of these periods were characterized by a significant **rise in global temperatures.** This suggests that the magnetofossils formed during periods of extreme warming.
3. However, the discovery of giant magneto fossils from the Bay of Bengal, determined to be from the **late Quaternary period** approximately 50,000 years ago, challenges the assumption that magneto fossils formed only during periods of extreme warming.
4. This finding indicates that magnetofossils may have formed during other geological periods as well, suggesting a more **complex relationship** between magnetofossil formation and climate change.



Prokaryotes	Eukaryotes
1. Prokaryotes are organisms that <b>lack a true nucleus</b> and membrane-bound organelles.	Eukaryotes are organisms with cells containing a <b>well-defined nucleus</b> enclosed within a membrane.
2. Instead, their genetic material, usually a circular <b>DNA molecule</b> , is found in the cytoplasm without being enclosed within a nuclear membrane.	Eukaryotic cells also have various <b>membrane-bound organelles</b> , including mitochondria, endoplasmic reticulum, and Golgi apparatus, as well as a complex network of internal membranes.
3. Prokaryotes include <b>bacteria and archaea</b> , and their key features include small, simple cells without a nucleus or organelles.	Eukaryotes <b>encompass animals, plants, and fungi</b> , and their key features include large, complex cells with a nucleus and various organelles.

### 5. Volcanic Vortex Rings

1. Mount Etna, the largest volcano in Europe, and among the world’s most active and iconic volcanoes, has been showing off giant smoke rings into the sky. Scientists call them “**Volcanic Vortex Rings**,”.
2. They happen when a bunch of gas (mostly water vapor) blasts out of a hole in the volcano’s top.
3. Despite their impressive appearance, the presence of these rings does not necessarily indicate an imminent volcanic eruption.

#### The Science Behind the Smoke Show

1. **So, how do these rings actually form?** It’s like when you quickly blow air out of your mouth – the gas bursts out, and because the volcano’s hole is round, the gas forms a ring shape.
2. The air above the volcano is cold, so the hot water vapor cools down and turns into a cloud, making the ring visible. It’s like a mini-cloud donut!

### Occurrence Of Volcanic Vortex Rings

Etna isn’t the only volcano that can blow smoke rings. Other volcanoes around the world have also been caught doing it, like Redoubt in Alaska, Tungurahua in Ecuador, Pacaya in Guatemala, and even Hekla in Iceland. It’s like a volcanic talent show!

### 6. India’s Biggest Climate Clock

1. As part of Earth Day celebrations in April,2024, the Council of Scientific & Industrial Research (CSIR) launched **India’s Biggest Climate Clock** at their headquarters in New Delhi.
2. This symbolic installation aims to raise awareness about the urgency of climate change and the need for action.

#### About Climate Clock

1. The event signifies CSIR’s commitment to raising **awareness about climate change** and promoting energy literacy among people.
2. Launched in **2015**, the Climate Clock serves as a visual tool for **tracking progress** in mitigating climate change.
3. It **illustrates how rapidly the planet is approaching 1.5°C** of global warming based on current emissions trends.
4. Additionally, it displays the **amount of CO2** already emitted and the extent of global warming to date.
5. The date projected for humanity to reach 1.5°C will move closer as emissions rise and further away as emissions decrease.
6. As of April 4, 2024, the **current climate temperature** stands at **1.295°C**.

#### About the Climate Clock:

1. **Purpose:** The Climate Clock serves as a stark reminder of the limited time remaining to address climate change and limit global warming to 1.5°C above pre-industrial levels. It is a visual representation of the progress (or lack thereof) in mitigating greenhouse gas emissions and transitioning to a sustainable future.
2. **Functionality:** The clock displays 2 crucial numbers:
3. **Deadline:** The estimated time remaining until the world reaches 1.5°C of warming based on current emission trends.



- Lifeline:** The percentage of the global energy supply that currently comes from renewable sources.
- Data:** The clock's data is derived from the Mercator Research Institute on Global Commons and Climate Change (MCC), which uses the latest scientific models to project future warming scenarios.
- Global Movement:** The first Climate Clock was launched in New York City in 2020. Similar clocks have been installed in major cities worldwide, including Berlin, Rome, and Seoul.
- Temperature Update:** As of April 22nd, 2024, the global average temperature had already risen by approximately 1.2°C above pre-industrial levels.

### About Earth Day

- Observed on:** April 22nd (Annually).
- Aim:** to raise awareness about environmental problems and encourage people to take action to protect the planet.
- Theme for 2024:** Invest In Our Planet

## 7. India's Post Office in Antarctica

- In April, 2024 the Department of Posts opened a 2<sup>nd</sup> branch of the post office at the **Bharati research station** in Antarctica, marking the 1<sup>st</sup> expansion in nearly forty years.
- As part of this initiative, letters sent to Antarctica will now use a **Unique Experimental PIN code, MH-1718**, designated for this new branch.
- Currently, India operates two active research stations in Antarctica: **Maitri and Bharati**.



## India's Antarctic Programme

- The Indian Antarctic Program, managed by the National Centre for Antarctic and Ocean Research (NCPOR), began in 1981 with India's first expedition to Antarctica.
- NCPOR was established in 1998.**
- Dakshin Gangotri (1983-1991)** was India's initial research base in Antarctica, established as part of the Indian Antarctic Program. Unfortunately, it was **submerged in ice** in 1988-89 and decommissioned thereafter.
- Maitri, (1989)** India's second permanent research station in Antarctica, was completed in 1989. Situated in the rocky **Schirmacher Oasis**, Maitri has a freshwater lake called **Lake Priyadarshini**.
- Bharati (2012)** India's latest research station, has been operational since 2012. It's designed to ensure the **safety of researchers** in harsh weather conditions and is located about 3000 km east of Maitri.
- In 2008**, India launched the **Sagar Nidhi**, an ice-class vessel, as a proud initiative of the National Institute of Ocean Technology (NIOT). This vessel can navigate through thin ice up to 40 cm thick and is the first Indian ship to explore Antarctic waters. It has been used for various research purposes, including launching and retrieving remotely operable vehicles (ROV), deep-sea nodule mining systems, and conducting tsunami studies.

## The Antarctic Treaty System: Keeping the Peace in a Frozen Wonderland

- It's a bunch of agreements:** These agreements are like the rulebook for how countries behave in Antarctica.
- The main goal:** To keep Antarctica peaceful and prevent any international fights from breaking out there.
- It's a big deal:** This treaty has been super successful for over 50 years, showing countries can actually work together
- Rules for a unique place:** The agreements are made specifically for Antarctica's super cold, icy, and isolated environment. They've created a solid framework for how things are run down there.

5. **Times are changing:** But things are different now compared to when the treaty first started. It's easier to get to Antarctica these days, and more countries are interested in it.
  6. **New worries:** With the world running out of resources, people are starting to wonder what's hidden beneath all that ice – maybe fish, oil, or other valuable stuff.
  7. **Staying vigilant:** Because of all these changes, the countries that signed the treaty need to keep a close eye on what's happening in Antarctica. They have to make sure it stays a place for science and cooperation, not a free-for-all.
2. NCPOR is **based in Goa**.
  3. They're the main group in charge of planning, supporting, organizing, and carrying out scientific research in the Polar and Southern Ocean areas, including all the logistics involved.
  4. NCPOR takes care of India's research bases in the **Antarctic ("Maitri" and "Bharati") and the Arctic ("Himadri")**.
  5. They also manage the research vessel ORV Sagar Kanya, owned by the Ministry, along with other chartered vessels. This ship, Sagar Kanya, is decked out with high-tech tools for studying the ocean.

### The Indian Antarctic Act, 2022

1. **22nd July 2022:** The Bill passed by Lok Sabha.
2. **1st August 2022:** The Bill passed by Rajya Sabha.
3. **6th August 2022:** The Indian Antarctic Act, 2022 received the assent of the Hon'ble President of India.
4. **8th August 2022:** The Act was notified in the Gazette of India.
5. According to the provisions of the Act, the **Committee on Antarctic Governance and Environmental Protection (CAG-EP)** was constituted and notified by the Central Government. (The exact date of this event is not specified in the given information).
6. **Aim:** to protect the Antarctic environment and all the living things connected to it. It does this by following the rules set out in some important international agreements:
  - a. **The Antarctic Treaty:** The main agreement about how to manage Antarctica.
  - b. **The Convention on the Conservation of Antarctic Marine Living Resources:** This one is all about protecting the animals and plants that live in the waters around Antarctica.
  - c. **The Protocol on Environmental Protection to the Antarctic Treaty:** This provides extra rules for protecting the environment in Antarctica.

### About NCPOR

1. The National Centre for Polar and Ocean Research (NCPOR) was set up on **May 25, 1998**, as an independent research branch of the **Ministry of Earth Sciences**. It used to be called the National Centre for Antarctic and Ocean Research (NCAOR).

### 8. NABARD's Climate Strategy 2030

The National Bank for Agriculture and Rural Development (NABARD) recently introduced its Climate Strategy 2030 document, which focuses on addressing **India's green financing needs**.

#### About NABARD's Climate Strategy

1. NABARD's Climate Strategy 2030 is built on **4 main pillars**:
  - a. Increasing green financing across **various sectors**.
  - b. Creating a **conducive market environment** for green finance.
  - c. Implementing **sustainable practices** within NABARD's operations.
  - d. Effectively **mobilizing resources** to support green initiatives.
2. This strategy aims to **address the financial gap** between the investment needed for sustainable initiatives and the current inflow of green finance.
3. India needs approximately **USD 170 billion** annually by 2030, totalling over USD 2.5 trillion.
4. However, current green finance inflows are **critically insufficient**, with only about USD 49 billion secured as of 2019-20.
5. Additionally, most funds in India are allocated for **mitigation efforts**, with only USD 5 billion directed towards adaptation and resilience. This indicates minimal private sector involvement in these areas due to challenges in bankability and commercial viability.





## What is Green Financing?

1. Green financing involves **gathering financial resources to back investments** that benefit the environment positively.
2. These investments **encompass various projects** such as renewable energy initiatives, energy efficiency programs, sustainable infrastructure development, and climate-smart agriculture.
3. The conventional financial system frequently prioritizes **immediate profits** over long-term environmental sustainability.
4. Green financing directs funds toward **renewable energy and clean technologies**, aiming to decrease dependence on fossil fuels and mitigate greenhouse gas emissions.
5. Investments in **green infrastructure**, such as flood defences and early warning systems, can assist communities in adapting to climate change and lessening the impact of natural disasters.
6. **Transitioning to a green economy** opens new markets for clean technologies and sustainable practices, fostering innovation and job opportunities.

## Why Green Financing is a Challenge in India?

1. Green projects often demand **larger initial investments** compared to conventional projects, which may deter investors despite the potential for long-term cost savings and environmental benefits.
2. These projects typically have **longer payback periods** and may not match the short-term investment horizons or financial goals of investors and financial institutions.
3. The lack of globally accepted standards for **green investment** contributes to uncertainty and inconsistency when evaluating their environmental impact and financial performance.

## How Green Financing Can Be Improved?

1. Enhancing **AI algorithms** to accurately and efficiently evaluate the environmental and financial risks associated with green projects.

2. Utilizing **satellite imagery and data analytics** to assess the environmental impact of potential investments, such as deforestation or sustainable agriculture, and providing investors with data-driven insights.
3. Creating **green infrastructure bonds** backed by partial government guarantees to reduce risk for private investors and encourage participation in large-scale sustainable infrastructure projects.
4. Establishing **micro-grant programs** to aid local communities in developing and implementing small-scale green projects like rainwater harvesting, solar-powered irrigation, or community composting initiatives.
5. Implementing a system where financial products receive **“green impact scores”** based on their environmental footprint, empowering consumers to make informed choices and prioritize green options.

## 9. Marine Cloud Brightening

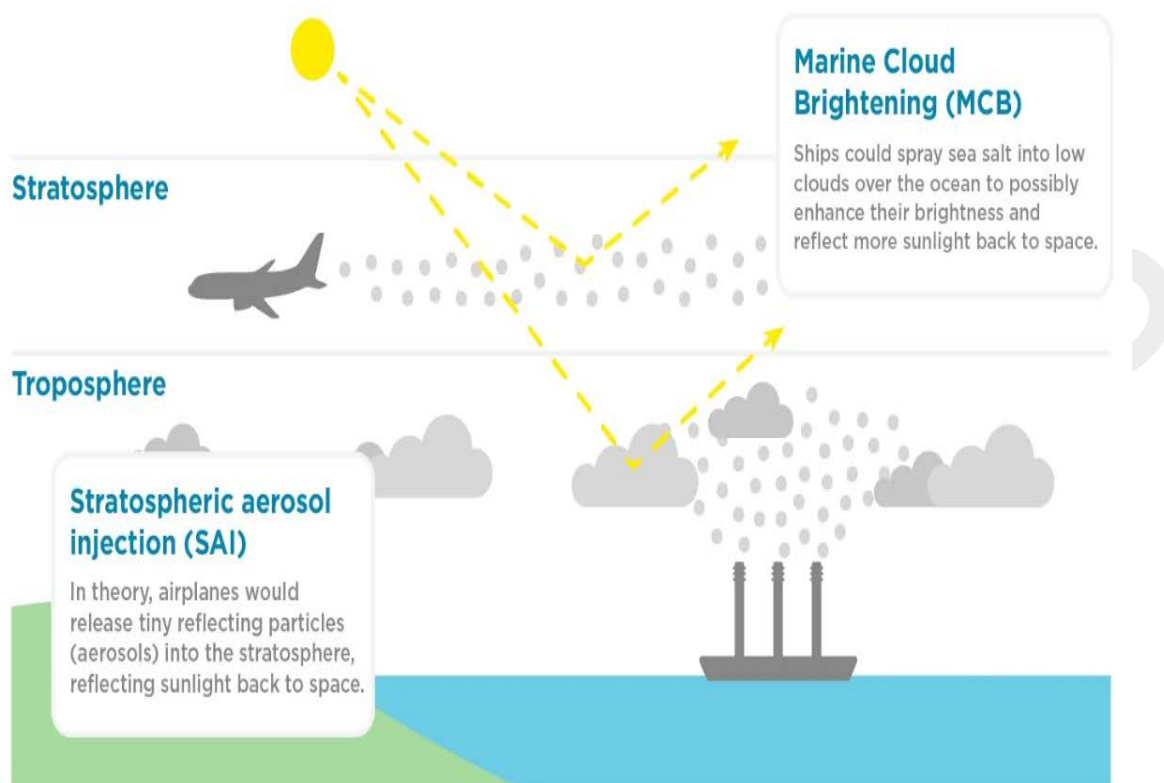
Currently, scientists are experimenting with a **geoengineering method** known as marine cloud brightening. This technique involves the use of machines to **inject minuscule saltwater particles** into **marine stratocumulus clouds**. The goal is to enhance their reflectivity, ultimately leading to a cooling effect on the Earth.

### What is Marine Cloud Brightening?

1. Marine cloud brightening is a **scientific endeavour** investigating the effects of changing atmospheric particles, or aerosols, on cloud reflectivity.
2. By introducing **minuscule aerosol particles** into the atmosphere, scientists aim to **boost cloud brightness**, which would result in greater reflection of sunlight.
3. **Aerosols** of the appropriate size and concentration have the potential to considerably **enhance the reflectivity** of certain types of clouds.
4. This effect can be observed in satellite images showing clouds brightened by ship emissions, often referred to as “ship tracks.”



## How Might Solar Geoengineering Cool the Earth?



### Rationale Behind Marine Cloud Brightening

1. A **better understanding** of the current effects of pollution aerosols on clouds is essential.
2. Researchers are investigating whether sea salt aerosol particles could be intentionally used to **reduce near-term climate warming** while efforts are made to lower greenhouse gas concentrations to safer levels.
3. It is crucial to assess the benefits, risks, and effectiveness of using aerosols intentionally to reduce warming through various implementations of marine cloud brightening.

### Risks Associated with MCB

1. **Feasibility:** Making marine clouds brighter involves spraying seawater high up in the air, which can be tricky and expensive.
2. **Environmental Impact:** Brightening clouds might change weather patterns, causing unexpected problems like droughts or floods. It can affect how rain falls and where clouds go. Both make clouds

brighter and pollution can change clouds and weather far away.

3. **Ethics:** Brightening clouds raises questions about whether it's right for people to change natural things and who should decide.
4. **Risk of Complacency:** If we can make clouds brighter, some people might stop trying to reduce pollution and deal with climate change.

### Aerosol and Climate Effect

1. **Aerosol concentration is decreasing** because of stricter air quality regulations, resulting in fewer particles in the atmosphere.
2. Most aerosol particles help cool the climate, so reducing them **contributes to global warming**.
3. Scientists estimate that **aerosols from human activities** are currently offsetting about 0.5°C of global warming, but the actual cooling effect might be between 0.2°C and 1.0°C.
4. The uncertainty about how aerosols affect clouds adds to the **uncertainty** in predicting future warming.



## Geoengineering in India

1. Geoengineering involves large-scale efforts to **alter Earth's natural systems to combat climate change**.
  2. In India, this field is growing and **includes methods like** carbon capture, afforestation, and weather modification.
  3. **Environmental Impact:** Geoengineering techniques need a thorough evaluation to understand their long-term environmental effects.
  4. **Regulatory Framework:** India must develop strong regulations to manage geoengineering practices effectively.
  5. **Institutional Involvement:** Indian institutions are increasingly investigating geoengineering, especially in renewable energy and carbon sequestration.
  6. **Potential Projects:** Projects might include solar radiation management, ocean fertilization, and enhanced weathering techniques.
  7. **Significance for India:** Geoengineering is crucial for India due to its large population, reliance on agriculture, and vulnerability to climate change impacts.
- a. WMO is a **United Nations** specialised agency.
  - b. **India is a member** of WMO.
  - c. It is headquartered in **Geneva**.
4. It has been conducted since 2010.
  5. **SASCOF's forecasts:**
    - a. There will be **above than normal temperatures** in South Asian countries. Currently, it is prevailing because of El-Nino and Anticyclonic conditions.
    - b. Over some time, it will pave the way for the **above-than-normal rainfall**.
    - c. From the current heatwaves and anti-cyclonic conditions, the regions which will be **worst affected** will be the
      - i. East of Pakistan, Rajasthan, Gujarat;
      - ii. North of Maharastra
      - iii. Coastal areas of Karnataka and Kerala
      - iv. Islands of Lakshwadeep
      - v. It will also impact, Nepal, Bhutan and Central Myanmar

## 10. 28<sup>th</sup> South Asian Climate Outlook Forum

1. 'Above normal' rainfall is predicted in most of the South Asian countries during the upcoming monsoon season.
2. The forecast was shared at the **28<sup>th</sup> South Asian Climate Outlook Forum (SASCOF)** meet which held at Pune.

### What is SASCOF?

1. It is a consortium of **metrologist and hydrologist experts** from following **9 South Asian countries:**
    - a. Afghanistan-Pakistan-India (API)
    - b. Nepal-Bangladesh-Sri Lanka (NBS)
    - c. Bhutan-Maldives-Myanmar (BM<sup>2</sup>)
  2. For these 9 countries SASCOF provides a **regional forecast** for both **South West monsoon** as well as **North East monsoon**.
  3. It is **supported** by the **World Metrological Organisation (WMO)**.
1. The weakening of El – Nino
    - a. El Niño is like a big weather tantrum in the Pacific Ocean.
    - b. Normally, winds blow from east to west, but when El Niño happens, those winds get lazy and warm water sloshes back east. This warm water messes with the usual weather patterns, causing changes all over the world.
    - c. One of those changes is that it can rain more than usual in some places. When El Niño starts to weaken or go away, those weather patterns shift again, and sometimes that means even more rain.
  - d. **Impact of El Nino in India**
    - i. El Niño can greatly affect India's **weather and agriculture**.
    - ii. During El Niño events, **monsoon rains tend to be weaker** than usual, leading to **droughts**.
    - iii. This can **harm summer crops** like rice, sugarcane, cotton, and oilseeds, reducing yields and impacting the economy.

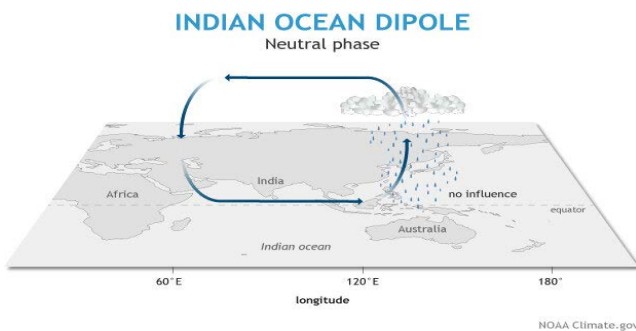


- iv. **Water resources** can be severely affected, and temperature, precipitation, and storm patterns may change, leading to flooding, landslides, and other hazards.
- v. El Niño has caused notable droughts in India, including in 2002 and 2009, affecting GDP growth and causing high inflation.
- vi. Overall, El Niño’s impact on India’s weather and agriculture underscores the importance of understanding and preparing for this phenomenon.

**2. Development of ‘La Nina’ in 2<sup>nd</sup> Half of Monsoon**

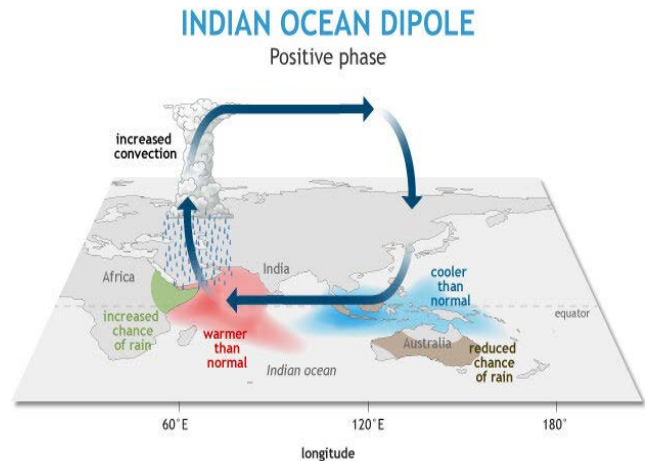
- a. During La Niña events, **sea-surface temperatures decrease** by more than 0.5°C for at least five successive three-month seasons, resulting in colder-than-normal conditions in the Eastern Pacific.
- b. This leads to strong **high pressure** over the **eastern equatorial Pacific**.
- c. In La Niña years, rainfall associated with the **summer monsoon** tends to be **greater than normal** in Southeast Asia, especially in **northwest India** and Bangladesh.
- d. This increased rainfall benefits the Indian economy, particularly agriculture and industry, which rely heavily on the monsoon.

**3. Indian Ocean Dipole (IOD)**



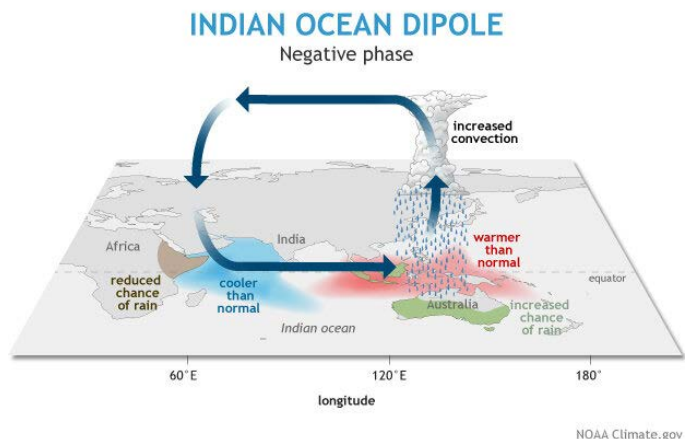
- a. During the Indian Ocean Dipole (IOD), air circulation weakens, and in rare cases, it can even reverse direction.
- b. This leads to warmer temperatures along the African coast and cooler temperatures along the Indonesian coastline.
- c. Indian Ocean Dipole is of two types:

• **Positive IOD:**



- i. A positive IOD event often occurs **during El Niño**, while a negative IOD is associated with La Niña.
- ii. During El Niño, **cooler temperatures on the Pacific side of Indonesia** lead to cooler temperatures on the Indian Ocean side, promoting a positive IOD.
- iii. The IOD exhibits an ocean-atmosphere interaction similar to El Niño but with less impact.
- iv. A positive IOD **enhances rainfall along the African coastline and the Indian subcontinent** while suppressing rainfall over Indonesia, Southeast Asia, and Australia, with opposite impacts during a negative IOD event.

• **Negative IOD:**





- v. In a normal year, air circulation in the Indian Ocean basin moves from west to east, pushing warmer waters from the western Pacific into the Indian Ocean, making it slightly warmer. This rising air aids prevailing circulation.
- vi. During a negative Indian Ocean Dipole (IOD), stronger air circulation **pushes more warm surface waters** from the **African coast to the Indonesian islands**, making that region warmer. This causes hotter air to rise, reinforcing the cycle.

- 4. Together, they represent the **sudden arrival** of the ocean on land, like a **surprise from a thief**.
- 5. This characterization reflects the **abruptness** and **unpredictability** of the flooding, which often catches residents off guard, causing damage to property and disrupting livelihoods.
- 6. Understanding the factors contributing to **swell wave formation** and monitoring weather patterns become crucial for early warning systems and effective response strategies.

## 11. Kallakkadal: High Swell Waves

Recently, hundreds of houses in several coastal areas of Kerala were flooded due to **high swell waves** known as Kallakkadal. This phenomenon also affects coastal areas along the Lakshadweep and Tamil Nadu coasts.

### What is Kallakkadal?

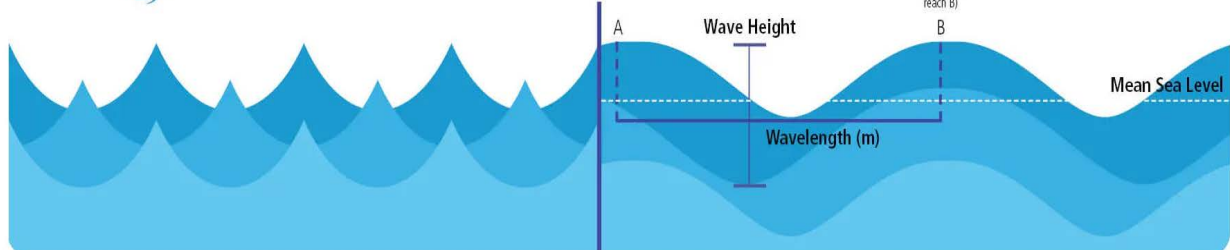
1. Kallakkadal denotes a specific phenomenon of **coastal flooding** caused by **swell waves** occurring during the **pre-monsoon** season (April-May) and sometimes during the **post-monsoon** period along the southwest coast of India.
2. This natural event has significant **impacts on coastal communities**, particularly in Kerala, Lakshadweep, and Tamil Nadu.
3. The term “Kallakkadal” originates from the local fishermen’s vocabulary, combining two Malayalam words: “**Kallan**,” meaning **thief**, and “**Kadal**,” meaning **sea**.

### Swell Waves

1. Kallakkadal, the phenomenon of coastal flooding, is triggered by ocean swells **originating from distant storms**, such as hurricanes or prolonged periods of intense gale winds, often occurring in the southern part of the Indian Ocean.
2. These storms infuse significant **energy from the atmosphere** into the water, resulting in the formation of exceptionally high waves known as **swells**.
3. These swells can travel vast distances from the centre of the storm until they reach coastal areas.
4. What distinguishes Kallakkadal from other types of coastal flooding is its sudden onset **without any local wind activity**.
5. Unlike typical storm surges driven by local weather patterns, Kallakkadal occurs **unpredictably**, catching coastal populations off guard.
6. This lack of warning poses significant **challenges for coastal communities** in preparing for and mitigating the impacts of such events.

### WIND WAVES

Wind Waves are generated by immediate local wind. They are not self-sustaining and will die out when the wind stops.



### SWELL WAVES

Swell Waves are self-sustaining and generated by energy beneath the ocean’s surface, no longer needing local wind.

7. However, recent advancements in technology and forecasting have enabled the development of **early warning systems** to address this challenge.

For instance, the **Swell Surge Forecast System**, launched by the **Indian National Centre for Ocean Information Services (INCOIS)** in 2020, now provides a seven-day warning for potential Kallakkadal events.

This system utilizes data on ocean swells and other meteorological parameters to forecast **coastal inundation**, allowing authorities and residents to take proactive measures to protect lives and property.

### How Kallakkadal is different from Tsunami?

Features	Kallakkadal	Tsunami
1. Cause	Ocean swells caused by distant storms (e.g., hurricanes, gale winds)	Underwater disturbances (e.g., earthquakes, volcanic eruptions, landslides)
2. Origin	Atmospheric disturbances	Seismic events
3. Wavelength	Relatively short (30-40 meters)	Very long (hundreds of kilometers)
4. Wave Type	Swell waves	Series of massive waves
5. Warning Time	Can be predicted a few days in advance	Often little to no warning
6. Main Impact	Coastal flooding	Widespread destruction and flooding
7. Areas Primarily Affected	Primarily the southwestern coast of India, particularly Kerala	Can affect coastlines globally

**Both phenomena pose risks to coastal communities, but their distinct characteristics require different preparedness and response strategies.**

## 12. Taiwan Earthquake

A massive earthquake, registering **7.4 on the Richter Scale**, hit Taiwan, marking one of the most significant earthquakes in the past 25 years.

### What are the causes of earthquakes in Taiwan?

- Taiwan is susceptible to earthquakes because it sits along the Pacific **“Ring of Fire,”** where about **90% of the world’s earthquakes** occur.
- This ring comprises **seismic faults** encircling the Pacific Ocean.
- The region is prone to earthquakes due to the tension built up from the interactions between **two tectonic plates**, the Philippine Sea Plate and the Eurasian Plate, which can lead to sudden releases of energy in the form of earthquakes.
- Taiwan’s mountainous terrain can exacerbate **ground shaking**, increasing the risk of landslides.
- Following the recent earthquake, several **landslides** occurred on Taiwan’s eastern coast near the epicentre.
- Falling debris** hit tunnels and highways, crushing vehicles and resulting in multiple fatalities.

### About Earthquakes Waves

- The shaking of the earth due to the release of energy from **seismic waves**.
- The location where the earthquake starts i.e., below the earth’s surface is known as **Hypocentre**.
- The location above the Hypocentre i.e., the earth’s surface is **Epicentre**.
- Body Waves:** Travel in all directions through the Earth’s interior.
  - P Waves:** Primary waves move faster than other seismic waves. First to arrive at the Earth’s surface. Similar to sound waves. It can travel through gaseous, liquid, and solid materials.
  - S Waves:** Secondary waves arrive at the surface with some time delay. It can only travel through solid materials.
- Surface Waves:** Last to appear on seismographs. Most destructive type of seismic waves. Cause displacement of rocks.
- Love Waves:** Move horizontally (sideways) without vertical displacement. Travel faster than Rayleigh waves.



7. **Rayleigh Waves:** Cause the ground to shake in an elliptical pattern. Spread out the most among all seismic waves. Move both vertically and horizontally in a vertical plane.

### What are the causes of earthquakes?

1. Energy release along a fault or fault zones, which are breaks in the Earth's crust, can occur due to various factors:
  - a. **Movement of Tectonic Plates:** This is the most common cause of energy release. Tectonic plates shift and interact along fault lines, causing stress to accumulate until it is released suddenly, resulting in earthquakes.
  - b. **Volcanic Eruption:** Stress changes in rocks due to the injection or withdrawal of magma beneath the Earth's surface can lead to volcanic eruptions. The release of built-up pressure during an eruption can cause explosive energy release.
  - c. **Human Activities:** Human activities such as mining, explosions of chemical or nuclear devices, and other industrial processes can also cause energy release along faults. These activities can induce stress changes in the Earth's crust, leading to seismic events such as earthquakes or explosions.

### How Earthquake is measured?

1. **Seismometers:** measure seismic waves
2. **Richter Scale:** measures magnitude (energy released)
3. **Mercalli:** measures intensity (visible damage)

### Distribution of Earthquake

1. 81% of the earthquakes occur in the **Circum-Pacific Belt**.
2. 17% of the largest earthquakes took place in the **Alpide Earthquake Belt**.
3. The remaining 2% are submerged earthquakes that occur at the **Mid-Atlantic Ridge**.

### What is the Pacific Ring of Fire?

1. Also known as the **Pacific Rim** or the **Circum-Pacific Belt**, this area along the Pacific Ocean is characterized by active volcanoes and frequent earthquakes.

2. It is home to approximately **75% of the world's volcanoes**, and about **90% of the world's earthquakes** occur in this region.
3. The Ring of Fire stretches approximately **40,000 kilometres**, tracing boundaries between **several tectonic plates**, including the Pacific, Juan de Fuca, Cocos, Indian-Australian, Nazca, American, and Philippine Plates.
4. This chain runs along the **western coast of North and South America**, crosses over the Aleutian Islands in Alaska, and continues down the eastern coast of Asia past New Zealand and into the northern coast of Antarctica.
5. Numerous **countries lie within the Ring of Fire**, including Indonesia, New Zealand, Papua New Guinea, the Philippines, Japan, the United States, Chile, Canada, Guatemala, Russia, Peru, the Solomon Islands, Mexico, and Antarctica.

### 13. New Category for Cyclones

1. A recent study published in the Proceedings of the **National Academy of Sciences** claims that **hurricane** (cyclone) wind speeds can surpass **309 km/h**.
2. As a result, researchers recommend adding a **Category 6** to the wind scale to accurately account for these extreme conditions.

### Wind Scale of Hurricane

1. Concerns have arisen about the adequacy of the **Saffir-Simpson (SS) Hurricane Wind Scale**, which has been in use for over 50 years to communicate hurricane risk based solely on wind speed.
2. The SS scale includes **five categories**, from Category 1 to Category 5, with Category 5 indicating wind speeds exceeding 252 km/h.
3. In a **Category 5 hurricane**, the combined effects of wind, storm surge, and rainfall can destroy any structure.
4. However, the **open-ended nature** of Category 5 may no longer be sufficient to convey the increasing risk of hurricane damage in a warming climate.
5. Researchers suggest that the scale may **need to be updated** to reflect these heightened risks accurately.



Cyclone Category	Wind Speed in km/h	Damage Capacity
One	120-150	Minimal
Two	150-180	Moderate
Three	180-210	Extensive
Four	210-250	Extreme
Five	250 and above	Catastrophic

## Introduction of Category 6

1. **Global warming** has created the need for a new Category 6 cyclone.
2. The **warming effect** is noticeable not just at the ocean surface but also **deep within the ocean**, which increases the heat content and promotes the intensification of tropical cyclones.
3. To overcome the limitations of the current Saffir-Simpson Wind Scale, researchers suggest introducing a Category 6 for wind speeds exceeding 309 km/h.

## How Global Warming is Intensifying the Hurricanes?

1. Increased **greenhouse gas emissions** have warmed the Earth by about 1.10 degrees Celsius since pre-industrial times, leading to more intense tropical cyclones in the oceans.
2. For every **degree of warming**, the cyclones become 12% stronger and 40% more destructive.
3. As the **oceans warm**, cyclones also intensify more rapidly and spend more time over the oceans.
4. In 2023, tropical cyclone **Freddy lasted 37 days** over the oceans, making it the longest-lived cyclone ever recorded.

## Implications for Risk Messaging

1. The findings highlight the need to revise risk messaging **to better inform the public** about the increased risk of major hurricanes due to global warming.
2. The **Saffir-Simpson Scale does not address** issues related to **inland flooding** and storm surge, which are also critical components of hurricane risk.
3. Therefore, changes in messaging beyond wind-based scales are necessary to adequately communicate the full spectrum of hurricane hazards.

## What is a Cyclone?

1. Cyclones are rapid **inward air circulation** around a low-pressure area.
2. Cyclones with **low pressure** at the centre move in an **anticlockwise direction** in the Northern Hemisphere and clockwise in the Southern Hemisphere.
3. Cyclones with **high pressure** at the centre move in a **clockwise direction** in the Northern Hemisphere and anticlockwise in the Southern Hemisphere.
4. Cyclones originating between the Tropics of Cancer and Capricorn are known as **Tropical Cyclones**. Cyclones originating beyond these zones are known as **extratropical or temperate cyclones**.

## Conditions for the Formation of Cyclones

1. Large **sea surface with temperature** > 27°C
2. Presence of the **Coriolis force**
3. Small variations in the vertical wind speed
4. A pre-existing **weak low-pressure area**
5. **Upper divergence** above the sea level system

## Different Names for Tropical Cyclones

1. **Typhoons** - Southeast Asia and China
2. **Hurricanes** - North Atlantic and eastern Pacific
3. **Tornados** - West Africa and southern USA
4. **Willy-willies** - Northwest Australia
5. **Tropical Cyclones** - Southwest Pacific and Indian Ocean

## Cyclones in India

1. **Bi-annual Cyclone Season** - March to May and October to December
2. **Recent Cyclones** - Tauktae, Vayu, Nisarga and Mekanu (in the Arabian Sea) and Asani, Amphanr Fani, Nivar, Bulbul, Titli, Yaas and Sitrang (in the Bay of Bengal).

**Note:** When a tropical cyclone reaches sustained winds of 119 km/h or more, it is categorized as a hurricane, typhoon, or tropical cyclone, depending on its origin. In the North Atlantic, central North Pacific, and eastern North Pacific, it is referred to as a "hurricane. The Western Pacific basin experiences the highest activity of tropical cyclones, comprising approximately one-third of global occurrences. On the other hand, the North Indian basin, while contributing only about 4% to the global total, is notably vulnerable to the effects of these cyclones.





## 14. Agriculture Greenhouse Gas Emissions Must Drop 30% to Align with the Paris Agreement

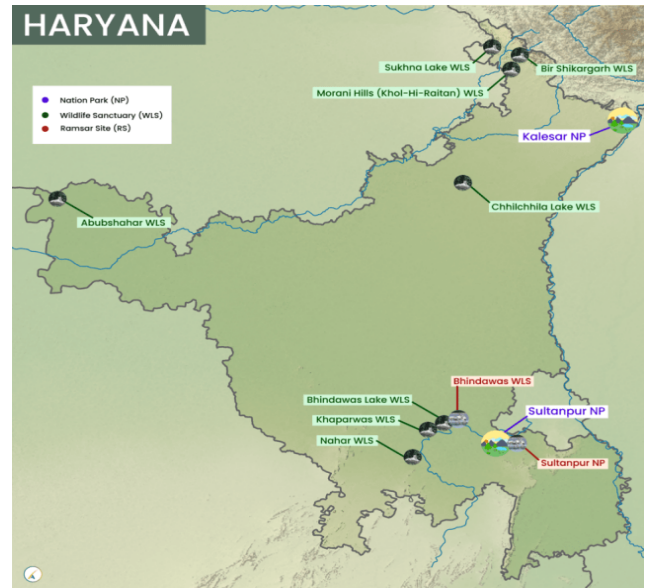
Recent reports by the Food and Land Use Coalition, the World Business Council for Sustainable Development, and the We Mean Business Coalition highlight the pressing need to significantly reduce greenhouse gas emissions from agricultural production.

- Target:** To align with the Paris Agreement's goal of limiting global warming to 1.5°C by 2050, agricultural greenhouse gas emissions must decrease by 30% by 2030.
- Investment Needed:** The agri-food sector requires annual investments of up to \$205 billion between 2025 and 2030 to achieve substantial emission reductions.
- Implications:** Agrifood companies play a crucial role in reducing emissions and promoting sustainability throughout their value chains.
- Financial Costs:** The reports analyze the financial implications of implementing mitigation solutions, estimating sector-wide costs of \$205 billion annually, a manageable amount considering sector revenues.
- Opportunities:** Investing in new markets could generate potential additional returns, while on-farm solutions may lead to savings and increased yields.
- Call to Action:** Businesses must take bold action to support producers and ensure equitable sharing of costs and benefits across the value chain to meet net-zero targets.

## 15. Kalesar Wildlife Sanctuary

The Supreme Court stopped the building of four dams in the Kalesar Wildlife Sanctuary in Haryana. They asked the government for explanations and said the dams could harm wildlife and people living there, as well as the environment. The court said no construction should happen until they make a final decision.

## About Kalesar Wildlife Sanctuary



- Kalesar Wildlife Sanctuary is in Yamunanagar, Haryana, India.
- Found in the Shivalik foothills of the Himalayas.
- Named after the Kalesar forest and Kalesar Mahadev temple within it.
- Declared a national park on December 8, 2003.
- Historically used as hunting grounds by Mughal and British rulers, primarily for tigers.
- Houses historical Kalesar Fort, possibly built during Aurangzeb's reign, offering panoramic views
- The tiger population significantly declined around 1892, leading to a hunting ban in the early 20th century.
- Eastward lies the Yamuna River.
- Rajaji National Park is to the northeast, Simbalbara National Park to the north (bordering Himachal Pradesh), and Morni Hills to the west.

## Flaura and Fauna

- Kalesar has 53% dense forest, 38% open forest, 9% scrub. Total forest cover is about 71%.
- Home to various animals like leopards, deer, hyenas, jackals, porcupines, pangolins, and langurs.
- Diverse bird species including red junglefowl, grey partridge, peafowl, and kingfisher.
- Known for its scenic beauty with dense Sal tree cover.



## G. SOCIETY AND CULTURE

### 1. Most Indians Believe In Country's Plurality: CSDS Survey

1. A recent pre-election survey conducted by CSDS, 79% of people voted that India belongs to all religions.
2. The belief in **plurality and diversity of India** is more pronounced in urban areas (84%) and higher among educated classes (83%).

#### About Pluralism

1. **Pluralism refers to** the country's rich diversity in terms of cultures, religions, languages, and traditions coexisting within one nation.
2. India is celebrated as a pluralistic society where various communities with different backgrounds and beliefs live together harmoniously.

#### Constitutional Provisions with Respect to Pluralism

1. The **Preamble** of the Indian Constitution declares India to be a sovereign, socialist, **secular**, and democratic republic.
  - It further gives liberty of thought expression **belief faith and worship** to all; this reflects the respect towards the ideal of **secularism and religious pluralism** from the outset.
2. **Article 25 guarantees** the freedom of conscience and the right to freely profess, practice, and propagate religion.
  - This ensures that individuals have the **right to follow any religion of their choice without discrimination**.
3. **Article 26 grants** every religious denomination or section thereof the right to **establish and maintain institutions for religious and charitable purposes**, manage its own affairs in matters of religion, and own and acquire movable and immovable property.
4. **Article 27 ensures** that no person can be compelled (force/pressurize) to pay taxes for the promotion or maintenance of any particular religion or religious institution.

5. **Article 28 provides** that no religious instruction shall be provided in any educational institution wholly maintained by state funds.
  - However, it allows educational institutions established by religious minorities to impart religious instruction to students of that religion.
6. **Article 29 protects** the interests of minorities by granting them the right to conserve their distinct language, script, or culture. This ensures the preservation of religious and cultural diversity in India.
7. **Article 30 provides** religious and linguistic minorities with the right to establish and administer educational institutions of their choice.
  - This protects their autonomy in educational matters and allows them to impart education in accordance with their religious and cultural beliefs.

#### So, what does pluralism look like in real life?

1. **Cultural diversity:** We've got festivals like Holi and Diwali, different foods in every region, and art forms you won't find anywhere else.
2. **Religious diversity:** India is birthplace of Hinduism, Sikhism, Buddhism, and Jainism, just to name a few. People of various faiths coexist peacefully, and religious tolerance is a fundamental value enshrined in the Indian Constitution.
3. **Linguistic diversity:** Over 1,600 languages are spoken in India! It's like a language lover's paradise.
4. **Political diversity:** India has a democratic system where all kinds of political views can be heard.
5. **Social diversity:** Indian society is a mix of different castes, ethnicities, and economic backgrounds.

#### Challenges to plurality and diversity of India

1. **Globalization:** Globalization has been held responsible for creation of a **monoculture** which has led to the erosion of **social identity**. It leads to



**homogenization of culture**, where people consume the same cultural products regardless of their location. This has led to a loss of **cultural diversity** and a **weakening of local cultural identities**.

2. **Exclusionary/Exclusionist Nationalism:** It is a product of interwar period in Europe, but its impact can be seen in 21<sup>st</sup> century as well, Exclusionary nationalist believe that country belongs to one community or religion which is antithetical to the idea of diversity.
3. **Regionalism:** Regionalism highlight interests of a particular region/regions over national interests. It can also adversely impact national integration. Overall law and order situation is hampered due to regional demands and socio-political agitations.
4. **Communal and divisive politics:** At the time of elections, perceived identities like caste, religion etc. are evoked (resorted) by politicians to get votes. This type of divisive politics results in violence, feeling of mistrust and suspicion among minorities.
5. **Inter-religious conflicts:** They hamper relations between communities by **spreading fear and mistrust**. They also destroy secular fabric of the country. It can be divided into following sub forms-
  - a) Communal violence, b) Religious conversion c) Religious extremism

Despite the challenges, its essential role in sustaining and developing the Indian society cannot be denied. The real issue is how diversity is managed. Problems such as regionalism, communalism and ethnic conflict arise when the benefits of development are unequally distributed and some cultural groups are not given due recognition. Therefore, eliminating these disparities through equitable development and promoting cultural understanding is important to mitigate such challenges and build a more inclusive and harmonious society.

## 2. Disability As a Basis for Discrimination

1. **Election manifestos frequently neglect the rights of Persons with Disabilities (PwD).** Currently, the Constitution only specifies discrimination on grounds of religion, race, caste, sex, or place of birth, omitting disability.

- This demand was also underscored by the United Nation Committee on the Rights of Persons with Disabilities in 2019.

2. Further, the Supreme Court of India, in its 2018 decision in Navtej Singh Johar vs Union of India, **expanded Article 15’s protection to include ‘sexual orientation.’** This precedent suggests that disability could also be considered under Article 15 by analogy.

### What Is A Disability?

According to **‘Right of Persons with Disabilities Act 2016’**, “Person with disability” means a person with long term physical, mental, intellectual or sensory impairments which, in interaction with barriers, hinders his full and effective participation in society equally with others.

- a. **As per census 2011 (2016 updated)** – In India out of the 121 Cr population, 2.68 Cr persons are disabled which is 2.21% of the total population.
- b. **More men than women have disabilities:** 56% are men (1.5 crore) and 44% are women (1.18 crore). However, the overall population is pretty evenly split between men and women.
- c. **Most people with disabilities live in the countryside:** 69% live in rural areas (1.86 crore) compared to 31% in cities (0.81 crore). This is similar to the overall population where most people live in rural areas too.

Challenge Faced by Children with Disabilities	Possible Solutions
1. <b>Families are treated poorly</b> due to negative and false beliefs about disability.	<b>Educate communities</b> about disabilities to reduce false beliefs.
2. Some <b>families refuse to accept</b> that their child has a disability, especially if it’s a mental or intellectual disability	<b>Increase awareness</b> about the importance of early identification and treatment.



<p><b>3. Children with disabilities are often excluded</b> from social events, school, and work opportunities. This makes them and their families feel unwanted.</p>	<p>Create <b>inclusive environments</b> in schools and workplaces.</p>
<p><b>4. Children with disabilities are sometimes unfairly denied their share of family property</b> because people wrongly assume they can't manage it.</p>	<p><b>Enforce inheritance laws</b> that protect the rights of children with disabilities.</p>
<p><b>5. Girls with disabilities are more likely to be kept out of school and less likely to be supported to continue their education because of discrimination based on both gender and disability.</b></p>	<ul style="list-style-type: none"> <li>• Challenge gender stereotypes and promote equal opportunities.</li> <li>• Create safe and accessible learning environments for girls with disabilities.</li> </ul>

**Initiatives taken for PwDs**

- 1. Draft National Policy for Persons with Disabilities** proposed to revise the 2006 policy to align it with UNCRPD, RPwD Act 2016 and National Education Policy 2020 (promotes inclusive education).
- There are **4 national legislations** dealing with persons with disabilities namely,
  - a. Ministry of Social Justice:** Rehabilitation Council of India Act 1992, National Trust for the Welfare of Persons with Autism, Cerebral Palsy, Mental Retardation and Multiple Disabilities Act, 1999; the RPwD Act, 2016.
  - b. Ministry of Health and Family Welfare:** Mental Healthcare Act, 2017.

- 3. Scheme for Implementing of Persons with Disabilities Act, 1995 (SIPDA)**
  - a. Accessible India Campaign (Sugamya Bharat Abhiyan):** Launched in 2015, to enhance the accessibility of the built environment, transport system and information and communication ecosystem.
  - b. Skill Development Programme for PwDs.**
  - c. To establish early diagnostic and intervention centres** at District Headquarters/other places having Government Medical Colleges
- 4. India is also a signatory to the following international initiatives**
  - a. Adoption of Incheon Strategy** “To make the Right Real” for Persons with Disabilities in Asia and Pacific.
  - b. Declaration on the Full Participation and Equality of People with Disabilities in the Asia-Pacific Region**
  - c. Biwako Millennium Framework** working towards an inclusive, barrier-free and rights-based society

**Constitutional Provisions on Disability**

- 1. Article 41 of Constitution of India:** The government should try its best to make sure everyone has the right to work, get an education, and get help if they lose their job, get old, get sick, or have a disability.
- 2. Article 46:** The government has a special duty to help people who are disadvantaged. This means supporting their education and finances, and making sure they are protected from unfair treatment and being taken advantage of.

**3. No Age Bar for Health Insurance in India: A Game Changer with Challenges**

The **Insurance Regulatory and Development Authority of India (IRDAI)** has recently removed the **age limit for purchasing health insurance.**

1. It significantly **expands insurance coverage for senior citizens in India.**





2. This development coincides with the **launch of 'Longevity India' by the Indian Institute of Science (IISc) Bengaluru**, a project focused on **addressing ageing-related health issues**.

### IRDAI's New Directives on Health Insurance:

1. IRDAI has **eliminated the age restriction for purchasing health insurance in India, allowing individuals of all ages, including those over 65**, to obtain health coverage.
2. Insurers are now required to develop specialized health insurance products for various demographics, such as **senior citizens, students, children, and maternity**.
3. Coverage for individuals with pre-existing medical conditions, **including cancer and heart failure, is now guaranteed without refusal**, as per the guidelines outlined in the **"Specific provisions applicable to health insurance products"** published in the Government of India Gazette.
4. **Insurers must offer the option of paying premiums in installments for the convenience of policyholders**, and travel insurance policies can only be provided by general and health insurers.
5. **Additionally, there is no cap on coverage for AYUSH treatments, including Ayurveda, Yoga, Naturopathy, Unani, Siddha, and Homeopathy.**

### Areas of Uncertainty:

1. **Affordability for Senior Citizens:**
  - a. A key concern is **whether health insurance premiums for seniors will be affordable**.
  - b. With age, the likelihood of medical issues increases, leading insurers to potentially set higher premiums for the elderly.
  - c. Government intervention through subsidies or similar measures may be necessary to make these policies accessible and affordable for seniors with limited income and savings.
2. **Waiting Period for Pre-existing Conditions:**
  - a. Insurance companies usually impose a **waiting period before coverage for pre-existing medical conditions, typically around 2 to 4 years**.

b. Clear and comprehensive regulations, particularly regarding waiting periods and immediate coverage conditions, are crucial to evaluate the consumer-friendliness of these policies.

### 3. Impact on Out-of-Pocket Medical Expenditure:

- a. While increasing health insurance penetration is a positive step, it may not result in a significant reduction in out-of-pocket medical expenses for Indians.
- b. Factors such as the **scope of coverage, co-pay rates, sub-limits, and overall affordability** of the policies will determine the impact on out-of-pocket expenditure.
- c. Comprehensive coverage with reasonable co-pays and limits will be necessary to make a substantial difference in reducing high out-of-pocket spending.

### Current Status of Insurance Sector in India:

#### 1. The Indian Insurance Market:

- a. Overview: The Indian insurance market is poised to reach USD 200 billion **by 2027 and is projected to become the 6th largest insurance market globally by 2032**.
- b. **Current Position:** India currently ranks as the **9th largest life insurance market and the 14th largest non-life insurance market worldwide**.
- c. **Growth Rates:** Both life and non-life insurance sectors have exhibited consistent double-digit growth rates in recent years.

#### 2. Insurance Penetration and Density:

- a. **Definition:** Insurance penetration and density are two key metrics used to evaluate the development of the insurance sector in a country.
- b. **Penetration Rate:** Insurance penetration is calculated as the percentage of **insurance premiums relative to a country's Gross Domestic Product (GDP)**.
- c. **Density Rate:** Insurance density, on the other hand, is determined by dividing the total insurance premiums by the population, resulting in a per capita premium value.



**d. Trends in India:**

- i. Insurance penetration in India has **steadily increased from 2.7% in 2001 to 4.2% in 2020, remaining constant in 2021.**

**Challenges Faced by Elderly Population:**

1. **Lack of Healthcare Access:** Affordability and limited access to specialists are major concerns.
2. **Elder Abuse:** A growing concern, requiring stricter laws and support mechanisms.
3. **Digital Divide:** Many seniors struggle to access online services and programs.
4. **Financial Insecurity:** A significant portion of the elderly live in poverty.
5. **Social Isolation:** The breakdown of joint families contributes to loneliness and mental health issues.
6. More importantly, a World Health Organisation (WHO) study has projected that by 2050, the country would be home to over 31 crore people above the age of 60.

**Measures to Rejuvenate India's Insurance Sector:**

1. **Parametric Insurance:** Utilise data analytics and IoT for simplified claims processes.
2. **Employer-driven Group Insurance:** Promote group insurance schemes for informal sectors.
3. **Public-Private Partnerships:** Collaborate to develop affordable, need-based insurance solutions.
4. **Insurance Awareness Campaigns:** Launch campaigns to educate the public about insurance benefits.

**What is IRDAI ?**

1. The Insurance Regulatory and Development Authority (IRDAI) is a **statutory body formed in 1999 under the IRDA Act, 1999.**
2. Its **primary responsibility is to regulate and develop the insurance sector in India.**
3. The **IRDA Act, 1999, and the Insurance Act, 1938,** provide the Authority with its powers and functions.
4. The **Insurance Act, 1938, is the main legislation governing the insurance sector in India, granting IRDAI the authority to create regulations** that establish the regulatory framework for overseeing insurance industry entities.

**conclusion:**

**Although removing the age limit for health insurance is an important step,** it is important to **address the challenges to ensure that the move benefits all sections of the population,** especially senior citizens. With appropriate measures and a continued focus on access and affordability, the Indian insurance sector can play an important role in increasing financial security and healthcare access for all.

**4. Patient Safety Rights Charter in Focus**

The World Health Organization (WHO) released the **first-ever Patient Safety Rights Charter in April 2024,** ahead of **World Patient Safety Day on September 17th.**

- a. This landmark document **highlights the fundamental rights of all patients in the context of healthcare safety,** aiming to assist governments and stakeholders in ensuring patient voices are heard and their right to safe healthcare is protected.

**Key Highlights:**

1. **10 Fundamental Rights:** The Charter includes 10 essential patient safety rights, including:
  - a. Right to timely, effective, and appropriate care
  - b. Safe healthcare processes and practices
  - c. Qualified and competent health workers
  - d. Safe medical products and their rational use
  - e. Safe and secure healthcare facilities
  - f. Dignity, respect, non-discrimination, privacy, and confidentiality
  - g. Information, education, and supported decision making
  - h. Access to medical records
  - i. To be heard and receive fair resolution
  - j. Patient and family engagement
2. **Shift in Approach:** The **WHO advocates for transitioning from a blame-oriented approach to a systems-based perspective,** focusing on understanding and addressing the underlying systemic errors in medical care.



3. **Global Priority:** Patient safety is a **critical component of achieving the Sustainable Development Goals and upholding health-related human rights.** The Charter aims to **address the global challenge of preventable harm in healthcare, estimated to affect one in ten patients.**
4. **World Patient Safety Day 2023 Theme:** The theme for this year's World Patient Safety Day is **"Engaging patients for patient safety,"** emphasising the importance of patient participation in improving healthcare safety.

### Need for a Patient Safety Charter:

1. **Ensuring Patient Safety:**
  - a. Investing in patient safety leads to positive health outcomes, reduced costs related to patient harm, improved system efficiency, and restored trust in healthcare systems.
2. **Preventing Avoidable Harm:**
  - a. The majority of patient harm is avoidable, emphasizing the importance of engaging patients, families, and caregivers in minimizing harm.
  - b. Patient harm often results from poorly designed healthcare systems rather than isolated incidents.
3. **Global Patient Safety Action Plan 2021-2030:**
  - a. A recent WHO survey revealed gaps in implementing the Global Patient Safety Action Plan 2021-2030, indicating the need for patient representation and addressing income-based disparities.
  - b. Survey results showed only 13% of responding countries have patient representatives on governing boards.
4. **SDG Alignment:**
  - a. Patient safety is a global priority and essential for achieving the **Sustainable Development Goals (SDG)-3: "Good Health and well-being"**.

### Challenges and Implementation:

1. While the Charter provides a valuable framework, its **successful implementation will require concerted efforts from governments, healthcare organisations, and civil society.**

2. **Challenges include ensuring adequate resources for patient safety initiatives, addressing cultural and systemic barriers, and promoting a culture of transparency and accountability within healthcare systems.**

### Conclusion :

Overall, the **Patient Safety Rights Charter marks a crucial milestone in the global effort to improve healthcare safety and protect patient rights.** By raising awareness, promoting collaboration, and advocating for systemic change, the Charter has the potential to significantly reduce preventable harm and improve the quality of care for patients worldwide.

## 5. UNHRC Adopts Landmark Resolution on Intersex Rights

At its 55th session, the United Nations Human Rights Council (UNHRC) passed a resolution on intersex rights. The resolution urges states to:

1. Combat discrimination, violence, and harmful practices against individuals with innate variations in sex characteristics.
2. Address the root causes of these issues and assist intersex persons in achieving the highest possible standard of physical and mental health.

### Intersex People:

1. Intersex individuals are **born with sexual characteristics (such as sexual anatomy, reproductive organs, hormonal patterns, or chromosomal patterns)** that deviate from **traditional binary notions of male and female bodies.**
2. They may **identify with any gender and have any sexual orientation.**
3. **Approximately 1.7% of the population is estimated to be born with intersex characteristics.**
4. It is **important to distinguish intersex individuals from transgenders,** who are born with obvious sex characteristics (male or female) that **do not align with their gender identity.**

### Key Issues Faced by Intersex People:

1. **Intersex persons suffer human rights violations due to their physical characteristics.**



2. Society has **labelled intersex people as inherently sick or disordered**.
3. They face **severe challenges, including infanticide, forced and coercive medical interventions, discrimination in various spheres**, and difficulties in obtaining legal recognition.

### About the UNHRC:

1. **Formation:** Established in 2006 by the General Assembly, the UNHRC replaced the United Nations Commission on Human Rights.
2. **Purpose:** The UNHRC is the primary **intergovernmental body within the United Nations** dedicated to promoting and protecting human rights.
3. **Key Mandate:** The UNHRC reviews the human rights records of all UN Member States through the Universal Periodic Review and authorizes commissions of **inquiry, fact-finding missions, and war crimes and crimes against humanity investigations**.
4. **Membership:** Comprised of 47 Member States

## 6. Food Waste Index Report 2024

To mark the second annual International Day of Zero Waste, UNEP will launch its Food Waste Index Report 2024 on 27 March 2024.

1. **The irony is that while the world faces starvation, millions of tonnes of food grains are wasted every year.**
2. **The United Nations reports that more food is wasted daily than the number of hungry people worldwide.**
3. Hotels and restaurants contribute significantly to this waste.
4. **In 2022, 19% of global grain production, approximately 1.05 billion tons, was wasted.**
5. **The UN Environment Programme's Food Waste Index report monitors countries' progress in halving food waste by 2030.**

### Behavioral and Attitude Changes Needed to Prevent Food Wastage

1. Families **need to change their irresponsible consumption patterns**, starting from their own homes.

2. **Calculate the price when buying groceries**, reduce single-use packaging, order consciously from restaurants.
3. Get involved with organizations like **Coimbatore-based No Food Waste**, which redistributes excess food to feed the needy.

### Impact of Food Loss and Waste:

1. Reducing food waste is essential in a world where hunger is on the rise and tons of edible food is lost or wasted every day.
2. The resources used to produce food, including water, land, energy, labor and capital, are wasted.
3. Food waste disposal in landfills produces greenhouse gases, which contribute to **climate change**.
4. **Leachate**, a black liquid, flows from the landfill, contaminating the soil and groundwater.
5. Overcrowded landfills cause blocked drains, soil and water pollution.

### Importance of Reducing Food Loss and Waste:

1. Reducing food loss near farms **addresses food insecurity** and reduces **pressure on land and water**.
2. Reducing food waste in the supply chain and **at the consumer level cuts greenhouse gas emissions**.
3. Reducing food losses in the early stages of the supply chain improves food security, especially in countries with high insecurity.
4. Reducing food loss and waste represents a missed opportunity to reduce malnutrition and micronutrient deficiencies.
5. Reduces methane emissions from landfills and reduces carbon footprint.
6. Reducing food waste saves energy and resources used to grow, manufacture, transport, and sell food.

### Action to be taken

1. Educate children about the importance of food and the environmental impact of food waste.
2. Donate uneaten food from household parties to charities through local NGOs.
3. Implement **essential food safety techniques** to prevent food waste.
4. **Food waste audits help to identify why food has been wasted.**





5. Maintain correct temperatures and suitable storage for perishable items.
  6. Mandatory supermarket donations of unsold food to charities or farmers **for conversion into fertilizers (as in France)**.
  7. **Canada recovers unused food items from various sources to cook over 22,000 meals daily.**
  8. **Sweden's recycling revolution:** less than 1% of household waste ends up in landfills; 2.2 million out of 4.4 million yearly tons of waste is converted into energy.
4. **CREATION OF FOOD PROCESSING & PRESERVATION CAPACITIES**
  5. **CREATION OF BACKWARD & FORWARD LINKAGES**
  6. **FOOD SAFETY & QUALITY ASSURANCE INFRA**
  7. **AGRO PROCESSING CLUSTER**

## 7. Muria Tribe

**Muria tribe custom** mandates that a man weaves a **bamboo cradle (vookada)** for his newborn baby as a lifetime memory for both the father and the child. The father must go into the forest, collect the bamboo, dry it, and weave the cradle with his own hands, with no help from anyone.

### About Muria Tribe

End hunger, achieve food security and improved nutrition and promote sustainable agriculture

1. Goal 2 seeks **sustainable solutions to end all forms of hunger and achieve food security by 2030**.
2. Its aim is to ensure that everyone has enough good quality food to lead a healthy life.
3. Achieving this goal will require **improved access to food and widespread promotion of sustainable agriculture**.
4. This includes improving the productivity and **incomes of small-scale farmers by promoting equitable access to land**, technology and markets, sustainable food production systems and resilient farming practices.
5. There is also a need to increase investment through international cooperation to increase the productive capacity of agriculture in developing countries.

### Has the Government of India taken several steps to reduce food waste?

The Government of India has taken several steps to reduce food waste, including:

1. **SAMPADA** (Scheme for Agro-Marine Processing and Development of Agro-Processing Clusters) Launched in 2016, this scheme works to develop an integrated cold supply chain infrastructure for agricultural products.
2. **MEGA FOOD PARKS**
3. **COLD CHAIN, VALUE ADDITION & PRESERVATION INFRA**

1. Muria Tribe living in the border areas between Andhra Pradesh (AP) and Chhattisgarh.
  - The Muria are an indigenous Adivasi, scheduled tribe Dravidian community of the Bastar district of Chhattisgarh, India. They are **part of the Gondi people**.
2. They **speak Koya**, which is a Dravidian language.
3. Their **settlement lies within 'India's Red Corridor'** on the Andhra Pradesh-Chhattisgarh border hit by Naxalism, and stands as an oasis within a reserved forest, protected by stringent laws prohibiting settlement and deforestation.
4. The Muria settlements are known as habitations of **Internally Displaced People (IDPs)**, whose population is around 6,600 in AP, and the Murias here are **referred to as 'Gutti Koyas'** by the native tribes.
5. This Tribe was displaced during the conflict between Maoists and Salwa Judum. Salwa Judum is a group of tribal persons mobilised for resistance against outlawed armed naxalites.

### About Gond Tribe

1. They are one of the **largest tribal groups in India**, predominantly residing in Madhya Pradesh, Chhattisgarh, Maharashtra, and Andhra Pradesh.
2. The name Gond comes from Kond (means green mountains).
3. Main occupation is Agriculture or daily wages.

4. Their native language, Gondi, belongs to the Dravidian family.
5. They believe in animistic belief system, where they worship nature spirits and deities. They also revere ancestors and have a rich tradition of folk worship
6. They have subdivided into various tribes such as raj Gonds, Madia, Dhurve etc.

**Q3. With respect to the Muria Tribe, Consider the following statements:**

1. They are part of the Gondi people.
2. They are predominantly agrarian people.
3. They practices a hybrid of animistic and Hindu doctrines.

*How many of the statements given above is/are correct?*

- (a) Only one      (b) Only two  
(c) All three      (d) None

Ans. C

## 8. Malas And Madigas: Telangana's SC Community

The rivalry between Malas and Madigas, sub-castes among Scheduled Castes (SCs) in Telangana, has come to the fore yet again after political parties announced candidates for the general elections.

### Malas: Farmers and Weavers

1. Mala is a Telugu caste of Andhra Pradesh and Telangana. They are also present in smaller numbers in the states of Karnataka and Maharashtra.
2. Traditionally, they were farmers and weavers, known for their skills in both agriculture and crafts.
3. According to 2001 census data, Malas constituted 41.6 percent (51.39 lakh) of the Scheduled Castes population in the then state of Andhra Pradesh, which also included the present state of Telangana.

### Madiga: The Leather Experts and Sanitation Workers

1. Madiga community is a Telugu caste, mainly living in the southern states of Telangana, Andhra Pradesh, and Karnataka. However, they also live in Tamil Nadu, Maharashtra and Odisha.
2. As per the 2011 census, the Madiga community in the undivided Andhra Pradesh and Telangana constituted more than 48 per cent of the SC population

3. They have their own classes; the priestly class is known as Madiga Dasari.
4. The occupation of this community is primarily associated with tanning leather, making footwear, belts, pouches, toddy-containers, and bags.
5. This community is known for their expertise in crafting the traditional drum called the Dappu.

**Q. With reference to the Madiga community, Consider the following statements:**

1. They are an indigenous Scheduled Tribe community of the Odisha.
2. The primary occupation of this community is associated with agriculture.
3. Dappu is an annual festival of this community.

*How many of the above statements is/are correct?*

- (a) Only one (b) Only two  
(c) All three (d) None

Ans. D

## 9. 50 Years of the Chipko Movement: A Legacy of Environmental Activism

The Chipko Movement originated in Uttarakhand in 1973, recently marked its 50th anniversary.

- a. This nonviolent agitation aimed to protect forests from **deforestation caused by commercial logging**.
- b. The legacy of the Chipko movement reminds us that ordinary people can make a difference in protecting the environment and **promoting sustainable practices**.
- c. Its **50th anniversary is a time to reflect on its achievements and continue the fight for a greener and more equitable future**.

### What was the Chipko Movement?

The movement began when villagers, mainly women, in the Himalayan villages of Reni and Mandal embraced trees to stop them from being cut. The word "Chipko" means "to embrace" in Hindi, which reflects the protesters' primary tactic.

### Key Figures and Leaders:

1. **Chandi Prasad Bhatt:** A Gandhian social activist and environmentalist who founded the Dasholi Gram Swarajya Mandal (DGSM), which played an important role in organising the movement.



2. **Sundarlal Bahuguna:** A Gandhian activist who played a crucial role in spreading awareness and mobilising people against deforestation.
3. **Gaura Devi:** A village woman who led a group of women in Reni to confront loggers, becoming an icon of resistance.

### Philosophy Behind the Movement:

The Chipko movement was **based on Gandhian principles of non-violence and harmony with nature**. Its objective was to empower local communities and give them a voice in decision making regarding natural resources.

### Impact:

The Chipko Movement achieved significant success, including:

1. **Policy Changes:** It led to a ban on commercial felling of trees above a certain slope and **elevation in 1981**.
2. **Inspiration for Similar Movements:** The movement inspired similar environmental **protests across India and internationally**.
3. **Empowerment of Women:** The movement played a crucial role in empowering women and recognizing their contributions to environmental conservation.

### Relevance in 2024:

The Chipko movement **remains relevant today, serving as an inspiration for grassroots activism and a reminder of the power of collective action**. Its principles of sustainability, community participation and nonviolent resistance remain important in addressing contemporary environmental challenges such as climate change and deforestation.

### Other Similar Environmental Movements:

Name of Movement	Year	Place	Leaders	Details
<b>Bishnoi Movement</b>	1700	Khejuri, Manvar region in Rajasthan	Amrita Devi	Used to hug trees to stop their cutting.
<b>Chipko Movement</b>	1973	Uttarakhand	Sunderlal Bahuguna	The main objective was to protect the trees on the Himalayan slopes from the axes of contractors of the Tehri Dam project.
<b>Silent Valley Movement</b>	1978	Silent Valley, Kerala	Kerala Sastra Sahitya Parishad	A movement against the Silent Valley Hydroelectric Project. In November 1983, the Silent Valley Hydroelectric Project was cancelled. In 1985, Prime Minister Rajiv Gandhi inaugurated the Silent Valley National Park.
<b>Appiko Movement</b>	1982	Singhbhum district of Jharkhand	Tribals	Against government plans to replace the natural forest with Teak plantations.
<b>Save Aarey Movement</b>	2019	Aarey National Park in Mumbai	Medha Patkar, Arundhati Roy, and various NGOs	Against the felling of trees in the Aarey Colony for the Mumbai Metro Limited's (MMRLC) project.



<b>Save Dehing-Patkai</b>	Nov 2019	Dehing-Patkai Wildlife Sanctuary in Assam	Rohit Chaudhary, Adil Hussain, Randeep Hooda, and Joi Jadvav Payeng	A movement against the decision by the National Board of Wildlife (NBWL) to allow mining in the Dehing-Patkai Sanctuary.
<b>Save the Sundarbans</b>	2019-2020	The Sundarbans, West Bengal	All Assam Students' Union and All Assam Matak Youth Students' Union	A campaign to raise awareness about the threats to the Sundarbans mangrove forest after Cyclone Amphan in May 2020.

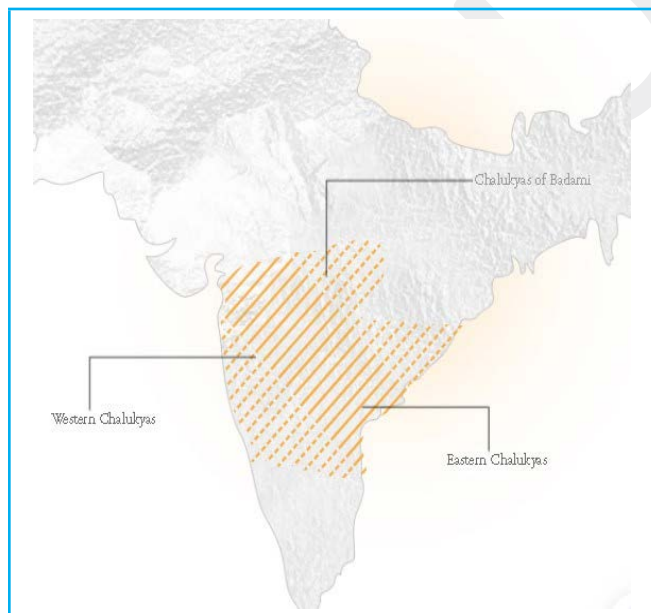
## 10. 900-Year-Old Chalukyan Inscription Discovered in Telangana

A 900-year-old Kannada inscription from the Kalyani Chalukya dynasty was recently found in Gangapuram, Telangana.

- a. The inscription, issued by customs officers under Tailapa-III, provides valuable insights into the dynasty's administration and trade practices.

### Who were the Chalukyas?

The Chalukyas were a prominent dynasty that ruled parts of Southern and Central India between the 6th and 12th centuries. There were 3 distinct but related Chalukya dynasties:



1. **Badami Chalukyas:** The earliest Chalukyas, ruled from their capital at Badami (Vatapi) in Karnataka from the mid-6th century.

2. **Eastern Chalukyas:** Emerged after the decline of the Badami Chalukyas and ruled Eastern Deccan from their capital at Vengi until the 11th century.
3. **Western Chalukyas:** Descended from the Badami Chalukyas, ruled from Kalyani in the late 10th century.

### Pulakesin II: The Pinnacle of Chalukya Power

Pulakesin II was the most powerful ruler of the Chalukya dynasty. He expanded the kingdom through conquests and secured submissions from neighbouring rulers. His reign marked a golden age for the Chalukyas, with advancements in administration, military, and cultural contributions.

#### Administration and Cultural Contributions:

1. **Robust Military:** The Chalukyas maintained a comprehensive army and navy.
2. **Religious Tolerance:** Despite being Hindu rulers, they tolerated Buddhism and Jainism.
3. **Literary and Numismatic Contributions:** Made significant advancements in Kannada and Telugu literature, and their coins featured unique inscriptions and symbols.

#### Architectural Marvels:

The Chalukyas were known for their architectural achievements, particularly their cave temples and structural temples. Notable examples include the Aihole temples, Badami temples, and the UNESCO World Heritage site of Pattadakal Temples.

#### Aihole Inscription of Pulakesin II:

The Aihole inscription, crafted by the poet Ravikriti, provides valuable information about the Chalukya dynasty





and its achievements. It describes his conquests and throws light on the reign of Pulakeshin II.

### Decline:

The Chalukya kingdom of Kalyani **declined at the end of the 12th century, giving rise to new kingdoms in South India.**

The discovery of a 900-year-old inscription throws light on the rich history and legacy of the Chalukya dynasty, providing valuable insights into their administration, trade practices and cultural contributions.

## 11. Delisting of Monuments

- In April 2024, the **Archaeological Survey of India (ASI)** has decided to delist 18 “centrally protected monuments.”
  - ASI assessed these monuments and found they do not have national importance.
  - These 18 monuments were previously listed as “untraceable.”

### Which monuments are being delisted?

- Some of the monuments include:
  - A **medieval highway milestone** known as **Kos Minar No.13** in Mujessar village, **Haryana**.
  - Barakhamba Cemetery** in **Delhi**.
  - Gunner Burkill’s tomb** in **Jhansi district**.
  - A **cemetery at Gaughat** in **Lucknow**.
  - The **Telia Nala Buddhist ruins** in **Varanasi**.
- The exact locations or current states of these monuments are unknown.
- This is the **first large-scale delisting** in decades.
- ASI currently manages **3,693 monuments**; this number will decrease to 3,675 after delisting.

### What does Delisting a monument mean?

- Removal from ASI’s Purview (oversight):** The delisted monument will no longer be conserved or maintained by ASI. It will be removed from the list of **centrally protected monuments**.
- Allowing Construction and Urbanisation:** The **Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR Act)** prohibits construction around protected sites.
  - Delisting allows regular construction and urbanisation in the area.

- Loss of Legal Protection:** The AMASR Act, 1958, gives legal protection to monuments of national importance. Delisting means the monument will lose this protection and could face neglect or damage.
- Procedure for Delisting: Section 35** of the AMASR Act allows the Central Government to declare that a monument is no longer of national importance through an **Official Gazette notification**.
  - A notification was issued on 8th March 2024 for delisting the 18 monuments.
  - There was a two-month period for public objections or suggestions.

### What does it mean when the ASI declares a monument “Untraceable”?

- When the ASI declares a monument “untraceable,” it means the **monument cannot be found or identified**.
- Reasons for this include **urbanisation, encroachments, construction activities** like dams and reservoirs, and **neglect** over time.
- Some **smaller or lesser-known monuments** have deteriorated so much that no public memory of them remains.
- Despite the AMASR Act’s requirement for the ASI to inspect and conserve protected monuments regularly, these efforts have been inconsistent.
- Declaring monuments untraceable shows the loss of cultural heritage and the need for better conservation and resource allocation.

### Challenges in protecting India’s historical monuments:

- Lost Monuments:** The **Ministry of Culture** informed the **Parliamentary Standing Committee on Transport, Tourism, and Culture** that 50 out of India’s 3,693 centrally protected monuments are missing.
  - Some of the lost monuments were affected by rapid urbanisation, submerged due to reservoirs or dams, and remained untraceable.
- Insufficient Security:** Only **248 out of over 3,600** protected monuments have **security guards**.



- a. The government provided 2,578 security personnel at 248 locations, but 7,000 personnel are needed. This shortage is due to **budget constraints**.
  - b. The **Parliamentary Committee** was concerned about the lack of security personnel for monument protection, citing budget issues as a major problem.
  - c. A report by the **Comptroller and Auditor General (CAG)** of India stated that at least 92 centrally protected monuments are missing, showing weaknesses in monitoring and protection.
3. **Lack of Comprehensive Survey:** There has been no comprehensive physical survey of all monuments since Independence.
- a. This is leading to unreliable information about the exact number of monuments under the protection of the Archaeological Survey of India (ASI).

3. Prohibits construction or alteration around ancient monuments without approval from the **National Monuments Authority (NMA)**.
4. NMA is established under the AMASR Act and is responsible for conserving monuments and sites, including surrounding areas.
5. NMA implements the AMASR Act and grants permits for construction within protected and regulated areas.
6. **Protected area:** 100-meter radius around the monument.
7. **Regulated area:** Extends up to 200 meters beyond the protected area.
8. Current rules restrict construction within a 100-meter radius of protected monuments and have strict regulations for permits in the additional 200-meter radius.

### Archaeological Survey of India (ASI)

1. The ASI operates under the Union Ministry of Culture.
2. It protects and maintains specific monuments and archaeological sites declared of national importance.
3. These duties are under the **Ancient Monuments Preservation Act, 1904**, and the **Ancient Monuments and Archaeological Sites and Remains Act, 1958 (AMASR Act)**.
4. Its activities include surveying antiquarian (relating to antiques) remains, exploring and excavating archaeological sites, and conserving protected monuments.
5. Founded in 1861 by **Alexander Cunningham**, the first Director-General of ASI.
6. **Alexander Cunningham** is also known as the “Father of Indian Archaeology”.

### Archaeological Sites and Remains Act, 1958 (AMASR Act)

1. The act aims to protect and preserve ancient monuments for future generations.
2. Applies to monuments **over 100 years old**, whether publicly or privately owned.

## 12. 2550<sup>th</sup> Lord Mahavir Nirvana Mahotsav

Recently the Prime Minister of India inaugurated the **2550th Lord Mahavir Nirvana Mahotsav on the auspicious occasion of Mahavir Jayanti**.

1. The **Prime Minister** has also released a commemorative postage stamp and coin on this occasion.

### Mahavir Jayanti: Celebrating the Birth of the 24th Tirthankara

#### About Mahavir Jayanti:

1. Mahavir Jayanti is a festival celebrated by the **Jain community**, commemorating the birth of **Vardhamana Mahavira**, the 24th and final Tirthankara (spiritual teacher).
2. According to Jain texts, **Lord Mahavira was born on the 13th day of the bright half of the moon in the month of Chaitra**. As per the Gregorian calendar, **Mahavir Jayanti usually falls during March or April**.
3. Celebrations typically involve **processions, ceremonial baths, and recitation of prayers**.



## Lord Mahavira: A Profound Spiritual Teacher:

1. Bhagwan Mahavir Swami left a mark on **humanity through his profound spiritual practices and teachings.**
2. Originally named Vardhamana, meaning “**one who grows,**” Mahavira demonstrated extraordinary qualities during his **12-year period of spiritual practices.**
3. Mahavira exhibited **deep and undisturbed meditation, rigorous penance, tolerance of pain,** and ultimate equanimity.
4. On the **10th day of the Vaishakh, Mahavira’s spiritual journey reached a moment, leading to his enlightenment.**
5. Among the **5 teachings of Jainism, Mahavira emphasised Brahmacharya (celibacy and chastity).**

## What is Jainism ?

1. **Etymology and Title:**
  - a. The term “**Jaina**” originates from “**Jina,**” signifying “**the conquerer.**”
  - b. “**Tirthankara**” is a Sanskrit term meaning “**Ford Maker,**” denoting one who can cross beyond the continuous flow of earthly existence.
2. **Central Tenets:**
  - a. Jainism prioritizes **ahimsa or non-violence as an essential principle.**
  - b. It advocates **5 mahavratas (great vows):**
    - i. Ahimsa (Non-violence)
    - ii. Satya (Truth)
    - iii. Asteya or Acharya (Non-stealing)
    - iv. Aparigraha (Non-attachment/Non-possession)
    - v. Brahmacharya (Celibacy/Chastity)
3. **The Three Jewels of Jainism:**
  - a. Samyak Darshana (right faith)
  - b. Samyak Gyana (right knowledge)
  - c. Samyak Charitra (right conduct)
4. **Sects of Jainism:**
  - a. Shvetambaras led by Sthalabahu
  - b. Digambaras led by Bhadrabahu
5. **Animism and Life:**
  - a. Jainism holds that the entire world is animated, with even inanimate objects like stones, rocks, and water possessing life.

6. **Non-injury and Ahimsa:**
  - a. Non-injury to living beings, particularly humans, animals, plants, and insects, is a core principle of Jain philosophy.
7. **Karma and Rebirth:**
  - a. According to Jain teachings, the **cycle of birth and rebirth is shaped by karma.**
8. **Asceticism and Penance:**
  - a. Asceticism and penance are necessary for liberation from the **cycle of karma and the attainment of soul liberation.**
9. **Santhara Ritual:**
  - a. Santhara is a **Jain practice of ritual fasting until death.**
  - b. The **Rajasthan High Court has declared Santhara an offense under the Indian Penal Code (IPC); however, the matter is still pending in the Supreme Court.**

## 13. 134<sup>th</sup> Dr. Ambedkar Jayanti

On April 14, 2024, the 134<sup>th</sup> Dr. Ambedkar Jayanti was celebrated by the Dr. Ambedkar Foundation (DAF) on behalf of the Ministry of Social Justice & Empowerment.

### B.R. Ambedkar’s Contributions

1. B.R. Ambedkar played an **important role in drafting the Constitution of independent India.**
2. Another significant contribution of his was the **Hindu Code Bill, aimed at reforming Hindu personal laws to create a more equitable society.**

### The Hindu Code Bill:

1. **Introduced by Ambedkar in 1950 as Law Minister, the Hindu Code Bill sought to codify and modernize Hindu law, granting greater rights to women.**
2. Before drafting the bill, **Ambedkar appointed Sanskrit scholars to translate the necessary texts and verses to ensure the reforms were in line with Hindu tradition.**
3. The bill faced **resistance from within the Congress party and the opposition, leading to its delay.**
4. After Ambedkar’s resignation, Nehru took over and supported 4 different bills:
  - a. Hindu Marriage Act (1955)



- b. Hindu Succession Act (1956)
- c. Hindu Minority and Guardianship Act (1956)
- d. Hindu Adoptions and Maintenance Act (1956)

**Dr. Ambedkar Foundation (DAF):**

1. DAF was established in 1992 under the Ministry of Social Justice & Empowerment to spread the message and ideologies of Babasaheb Dr. B.R. Ambedkar.
2. DAF operates as an **autonomous body dedicated to preserving and propagating Dr. Ambedkar’s legacy.**

**Dr. Ambedkar National Memorial (DANM)**

**Museum:**

1. The **DANM museum showcases the life, work, and contributions of Dr. B.R. Ambedkar through personal belongings, photographs, letters, and documents.**

<b>Babasaheb Ambedkar- The Father of Indian Constitution</b> (14 April 1891-06 December 1956)	
<b>Brief Profile:</b>	<ol style="list-style-type: none"> <li>1. A social reformer, jurist, economist, author and thinker of comparative religions <b>Labour member in the Executive Council of Viceroy (1942)</b></li> <li>2. Chairman of the Drafting Committee for the new Constitution</li> <li>3. <b>First Law Minister of India</b></li> <li>4. Posthumously awarded <b>Bharat Ratna (1990)</b></li> </ol>
<b>Contributions:</b>	<ol style="list-style-type: none"> <li>1. Led the <b>Mahad Satyagraha in 1927 against Hindus</b></li> <li>2. Participated in all <b>three Round Table Conferences</b></li> <li>3. <b>Signed the 1932 Poona pact with Mahatma Gandhi to abandon the idea of separate electorates for the depressed classes</b></li> </ol>

	<ol style="list-style-type: none"> <li>4. The reserved seats for depressed classes were increased from <b>71 to 147 in provincial legislatures and to 18% in the Central Legislature.</b></li> <li>5. Opposed the special status of J&amp;K (<b>Article 370</b>)</li> <li>6. <b>Supported Uniform Civil Code</b></li> <li>7. Referred <b>Article 32</b> as “<b>soul of the Constitution and very heart of it</b>”</li> </ol>
<b>Resignation and Buddhism</b>	<ol style="list-style-type: none"> <li>1. Differences over Hindu Code Bill led to his resignation from Cabinet in 1951</li> <li>2. Converted to Buddhism; his death is observed as Mahaparinirvan Diwas</li> </ol>
<b>Important Journals</b>	<ol style="list-style-type: none"> <li>1. <b>Mooknayak (1920)</b></li> <li>2. <b>Samatha (1929)</b></li> <li>3. <b>Bahishkrit Bharat (1927)</b></li> <li>4. <b>Janata (1930)</b></li> </ol>
<b>Books</b>	<ol style="list-style-type: none"> <li>1. <b>Annihilation of Caste</b></li> <li>2. Buddha or Karl Marx</li> <li>3. The Untouchable: Who are They and Why They Have Become Untouchables</li> <li>4. The Rise and Fall of Hindu Women</li> </ol>
<b>Organisations</b>	<ol style="list-style-type: none"> <li>1. Estd. Bahishkrit Hitkarini Sabha’ (<b>1923</b>)</li> <li>2. Founded Independent Labour Party (<b>1936</b>)</li> <li>3. Founded Scheduled Castes Federation (<b>1942</b>)</li> </ol>

**14. NCERT’s Recent Textbooks Updates**

NCERT’s recent textbook revisions include the addition of DNA analysis findings from Rakhigarhi that support the continuity of ancient Indian culture.

- a. Other notable changes include **highlighting Ahom victories**, using honorifics for Shivaji, and **modifying historically loaded words like “rebel” to “revolt.”**





### Key Facts about Rakhigarhi:

1. **Location:** Rakhigarhi is a significant **Indus Valley Civilization (IVC)** site situated in Haryana's Hisar district, on the Ghaggar-Hakra river plain.
2. **Significance:**
  - a. It is **one of the largest IVC sites**, located on the banks of the now-dry Sarasvati River.
  - b. **3 distinct layers of the Early, Mature, and Late phases** of the IVC have been identified at Rakhigarhi.
3. **Major Findings:**
  - a. Rakhigarhi has yielded various artifacts, including a drainage system, lanes, a jewelry unit, copper and gold jewellery, terracotta toys, earthen pots, seals, a burnt-brick wall, semi-precious stones, and 2 female skeletons buried with pottery and adornments.
  - b. Notably, a **cylindrical seal with 5 Harappan characters** on one side and an alligator symbol on the other was discovered at the site.
4. **DNA Analysis:**
  - a. **Rakhigarhi's DNA analysis suggests a genetic continuity between the IVC inhabitants and contemporary populations**, potentially challenging previous theories of large-scale migrations.

- b. This finding reinforces the theory of an indigenous origin for the IVC, **one of the world's ancient civilizations**.

### About the National Council of Educational Research and Training (NCERT):

1. **Background:**
  - a. NCERT is an **autonomous body established by the Government of India in 1961**.
  - b. Its purpose is to **advise the Central and State Governments on policies and programs aimed at improving the quality of school education**.
2. **Objectives:**
  - a. NCERT and its constituent units **focus on conducting research in school education, developing textbooks and educational materials, training teachers, promoting innovative teaching methods, collaborating with educational organizations, and working towards achieving Universal Elementary Education goals**.
3. **NCERT and the National Education Policy (NEP) 2020:**
  - a. As per the NEP 2020, NCERT has the primary responsibility of developing National Curriculum Frameworks (NCFs) for **Early Childhood Care and Education (ECCE), School Education, and Adult Education**.

Ahom Dynasty	Chhatrapati Shivaji Maharaj (1630-1680 CE)
<ol style="list-style-type: none"> <li>1. The Ahom dynasty ruled over the present region of Assam in northeastern India for a significant period from 1228 to 1826 CE.</li> <li>2. They <b>gained recognition for their unwavering resistance against prominent empires</b>, demonstrating remarkable strength and resilience.</li> <li>3. <b>Battle of Saraighat:</b> This battle holds great importance in Ahom history as it was a <b>decisive naval encounter that took place in 1671 between the Ahom Kingdom and the powerful Mughal Empire</b>.                     <ul style="list-style-type: none"> <li>• The Ahom army was victorious in this battle, which dealt a decisive blow to Mughal expansionist ambitions in Assam.</li> <li>• This battle is considered a milestone in Ahom history, demonstrating their strategic skills and military power and having a lasting impact on the region.</li> </ul> </li> </ol>	<ol style="list-style-type: none"> <li>1. <b>Chhatrapati Shivaji</b> was the <b>founder of the Maratha Empire, a powerful force in western India that challenged Mughal dominance</b>.</li> <li>2. <b>Shivaji's innovative guerrilla warfare tactics, utilizing mobility and surprise attacks, gave him an advantage over the larger Mughal forces</b>.</li> <li>3. He <b>implemented administrative and economic reforms</b>. These included the <b>introduction of 2 taxes, the Chauth and Sardeshmukhi, and the division of his kingdom into 4 provinces, each headed by a Mamlatdar</b>.</li> <li>4. <b>Shivaji abolished the Jagirdari System, a land tenure system in which land was granted to jagirdars (military chiefs) in exchange for military service, and replaced it with the Ryotwari System, a land revenue system in which revenue was collected directly from individual farmers</b>.</li> </ol>



## 15. Goldman Environmental Prize

**Alok Shukla**, environmental activist, has received the **2024 Goldman Prize from Asia** for his dedication to protecting and enhancing the natural environment.

- a. Shukla, the convener of **Chhattisgarh Bachao Andolan** and founder of **Hasdeo Bachao Sangharsh Samiti**, received the prize at a ceremony held in **San Francisco, United States, on April 29, 2024.**

### About the Goldman Environmental Prize:

1. The award honors individuals who have made **substantial and sustained efforts to conserve and improve the natural environment**, often at great personal risk.
2. Also known as the **Green Nobel**, the prize honors **grassroots environmental heroes from 6 inhabited continental regions.**
3. The **first Goldman Environmental Prize ceremony took place on April 16, 1990.** It was timed to coincide with **Earth Day.**

### Key Facts about Hasdeo Aranya Region:

1. Hasdeo Aranya is a **vast forest in northern Chhattisgarh**, known for its **rich biodiversity and coal deposits.**
2. The forest falls under **Korba, Surajpur, and Sarguja districts** and has a tribal population.
3. The **Hasdeo River, a tributary of the Mahanadi, flows through the region.**

### What is Sustainable Development?

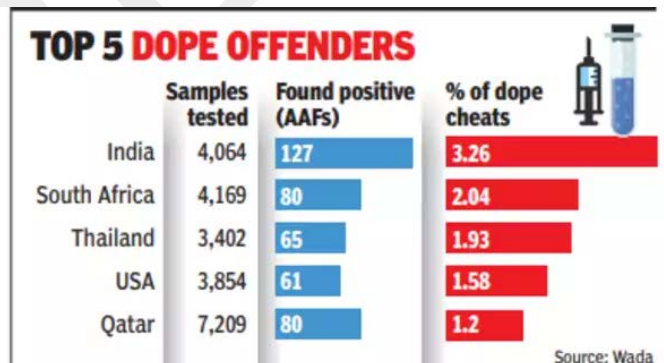
1. Sustainable development is an **approach to economic growth and human development that aims to meet the needs of the present without compromising the ability of future generations to meet their own needs.**
2. It's about finding a **balance between our current demands and protecting the planet's potential for the future.**

## The Three Pillars of Sustainable Development:

Sustainable development is often considered to be based on 3 main pillars:

1. **Economic Development:** Creating a **healthy economy that provides jobs, income, and sustains growth** while using resources responsibly.
2. **Social Inclusion:** Building societies in which **everyone feels included and has equal access to opportunities**, resources, and basic human rights.
3. **Environmental Protection:** Safeguarding natural resources, reducing pollution, and **protecting biodiversity** and ecosystems so that our planet can continue to support our needs and those of future generations.

## 16. India records highest number of failed dope tests among countries



1. India has emerged as the country with the highest percentage of doping offenders, according to the 2022 testing figures released by the World Anti-Doping Agency (WADA).
2. The report revealed that out of 4,064 samples collected from Indian athletes (**including urine, blood, and athlete biological passports**), 127 individuals tested positive for banned substances.
3. **South Africa follows India as countries with the highest number of athletes testing positive for banned substances.**



## World Anti-Doping Agency (WADA)

### 1. WADA's Role:

- a. **Established:** 1999 as an **independent international agency** to combat doping in sports.
- b. **Primary Objectives:** Develop and harmonize **anti-doping rules** and policies across all sports and countries.

### 2. Key Activities:

- a. **Scientific Research:** Conduct and support research **to detect and prevent doping**.
- b. **Education:** Promote anti-doping awareness and education among athletes, coaches, and other stakeholders.
- c. **Capacity Building:** Assist in developing anti-doping capacities and infrastructure in different countries.
- d. **Code Monitoring:** Monitor the implementation of the **World Anti-Doping Code**, which harmonizes anti-doping policies globally.

### 3. Formation and History:

- a. In 1998, the International Olympic Committee (IOC) convened the **First World Conference on Doping in Sport in response to the cycling doping scandals**.
- b. The conference **concluded with the Lausanne Declaration**, which called for the creation of an independent international anti-doping agency.
- c. **WADA's Establishment:** WADA was established on November 10, 1999, in Lausanne, Switzerland, to coordinate the global fight against doping in sports.

### 4. Organizational Structure:

- a. **Headquarters:** Montreal, Canada
- b. **Legal Status:** Swiss private law, not-for-profit foundation

### c. Governance:

- i. **Foundation Board (Board):** Comprises 42 members representing the Olympic Movement and governments from various continents.
- ii. **Executive Committee (ExCo):** A 16-member committee responsible for managing and running the agency.

## What is the International Olympic Committee (IOC)?

1. The International Olympic Committee is a **non-governmental sports organisation based in Lausanne, Switzerland. Founded in 1894 by Pierre de Coubertin and Demetrios Vikelas**, it is the authority responsible for organising the modern Olympic Games.
2. The IOC also decides the rules and regulations of the Olympic Games, and decides **when and where the next Olympics event will be held**.

### The IOC's mission is to:

1. Promote Olympism
2. Support ethics and good governance in sport
3. Support the education of youth through sport
4. Ensure fair play and avoid violence
5. Protect clean athletes
6. Encourage the development of sport for all
7. Promote sustainable development in sport

## What is an athlete's biological passport ?

An athlete biological passport is an individual **electronic record for professional athletes**, in which profiles of biological markers of doping and results of doping tests are collated over a period of time.



## H. ETHICS

### 1. Jainism: An Ancient Guide to Good Living

Ethical Doctrines of Jainism was in news because of Mahavir Jayanti in April. Jainism is **one of the oldest religions** in the world, it is not only a spiritual tradition but also a profound philosophical system with rich ethical principles. Jaina ethics provide a comprehensive framework for leading a life of virtue, compassion, and non-violence.

Let's discuss the key principles of Jaina ethics, their significance, evolution, and application in contemporary society.

#### Historical Context and Evolution of Jain Ethics:

The ethical principles of Jainism find their roots in the teachings of Mahavira, the twenty-fourth Tirthankara, who lived around the 6th century BC. Mahavira emphasized the concept of Ahimsa, or non-violence, as the cornerstone of Jain ethics. Over the period, Jain ethical philosophy evolved through the writings of various Jain scholars and thinkers, including Acharya Umasvati, who composed the Tattvartha Sutra, a fundamental text outlining the core principles of Jainism.

#### Principles of Jaina Ethics:

These are the principles of Jainism following which, individuals can cultivate a more ethical and fulfilling existence, contributing to the well-being of themselves and the world around them.

#### Tri Ratna (Three Jewels)

- 1. Right faith (Samyagdarsana):** Right faith implies faith in knowledge imparted by Jaina enlightened beings. The more you meditate, the stronger your faith gets.
- 2. Right Knowledge (Samyag Jnana):** In right faith, the knowledge is merely of the essence of Jaina preaching. In right knowledge, there is specialized knowledge of the rudiments of Jiva and Ajiva. It destroys ignorance.

- 3. Right Conduct (Samyak Caritra):** It includes the adoption of beneficial activities and the abandoning of harmful ones. This frees the Jiva from Karmas. Right character includes forgiveness, softness, simplicity, truthfulness in thoughts and speech, cleanliness, sacrifice etc.

#### Panch Vrata (Five Moral Vows/Virtues)

- 1. Ahimsa (Non-Violence):** Ahimsa is the heart of Jain ethics, non-violence is advocated through thought, word, and action. It's about being kind to everyone and everything, not just in your actions but also in your thoughts and words.
- 2. Satya (Truthfulness):** Truthfulness is another essential virtue in Jainism, it emphasizes on honesty, integrity, and sincerity in all aspects of life. Always being honest and straightforward. This means no lying, no cheating, and no hiding the truth.
- 3. Asteya (Non-Stealing):** Asteya orders Jains to refrain from stealing or coveting others' possessions. Beyond material wealth, it encompasses respecting intellectual property, avoiding exploitation, and promoting a culture of generosity and sharing.
- 4. Brahmacharya (Chastity):** Brahmacharya advocates self-restraint and moderation in physical and emotional desires. While traditionally associated with celibacy, it also emphasizes ethical conduct in relationships, promoting respect, fidelity, and harmony in personal and social interactions.
- 5. Aparigraha (Non-Possessiveness):** Letting go of material things and focusing on what's really important. This means living simply, avoiding greed, and not getting attached to stuff.

#### Application of Jaina Ethics in Daily Life/ How Jainism Can Help Us Today

- Jaina ethics provide practical guidance for individuals to lead a life of virtue, compassion, and spiritual growth.





2. In present society, the principles of Jainism find application in various spheres of life, including:
- **Environmental stewardship and sustainability**, practicing respect for nature and minimizing ecological harm through vegetarianism, conservation efforts, and eco-friendly lifestyles.
  - **Helping Others:** Jain ethics **promote social harmony, equality, and compassion** for the marginalized and disadvantaged. Jains are actively involved in philanthropy, charitable activities, and community service to alleviate suffering and promote social welfare.
  - **Doing business the Right Way:** Jaina principles of honesty, integrity, and fair dealing serve as guiding values for ethical conduct. This means putting values before profits and focusing on sustainability.

### Significance of Jaina ethics for a Civil Servant:

Civil Servants have tough jobs. They have to make decisions that affect millions of people, and sometimes there are no easy answers. Jaina ethics offer a framework for civil servants to navigate their roles with **integrity, compassion, and non-violence**.

1. **Ahimsa in Governance:** The idea of non-violence (Ahimsa) isn't just about not hurting people physically. For civil servants, it means creating a peaceful society where everyone feels safe and respected.
  - a. By promoting dialogue, mediation, and reconciliation, they can resolve conflicts, address grievances, and build trust between communities.
  - b. Moreover, in policy-making and implementation, civil servants can prioritize non-violent approaches to address socio-economic disparities, promote social justice, and ensure inclusive development for all sections of society.
2. **Satya and Asteya:** Pillars of Integrity and Accountability:
 

Truthfulness (Satya) and not stealing (Asteya) are like the backbone of a trustworthy government. This means:

  - a. **Open Book:** Being transparent about decisions and letting the public know what's going on.
  - b. **No Funny Business:** Not taking bribes or using power for personal gain.

3. **Aparigraha:** The principles of Aparigraha (non-possessiveness) teaches civil servants to put the needs of others before their own desires for power or money. It's about:

- a. **Being Humble:** Not getting caught up in the perks of the job and remembering who you're really working for – the people.
- b. **Understanding Others:** Putting yourself in other people's shoes and making decisions that help the most people possible.

Jainism's values are like a roadmap for civil servants. They show how to be honest, fair, and kind, even when things get tough. By following these values, civil servants can create a better world for everyone.

## 2. Case Study 1:

In a district where alcohol consumption is prohibited, you work as a Superintendent of Police (S.P.). The sad thing is that 36 people died after drinking poisonous liquor in a village under your jurisdiction. The incident has prompted swift action from the state, with multiple police agencies cooperating in a joint investigation. The state government, which faces assembly elections in the next six months, is also facing criticism from the opposition. Your preliminary investigation has revealed the involvement of a local mafia in the manufacturing of this spurious liquor and this mafia member is related to a government minister. Both the mafia and the minister are threatening you to keep quiet and trying to bribe you. Additionally, your promotion file is currently being considered by the same Minister. If you do not listen to them, **you may have to face many problems**.

- A. **Identify the ethical dilemmas:** What are the key ethical considerations and principles at play in this situation?
- B. **Evaluate your choices:**
  - a. Analyze the different options available to you.
  - b. Assess each option based on its ethical implications, potential consequences, and alignment with your values.



**C. Choose your path:**

- a. Determine your preferred course of action after carefully weighing the ethical considerations and practical implications of each option.

**Solution**

This analysis highlights the complex dilemma of choosing between upholding one's legal obligations or protecting personal interests by avoiding responsibility.

**A) Ethical issues involved in this case are as follows:**

1. **The Illicit and Immoral Liquor Trade:** Engaging in the sale of alcoholic beverages in a state where such activities are explicitly prohibited not only violates the law but also contravenes moral principles.
2. **Violation of the Social Contract:** The state's failure to implement the law prohibiting liquor and the subjects' disregard of the law constitute breaches of the social contract by both parties.
3. **Lack of good governance:** The death of people in a state where liquor is Prohibited shows that governance is not prompt.

**B) Ethical Choices and Their Implications:**

1. **Following the Law in Letter and Spirit:** Adhering strictly to the law may ensure rule of law and justice for victims, but it could conflict with the person's self-interests and career aspirations, which runs counter to the hedonistic principle of maximizing pleasure and minimizing pain.
2. **Seeking Guidance from Seniors:** Consulting experienced colleagues could prevent mistakes and foster teamwork, but there's a risk of being misled, which could undermine the very purpose of the law.
3. **Leaving the Case:** Withdrawing from the case may protect and promote self-interest, but it contradicts the core values of civil service and John Rawls' principles of justice, which prioritize the fair distribution of benefits and burdens in society.

**C) Strategies for an S.P.****1. Internal Preparation:**

- a. Develop emotional intelligence to manage fear and pressure effectively.
- b. Embrace the virtues of courage and justice as defined by Aristotle.

**2. Following Internal Instruments:**

- a. Comply with applicable laws, regulations and policies.
- b. Seek advice from senior colleagues and seek advice from relevant authorities.
- c. To find a solution, exhaust all internal mechanisms.
- d. Consider and use reporting options as a last resort.

**3. External Options:**

- a. If internal mechanisms prove ineffective, seek help from NGOs.
- b. Consider engaging with the media or taking legal action as a means of ensuring justice for victims.
- c. Listen to your conscience and maintain the highest standards of ethical integrity.

**3. Case Study 2:**

In the western state of the country, a recently renovated footbridge collapsed, tragically plunging tourists celebrating Diwali and the new year into the river. The accident occurred in a riverside town renowned for its Victorian-era bridge. Unofficial reports suggest the death toll may surpass 140, with over 50 children among the confirmed fatalities. Many remain missing. The collapse occurred due to the bridge being overloaded, with an estimated 400 people on it when the cables snapped. Rescue efforts were hampered by a lack of local resources, while the focus has shifted to the contractor, Oreva, a clock and electric bike manufacturer with no construction experience, which completed the renovation without government clearance and allegedly oversold tickets.



9 individuals, including Oreva executives, contractors, security guards, and ticket clerks, have been arrested, but the company itself has not yet been formally named in the legal complaint.

**As the lead investigator of this case, please address the following questions in a comprehensive manner within a word limit of 250:**

1. Discuss the ethical considerations and challenges you may encounter during the course of your investigation.
2. Outline the options that you have at your disposal to address the ethical issues.
3. Critically analyze each of the aforementioned options, highlighting their potential advantages and limitations.
4. Based on your analysis, describe the course of action that you intend to take, while justifying your decision.

### Solution

This case includes a multitude of issues, including prevalent corruption in government contracts, administrative deficiencies, ineffective crowd control, delayed rescue operations, and a general lack of public awareness.

#### A) Ethical Issues in the Case:

1. **Crony capitalism:** The contract was awarded to a company with no experience in construction, suggesting favouritism and potential corruption.
2. **Lack of integrity:** A powerful businessman was named in the initial legal complaint, indicating a possible cover-up.
3. **Politics without principle:** The case highlights the issue of politicians awarding contracts to associates and potentially shielding them from legal consequences.

#### B) Options Available:

1. **Thorough investigation:** Uphold the rule of law and ensure justice, despite potential risks.
2. **Manipulation:** Protect the businessman to avoid personal repercussions, sacrificing integrity.
3. **Seek guidance:** Consult seniors for advice and support, but be aware of potential bias.

4. **Abandon the case:** Avoid conflict and danger, but betray a sense of duty and courage.

#### C) Critical Examination of Options:

1. **Thorough investigation:** Ensures justice but may jeopardise career and safety.
2. **Manipulation:** provides personal protection but violates core values and hinders justice.
3. **Seek guidance:** Facilitates teamwork and expertise but risks potential manipulation.
4. **Abandonment:** Sacrifice: Avoids conflict but shows cowardice and lack of dedication.

#### D) Recommended Course of Action:

1. **Emotional preparedness:** The investigator must be mentally strong and internally motivated.
2. **Impartiality:** Avoid bias and rumours to ensure a fair investigation.
3. **Accountability:** Name all culprits in the charge sheet, regardless of their influence.
4. **Strategic guidance:** Seek advice from seniors but remain vigilant against manipulation.
5. **Whistle-blowing:** If necessary, expose the truth to higher authorities or the media.

### Conclusion:

**As the head of the investigation, the priority should be to uphold justice and the rule of law, even in the face of personal risk.** By conducting a thorough and impartial investigation, seeking guidance when needed, and being prepared to blow the whistle if necessary, the investigator can ensure accountability for those responsible and send a strong message against corruption and cronyism. **This is how it can be concluded that to deal with issues of crony capitalism and to ensure the rule of law in society, civil servants should follow the foundational values of civil services.**



## I. ESSAY

### A Society Which Has More Justice Is The One That Needs Less Charity

*“True charity consists in helping others to help themselves,” – Franklin D. Roosevelt*

In a quiet village surrounded by hills and forests, there was a man named Suresh who was known for his unwavering kindness. He was always helping out folks who were struggling, giving them food, clothes, and whatever else they needed. Everyone loved him for it, but he started to wonder why so many people in his village needed help in the first place.

Why were there families who didn't have enough to eat, kids who couldn't go to school, and old folks who couldn't get the medical care they needed? Thinking about it made him realize something important: if everyone got a fair shake, they wouldn't need as much charity.

*This story about Suresh is where we're going to start talking about why a just society wouldn't need as much charity.*

Looking back through history, the idea of fairness and equality (aka justice) has been important in shaping the way societies work. Ancient **civilizations like Greece and Rome** were all about justice, seeing it as the key to a successful and stable society. They made laws to ensure everyone was treated fairly and tried to level the playing field.

**A big moment for justice was the Magna Carta in 1215.** It put limits on the king's power and set the stage for individual rights. **In the Indian context,** the introduction of the **Indian Constitution in 1950** was a landmark moment. **Dr. B.R. Ambedkar**, the principal architect of the Constitution, wanted to get rid of things like untouchability and make sure everyone had equal rights.

But even with all this progress, we still have a lot of charity around, which shows that while we've been aiming for justice, we haven't always hit the mark.

**Socially,** the fabric of a just society is woven with the threads of equality and fairness. When individuals have **access to the same opportunities, regardless of their background,** the need for charity goes down. **Education is a prime example.** In societies where education is accessible to all, regardless of socioeconomic status, individuals are empowered to lift themselves out of poverty. The **Nordic countries,** known for their comprehensive welfare states and equitable education systems, demonstrate lower levels of poverty and, consequently, less reliance on charity. In India, the **Right to Education Act (RTE) of 2009** mandates free and compulsory education for children aged 6 to 14. This law aims to bridge the educational divide and has significantly increased enrollment rates. However, disparities in educational quality and resources still exist, indicating that further progress is needed to achieve true educational justice.

**Politically,** the establishment of just policies is essential for reducing dependency on charity. Governments that prioritize **social welfare, healthcare, and equitable economic policies** create environments where citizens can thrive independently. Policies like **progressive taxation** and **social security nets** ensure that wealth is redistributed in a way that supports the underprivileged. The introduction of **Universal Healthcare** in countries like **Canada** and the **United Kingdom** has significantly reduced the need for charitable healthcare services, illustrating how political justice translates to reduced dependency on charity. **In India,** the Mahatma Gandhi National Rural Employment Guarantee Act (**MGNREGA**) guarantees 100 days of





wage employment per year to rural households. This policy **aims to enhance livelihood security** and reduce poverty. While it has provided economic relief to millions, gaps in implementation and delays in wage payments highlight the ongoing challenges in achieving political justice.

On an international level, justice plays a crucial role in addressing global inequalities. International bodies like the **United Nations work towards establishing justice across nations** through human rights declarations and sustainable development goals. When countries implement policies that promote justice, such as **fairtrade practices** and **poverty reduction programs**, the reliance on international charity diminishes. The success of microfinance initiatives in countries like Bangladesh, led by organizations such as **Grameen Bank**, demonstrates how financial justice empowers individuals, reducing the need for charitable interventions. In India, the **Self-Help Group (SHG) movement**, particularly through organizations like the National Bank for Agriculture and Rural Development (**NABARD**), has empowered millions of women by providing microloans and fostering financial independence. This initiative has significantly reduced dependence on charity by promoting economic self-sufficiency.

**Economically**, a just society ensures that wealth is distributed more evenly, reducing the gap between the rich and the poor. **Economic justice** involves fair wages, labor rights, and access to resources. In economies where **minimum wage laws** are enforced and workers' rights are protected, there is less economic disparity and, consequently, less need for charity. The **concept of a living wage**, which ensures that workers earn enough to meet their basic needs, is a step towards economic justice that diminishes the need for charitable support. In India, the implementation of the **Goods and Services Tax (GST)** aimed to create a unified tax structure, simplifying taxation and potentially increasing revenue for social welfare programs. However, the informal sector still

faces challenges, and ensuring fair wages and working conditions remains a critical issue for achieving economic justice.

**Environmentally**, justice entails ensuring that all individuals have access to clean air, water, and a healthy environment. **Environmental justice** addresses the disproportionate impact of environmental degradation on marginalized communities. When environmental policies are just, ensuring that industries adhere to regulations that protect natural resources and public health, communities are less likely to suffer from conditions that necessitate charity. For example, enforcing clean water standards reduces the incidence of diseases in low-income communities, thereby reducing the need for charitable health interventions. In India, the **Swachh Bharat Abhiyan** launched in 2014 aimed to eliminate open defecation and improve solid waste management. This initiative has had significant health and environmental benefits, particularly in rural areas, although continuous efforts are needed to achieve comprehensive environmental justice.

**Ethically**, the notion of justice is deeply rooted in the principle of fairness. A society that upholds ethical standards of justice treats all its members with dignity and respect, ensuring that their basic needs are met. Ethical justice involves addressing systemic inequalities and providing everyone with the opportunity to succeed. When ethical principles guide societal structures, the disparities that often require charitable interventions are minimized. For instance, ethical labor practices that prevent exploitation ensure that workers receive fair wages, reducing their need for charity. In India, the **Corporate Social Responsibility (CSR)** mandate requires large companies to spend a portion of their profits on social welfare activities. While this has led to numerous charitable projects, integrating ethical practices into the core operations of businesses would address systemic issues more effectively than charity alone.

Data substantiates these arguments. Studies have shown that countries with higher levels of social justice have lower levels of poverty and inequality. The **Social Justice Index**, which measures the performance of countries in achieving justice, indicates that nations with strong social justice policies have lower poverty rates and less reliance on charity. For example, according to the Bertelsmann Stiftung's Social Justice Index, Scandinavian countries consistently rank high in social justice metrics and exhibit lower levels of poverty and social exclusion, correlating with reduced dependence on charitable organizations. In India, the **Multidimensional Poverty Index (MPI)** developed by the United Nations Development Programme (UNDP) and the Oxford Poverty and Human Development Initiative (OPHI) measures various deprivations that people face. Recent data indicates a decline in multidimensional poverty in India, suggesting progress towards a more just society, though challenges remain.

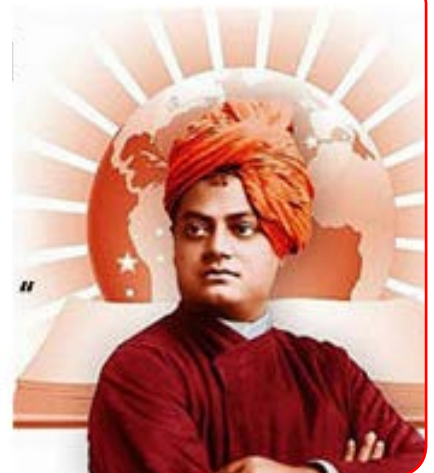
Returning to Suresh's village, we can see the parallels. If the village ensured that every child received a quality education, every worker earned a fair wage, and every elder had access to healthcare, the need for Suresh's charitable efforts would diminish. This doesn't undermine the value of charity but highlights that **charity often addresses symptoms rather than root causes**. A society

that proactively ensures justice for all its members lays the foundation for a more equitable and self-sufficient community.

**In Conclusion**, the story of Suresh and his village exemplifies the broader argument that a just society needs less charity. By addressing historical injustices, implementing fair social and political policies, promoting international justice, ensuring economic equity, safeguarding environmental health, and upholding ethical standards, societies can create conditions where charity becomes less necessary. Looking towards the future, we must advocate for national unity and international harmony, fostering sustainable growth that benefits all members of society. This holistic approach not only alleviates immediate needs but also builds a foundation for long-term prosperity and justice. As **Swami Vivekananda** wisely said, *"So long as the millions live in hunger and ignorance, I hold every man a traitor who, having been educated at their expense, pays not the least heed to them"* ("जब तक लाखों लोग भूख और अज्ञानता में रहते हैं, तब तक मैं हर उस हर व्यक्ति को देशद्रोही मानता हूँ, जो उनका शोषण कर उनके खर्चे पर शिक्षित होने के बावजूद भी उन पर तनिक भी ध्यान नहीं देता है।") By striving for justice, we can create a society where charity is no longer a necessity but a choice, ensuring dignity and equality for all.

"जब तक लाखों लोग भूख और अज्ञानता में रहते हैं, तब तक मैं हर उस हर व्यक्ति को देशद्रोही मानता हूँ, जो उनका शोषण कर उनके खर्चे पर शिक्षित होने के बावजूद भी उन पर तनिक भी ध्यान नहीं देता है।"

- Swami Vivekananda





## J. SCHEME

### 1. PRERANA Program

In April 2024, the Secretary of the Department of School Education and Literacy (DoSEL) addressed the first alumni meeting of the Prerana Program.

#### About:

Prerana is an **experiential and inspirational learning program** for students with the best-in-class technology where heritage meets innovation.

#### Launched by:

Department of School Education & Literacy, Ministry of Education, Government of India

#### Aim:

To provide a meaningful, unique and inspiring experience to all participants and empower them with leadership qualities.

#### Salient Features of the programme:

1. It is a **week-long residential program** for **selected students of classes IX to XII**.
2. Prerana started in the pilot phase from January to February 2024 in the Vernacular School of Vadnagar, Mehsana, Gujarat. The sixth batch will start from 15 April 2024.
3. In this phase, the Prerna Program has been conducted for five batches of 20 participants each from five states and one Union Territory.
4. Prerana combines experiential learning with cutting-edge technology, combining traditional heritage with modern innovation.
5. The curriculum is built around **nine core values**: dignity and humility, bravery and courage, hard work and dedication, compassion and service, diversity and unity, integrity and purity, innovation and curiosity, trust and confidence, and independence and responsibility.
6. These subjects aim to inculcate a deep respect for the diverse culture of India and promote the philosophy of "**Vasudhaiva Kutumbakam**" (the world is one family).

7. The day-wise program includes yoga, mindfulness and meditation as well as thematic experiential learning and practical activities.
8. The evening activities will include visits to ancient and heritage sites, inspirational film screenings, mission life creative activities, talent shows etc. which will ensure a holistic learning approach.

#### Eligibility:

Students of Class IX to XII from any recognised school of the country.

#### Selection process:

1. Students can register on the portal by providing the required details.
2. Alternatively, applicants can join the school/block-level selection on the 'Prerana Utsav' day through activities in line with the ethos of Prerana.
3. Two students (01 boy and 01 girl) will be selected from each district for the Prerna program.

#### Significance:

1. Participants will take the ethos of inspiration back to their communities, becoming catalysts for positive change and inspiring others.
2. It will incorporate the principles of the Indian education system and the value-based education philosophy, which is the cornerstone of the National Education Policy (NEP) 2020.

### 2. Rashtriya Arogya Nidhi Scheme

The Delhi High Court recently took up a case related to the Rashtriya Arogya Nidhi (RAN) Scheme; a central sector scheme launched in 1997.

- a. The court observed that the threshold income for claiming benefits under the scheme appeared to be "**extremely low**".

#### What is Rashtriya Arogya Nidhi Scheme?

The Rashtriya Arogya Nidhi (RAN) Scheme is a **central sector scheme by the Ministry of Health**

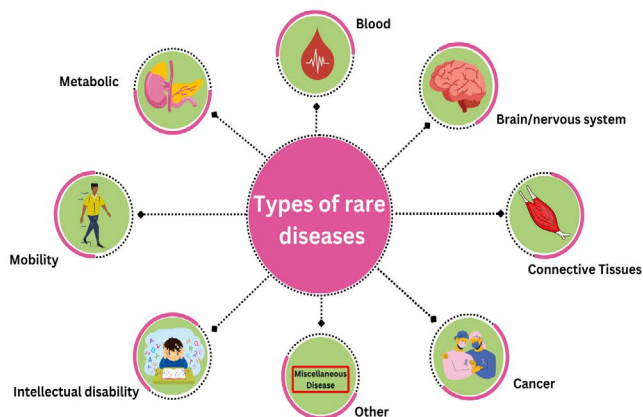
and Family Welfare that provides **one-time financial assistance** to poor patients **suffering from life threatening diseases like heart, kidney, liver, cancer etc.**

- a. The scheme is for **patients living below the poverty line, as defined by the Planning Commission**, who are seeking treatment at government hospitals, super specialty hospitals, or institutions.
- b. **The scheme does not cover treatment at private hospitals.**

### The RAN scheme comprises 3 components:

1. **Rashtriya Arogya Nidhi (RAN):** This component provides financial assistance for the treatment of life-threatening diseases related to heart, kidney, liver, etc., at government hospitals/institutes with Super Specialty facilities. The maximum financial assistance under this component is **Rs. 15 lakhs.**
2. **Health Minister’s Cancer Patient Fund (HMCPF):** This component offers financial assistance for cancer treatment at Regional Cancer Centres (RCCs)/Tertiary Care Cancer Centres (TCCCs) and State Cancer Institutes (SCIs). The maximum financial assistance under this component is also **Rs. 15 lakhs.**
3. **Financial Assistance for Poor Patients Suffering from Rare Diseases:** This component provides financial assistance for the treatment of specified rare diseases at government hospitals/institutes with Super Specialty facilities. The maximum financial assistance under this component is **Rs. 20 lakhs.**

### What is a rare disease?



1. A rare disease is a **condition that affects a small percentage of the population.**
2. Rare diseases can be **chronic or incurable, but many are short-term medical conditions.**
3. They can be **caused by bacterial or viral infections, allergies, chromosome disorders, or degenerative and proliferative causes.**
4. The cause of **many rare diseases is unknown, but they are often caused by changes in a person’s genes or chromosomes.**
5. Rare diseases are often more **difficult to diagnose and treat** than more common diseases.

### Some examples of rare diseases include:

1. Alkaptonuria, or “black urine disease”
2. Angelman syndrome
3. Cystinosis
4. Cystic Fibrosis
5. Duchenne Muscular Dystrophy
6. Gaucher Disease
7. Hypohidrotic Ectodermal Dysplasia (HED)
8. Leiomyosarcoma
9. Mucopolysaccharidosis type 1
10. Retinitis Pigmentosa

## 3. Janani Suraksha Yojana

Janani Suraksha Yojana has shown remarkable success, with more than 88 per cent deliveries taking place in a hospital.

### About Janani Suraksha Yojana:

1. **Year of Launch:** 2005
2. **Type of Scheme:** Centrally Sponsored Scheme
3. **Nodal Ministry:** Ministry of Health and Family Welfare
4. **Aim:** To **reduce maternal and newborn children mortality by promoting institutional delivery through financial incentives.**
5. **Targeted Beneficiaries:** Pregnant women, especially from Scheduled Castes, Scheduled Tribes, and Below Poverty Line (BPL) households.

### Key features of the Janani Suraksha Yojana

1. **Janani Suraksha Yojana (JSY): A Key Safe Motherhood Intervention:**





- a. JSY is a safe motherhood program implemented under the **National Health Mission**.
2. **Nationwide Coverage with a Focus on Low-Performing States:**
  - a. JSY is **implemented in all states and union territories (UTs)**, with a particular emphasis on states with lower performance, **mainly in north India and the northeast**.
3. **Financial Assistance for Expecting Mothers:**
  - a. Expecting mothers in **rural areas receive ₹1,400**, and those **in urban areas receive ₹1,000 after delivering at a public health facility** or an Accredited Private Hospital.
4. **Inclusion of SC/ST Women:**
  - a. **SC/ST (Scheduled Caste/Scheduled Tribe) women** are eligible for the cash incentive in both low- and high-performing states.
5. **BPL Household Requirement in High-Performing States:**
  - a. In high-performing states, only women from **Below Poverty Line (BPL) households** are entitled to the benefit.
6. **Age Eligibility:**
  - a. **Only pregnant women above 19 years of age** can avail the benefits under JSY. Women below 19 are not eligible to register.
7. **Two-Child Limit:**
  - a. Women with up to **2 live births** are eligible under the scheme.
8. **ASHAs as a Link to the Government:**
  - a. JSY has identified **Accredited Social Health Activists (ASHAs)** as a critical link between the government and pregnant women.
9. **Cash Disbursement:**
  - a. The cash benefit should be disbursed to the beneficiary preferably at the institution. **If ASHA cannot organize transport, transport assistance should be provided at the health center as soon as the pregnant women arrive and register for delivery.**

### Scheme's Performance:

1. Institutional delivery rates have grown significantly, **rising from 39% in 2005-06 to 89% in 2019-21**.

2. This increase has been **observed across all states, including high-performing and low-performing ones**.
3. Notably, even women in high-performing states who are not eligible for the benefit, **such as those having a third or subsequent child, have experienced an increase in institutional deliveries**.

### Challenges faced by the scheme:

1. Despite the success of the **Janani Suraksha Yojana (JSY) program, rising hospital delivery costs undermine the impact of financial incentives**.
2. According to the **National Family Health Survey (2019-21)**, the **average out-of-pocket cost of hospital delivery was ₹10,035, significantly higher than the ₹1,400 and ₹1,000 incentives provided under the scheme**. The cost in private facilities was ₹24,663, while in public facilities it was ₹3,245.
3. While there has been a notable improvement in hospital deliveries, **antenatal care (ANC) uptake remains stagnant, particularly among marginalized groups and for higher-order births**.

### Recommendations for improving maternal and child health outcomes:

1. **Focus on pre- and post-delivery components of maternal healthcare:** This could yield broader improvements in outcomes by addressing the critical periods before and after childbirth.
2. **Tailor interventions to address disparities within states:** Directing resources towards low-performing districts could enhance program coverage and impact, ensuring that all mothers and children have access to quality healthcare.
3. **Evaluate successful initiatives periodically:** Even successful programs, like institutional delivery programs, require regular evaluation to ensure optimal resource allocation and maximum impact.
4. **Regular assessments and potential refinements:** Regular assessments and potential refinements can ensure that funds and healthcare worker efforts are effectively utilized to achieve program objectives, leading to improved maternal and child health outcomes.




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