



# MONTHLY CURRENT AFFAIRS

JULY 2023



## POLITY AND GOVERNANCE

1	CRIMINALIZATION OF POLITICS	4
2	INTERNET SHUTDOWN	5
3	THE DIGITAL PERSONAL DATA PROTECTION BILL, 2022	7
4	EC INITIATES PUBLIC HEARING ON ASSAM'S DRAFT DELIMITATION PROPOSAL	9
5	NATIONAL HUMAN RIGHTS COMMISSION	11
6	PARLIAMENTARY COMMITTEES	13
7	ZERO FIR	14
8	NATIONAL COMISSION FOR WOMEN	16
9	UNIFORM CIVIL CODE	18
10	COMPTRROLLER AND AUDITOR GENERAL	20
11	DNA TECHNOLOGY BILL 2019	21
12	NO TRUST MOTION	23
13	FINANCE COMMISSION	24
14	PESA ACT	26
15	DIRECTORATE OF ENFORCEMENT (ED)	28

## INTERNATIONAL RELATIONS

1	BLACK SEA GRAIN INITIATIVE	31
2	SHANGHAI COOPERATION ORGANIZATION	32
3	INDIA UAE RUPEE SETTLEMENT SYSTEM	34
4	BAY OF BENGAL INITIATIVE FOR MULTI-SECTORAL TECHNICAL AND ECONOMIC COOPERATION (BIMSTEC)	35
5	INDIA-FRANCE RELATIONSHIP	36
6	NATO Plus – Should India join?	37
7	23RD SCO SUMMIT	39
8	NEWS IN SHORTS	41

## ECONOMY

1.	DIGITAL PAYMENTS IN INDIA	42
2.	CIRCULAR ECONOMY	44
3.	SEMICONDUCTORS	47
4.	INDIA'S 1 <sup>st</sup> GIG WORKERS'S RIGHTS BILL – by Rajasthan Govt	50
5.	PM SVANIDHI SCHEME	51
6.	MULTIDIMENSIONAL POVERTY	53
7.	HOW TO REAP THE DEMOGRAPHIC DIVIDEND?	54
8.	A MACRO-VIEW OF FISCAL HEALTH OF STATES	56
9.	RBI PANEL RECOMMENDATIONS FOR INTERNATIONALIZATION OF RUPEE	58
10.	CRITICAL MINERALS FOR INDIA	60
11.	WORLD COIN: A CRYPTOCURRENCY	62

## ENVIRONMENT & GEOGRAPHY

<u>CLIMATE CHANGE</u>		
1	FINANCING THE GREEN TRANSITION	64
2	SOLAR GEOENGINEERING	65
<u>CONSERVATION EFFORTS</u>		
3	CORAL BLEACHING	67
4	CONSERVATION OF WESTERN GHATS: MADHAV GADGIL & KASTURIRANJAN REPORTS	70
5	FOREST CONSERVATION AMENDMENT BILL	72
<u>RENEWABLE ENERGY</u>		
6	INDIA'S FOCUS ON BATTERY ELECTRIC VEHICLES (BEVS) IN ELECTRIC MOBILITY PLAN	74
<u>GEOGRAPHY</u>		
7	INDIAN OCEAN DIPOLE	78
8	INDIAN OCEAN GEOID LOW	80
9	NORTH INDIA'S MONSOON MAYHEM: A COMPLEX INTERACTION	81
10	EVIDENCE OF THE ANTHROPOCENE EPOCH AT CRAWFORD LAKE IN CANADA	82
11	MARINE HEAT WAVES	83
12	YAMUNA FLOODS	85
13	NEWS IN SHORT	88

## SOCIAL ISSUES

1	MAHILA SAMMAN SAVINGS CERTIFICATE SCHEME	90
2	MANIPUR VIOLENCE - CONFLICT BETWEEN KUKIS AND MEITEIS	91
3	SARPANCH PATI	93
4	BILL IN LOK SABHA TO ADD TWO SYNONYMS FOR MAHAR COMMUNITY IN CHHATTISGARH TO STATE'S SCHEDULED CASTES LIST	96
5	NEWS IN SHORTS:	98

## SCIENCE AND TECHNOLOGY

<u>HEALTH, BIOLOGY &amp; BIOTECHNOLOGY</u>		
1	LYMPHATIC FILARIASIS	100
2	NATIONAL SICKLE CELL ANAEMIA ELIMINATION MISSION	101
3	ONE HEALTH PRIORITY RESEARCH AGENDA ON AMR	102
4	IMPROVING PALLIATIVE CARE IN INDIA: CHALLENGES AND THE WAY FORWARD	104
5	NATIONAL POLICY FOR RARE DISEASES 2021: PROVIDING SUPPORT FOR RARE DISEASES TREATMENT	106
6	ARTIFICIAL SWEETENERS: WHO COMMITTEE'S STAND ON ASPARTAME AND ITS EFFECTS	107
7	AVIAN INFLUENZA OUTBREAKS: RISKS AND PRECAUTIONS	109
8	NATIONAL IMMUNIZATION COVERAGE ESTIMATES FOR 2022	110
9	National Research Foundation (NRF) Bill, 2023	112
10	GM MUSTARD	113
11	BIOSIMILARS	115
<u>NUCLEAR SCIENCE</u>		
12	PRESSURIZED HEAVY WATER REACTORS	117

**SPACE TECHNOLOGY**

13	CHANDRAYAAN-3: INDIA'S LUNAR MISSION	119
14	EUCLID MISSION	121

**DEFENCE**

15	LCA TEJAS	123
16	PROJECT-75I: INDIA'S ADVANCED CONVENTIONAL SUBMARINE PROCUREMENT	124

**COMPUTER & COMMUNICATION**

17	BHARAT 6G ALLIANCE	127
18	NEWS IN SHORTS:	130

**SCHEMES IN NEWS:**

1.	PM-PRANAM SCHEME	130
2.	BHOOMI SAMMAN AWARDS: RECOGNIZING EXCELLENCE IN DIGITAL INDIA LAND RECORDS MODERNIZATION PROGRAMME (DILRMP)	131

**PLACES IN NEWS**

1.	TURKMENISTAN	133
2.	PORT OF DUQM	133
3.	ZANZIBAR	134
4.	SECOND THOMAS SHOAL	134
5.	BATAGAIIKA CRATER	135
6.	MHADEI WILDLIFE SANCTUARY	135
7.	ADICHANALLUR MUSEUM	135





## POLITY AND GOVERNANCE

### 1. CRIMINALIZATION OF POLITICS

#### WHY IN NEWS:

Recently, the Association for Democratic Reforms (ADR) wrote to the Election Commission (ECI), seeking action against political parties that failed to publish details of criminal records of their candidates as per orders of the Supreme Court and the ECI.

#### ABOUT CRIMINALIZATION OF POLITICS AND IT'S STATUS:

The criminalisation of politics refers to the phenomenon where individuals with criminal backgrounds or pending criminal cases actively participate in politics and hold positions of power. It signifies the infiltration of criminal elements into the political system, compromising the integrity and functioning of democratic institutions.

- Increase in the number of MPs with criminal charges: In 2004, 24% of parliamentarians had pending criminal cases, which rose to 43% in 2019.
- As per media reports of February 2022, the number of pending criminal cases against sitting and former MLAs and MPs had risen close to 5,000 towards the end of December 2021.
- In the 2019 Lok Sabha elections, 159 MPs had declared serious criminal cases against them.

#### CAUSES OF CRIMINALIZATION OF POLITICS:

- **Vote Bank politics** – The money and muscle power of criminals help political parties gain votes. Factors such as caste, and religion take the central stage while criminal antecedents of candidates take the back seat giving an edge to criminals.
- **Black money and money power** - Electoral politics is largely dependent on the money and the funding that it receives. Since candidates with criminal records often possess greater wealth, they ensure a greater inflow of money, labour and other advantages that may help a party in a successful campaign, and also possess greater 'winnability'.
- **Lack of Intra-party democracy** - Political parties in India largely lack intra-party democracy and the decisions on candidature are largely taken by the elite leadership of the party. Thus, politicians with criminal records often escape scrutiny by local workers and organisations of the party.
- The government often are **attracted towards strongmen** (criminals) to address their failure in ensuring socio-economic development. These strongmen with money, resources and connections are expected to fulfil the needs of people.
- Factors such as **lack of intra-party democracy**, and **centralization of powers** in political parties ensure that candidates with criminal antecedents escape the scrutiny of local-level workers.
- **Poor implementation of laws** – For example, it is mandatory for political parties to publish criminal records of any of the candidates on their websites, social media accounts, newspaper etc for voter awareness but it isn't implemented in letter and spirit and political parties get away with it many times.

#### MEASURES TAKEN TO CURB CRIMINALIZATION OF POLITICS IN INDIA:

- **UNION GOVERNMENT:**

- It set up 12 special courts for a year to fast-track the trial of criminal cases against MPs and MLAs (2017)

- **SUPREME COURT:**

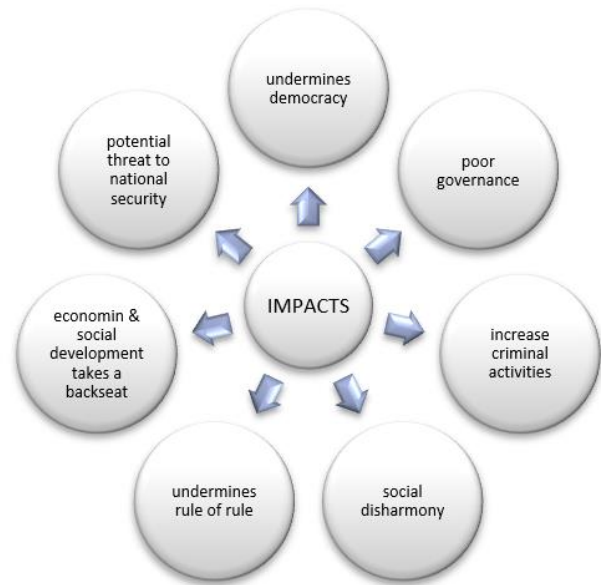
- It ruled that every candidate contesting the election has to declare his criminal and financial records along with educational qualifications (2002)
- In *Lily Thomas vs Union of India* – MPs or MLAs convicted of a crime and sentenced to a prison term of 2 years or more are disqualified from holding office.
- *Public Interest Foundation vs Union of India* case, 2018 had also directed political parties to publish online the pending criminal cases of their candidates.

- **ADS:**

- It recommends permanent disqualification of candidates convicted of serious criminal offences from contesting elections.

- **LEGAL ASPECTS:**

- Section 8 of the Representation of Peoples Act 1951 disqualifies individuals punished with a jail term of more than two years from standing in elections for six years after the jail term has ended.



#### WAY FORWARD:

- Pressure on political parties to follow the rule of law and not let criminals take centre stage. **Active citizen participation and awareness** on their side are equally important.
- Implement the recommendations of committees such as the **Vohra Committee** (1993) and **Goswami Committee** and the law commission report (170 and 244th), which have raised alarm bells long ago.
- **2nd ARC** recommended **amending section 8 of RPA to disqualify all persons** facing charges related to grave and heinous offences and corruption, where charges have been framed six months before the election.

## 2. INTERNET SHUTDOWN

#### WHY IN NEWS?

Over the past few years, the Indian government has increasingly been trying to control law and order by shutting down access to the Internet. Between 2016 and 2022, 60% of Internet shutdowns across the world took place in India.

According to a report by Access Now and the #KeepItOn coalition, India enforced as many as 84 Internet shutdowns in 2022 and was on top of the list for the fifth year in a row

#### WHAT IS INTERNET SHUTDOWN?

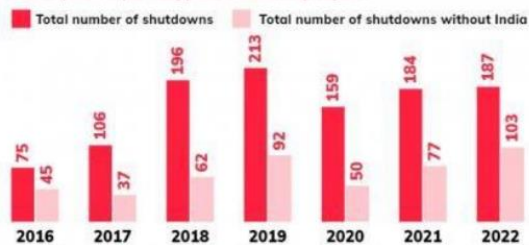
- An Internet shutdown is an intentional disruption of Internet-based communications, rendering them inaccessible or effectively unavailable, for a specific population, location, or mode of access, often to exert control over the flow of information.
- Internet shutdowns can take various forms, such as blocking specific websites, applications or services, throttling the speed or bandwidth of the Internet, or cutting off the power or infrastructure that supports the Internet.

### An overview of global internet shutdowns in 2022

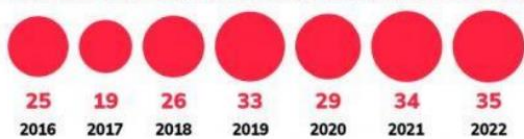
Updated on Feb 28 2023 | Read [our methodology](#) and download the [full database](#)

#### Documented internet shutdowns by year \*

\* These numbers reflect the latest data available as of publication of this report and include updates to previously published totals for past years.



#### Number of countries where shutdowns occurred



\*\* Shutdowns were imposed by external forces during armed conflict in Ukraine and Yemen.



#### WHAT ARE THE LAWS AND REGULATIONS GOVERNING INTERNET SHUTDOWNS IN INDIA?

- **Section 144 of the Code of Criminal Procedure, 1973 (CrPC)**, which empowers the District Magistrate or Executive Magistrate to issue orders to prevent any nuisance or disturbance of public tranquillity, such as by prohibiting the assembly of more than four people or restricting the use of any communication device or service.
- **The Temporary Suspension of Telecom Services (Public Emergency or Public Safety) Rules, 2017\***, which were issued under the **Indian Telegraph Act, 1885**, and provide a specific procedure for ordering Internet shutdowns in cases of public emergency or public safety.

According to these rules\*, only the Home Secretary of the Union or a state can pass an order for suspension of telecom services, and the order must include the reasons for the decision. The order must also be reviewed by a committee within five working days to assess its compliance with Section 5(2) of the Indian Telegraph Act, which allows the government to block the transmission of messages during a public emergency or for public safety

#### WHY ARE INTERNET SHUTDOWNS NECESSARY?

- **To maintain public order and prevent violence** - Internet shutdowns are needed to stop the spread of rumours, misinformation, hate speech and incitement to violence that can fuel communal clashes, riots, protests and terrorist attacks.
- To protect **national security** and sovereignty

- It can **help control dissemination of harmful content**. For example, 2013 Muzaffarnagar riots were triggered by a fake video.
- It can help stop people from sharing information or organizing unnecessary protests.

#### WHAT ARE NEGATIVE POINTS OF INTERNET SHUTDOWN?

- It **violates Freedom of Expression** which is a Fundamental right. Article 19 guarantees freedom of speech and expression.
- **Article 21** protects the right to life and liberty, which also encompasses the right to education and the right to exercise one's freedom to access the Internet.
- It **affects the delivery of essential services** such as health care, education and emergency response, and creates an environment of fear, uncertainty and misinformation.
- Internet shutdowns **harm the economy and society** of the country, as they disrupt trade, commerce, banking, tourism and other sectors that rely on the Internet. Few studies estimate the economic losses due to Internet shutdowns in India, such as \$1.3 billion in 2020 and \$1.9 billion in 2021.
- **Internet shutdowns may not solve the root cause of the problem** and rather aggravates the situation as they create more resentment, frustration and alienation among people.

#### WHAT IS SUPREME COURT'S VIEW ON INTERNET SHUTDOWN?

- In January 2020, the Supreme Court delivered a landmark judgment in the case of **Anuradha Bhasin vs Union of India**, where it held that access to information via the Internet is a fundamental right under Article 19 of the Constitution, and that any restriction on Internet access by the government must be temporary, limited in scope, lawful, necessary and proportionate.
- The court also reiterated that the government's orders restricting Internet access are **subject to judicial review and must comply with Section 5(2) of the Indian Telegraph Act, 1885**, which allows the government to block the transmission of messages during a public emergency or for public safety.

#### WAY FORWARD:

- Internet shutdowns should be a final option, after conducting a thorough cost-benefit assessment.
- Governments must maintain records detailing the rationale, duration, alternative solutions explored, responsible decision-makers, and the regulations governing shutdown implementation.
- These documents should be made publicly available for scrutiny.
- The frequency of internet shutdowns could have a greater impact on evaluating the ease of doing business.

### 3. THE DIGITAL PERSONAL DATA PROTECTION BILL, 2022

#### INTRODUCTION TO DIGITAL PERSONAL DATA PROTECTION BILL, 2022:

- The Ministry of Electronics and Information Technology has formulated a draft bill titled "The Digital Personal Data Protection Bill, 2022" to address the processing and protection of digital personal data.
- The bill aims to balance individuals' right to protect their personal data with the need to process data for lawful purposes.

### KEY FEATURES OF THE DIGITAL PERSONAL DATA PROTECTION BILL, 2022:

<b>Applicability</b>	The bill applies to the processing of digital personal data within India and extends to data processed outside India if it involves offering goods or services or profiling individuals in India.
<b>Consent</b>	Personal data can only be processed for lawful purposes with the consent of the individual. Consent must be informed and can be withdrawn at any time. For individuals below 18 years, consent will be provided by their legal guardian.
<b>Rights and Duties of Data Principal</b>	Individuals have the right to obtain information about data processing, seek correction or erasure of personal data, and nominate someone to exercise their rights in case of death or incapacity.
<b>Transfer of Personal Data</b>	The central government will notify countries where data fiduciaries can transfer personal data, subject to prescribed terms and conditions.
<b>Data Protection Board of India</b>	The bill establishes the Data Protection Board of India responsible for monitoring compliance, imposing penalties, handling data breach incidents, and addressing grievances.

### CHANGES IN AGE OF CONSENT PROVISION:

- The upcoming Digital Personal Data Protection Bill, 2022 may lower the age of consent for accessing internet services without parental oversight from 18.
- The bill could exempt certain companies from additional obligations for protecting children's privacy if they can process their data in a "**verifiably safe**" manner.
- This change departs from the earlier draft where the age of consent was **hardcoded** at 18, requiring parental consent for processing data of individuals below that age.
- The modification reflects the recognition that children can be independent stakeholders on the internet and may desire access to services without parental consent.

### AGE OF CONSENT FOR DATA PROTECTION IN OTHER COUNTRIES:

- The **European Union's General Data Protection Regulation (GDPR)** sets the age of consent at 16 but allows member states to lower it to as low as 13.
- The **United States' Children's Online Privacy Protection Act (COPPA)** sets the age of consent at 13, with verifiable parental consent needed for younger individuals.
- In China, entities handling personal data of individuals under 14 years old must obtain parental or guardian consent before processing their data.

### DATA PROTECTION LAWS IN DIFFERENT NATIONS:

<b>European Union Model</b>	<ul style="list-style-type: none"> <li>• The General Data Protection Regulation (GDPR) is a comprehensive data protection law that governs the processing of personal data in the European Union (EU).</li> <li>• The GDPR emphasizes the right to privacy as a fundamental right, aiming to protect individuals' dignity and their control over the data they generate.</li> </ul>
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<b>United States Model</b>	<ul style="list-style-type: none"> <li>• Unlike the EU's GDPR, the United States does not have a comprehensive set of privacy rights or principles that specifically address the use, collection, and disclosure of data.</li> <li>• Privacy regulations in the US are predominantly sector-specific, with varying levels of protection.</li> <li>• Government activities related to personal information are governed by broad legislation like the Privacy Act and the Electronic Communications Privacy Act.</li> <li>• In the private sector, sector-specific norms and regulations apply.</li> </ul>
<b>China Model</b>	<ul style="list-style-type: none"> <li>• China has introduced new laws on data privacy and security, including the Personal Information Protection Law (PIPL) and the Data Security Law (DSL).</li> <li>• The PIPL, effective since November 2021, grants Chinese data subjects new rights and aims to prevent the misuse of personal data.</li> <li>• The DSL, in force since September 2021, requires businesses to categorize their data based on importance levels and imposes restrictions on cross border data transfers.</li> </ul>

#### STRENGTHENING DATA PROTECTION REGIME IN INDIA:

<b>Recognition of Right to Privacy</b>	In the landmark judgment of Justice K. S. Puttaswamy (Retd) vs Union of India in 2017, the Supreme Court unanimously recognized the fundamental right to privacy as an intrinsic part of life and liberty under Article 21 of the Indian Constitution.
<b>B.N. Srikrishna Committee Report 2017</b>	<ul style="list-style-type: none"> <li>• The Indian government appointed a committee of experts chaired by Justice B.N. Srikrishna in August 2017 to formulate a comprehensive data protection framework.</li> <li>• The committee submitted its report in July 2018 along with a draft Data Protection Bill, which included recommendations to enhance privacy laws in India.</li> <li>• The recommendations covered various aspects such as data processing and collection restrictions, establishment of a Data Protection Authority, right to be forgotten, and data localization.</li> </ul>
<b>Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules 2021</b>	<ul style="list-style-type: none"> <li>• The government introduced the Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules in 2021.</li> <li>• These rules impose stricter obligations on social media platforms and require them to exercise greater diligence in moderating and managing the content on their platforms.</li> </ul>

#### 4. EC INITIATES PUBLIC HEARING ON ASSAM'S DRAFT DELIMITATION PROPOSAL

SOURCE: [IE](#)

#### WHY IN NEWS?

- The Election Commission (EC) has started public hearings in Guwahati regarding the draft delimitation proposal for Assam.

- The EC's full Bench, led by Chief Election Commissioner Rajiv Kumar, will meet with political parties, civil society organizations, and other sections of society.
- These public hearings are part of the EC's consultative process during the delimitation procedure.

#### **BACKGROUND OF THE DELIMITATION PROCESS:**

- The delimitation process for Assembly and Parliamentary constituencies in Assam commenced in December 2022, utilizing the 2001 Census data for seat readjustment.
- On June 20, 2023, the draft delimitation proposal for Assam was published, inviting objections until July 11.
- The proposal suggested maintaining 126 Assembly seats and 14 Lok Sabha constituencies in Assam.
- Additionally, it recommended increasing the number of reserved Assembly seats for Scheduled Castes from eight to nine and for Scheduled Tribes from 16 to 19.
- The draft also proposed reserving two parliamentary seats for STs and one parliamentary seat for SCs.

**ARTICLE 82 AND 170** - The Constitution grants the Parliament the authority to modify the distribution of seats in the Lok Sabha and the State Legislative Assemblies following each census.

**ARTICLE 330 AND 332** - The number of seats set aside for Scheduled Castes (SCs) and Scheduled Tribes (STs) in the Lok Sabha and the state legislatures will be adjusted in light of the 2001 census.

- The Delimitation Commission Acts were passed by the Parliament in this regard in 1952, 1962, 1972, and 2002.
- After the 1981 and 1991 censuses, there was no Delimitation Commission Act.
- Current constituencies was carried out using data from the 2001 Census.
- After 2026, a new Delimitation Commission will be established.

The Commission is made up of: **Election Commissioner (chairperson) Supreme Court Judge and State election commissioners.**

Orders issued by the Commission are **binding and cannot be challenged in court.**

#### **CHALLENGE IN THE SUPREME COURT:**

- Recently, 10 opposition leaders from nine parties in Assam approached the Supreme Court to challenge the EC's draft delimitation order.
- The parties questioned the methodology used in the delimitation exercise and the application of different average assembly sizes for various districts.

#### **UNDERSTANDING DELIMITATION: ITS MEANING, PURPOSE, AND CONSTITUTIONAL PROVISIONS :**

##### **Definition of Delimitation:**

- Delimitation refers to the process of fixing boundaries for territorial constituencies in a country or province with a legislative body.
- In the Indian context, delimitation involves redrawing boundaries of Lok Sabha and Legislative Assembly Constituencies in a region.
- The number of seats allocated to a state or union territory in Lok Sabha or Legislative Assembly may vary through this process.

##### **Need for Delimitation:**

- Delimitation ensures the equitable division of geographical areas based on the data from the latest Census.
- The goal is to maintain an approximately equal population in all constituencies, providing a level playing field for political parties and candidates.

#### **Role of Delimitation Commission:**

- The Delimitation Commission, comprising a retired or working Supreme Court Judge as the chairperson, an Election Commissioner, and concerned State Election Commissioners, redraws constituency boundaries.
- Appointed by the President in collaboration with the Election Commission, the Commission's orders have the force of law and cannot be challenged in court.
- The Commission's orders are presented before Lok Sabha and legislative assemblies but cannot be modified by them.

#### **WAY FORWARD:**

A national consensus exercise should be started in order to resolve difficulties before 2026. The Finance Commission's weighting of the population can be lowered to 10% or even 5%. The strength of the Lok Sabha is anticipated to expand from 543 to 888 when parliamentary constituency boundaries are redrawn, according to statistics from the 2011 Census. The Rajya Sabha might have 384 members instead of the present 245.

## **5. NATIONAL HUMAN RIGHTS COMMISSION**

**SOURCE :** [TH](#)

**CONTEXT:** NHRC TAKES MANIPUR GANGRAPE CASE ISSUES NOTICE

#### **ABOUT NHRC:**

NHRC, established in 1993, is a legally mandated institution that serves as the nation's guardian of human rights. Its primary mission is to safeguard the rights of individuals, including the right to life, liberty, equality, and dignity, as enshrined in the Constitution or upheld by international agreements, which are enforceable by Indian courts.

#### **PRELIMS SPECIFIC : COMPOSITION OF NHRC**

**The National Human Rights Commission (NHRC) is a statutory body constituted under the Protection of Human Rights Act, 1993.**

The NHRC is composed of a Chairperson, four full-time Members, and seven deemed Members.

**The Chairperson of the NHRC is a retired Chief Justice of India. The four full-time Members are:**

**One who is or has been a Judge of the Supreme Court of India.**

**One who is or has been a Chief Justice of a High Court.**

**Two persons having knowledge or practical experience in matters relating to human rights.**

#### **SEVEN DEEMED MEMBERS ARE:**

- National Commission for Minorities
- National Commission for Scheduled Castes
- National Commission for Scheduled Tribes
- National Commission for Women
- National Commission for Protection of Child Rights
- National Commission for the Mentally Challenged
- National Commission for Persons with Disabilities

#### **FUNCTIONS OF NHRC:**

- To inquire, investigate, and monitor all matters relating to human rights.

- To intervene in proceedings before a court or other authority where it considers that the fundamental rights of a person are being violated.
- To recommend to the government measures to promote human rights.
- To undertake and promote research in the field of human rights.
- To educate and raise awareness about human rights.
- To provide legal aid to persons who are unable to afford it.
- To make recommendations to the government on matters relating to the implementation of international human rights instruments.
- To submit an annual report to the President on its activities.

#### SUCCESSSES OF NHRC:

1. Ensuring the release of prisoners who were wrongly convicted. E.g.: The NHRC's intervention led to the man's release after 17 years in prison.

2. Getting compensation for victims of human rights violations.

E.g.: In 2018, the NHRC awarded compensation of Rs. 1 crore to the family of a man who was killed in police custody.

3. Recommending reforms to the criminal justice system.

E.g.: In 2019, the NHRC submitted a report to the government recommending a number of reforms to the criminal justice system.

4. Raising awareness about human rights.

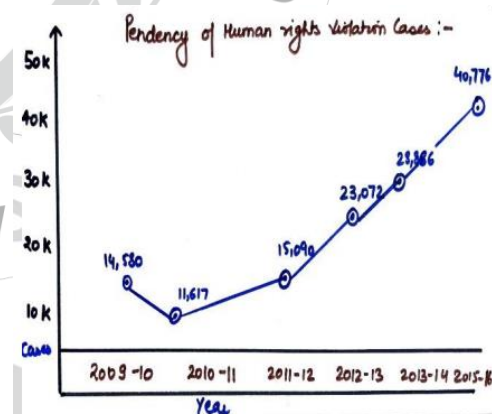
#### LIMITATIONS OF NHRC:

- **Recommendatory body:** This means that its recommendations are not binding on the government.

- **Limited jurisdiction:** It cannot investigate cases of human rights violations that are committed by the armed forces.

- **Limited resources:** It has a small staff and a limited budget. This means that it cannot investigate all the cases of human rights violations that are reported to it.

- **Not independent:** It is a statutory body that is appointed by the government. This means that the government can influence the work of the NHRC.



#### WAY FORWARD:

- **Increase the NHRC's budget and staffing.** This would allow the NHRC to investigate more cases of human rights violations and to provide more support to victims of human rights violations.

- Give the NHRC **more independence** from the government

- Make the NHRC's **recommendations binding on the government.** This would ensure that the government is more likely to implement the NHRC's recommendations.

- Increase **public awareness** of the NHRC and its work. This would help more people to know about the NHRC and how to access its services.

## 6. PARLIAMENTARY COMMITTEES

**CONTEXT:** OPPOSITION MP WALK OUT OF RAJYA SABHA PANEL MEETING

### **ABOUT PARLIAMENTARY COMMITTEES:**

Parliamentary committees are groups of members of parliament (MPs) who are appointed to study and report on specific issues. They are an important part of the legislative process, as they help to ensure that legislation is well-considered and that the views of all stakeholders are taken into account.

The Parliamentary committees draw their authority from the constitution.

**Article 105:** Powers, privileges, etc., of the houses of Parliament and of the members and committees thereof.

**Article 118:** Each House of Parliament may make rules for regulations, subject to the provisions of this constitution, its procedure and the conduct of its business.

### **SIGNIFICANCE OF PARLIAMENTARY COMMITTEES:**

- **Provide legislative expertise:** Parliamentary committees help MPs to gain expertise on complex issues by providing them with access to expert witnesses and government officials.
- **Act as a mini-parliament:** Parliamentary committees provide a forum for MPs from different parties to come together and discuss issues in a more informal setting.
- **Instrument for detailed scrutiny:** This can help to identify any potential problems with legislation before it is passed into law.
- **Provides a check on the government:** Parliamentary committees can hold the government to account by scrutinizing its policies and actions. This can help to ensure that the government is acting in the best interests of the people.
- **Promote public participation:** Parliamentary committees can provide a platform for the public to participate in the legislative process. This can help to ensure that the government is responsive to the needs of the people.

### **PRELIMS SPECIFIC: 3 IMPORTANT FINANCIAL COMMITTEE:**

#### **ESTIMATES COMMITTEE:**

- Largest committee of the Parliament, with 30 members, all of whom are appointed from the Lok Sabha.
- It was first constituted in 1921, under the Government of India Act, 1919.
- The committee's membership is drawn from all parties in the Lok Sabha, in proportion to their strength in the House.
- The committee's chairman is appointed by the Speaker of the Lok Sabha.

#### **PUBLIC ACCOUNTS COMMITTEE:**

- The PAC is composed of members of Parliament (MPs) from both the ruling party and the opposition.
- 22 Members from both the houses are elected (15 LS + 7 RS)



- Elected by both houses.
- Tenure – 1 year

#### **COMMITTEE ON PUBLIC UNDERTAKINGS:**

- Established: 1964
- Composition: 22 members, 15 elected by the Lok Sabha, and not more than 7 members by the upper house, the Rajya Sabha.
- Committee members are elected annually from among members of both houses by means of proportional representation through the single transferable votes.
- Tenure – 1 year

#### **ISSUES WITH PARLIAMENTARY COMMITTEES:**

- **Low attendance of MPs:** MPs often have other commitments, such as constituency work or party meetings, which can make it difficult for them to attend committee meetings.
- **Lack of resources:** Committees often lack the resources they need to conduct their work effectively which makes it difficult for committees to carry out their duties properly.
- **Political interference:** Committees can be subject to political interference from the government or the ruling party. This can undermine the independence of the committees and their ability to hold the government to account.
- **Lack of public awareness:** This can make it difficult for the committees to build public support for their work, and it can also make it difficult for the committees to hold the government to accountability.

#### **WAY FORWARD:**

- **Ensuring that committees have the resources they need:** This includes providing committees with adequate staff, funding, and access to information.
- Ensuring that committees are **independent from the government**
- Ensuring that committees have the **power to summon witnesses** and to compel the **production of documents:** This will give committees the ability to gather the information they need to carry out their work effectively.
- **Reducing the number of committees:** This will help to ensure that committees are not overloaded with work.
- **Streamlining the committee process:** This means making it easier for committees to meet, to conduct their inquiries, and to produce reports.

## **7. ZERO FIR**

#### **ABOUT ZERO FIR:**

- Zero FIR is an FIR that **can be registered by any police station**, irrespective of jurisdiction, upon receiving a complaint about a cognizable offence.
- At this stage, **no regular FIR number is assigned.**

- After receiving the Zero FIR, the relevant police station initiates a fresh FIR and commences the investigation.
- Its purpose is to **provide a swift and convenient way for victims** of serious crimes, especially women and children, to lodge complaints without having to visit multiple police stations.
- It aims to ensure that evidence and witnesses are not compromised due to delays in filing the complaint.
- The case is ultimately transferred to the police station with jurisdiction over the place of the offence or where the investigation should be conducted.

#### LEGAL BASIS OF ZERO FIR:

- The introduction of Zero FIR was based on the recommendation of the **Justice Verma Committee**, which was formed after the 2012 Nirbhaya gangrape case.
- Various judgments of the Supreme Court and High Courts have supported the provision of Zero FIR.
- For instance, in **Lalita Kumari vs Govt. of UP (2014)**, the Supreme Court ruled that FIR registration is mandatory when information discloses a cognisable offence.
- In **Satvinder Kaur vs State (1999)**, the Delhi High Court upheld the right of a woman to lodge her complaint from any place other than where the incident occurred.

#### PRELIMS SPECIFIC: COGNISABLE & NON-COGNISABLE OFFENCES:

##### Cognisable Offences:

- Cognisable offences allow an officer to take immediate action, including arrest, without a court warrant if she has a "reason to believe" that the suspect committed the offence and certain conditions for arrest are met.
- Within 24 hours of the arrest, the officer must seek the approval of a judicial magistrate to continue the detention.
- As per the 177th Law Commission Report, cognisable offences are those that require immediate arrest.
- Cognisable offences typically involve serious crimes such as murder, rape, kidnapping, theft, dowry death, etc.
- FIRs are registered exclusively for cognisable crimes.

##### Non-Cognisable Offences:

- Non-cognisable offences do not allow the police to make an arrest without a warrant, and they cannot initiate an investigation without court permission.
- Crimes like forgery, cheating, defamation, public nuisance, etc., fall under the category of non-cognisable offences.

#### ABOUT FIRST INFORMATION REPORT (FIR):

- A written document prepared by the police upon receiving information about a cognizable offence.
- It is the first step that sets in motion the investigation process and subsequent actions by the police.

#### WAY FORWARD:

- **Training and Awareness Programs:** E.g.- In Karnataka, the police department conducted workshops to sensitize officers about the provision of Zero FIR, leading to increased awareness and effective implementation.
- **Technology Integration:** E.g.- the Delhi Police launched an online portal for filing Zero FIRs, making it more convenient for citizens to report crimes and ensuring quicker processing.
- **Collaboration between States:** Encourage inter-state collaboration and coordination to facilitate the transfer of Zero FIRs. E.g.- The case of Nirbhaya, where a Zero FIR was filed in Delhi and later transferred to Uttar Pradesh for investigation, exemplifies the importance of such cooperation.
- **Legal Support and Training:** E.g.- In Maharashtra, the state police conducted workshops to train officers on the correct application of Zero FIR, resulting in improved compliance.

## 8. NATIONAL COMMISSION FOR WOMEN

### WHY IN NEWS?

National Commission for Women had been apprised of Manipur video incident on June 12. The appeal which was emailed to NCW Chairperson listed six incidents of violence and assault against women belonging to the Kuki tribe.

### ABOUT NCW:

The National Commission for Women was established in 1992 under the National Commission Act with the aim of reviewing constitutional and legal safeguards for women. It suggests legislative remedies, facilitates grievance redressal, and advises the government on women-related policy matters. Despite having the powers of a civil court, the Commission faces several limitations that hinder its effectiveness in advocating for women's rights.

### FUNCTIONS OF NCW:

- **Inquiry, Investigation, and Examination:** NCW conducts inquiries, investigations, and examinations concerning women's safeguards.
- **Recommendations:** The commission provides recommendations to both the Union and State governments to enhance women's conditions.
- **Review of Laws:** NCW reviews various laws pertaining to women and proposes amendments if necessary.
- **Violation Cases:** It addresses cases of violations of women's rights as per constitutional provisions and other laws.
- **Suo-Moto Notice:** NCW takes Suo-moto notice of issues like deprivation of women's rights, non-implementation of laws, and non-compliance with policies concerning women.
- **Research:** The commission conducts promotional and educational research to improve women's representation in all aspects of life and enhance their effectiveness.
- **Planning:** NCW actively participates in the planning process related to the socioeconomic development of women.
- **Progress Evaluation:** It evaluates the progress made in the development of women at both State and Union levels.
- **Inspection:** NCW inspects places such as jails and remand homes where women are held as prisoners.
- **Funding Litigations:** The commission deals with litigations related to funds affecting large women's bodies.

### LIMITATIONS OF NCW:

- **Limited Enforcement Authority:** NCW is recommendatory and lacks the power to enforce its decisions, often acting only when issues are brought to its attention, leaving unreported cases unaddressed.
- **Lack of Constitutional Status:** The commission lacks constitutional status, resulting in no legal powers to summon police officers or witnesses, and no authority to take legal action against Internal Complaint Committees hindering women's grievance redressal.
- **Insufficient Funding:** NCW's functions rely on grants from the central government, which are inadequate to meet its requirements.
- **Political Interference:** The commission cannot choose its own members; the Union government holds this power, leading to political interference at various levels.

#### ACHIVEMENTS OF NCW:

- **Gender Profiles:** The Commission created Gender Profiles to evaluate women's status and empowerment.
- **Suo-Moto Action:** It took proactive steps in various cases to ensure swift justice.
- **Addressing Child Marriage:** The Commission tackled the issue of child marriage and organized legal awareness programs and Parivarik Mahila Lok Adalats.
- **Reviewing Laws:** It assessed and suggested amendments to laws like the Dowry Prohibition Act, PNDT Act 1994, and Indian Penal Code 1860 to enhance their effectiveness.
- **Workshops and Seminars:** NCW conducted workshops and consultations, formed expert committees for women's economic empowerment, and organized seminars to promote gender awareness.
- **Publicity Campaigns:** The Commission ran campaigns against female foeticide, violence against women, and other social evils to raise awareness in society.
- **Monthly Newsletter:** Regularly publishes a monthly newsletter called "Rashtra Mahila" to keep the public informed.

#### PRELIMS SPECIFIC: SCHEMES RELATED TO WOMEN EMPOWERMENT

1. **Beti Bachao, Beti Padhao (BBBP)** - Focuses on promoting the welfare of girls, addressing gender imbalance, and promoting education for girls.
2. **Mahila Shakti Kendra (MSK)** - Aims to empower rural women through skill development, awareness programs, and access to government schemes.
3. **Pradhan Mantri Matru Vandana Yojana (PMMVY)** - Provides financial assistance to pregnant and lactating women for their health and nutrition needs.
4. **Ujjwala Yojana** - Provides free LPG connections to women from economically weaker households, promoting cleaner cooking fuel and women's safety.
5. **Working Women Hostels** - Offers safe and affordable accommodation to working women, encouraging their economic independence.

6. **One Stop Centre (Sakhi)** - Provides support and assistance to women affected by violence and abuse.
7. **STEP (Support to Training and Employment Programme for Women)** - Empowers women through skill development and training to enhance their employability.
8. **Swadhar Greh** - Provides temporary shelter, rehabilitation, and support to women in difficult circumstances.
9. **NARI (National Repository of Information for Women)** - An online portal providing information on various government schemes and programs for women.
10. **Swayam Siddha** - A self-help group initiative that encourages women entrepreneurship and economic empowerment.

## 9. UNIFORM CIVIL CODE

SOURCE: [TH](#)

CONTEXT: THE POLITICS OF UNIFORM CIVIL CODE

### ABOUT UCC:

Uniform Civil Code is the ongoing point of debate within Indian mandate to replace personal laws based on the scriptures and customs of each major religious community in India with a common set of rules governing every citizen.

A uniform civil code will mean a set of common personal laws for all citizens. Eg: There are different personal laws for Hindus and Muslims. Personal law covers property, marriage and divorce, inheritance and succession

### NEED OF UNIFORM CIVIL CODE:



**1. It Promotes Real Secularism:** In India, the current situation reflects selective secularism, where secular principles are applied selectively in different areas. To establish a uniform civil code, all citizens, regardless of their religion (Hindu, Muslim, Christian, Sikh, etc.), would be bound by the same laws.

**2. All Indians should be Treated Same:**

Ensuring equal treatment for all Indians requires uniformity in laws concerning marriage, inheritance, family, and land, as existing religious-based personal laws lead to disparities.

**3. More rights to women:** A uniform civil code will grant women more rights, challenging patriarchal traditions and promoting fairness and equality.

**PRELIMS SPECIFIC:**

**Indian constitution on uniform civil code:**

- **Article 44** of the Constitution calls upon the State to endeavour towards securing a uniform civil code throughout the territory of India. (DPSP).
- **Article 14:** Right to Equality enshrined in Article 14 of the Constitution ensures that the state shall not deny any person equality before the law or equal protection of the laws. Implementing a UCC would eliminate discriminatory laws based on religion and promote equal treatment for all citizens in personal matters.
- **Article 15:** Prohibition of Discrimination on grounds of religion, race, caste, sex, or place of birth (Article 15) further reinforces the need for a UCC to eliminate discriminatory practices in personal laws.
- **Article 25:** Freedom of Religion protects an individual's right to practice and propagate their religion. A UCC aims to maintain this freedom while bringing uniformity in civil laws that may be influenced by religious practice.

**MERITS OF UCC:**

- It will help in accelerating national integration.
- Overlapping provisions of law could be avoided.
- Litigation due to personal law world decrease.
- Sense of oneness and the national spirit would be aroused.
- The country would emerge with new force and power to face any odds finally defeating the communal and the diversionist forces.

**CHALLENGES OF UNIFORM CIVIL CODE:**

- **India's diversity** poses challenges for implementing a Uniform Civil Code as cultural differences vary widely from state to state and community to community.
- Enforcing a uniform code may infringe on the **right to freedom of religion**, guaranteed by the constitution.
- Some communities resist adopting secular laws that differ from their personal laws, leading to concerns about imposing one group's traditions on others.
- General laws already address certain human rights and social obligations, such as prohibiting child marriage, applying to all personal laws.
- Different religions may claim the right to govern their issues under personal law, but a court decree should be the governing authority

**SC CASES ON SECULARISM:**

**Shah Bano case (1985):** Shah Bano was a Muslim woman seeking maintenance from her husband after their divorce. The Supreme Court ruled in favor of granting her maintenance under Section 125

of the Code of Criminal Procedure, which applies to all Indian citizens irrespective of their religion. This decision sparked a debate on the need for a UCC and led to the passage of The Muslim Women (Protection of Rights on Divorce) Act, 1986, which exempted Muslim women from Section 125.

**Sarla Mudgal v. Union of India (1995):** In this case, the Supreme Court addressed the issue of bigamy and the need for a UCC. The court highlighted the inconsistencies in personal laws regarding marriage and emphasized the importance of having a UCC to promote gender justice and ensure equality.

**John Vallamattom v. Union of India (2003):** This case revolved around the right to property and inheritance in the context of a UCC. The Supreme Court held that the state could enact a UCC to ensure uniform inheritance laws for all citizens.

**Lily Thomas v. Union of India (2000):** This case dealt with the issue of the validity of the Second Marriage under the Hindu Marriage Act. The court observed that a UCC could help in resolving discrepancies and maintaining consistency in marriage laws

## 10. COMPTROLLER AND AUDITOR GENERAL

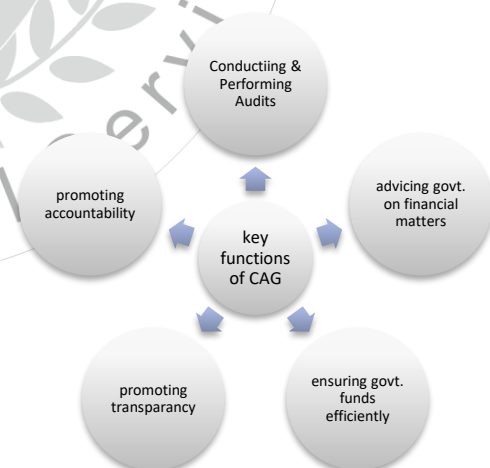
SOURCE: [DTE](#)

**CONTEXT:** CAG finds Chhattisgarh mining department underutilised District Mineral Fund Trusts, delayed projects.

### ABOUT CAG:

CAG is the supreme audit institution of India, established under Article 148 of the Constitution of India. The CAG is responsible for auditing the accounts of the central and state governments, as well as of public sector undertakings.

- **APPOINTMENT:** By President by warrant under his hand and seal.
- **TENURE:** 6 years or 65 years of age which is earlier.
- **Salary:** His salary and other service conditions cannot be varied to his disadvantage after the appointment.
- **Removal:** CAG can be removed by the President only in accordance with the procedure mentioned in the Constitution which is the manner same as the removal of a Supreme Court Judge.
- He shall **not be eligible for further office** either under the Government of India or under the Government of any State after he has ceased to hold his office.
- He is the head of the Indian Audit and Accounts Department.
- He is the guardian of the public purse



### LIMITATIONS OF CAG:

1. **Post-facto audit:** The CAG can only audit expenditure after it has been incurred. This means that the CAG cannot prevent financial irregularities from happening, but can only highlight them after they have occurred.
2. **Lack of enforcement powers:** The CAG's reports are only advisory in nature. The government is not legally bound to implement the recommendations of the CAG.
3. **Secret service expenditure:** The CAG cannot audit secret service expenditure. This is because the Government considers this information to be confidential.
4. **Delay in supply of documents:** This can delay the audit process and make it more difficult for the CAG to do its job effectively.
5. **Political interference:** The CAG is an independent institution, but it is still possible for the government to interfere with its work.

#### PRELIMS SPECIFIC: CONSTITUTIONAL PROVISIONS FOR CAG

**Appointment and Removal (Article 148):** The President of India appoints the Comptroller and Auditor General of India.

**Duties and Powers (Article 149):** The primary duty of the CAG is to audit the accounts related to all expenditure from the Consolidated Fund of India, as well as the Consolidated Fund of each state and union territory.

**Reports to Parliament (Article 151):** The CAG submits audit reports to the President or Governor, who shall cause them to be laid before the respective legislatures.

**Article 279:** The calculation of "net proceeds" is ascertained and certified by the Comptroller and Auditor-General of India, whose certificate is final.

**Third Schedule:** Section IV of the Third Schedule of the Constitution of India prescribes the form of oath or affirmation to be made by the Comptroller and Auditor-General of India at the time of assumption of office.

#### WAY FORWARD:

1. **Capacity Building:** Invest in continuous training and capacity building for CAG staff to keep them updated with the latest auditing techniques, technologies, and best practices.
2. **Timely Reports:** Expedite the process of conducting audits and publishing reports. Timely submission of audit reports allows for prompt action and corrective measures by the executive and legislative bodies.
3. **Strengthening Legislative Oversight:** Encourage parliamentary committees to play an active role in scrutinizing CAG reports and holding government agencies accountable for implementation of audit recommendations.
4. **Audit of Regulatory Bodies:** Strengthen the audit of regulatory bodies to assess their effectiveness and independence in carrying out their mandates.

#### 11. DNA TECHNOLOGY BILL 2019

SOURCE: [IE](#)

CONTEXT: DNA BILL WAS WITHDRAWN RECENTLY

DNA BILL: The Bill provides for the regulation of use of DNA technology for establishing the identity of certain persons and aimed to regulate the use and application of DNA technology for various purposes, including law enforcement, criminal investigations, identification of missing persons, and other specified purposes.

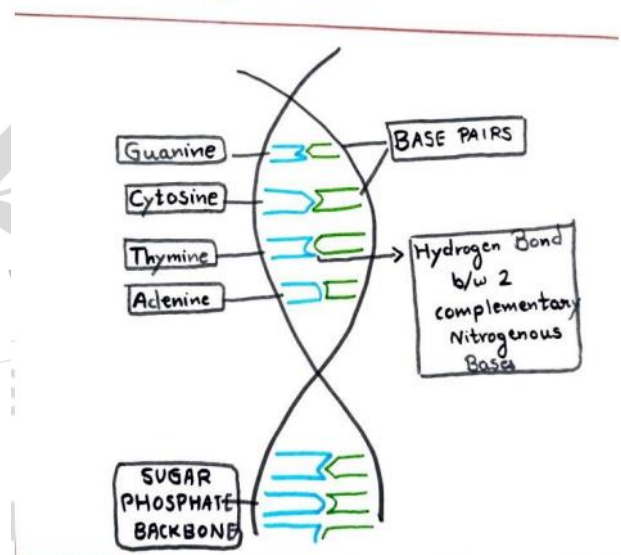
#### KEY FEATURES OF THE BILL:

- **Establishment of a DNA Regulatory Board:** The bill establishes a DNA Regulatory Board (Board) to regulate the use and application of DNA technology in India.
- **Creation of DNA Data Banks:** The bill provides for the creation of two DNA Data Banks: a National DNA Data Bank and Regional DNA Data Banks. The National DNA Data Bank will be maintained by the Board, and the Regional DNA Data Banks will be maintained by the states.
- **Regulation of the collection of DNA samples:** The bill regulates the collection of DNA samples from individuals. DNA samples can only be collected with the consent of the individual, or in certain cases where the individual's consent is not required, such as in cases of serious crimes.
- **Protection of privacy:** The bill protects the privacy of individuals whose DNA samples are collected. The DNA Data Banks will be kept confidential, and the DNA profiles of individuals will only be used for the purposes of criminal investigations and other authorized purposes.
- **Penalties for misuse of DNA technology:** The bill provides for penalties for the misuse of DNA technology. These penalties include imprisonment and fines.

#### ISSUES WITH THE BILL:

1. The lack of clear guidelines for data storage in the umbrella database raises concerns about **data privacy and protection**.
2. Concerns have been raised regarding the **misuse of DNA profiling** data for caste-based or community profiling, particularly due to its potential linkage with surveillance systems
3. **The lack of privacy and dignity** was a major concern, particularly due to the creation of DNA data banks, raising fears of potential misuse or mishandling of sensitive personal data.
4. **Insufficient consent protocols** in civil cases compromised individual autonomy and rights.
5. The bill required **clear guidelines for the proper integration of DNA** technology with other justice system tools to avoid possible miscarriages of justice.

#### DNA STRUCTURE



#### WAY FORWARD & CONCLUSION:

- **Role of stakeholders** – The document needs to define how different stakeholders will apply the legislation in the aforementioned areas.

- **Role of judiciary** – The Bill highlights the need for court approval in civil matters, consent of individuals in criminal investigations, and identifying missing persons.

- **Individual privacy** – use of DNA Technology Bill should not depend on launching a personal data protection bill.

- **Holistic evidence** – DNA evidence can place suspects at the location of the crime; this, in isolation, is not enough to mandate their conviction. Thus, other evidence, such as geotagged evidence, mobile records etc., will be needed to approach the case holistically.

- **Reliability** – In addition, to make DNA profiling more reliable, the account must be enhanced with specific guidelines to address the use of DNA technology in combination with other tools used in the justice system to avoid a future miscarriage of justice

- **Consent**– the Bill still needs to outline the necessary consent requirements for use in civil cases, taking agency away from those who may be involved in civil disputes.

- **Accountability** – With regard to video evidence, FRT, linkages of forensic data to surveillance systems need immediate oversight as lack of accountability can add to existing concerns on privacy.

The Bill was withdrawn because its key provisions had already been included in another law, the Criminal Procedure (Identification) Act, which was passed by both houses of Parliament in 2022.

#### PRELIMS SPECIFIC

##### DNA PROFILING

- DNA profiling, also known as DNA fingerprinting or forensic genetics, aids in identifying individuals or samples based on their unique DNA profiles
- Vast majority (over 99.1%) of the human genome is the same in all individuals, the remaining 0.9% contains variable DNA sequences, known as **polymorphic markers** that distinguish one person from another.
- The **polymerase chain reaction (PCR)** is utilized in DNA profiling to amplify specific DNA sequences, generating multiple copies of the target DNA.
- PCR is an automated process that requires only small amounts of DNA and can even work with partially degraded DNA samples.

## 12. NO TRUST MOTION

**SOURCE:** [TH](#), [IE](#)

**CONTEXT:** Lok Sabha Speaker accepts the no-confidence motion moved by the Opposition against the Modi government.

#### ABOUT NO CONFIDENCE MOTION:

A no-confidence motion is a parliamentary motion that expresses lack of confidence in the government. In India, a no-confidence motion can be introduced only in the Lok Sabha (the lower house of the Parliament of India)

**Article 75(3)** of our Constitution embodies this rule by specifying that the Council of Ministers are collectively responsible to the Lok Sabha.

#### PROCEDURE OF PASSING MOTION:



• **Introduction of the motion:** In the Lok Sabha, any Member of Parliament can introduce a no-confidence motion. To do so, the member must submit a written notice of the motion to the Speaker of the Lok Sabha at least 10 days prior to its presentation. This notice needs to be signed by a minimum of 50 members of Parliament.

• **Grant of leave:** After the no-confidence motion is presented, the Lok Sabha Speaker must assess its validity and proper submission before deciding whether to permit its introduction. If the motion is found to be in order and correctly proposed, the Speaker can grant leave for its introduction.

• **Discussion:** If permission is given, the Lok Sabha will deliberate on the no-confidence motion. The Prime Minister holds the privilege of speaking first in the course of the discussion. Subsequently, the leader of the opposition party is entitled to express their views.

• **Voting:** After the debate, the Speaker of the Lok Sabha calls for a vote. If the majority of Lok Sabha members support the motion, it is passed; otherwise, it is defeated.

FEATURES	NO CONFIDENCE MOTION	CENSURE MOTION
<b>PURPOSE</b>	To express lack of confidence in the government.	To express disapproval of the government's actions
<b>INTRODUCTION</b>	Any member of Parliament	Only a member of the opposition party
<b>Number of supporters required</b>	At least 50 members of Parliament	Not applicable
<b>What happens if it is passed?</b>	The government is defeated and the Prime Minister must resign.	The government is not defeated, but the minister or ministers against whom the motion was moved are censured

#### MERITS OF NO CONFIDENCE MOTION:

1. **Democratic Accountability:** It provides a mechanism for holding the government accountable to the legislature and, indirectly, to the people.
2. **Checks and Balances:** It serves as a check on the executive's power, ensuring that the government remains responsive to the concerns of the legislative body.
3. **Transparency:** The debate and discussion during a no-confidence motion make government actions and policies transparent to the public.
4. **Political Debate:** It offers a platform for political parties to engage in constructive debates on key issues and policies.
5. **Expression of Dissent:** It allows opposition parties to express their disagreement with the government's actions and policies.

#### CONCLUSION:

No-confidence motions serve as a potent means of ensuring government accountability. They provide a platform to express discontent with the government's actions, compel it to alter its direction, and in some cases, trigger fresh elections.

### 13. FINANCE COMMISSION

#### CONTEXT: CHARTING THE PATH FOR 16 FINANCE COMMISSION

The Union government is planning to set up the **16th Finance Commission** during the fiscal year 2023-24.

- The commission's main task is to suggest the ratio in which taxes should be divided between the Centre and states for the five-year period starting from April 1, 2026.
- The members of the commission and its Terms of Reference (ToR) are currently being determined.

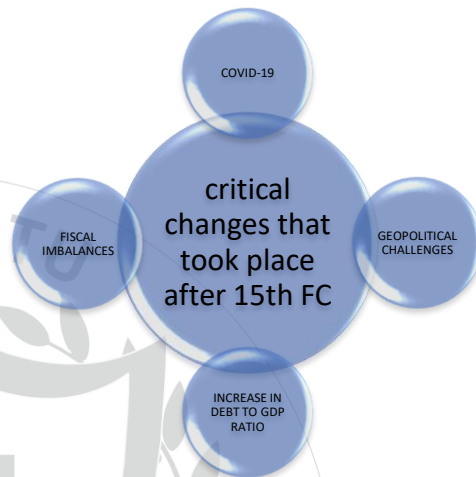
#### FUNCTIONS OF FINANCE COMMISSION:

**1. Division of Net Tax Proceeds:** The Commission recommends the distribution of net tax proceeds between the Centre and the states, and also allocates the same among the states. It determines the basis for sharing divisible taxes and formulates principles for grants-in-aid to the states every five years.

**2. Principles for Grants-in-Aid:** The Finance Commission defines the principles governing grants-in-aid to the states from the Consolidated Fund of India.

**3. Boosting Resources of Panchayats and Municipalities:** The Commission suggests steps to extend the consolidated fund of the state to enhance the resources of the panchayats and municipalities, based on the recommendations made by the state Finance Commission.

**4. Matters of Sound Finance:** The President can refer any matter related to sound finance to the Commission for consideration.



#### KEY ISSUES OF FINANCE COMMISSION:

##### 1. Impact of Enhanced Tax

**Devolution:** The Commission analyses the impact on the fiscal situation of the Union Government due to substantially enhanced tax devolution to States following the 14th Finance Commission's recommendations, alongside national development programs like New India-2022.

**2. GST and Compensation:** The Commission assesses the impact of the Goods and Services Tax (GST), including compensation for possible loss of revenues for five years and the abolition of certain cesses.

**3. Progress in Population Growth and Revenues:** The Commission evaluates the efforts made in moving towards a replacement rate of population growth and the progress in increasing tax/non-tax

##### PRELIMS SPECIFIC :

- **ARTICLES :** ARTICLE 280 AND 281
- **CONSTITUED BY:** President in every 5 years.
- **PART OF CONSTITUTION :** PART 12 OF CONSTITUTION
- **Finance Commission (Miscellaneous Provision) Act 1951:** The Act determines the qualifications requisite for appointment as members of the Finance Commission and the manner in which they shall be selected, and to prescribe their powers.
- **COMPOSITION:** composed of a total of five members of which one is the Chairman of the Finance Commission and the other four members of the Finance Commission who are appointed by the President of India.
- **ELIGIBLE FOR REAPPOINTMENT**

revenues, promoting savings through Direct Benefit Transfers and Public Finance Management System, and fostering the digital economy.

**4. Progress in Sanitation and Waste Management:** The Commission reviews the progress made in sanitation, solid waste management, and efforts to end open defecation through behavioural change.

#### **WAY FORWARD:**

Recommendations by C. Rangarajan for a comprehensive equalization approach:

1. Proper estimation of States' fiscal capacities, considering both GST and non-GST taxes.
2. Accurate assessment of expenditure needs, incorporating needs, cost and special requirements of states.
3. Efficient fiscal transfers to ensure equity, balanced regional development, stability, and cooperative federalism.
4. Ensuring adequate resources for socioeconomic development, critical infrastructure, and balanced regional development in poorer states.
5. It is important to address the developmental gap among states while providing economic and social services to the population. The central government's role remains crucial in handling issues related to industrial growth, intergenerational concerns, and environmental matters.

#### **14. PESA ACT**

**SOURCE:** [IE](#)

**WHY IN NEWS:** The Jharkhand government has released draft rules for public consultation to implement The Provisions of the PESA ACT 1996.

#### **ABOUT PESA ACT:**

The Panchayats Extension to Scheduled Areas (PESA) Act of 1996 is an Act of the Parliament of India that extends the provisions of Part IX of the Constitution of India relating to Panchayats to the Scheduled Areas. The Act was enacted to provide for self-governance through Gram Sabhas (village assemblies) for people living in Scheduled Areas.

#### **KEY PROVISIONS OF PESA ACT:**

**Gram Sabha's:** The Gram Sabha is the highest decision-making body in a Scheduled Area. It is made up of all adult members of the village. The Gram Sabha has the right to manage natural resources, prevent alienation of land, restore alienated land, establish institutions of self-government, and participate in planning and implementation of development programmes.

**Panchayats:** Panchayats are local government bodies that are elected by the people of a Scheduled Area. Panchayats have the power to make laws and regulations, collect taxes, and provide services to the people.

**State Governments:** State Governments have the responsibility to implement the PESA Act. They must ensure that Gram Sabhas and Panchayats are able to exercise their powers and functions effectively.

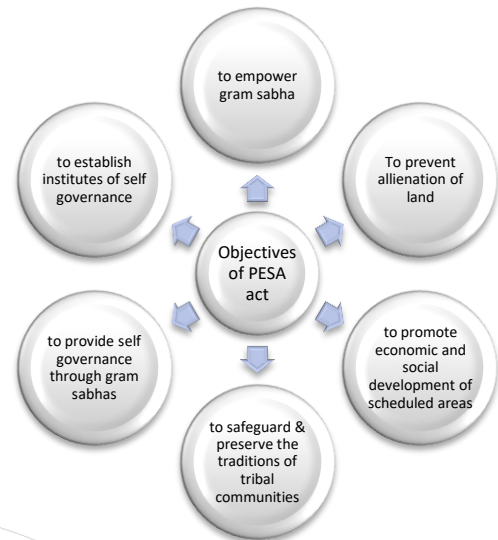
#### PRELIMS SPECIFIC :

1. The PESA Act, passed in 1996, aims to extend the regulations stated in Part IX of the Constitution, which pertain to Panchayats, to the Scheduled Areas.
2. According to the PESA Act, Scheduled Areas are defined as per **Article 244(1)**, where the application of the
3. . Part IX of the Constitution, which consists of Articles 243 - **Fifth Schedule is extended to the Scheduled Areas and Scheduled Tribes in states excluding Assam, Meghalaya, Tripura, and Mizoram.**243 ZT, covers legislation related to municipalities and cooperative societies in addition to Panchayats
4. Scheduled Areas are areas identified by **the Fifth Schedule of the Constitution of India**. Scheduled Areas are found in ten states of India which have predominant population of tribal communities.
5. PESA was enacted **on 24th December, 1996** to extend the provisions of Part IX of the Constitution to Scheduled Areas, with certain exceptions and modifications

#### ISSUES FACED BY PESA ACT:

- **Lack of awareness:** Many tribal communities are not aware of their rights under the PESA Act. This can make it difficult for them to exercise their rights and can lead to exploitation by others.
- **Lack of capacity:** Many Gram Sabhas lack the capacity to effectively exercise their powers and functions under the PESA Act. This is due to a lack of resources, training, and support.
  - In 2022, a report by the National Foundation for India found that only 20% of Gram Sabhas in Scheduled Areas have been able to exercise their rights under the PESA Act.
- **Lack of political will:** Some state governments have been reluctant to implement the PESA Act fully. This is due to a number of factors, including vested interests and a lack of understanding of the Act.
- **Land alienation:** There have been reports of land alienation in Scheduled Areas, even in areas where the PESA Act is in force. This is due to a number of factors, including poverty, ignorance, and the influence of non-tribals.
  - E.g.: In 2020, a report by the National Commission for Scheduled Tribes found that there have been reports of land alienation in Scheduled Areas, even in areas where the PESA Act is in force.

- **Resource extraction:** There have been reports of resource extraction in Scheduled Areas without the consent of the Gram Sabhas. This is due to a number of factors, including the lack of monitoring and enforcement of the PESA Act.
  - E.g.: In 2019, a study by the Centre for Policy Research found that there have been reports of resource extraction in Scheduled Areas without the consent of the Gram Sabhas.



#### WAY FORWARD:

- 1. The Bhuria Committee:** Constituted in 1994 to review the implementation of the PESA Act. The Committee recommended that the Act be amended to clarify the powers and functions of Gram Sabhas, and to strengthen the role of the State Governments in implementing the Act.
- 2. The Soni Sori Committee:** Constituted in 2011 to investigate the alleged violation of the PESA Act in Chhattisgarh. The Committee found that the Act was not being implemented effectively in Chhattisgarh, and recommended that the State Government take steps to ensure that the Act is implemented in letter and spirit.
- 3. The National Advisory Council:** The NAC has recommended that the Act be amended to include provisions for the protection of the rights of women and children in Scheduled Areas.

#### 15. DIRECTORATE OF ENFORCEMENT (ED)

SOURCE: [TH](#)

#### WHY IN NEWS:

The Supreme Court extended the ED Director Sanjay Kumar Mishra's tenure until September 15 for "public and national interest" despite previously declaring it "invalid and illegal." The extension was sought by the government for the ongoing FATF evaluation. However, no further extensions will be allowed after mid-September, raising concerns about the department's dependence on a single individual.

#### ABOUT ED:

The Enforcement Directorate (ED) is a multi-disciplinary agency responsible for probing money laundering and foreign exchange law violations. It operates under the Ministry of Finance's Department of Revenue and is recognized as a leading financial investigation body adhering to India's Constitution and laws.

#### FUNCTIONS OF: [ED](#)

- **Prevention of Money Laundering Act (PMLA):** ED enforces the PMLA to prevent money laundering, trace crime proceeds, provisionally attach property, and prosecute offenders in Special courts for confiscation.



- **Foreign Exchange Management Act (FEMA):** ED investigates suspected violations of foreign exchange laws, adjudicates cases, and imposes penalties for contraventions.
- **Fugitive Economic Offenders Act (FEOA):** ED attaches properties of economic offenders who evade Indian law and confiscates their assets for the Central Government.
- **Foreign Exchange Regulation Act (FERA):** ED adjudicates Show Cause Notices under the repealed FERA for contraventions up to May 31, 2002, and pursues prosecutions in relevant courts.
- **COFEPOSA Sponsorship:** ED sponsors cases of preventive detention under COFEPOSA for contraventions of FEMA.

#### APPOINTMENT OF ED:

- The appointment of the ED Director is made by the central government based on a committee's recommendation.
- The committee is chaired by the Central Vigilance Commission
- The committee's members include Vigilance Commissioners, Home Secretary, Secretary of Department of Personnel and Training (DOPT), and Revenue Secretary.

#### **JURISDICTION OF ED:**

1. The scope of both **FEMA and PMLA** applies to the **entire territory of India**, allowing the ED to take action against any person falling under these acts.
2. Cases under **FEMA** are dealt with in **civil courts**, while **PMLA** cases are handled in **criminal courts**.
3. The ED has jurisdiction over individuals or legal entities involved in criminal activities.
4. **Public servants** can be subject to the agency's jurisdiction if they are implicated in money laundering offenses.
5. The **ED cannot initiate action on its own**; a complaint must be lodged with another agency or the police, after which the ED will conduct its investigation and identify the accused.
6. After investigation, the ED may **seize the property** of the accused and **make arrests**, initiating proceedings for violations of FEMA and PMLA provisions.
7. The resolution of the matter will be determined through **adjudication in courts or PMLA courts**.

#### **ISSUES RELATED TO ED:**

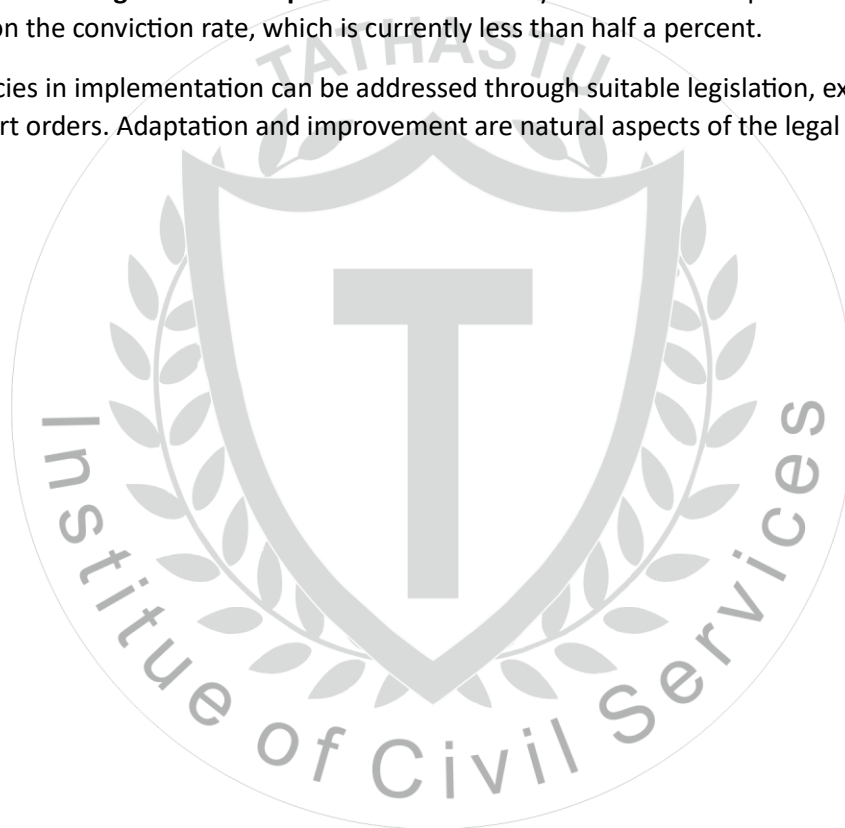
1. **Low Conviction Rates:** The ED has faced criticism for its low conviction rates in cases related to money laundering and financial crimes, raising questions about its effectiveness in securing convictions.
2. **Selective Targeting:** The agency has been accused of selective targeting and using its powers for political purposes, leading to doubts about its impartiality and fairness in investigations.
3. **Lengthy Investigations:** The ED's investigations often take a long time, leading to delays in resolving cases and impacting the agency's ability to secure timely convictions.
4. **Misuse of Powers:** There have been allegations of the ED's overreach and misuse of its powers during investigations, leading to concerns about harassment and intimidation.
5. **Lack of Transparency:** The agency has faced criticism for its lack of transparency in handling cases and sharing information with the public, raising questions about accountability.

**6. Resource Constraints:** The ED encounters resource constraints in terms of manpower, financial allocations, and technological infrastructure, which can impede the efficiency of investigations.

**7. Coordination with Other Agencies:** Collaboration and coordination with other law enforcement agencies can be challenging due to differences in organizational culture and sharing of information.

#### WAY FORWARD:

- To ensure constitutionality under the Prevention of Money Laundering Act (PMLA), **cooperation between the adjudicating authority and ED officers** is crucial for transparent investigations.
- The process should not become a form of punishment. ED's expanded powers should be accompanied by a commitment to resolve cases promptly, allowing for speedy trials and convictions.
- **Continuous monitoring of the ED's operations** is necessary to assess the impact of these clarifications on the conviction rate, which is currently less than half a percent.
- Any deficiencies in implementation can be addressed through suitable legislation, executive action, or revised court orders. Adaptation and improvement are natural aspects of the legal system.



## INTERNATIONAL RELATIONS

## 1. BLACK SEA GRAIN INITIATIVE:

## WHY IN NEWS?

African leaders met with Russian President Vladimir Putin, but little progress was made on resuming a grain deal from Ukraine or resolving the war in Ukraine. Putin promised to share some grain deal revenues with the "poorest nations" and send free grain to six African countries. Fewer leaders attended the summit due to concerns over Russia's invasion of Ukraine. The Presidents of Egypt and South Africa called for the grain deal's resumption, but no concrete resolutions were achieved. Putin agreed to review African leaders' peace proposal but was hesitant to halt the conflict.

## ABOUT BLACK SEA GRAIN INITIATIVE:

- The Black Sea Grain Initiative aims to **address rising food prices** caused by **supply chain disruptions** resulting from Russian actions in the "**breadbasket**" region.

- Signed in July 2022, the deal facilitated a **safe maritime humanitarian corridor for Ukrainian exports**, particularly food grains, to stabilize markets and curb food price inflation.

- The **Joint Coordination Centre (JCC)**, consisting of representatives from **Russia, Turkey, Ukraine, and the UN**, oversees and coordinates the initiative, requiring commercial ships to register with the JCC for monitoring and safe passage. Ships are inspected, and authorized to sail through the designated corridor to Ukrainian ports for loading.



## IMPORTANCE OF BLACK SEA GRAIN INITIATIVE:

- **Ukraine is a major global exporter of wheat, maize, rapeseed, sunflower seeds, and sunflower oil**, benefitting from its access to deep-sea ports in the Black Sea, facilitating trade with Russia, Europe, and grain importers from the Middle East and North Africa.
- The Black Sea Grain Initiative has been credited with significantly impacting the global cost of living crisis, **shipping around 9.8 million tonnes of grains since its inception**. This has discouraged hoarding and compelled sellers to address the supply crunch.
- While the initiative alone may not solve global hunger, it has the potential to prevent the escalation of the global food crisis, especially as the region is still recovering from previous years' production levels.

## SIGNIFICANCE OF BLACK SEA:

- The Black Sea has historically served as Russia's access point to Europe's warm waters.
- For Russia, the Black Sea not only provides a route to the Mediterranean but also acts as a strategic buffer between NATO and its territory.
- Russia views the Black Sea as a means to display its influence in the Mediterranean and secure access to crucial markets in southern Europe.
- Following the Crimean crisis of 2014, Russia has been actively striving to establish full control over the Black Sea.

- **Regional Cooperation:** The establishment of the **Joint Coordination Centre (JCC)** comprising representatives from **Russia, Turkey, Ukraine, and the UN** demonstrates the importance of regional cooperation in addressing pressing food security issues.

#### WAY FORWARD:

- **Strengthen Regional Cooperation:** Encourage active collaboration and cooperation between Black Sea countries involved in the grain trade to enhance the effectiveness of the initiative.
- **Expand Participation:** Encourage more countries in the Black Sea region to join the initiative to increase the volume and diversity of grain exports and stabilize global food prices.
- **Address Environmental Concerns:** Implement measures to minimize the environmental impact of maritime traffic in the Black Sea while facilitating the smooth movement of grain shipments.
- **Enhance Logistics and Infrastructure:** Invest in upgrading and modernizing port facilities and transportation networks to improve the efficiency of grain export and reduce transit times.

## 2. SHANGHAI COOPERATION ORGANIZATION

SOURCE: [TH](#)

**RECENT CONTEXT:** Shanghai Cooperation Organization member-states should strengthen strategic communication, deepen practical cooperation, and support each other's development.

#### SIGNIFICANCE OF SCO IN PRESENT TIMES:

- **Culture and people-to-people exchanges:** The SCO has been promoting cultural and people-to-people exchanges between its members.
  - **EG:** The SCO has also established a number of working groups and expert groups on issues such as counter-terrorism, drug trafficking, and energy cooperation.
- **Regional connectivity:** The SCO has established a free trade zone and has been working to promote investment in the region.
  - **EG:** In 2021, the SCO launched a new trade and investment initiative called the **Regional Comprehensive Economic Partnership (RCEP)**.

#### PRELIMS SPECIFIC:

- **MEMBERS:** Kazakhstan, China, Kyrgyzstan, Russia, Tajikistan, Uzbekistan, India, and Pakistan.
- **LANGUAGE:** The SCO's official languages are Russian and Chinese.
- India and Pakistan became permanent members in 2017.
- With the exception of Uzbekistan, the remaining five nations were members of the 'Shanghai Five,' an organization formed by China in 1996 to address border security concerns with four neighbouring countries.
- 3 Observer states - the Islamic Republic of Afghanistan, the Republic of Belarus, Mongolia.

#### **The organization consists of two enduring entities:**

1. The SCO Secretariat, located in Beijing.
2. The Executive Committee of the Regional Anti-Terrorist Structure (RATS), headquartered in Tashkent.

- **Trade and investment:** The SCO has established a free trade zone and has been working to promote investment in the region.
  - **EG:** The SCO Free Trade Agreement (FTA) was signed in 2019. The FTA is a comprehensive agreement that eliminates tariffs on most goods traded between the member states of the SCO.
- **Energy:** The SCO countries have a wealth of energy resources, and the organization has been working to develop these resources and to promote energy cooperation.
  - **EG:** The SCO Cooperation Programme in the Field of Renewable Energy

#### GOALS AND OBJECTIVE OF SCO:

- To enhance the bond of trust and friendship among the countries involved.
- To facilitate productive collaboration in various fields such as trade, politics, research, economy, technology, culture, education, transportation, energy, environmental preservation, and tourism.
- To work together in maintaining and securing peace, stability, and security within the region.
- To progress towards creating a new, democratic, fair, and rational global political and economic system.

#### CHALLENGES FACED BY SCO IN PRESENT TIMES:

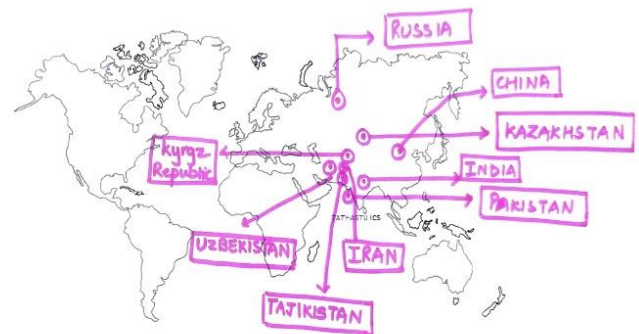
1. **Security Concerns:** The region covered by the SCO faces various security challenges, including terrorism, separatism, and extremism.
  - a. **EG:** Activities of terrorist groups in Afghanistan and Central Asian countries.
2. **Geopolitical Tensions:** The SCO member states have diverse geopolitical interests and alliances, leading to potential tensions within the organization.
  - a. **EG:** India and Pakistan, both SCO members, have historically strained relations.
3. **Environmental Concerns:** Climate change and environmental degradation pose significant challenges to the region.
  - a. **EG:** Tensions have risen between Uzbekistan and Tajikistan over the management of water resources in the Amu Darya river basin.
4. **External Influences:** External powers' involvement in the region can impact the dynamics of the SCO.
  - a. E.g.: The competition between China and the United States for influence in Central Asia

#### WAY FORWARD:



- **Advancing Technological Collaboration:** The member states can pool their resources to develop cutting-edge technologies in areas like artificial intelligence, cybersecurity, and space exploration.
- **Facilitating resolution in regional disputes:** SCO can serve as an impartial forum to mediate conflicts among its member states promoting open dialogue and reconciliation to mitigate the risk of heightened hostilities.
- **Strengthening Regional Security Cooperation:** The SCO member states should enhance intelligence-sharing and joint military exercises to counter terrorism and extremism in the region.
- **Fostering Energy Cooperation:** The SCO countries can collaborate on developing and utilizing energy resources within the region.

\* Iran is 9<sup>th</sup> members of SCO.



### 3. INDIA UAE RUPEE SETTLEMENT SYSTEM

**Context:** India and the UAE have agreed to create a framework to encourage the use of the rupee and the UAE Dirham (AED) in international commerce.

#### LOCAL CURRENCY PAYMENT SETTLEMENT SYSTEM:

Local currency settlement is a payment mechanism that allows trading entities from two countries to make payments in their own national currencies. This is in contrast to the traditional system of using a third-party currency, such as the US dollar, to settle payments.

#### WHY RUPEE DIRHAM SETTLEMENT IS SIGNIFICANT FOR INDIA:

- 1. Reduced transaction costs:** This is because it eliminates the need to convert currencies, which can be expensive.
- 2. Reduced risk of currency fluctuations:** Businesses that trade in Rupees and Dirhams are not exposed to the risk of changes in the exchange rate between the two currencies.
- 3. Promotes trade:** As it makes it easier for businesses to make payments in the local currency, which can reduce the transaction costs and make it more attractive to trade with these countries.
- 4. Increased financial stability:** Because it reduces the need for foreign exchange reserves, which can help to protect countries from financial shocks.

#### ADVANTAGES:

- Reduces dependence on dollar.
- Promotes internalisation of rupees.

- Easy for UAE to invest in India.
- A vast foreign exchange market will be created.
- Transaction cost will be optimised.

#### CONCERNS IN TRADE SETTLEMENT SYSTEM:

- **Currency volatility:** The value of the rupee and the dirham can fluctuate, which could make it difficult for businesses to predict the cost of their imports and exports.
- **Lack of liquidity:** There may not be enough liquidity in the rupee-dirham market, which could make it difficult for businesses to find buyers or sellers for their currency.
- **Compliance risks:** There may be compliance risks associated with trading in the rupee-dirham market, such as the risk of money laundering or terrorist financing

#### PRELIMS SPECIFIC

##### INDIA UAE MILITARY EXERCISES:

- Desert Eagle
- Indra
- Varuna (Navy)
- Hand in Hand

##### TRADE AGREEMENTS BETWEEN INDIA AND UAE:

###### Comprehensive Economic Partnership

**Agreement (CEPA):** The CEPA was signed in February 2022 and came into force in March 2022.

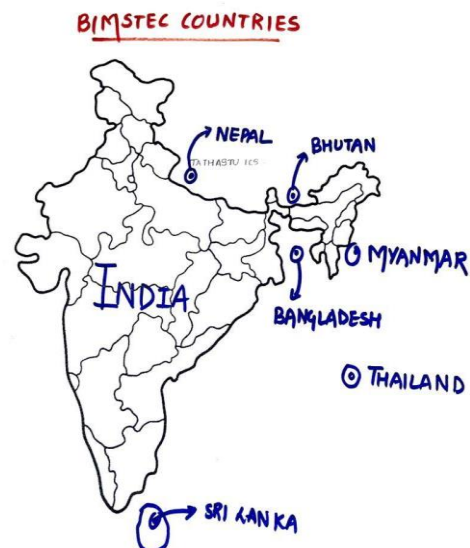
**Bilateral Investment Treaty (BIT):** The BIT was signed in 2005 and entered into force in 2007. It provides protection for investments made by investors from one country in the other country.

#### 4. BAY OF BENGAL INITIATIVE FOR MULTI-SECTORAL TECHNICAL AND ECONOMIC COOPERATION (BIMSTEC)

**Context:** S. Jaishankar, the foreign minister, recently travelled to Bangkok for the Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC) retreat.

##### OBJECTIVES OF BIMSTEC:

- To accelerate the **economic growth and social progress** in the Bay of Bengal region through joint endeavours in a spirit of equality and partnership.
- To **promote active collaboration and mutual assistance** on matters of common interest in the economic, social, technical and scientific fields.
- To create an enabling environment for rapid economic development through identification and implementation of specific cooperation projects in the already agreed areas of cooperation and such other areas that may be agreed upon by the Member States.
- To maintain close and beneficial cooperation with existing international and regional organizations with similar aims and purposes.



##### SIGNIFICANCE OF BIMSTEC:

- **Economic significance:** BIMSTEC has the potential to boost trade and investment between the member states. The region has a combined GDP of over \$3 trillion and a population of over 2.5 billion people.
- **Geopolitical significance:** The Bay of Bengal is a major shipping route and the region is home to some of the world's most important energy resources
- **Social significance:** The organization has a number of programs that aim to improve the lives of people in the region, such as the BIMSTEC Skills Development Program and the BIMSTEC Women's Empowerment Program.
- **Environmental significance:** The Bay of Bengal is facing a number of environmental challenges, such as pollution and climate change.

#### PRELIMS SPECIFIC:

**Name:** Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation (BIMSTEC)

**Established:** 6 June 1997

**Headquarters:** Dhaka, Bangladesh

**Member States:** Bangladesh, Bhutan, India, Myanmar, Nepal, Sri Lanka, and Thailand.

#### CONCLUSION:

##### Future Prospects:

- BIMSTEC has the potential to become a major force in the Bay of Bengal region and beyond.
- The organisation has made some progress in achieving its objectives, but there is still much work to be done.
- If BIMSTEC can continue to build on its successes, it has the potential to play a significant role in promoting economic growth, social progress, and regional cooperation in the region.

## 5. INDIA-FRANCE RELATIONSHIP

SOURCE: [IE](#)

#### SIGNIFICANCE OF THE PM'S VISIT TO FRANCE:

- **Increasing investment:** Diversifying economic ties away from China.
- **Boosting regional security:** Enhancing India's comprehensive national power and stabilizing the Asian balance of power.

#### CURRENT ANALYSIS OF INDIA-FRANCE RELATIONS:

- **Characteristics:** Strategic autonomy, independent foreign policies, and a shared vision of a multipolar world.
- **Security objectives prominent:** Prioritizing security objectives over trade, with France helping India diversify arms suppliers beyond Russia and the US.
- **Balancing China:** Aiming to counter China's influence in the Indian Ocean and sharing concerns about Chinese expansionism.
- **Multi-dimensional partnership:** Advancements through joint strategic visions, logistic support agreements, and military exercises.

#### MILITARY EXERCISES BETWEEN INDIA AND FRANCE

- VARUNA (NAVY)
- GARUDA(AIR FORCE)
- SHAKTI(ARMY)
- DESERT KNIGHT(AIR FORCE)
- Ex IMDEX (Navy)

#### DIMENSIONS OF INDIA-FRANCE RELATIONS:

- **Historical Relations:** Tracing back trade and cultural exchanges for thousands of years, with formal diplomatic relations established in 1947.
- **Strategic Dialogue:** France engaging in a dialogue following India's nuclear tests in 1998, understanding India's security concerns.
- **Defence Cooperation:** France being a significant defence supplier, including submarines and Rafale fighter jets, joint military exercises, and manufacturing partnerships.
- **Economic Cooperation:** Collaboration in manufacturing, infrastructure, and technology, with bilateral trade exceeding USD 12 billion in 2021-22.
- **Civil Nuclear Cooperation:** Inking a civil nuclear pact in 2008, with France's support in building nuclear power reactors and joint research and development.
- **Cooperation at International Forum:** Collaborating on global issues, supporting India's bids for UN Security Council and Nuclear Suppliers Group memberships, and joint initiatives like the International Solar Alliance.
- **Maritime Cooperation:** Ensuring a free, open, and inclusive Indo-Pacific region through partnerships and a Trilateral Development Cooperation Fund.
- **Space Cooperation:** Collaborating in space research, satellite technology, exploration, and planned joint missions.
- **Education and Cultural Exchanges:** Promoting educational and cultural exchanges, including mutual recognition of academic degrees.
- **Environmental Cooperation:** Strengthening collaboration on environmental issues, green hydrogen, blue economy, and environmental research.



#### CHALLENGES IN THE RELATIONSHIP:

- **Lack of Free Trade Agreement:** Limiting potential for increased trade and economic cooperation.
- **Trade Imbalance:** France exporting more to India.
- **Differences on global issues:** Concerns expressed by France on India's stance at WTO, climate summit, and protection of intellectual property rights.

#### CONCLUSION:

Expanding beyond arms sales: Possibilities for broader cooperation, such as initiatives like the International Solar Alliance and multilateral efforts in the Indo-Pacific region.

## 7. NATO Plus – Should India join?

#### WHY IN NEWS?

United States Permanent Representative to NATO, Julianne Smith quoted: The NATO alliance is open to more engagement, should India seek that. Several other discussions have been on-going seeking India's closer participation.



### What is NATO and NATO plus?

- NATO is an intergovernmental military alliance comprising 31-member states, mainly from Europe and North America. It aims to ensure the freedom and security of its members through political and military cooperation.

- NATO Plus includes **five more member nations** which are treaty allies of the **US–Australia, Japan, South Korea, New Zealand and Israel**. The term ‘NATO Plus’ is not officially recognised within NATO itself but

has been used in discussions regarding the potential expansion of the alliance. • The focus of NATO Plus is on containing China. Therefore, considering its disputes with China, India remains a missing link in the framework.



### ADVANTAGES FOR INDIA IN JOINING NATO PLUS?

- In light of increasing **regional security challenges**, India joining the NATO Plus framework could provide it with a **security umbrella**. With protection and deterrence against potential threats.
- India could also **gain access to advanced military technologies, intelligence-sharing platforms, and inter-operability** with other member-states.
- **China's rise** and its **aggression** has made a strong India-US partnership a necessity. If China continues with its assertive and aggressive foreign policy agenda against India, India may have pragmatic engagement with NATO.
- Long-term dependence on Russia for military, strategic needs may not do well for India considering economic issues Russia is likely to face in the near to long term.

### WHY INDIA SHOULD DO AWAY FROM JOINING NATO PLUS?

- If India joins NATO Plus, it will directly impact India's strong, ties with Russia. Russia has been useful to India in dealing with regional security challenges and, in moderating the stance of China. Even if Russia is increasingly inching towards China, it continues to remain a valuable partner for us.
- India has traditionally maintained a policy of strategic autonomy, allowing it to engage with various nations and blocs based on its own interests. Joining NATO could potentially risk India's strategic autonomy.
- Being part of a military framework will limit India's freedom of action and prevent it from pursuing an independent policy towards China.
- Considering our own bilateral issues with China and a strategy for the Indo-Pacific, being part of the Taiwan strategy of the U.S. under NATO Plus will complicate India's security.
- India is a middle power with great-power aspirations. It has been the leading voice for the Global South at world forums. A junior-partner status in an alliance would mean giving up its great-power aspirations. It would make it difficult for India to rise as the third pole.



## 8. 23RD SCO SUMMIT

**CONTEXT:** Recently, India hosted the 23rd Summit of the Shanghai Cooperation Organisation (SCO) Council of Heads of State in the virtual format.

### KEY OUTCOMES:

- Iran was inducted to the SCO grouping. It became the 9th member.
- India has once again refused to endorse China's ambitious Belt and Road Initiative (BRI) scheme which envisions rebuilding the old Silk Road to connect China with Asia, Europe and beyond with large infrastructure spending. India was the only country in the Shanghai Cooperation Organisation (SCO) not to support the project.
- India has also stayed out of a joint statement on SCO Economic Development Strategy 2030, indicating a lack of consensus in the grouping.
- PM Modi called out some countries that use cross-border terrorism as key instrument to fulfil their policies. PM Modi urged that SCO should not hesitate to criticize such nations because there can be no place for double standards on such serious matters.
- **Delhi Declaration** – Key outcome of the summit. The declaration proposes five joint statements – i) fight against terrorism ii) de-radicalisation iii) sustainable lifestyle to tackle climate change iv) production of millets and digital transformation. The declaration also listed a number of global challenges, including new and emerging conflicts, turbulence in the markets, supply chain instability, climate change and the COVID19 pandemic.

### PRELIMS SPECIFIC: SHANGHAI COOPERATION ORGANIZATION (SCO):

**Description:** A permanent international organization among governments.

**Aims:** Focuses on political, economic, and military aspects to ensure regional peace and security.

**Formation:** Established in 2001.

**Charter:** The SCO Charter was signed in 2002 and came into effect in 2003.

#### Objectives:

- Build trust and cooperation among member nations.
- Foster collaboration in politics, trade, technology, culture, and more.
- Strengthen ties in areas like education, energy, transport, and environment.
- Maintain regional peace, security, and stability.
- Advocate for a just and democratic global order.

#### Structure:

- **Heads of State Council:** Top authority deciding internal functioning, international interactions, and global issues.
- **Heads of Government Council:** Approves budgets and handles economic matters within the SCO.
- **Council of Ministers of Foreign Affairs:** Manages day-to-day activities.
- **Regional Anti-Terrorist Structure (RATS):** Counteracts terrorism, extremism, and separatism.
- **SCO Secretariat:** Located in Beijing, providing support in information, analysis, and organization.

## Member states of the Shanghai Cooperation Organisation



<b>NEWS IN SHORTS:</b>	
<b>EXERCISE NOMADIC ELEPHANT: BILATERAL JOINT MILITARY EXERCISE BETWEEN INDIA AND MONGOLIA (SOURCE: <a href="#">PIB</a>)</b>	<ul style="list-style-type: none"> <li>• This is the 15th edition of the bilateral joint military exercise between India and Mongolia.</li> <li>• The exercise is conducted annually, with each country hosting it alternatively in Mongolia and India.</li> <li>• The primary theme of the exercise revolves around counter-terrorism operations in mountainous terrain.</li> </ul>
<b>G20 CONFERENCE ON 'CRIME AND SECURITY IN THE AGE OF NFTS, AI, AND METAVERSE'</b>	<ul style="list-style-type: none"> <li>• The first meeting of the G20 summit focused on 'Crime and Security in the era of NFTs, AI, and Metaverse' took place recently in Gurugram, India.</li> <li>• This event represents an innovative step by the G-20 Presidency, marking it the first conference on cyber security in the G-20.</li> </ul>
<b>UNODC WORLD DRUG REPORT 2023</b>	<p><u>Key Findings:</u></p> <ul style="list-style-type: none"> <li>• Over 296 million people worldwide used drugs in 2021, a 23% increase over the past decade.</li> <li>• The number of people who suffer from drug use disorders has reached 39.5 million, a 45 per cent increase over 10 years.</li> <li>• Only one in five people suffering from drug-related disorders were in treatment for drug use in 2021 with widening disparities in access to treatment across regions.</li> <li>• Youth populations are the most vulnerable to using drugs and are also more severely affected by substance use disorder in several regions.</li> <li>• Large inequalities in access and availability of controlled drugs for medical use persist, particularly for pain management. The disparity is particularly prevalent between the global North and South, and across urban and rural areas.</li> <li>• Drug trafficking is accelerating environmental devastation, particularly in the Amazon Basin. The production of illicit drugs contributes to deforestation, pollution, and the use of harmful chemicals, leading to ecological harm and the loss of biodiversity.</li> </ul>

## ECONOMY

### 1. DIGITAL PAYMENTS IN INDIA

#### WHY IN NEWS?

The digital payments system in India, led by UPI, has experienced significant growth, with **UPI payments** outpacing other modes, increasing its share to **27% by March 2023**. However, financial inclusion remains a challenge as many still have **inactive bank accounts**, and there are notable **gender and rural-urban gaps** in digital transactions, highlighting the need for improved accessibility.

#### MODES OF DIGITAL PAYMENTS:

- Unified Payments Interface (UPI)
- Bharat Interface for Money (BHIM)
- UPI 123PAY
- UPI Lite
- Cards (including RuPay Debit Cards)
- Immediate Payment Services (IMPS)
- Aadhaar Enabled Payment System (AePS)

#### NPCI'S SYSTEMS

- > National Financial Switch (ATMs)
- > National Automated Clearing House (NACH)
- > CTS Cheque Clearing
- > Immediate Payment Systems (IMPS)
- > RuPay Card
- > Aadhaar Enabled Payment System (AEPS)
- > Bharat Bill Payment System (BBPS)
- > Unified Payments Interface (UPI)



#### ABOUT UPI:

Introduced in 2016 by the NPCI, the Unified Payments Interface (UPI) integrates various bank accounts into a single mobile app for seamless transactions. The NPCI, established in 2009 by the RBI and IBA, aimed to develop a strong payment and settlement infrastructure. UPI functions alongside the Immediate Payment Service (IMPS), designed by NPCI for instant fund transfers.

**IMPS:** - IMPS is a service offered by banks for immediate interbank funds transfer, ensuring real-time transactions.

- Unlike NEFT, which processes transactions in batches, IMPS clears transactions instantly.
- IMPS allows instantaneous fund transfers and has a transaction limit of INR 2 Lakh, while NEFT has no such limit.
- Multiple channels like mobile phones, ATMs, the internet, and SMS can be used to access the IMPS facility.

#### WHY UPI IS WIDELY ACCEPTABLE IN INDIA?

1. **Simplified Interface:** UPI offers a user-friendly and straightforward interface, enabling even individuals with limited digital literacy to conduct transactions seamlessly.
  - a. Eg: - Farmers in rural areas can use UPI apps on their smartphones to receive payments directly for their produce, eliminating intermediaries and ensuring faster and secure transactions.
2. **Real-time Transactions:** UPI facilitates immediate fund transfers, making it highly suitable for time-sensitive payments and reducing delays in financial transactions.

- a. Eg: - Small businesses can use UPI to make quick payments to suppliers, ensuring a smooth supply chain and enhanced efficiency.
3. **Interoperability:** UPI is bank-agnostic, allowing users to link multiple bank accounts and conduct transactions across various banks through a single UPI application.
  - a. Eg: - Customers can easily transfer money from their savings account in Bank A to their friend's account in Bank B, irrespective of the banks they are associated with.
4. **Government Initiatives:** Government support and promotion of UPI as part of its digital payment drive have played a crucial role in its widespread adoption.
  - a. Eg: - The implementation of UPI for various government schemes has enabled direct benefit transfers to beneficiaries, reducing leakages and ensuring financial inclusion.
5. **Growing Merchant Acceptance:** A wide network of merchants accepting UPI payments, including local vendors and e-commerce platforms, has enhanced its popularity.
  - a. Eg: - Street vendors can now accept digital payments through UPI, broadening their customer base and contributing to the formalization of the economy.
6. **Cashback and Incentives:** Many UPI apps offer cashback and rewards to users, encouraging them to shift from cash-based transactions to digital payments.
7. **Secure and Reliable:** UPI employs robust security features like two-factor authentication, making it a safe mode of conducting financial transactions.
  - a. Eg: - UPI's multi-layered security measures have instilled confidence in users, resulting in increased adoption for both personal and business transactions.

#### RECENT INNOVATIONS IN UPI:

- **UPI 123Pay:** This is a new feature that allows users to **make payments using missed calls**. This is a simple and convenient way for users to make payments, especially for those who do not have smartphones.
- **UPI Single Block and Multiple Debits:** This feature allows users to block funds in their account for specific purposes. This can be used to make **payments for recurring expenses**, such as rent or insurance premiums.
- **UPI Linked with Credit Cards:** This feature allows users to link their credit cards with UPI. This can be used to make payments using credit cards, which can be helpful for those who want to earn rewards or cashback.
- **UPI for Offline Payments:** This feature allows users to make payments even when they do not have an internet connection. This can be done by generating a QR code that can be scanned by the merchant.
- **UPI for International Payments:** This feature allows users to make payments to merchants in other countries. This can be done by using a UPI-enabled app and entering the merchant's details.

#### CHALLENGES IN FURTHER SCALING-UP UPI:

1. **Infrastructure Readiness:** Ensuring that the digital payment infrastructure, **including internet connectivity and smartphones**, is available and accessible to all segments of the population, especially in rural and remote areas.



2. **Security Concerns:** As UPI gains popularity, the risk of cyber threats and fraud increases, necessitating continuous efforts to enhance security measures and protect user data.
3. **Interoperability and Standardization:** As the number of UPI-enabled apps increases, ensuring smooth interoperability and adherence to standard protocols becomes crucial for seamless transactions.
4. **Merchant Acceptance:** While UPI usage is widespread among individuals, encouraging more merchants, especially small and local businesses, to adopt UPI as a payment method is essential for broader acceptance.
5. **Digital Literacy:** A significant portion of the population, particularly in rural areas and among older generations, lacks sufficient digital literacy, hindering UPI adoption and usage.
6. **Customer Support and Dispute Resolution:** As UPI volumes grow, the need for efficient customer support and dispute resolution mechanisms becomes paramount to address any transaction-related issues promptly.
7. **Regulatory Compliance:** Keeping up with evolving regulatory requirements, data privacy laws, and anti-money laundering measures presents an ongoing challenge for UPI providers and banks.
8. **Transaction Limits:** The existing transaction limits on UPI may restrict high-value payments, making it essential to strike a balance between convenience and security.
9. **Network Stability:** UPI's reliability is critical, and maintaining a stable and robust network to handle increasing transaction volumes is a key challenge.

#### WAY AHEAD & GOVERNMENT INITIATIVE TO ADDRESS THESE CHALLENGES:

- **Interoperability:** The National Payments Corporation of India (NPCI) is working on a project to make UPI interoperable with other payment systems. This will allow users to make UPI payments to merchants who are not part of the UPI network.
- **Security:** The NPCI is working on a number of security features to improve the security of UPI. These features include two-factor authentication, fraud detection, and encryption.
- **Acceptance:** The NPCI is working with merchants to encourage them to accept UPI payments. The NPCI is also providing merchants with the necessary infrastructure to accept UPI payments.
- **Awareness:** The NPCI is working with the government to raise awareness about UPI. The NPCI is also running a number of awareness campaigns to encourage people to use UPI.
- **Infrastructure:** The government is working to improve the internet infrastructure in the country. This will help to ensure that there is a reliable internet connection in all parts of the country.

## 2.CIRCULAR ECONOMY

**SOURCE:** [TH](#) , [Economic Times](#) , [PIB](#) , [UN](#)

**SYLLABUS:** GS III, Conservation, Environment, Pollution & Degradation

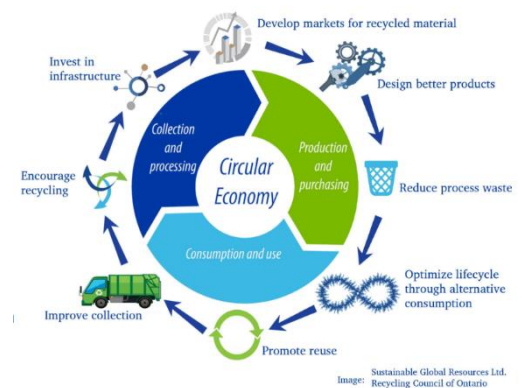
#### WHY IN NEWS?

At the fourth G-20 Environment and Climate Sustainability Working Group (ECSWG) and Environment and Climate Ministers' meeting in Chennai, the Resource Efficiency Circular Economy Industry Coalition (RECEIC) was launched. The coalition, consisting of **39 multinational corporations from various sectors, pledged to adopt resource efficiency and circular economy principles** to address environmental challenges related to waste, including plastics, microplastics, e-waste, and chemical waste.

### ABOUT CIRCULAR ECONOMY:

The circular economy is a production and consumption model that emphasizes sharing, leasing, reusing, repairing, refurbishing, and recycling materials and products to extend their life cycle. It contrasts with the linear economic model that follows a take-make-consume-waste pattern and relies on abundant cheap materials and energy. The circular economy aims to promote sustainability and reduce waste.

According to the Circularity Gap Report 2020, the global economy is only 8.6% circular. This means that over 90% of the resources that enter the economy (100 billion tonnes per year) are wasted.



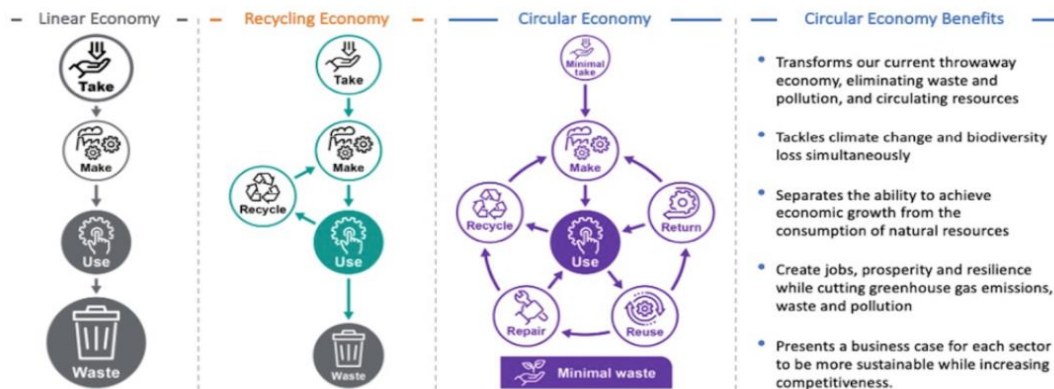
### NEEDS AND OPPORTUNITIES FOR CIRCULAR ECONOMY IN INDIA:

1. **Resource Efficiency:** India's limited natural resources and growing population necessitate the adoption of circular economy principles to optimize resource use and reduce wastage.
  - a. Example: Efficient recycling of electronic waste can recover valuable materials like gold, silver, and copper, reducing the need for mining new resources.
2. **Waste Management:** India faces significant challenges in managing waste, particularly plastic and electronic waste. A circular economy approach can address these issues through recycling and proper disposal.
  - a. Example: India generated over 9.46 million metric tons of plastic waste in 2019-20, highlighting the need for effective circular waste management strategies (Source: CPCB).
3. **Job Creation:** Transitioning to a circular economy can create new employment opportunities in areas like repair, refurbishment, and recycling.
  - a. Example: A study by Ellen MacArthur Foundation estimates that adopting circular economy principles in India's automotive and electronics sectors could create 1 million additional jobs by 2030.
4. **Economic Growth:** Circular economy practices can contribute to economic growth by stimulating innovation and increasing resource productivity.
  - a. Example: According to a study by NITI Aayog, adopting circular economy principles in India's construction and automotive sectors could lead to a potential economic gain of \$382 billion by 2030.
5. **Sustainable Manufacturing:** Circular economy concepts promote eco-friendly manufacturing practices, reducing the environmental impact of industries.

#### PRELIMS SPECIFIC:

The circular economy holds particular promise for achieving multiple SDGs, including SDGs 6 on energy, 8 on economic growth, 11 on sustainable cities, 12 on sustainable consumption and production, 13 on climate change, 14 on oceans, and 15 on life on land.

- a. Example: Incorporating closed-loop production systems in textile industries can minimize water consumption and waste generation.
6. **Climate Mitigation:** Circular economy practices can contribute to India's climate goals by reducing greenhouse gas emissions associated with resource extraction and waste disposal.
- a. Example: According to a study by McKinsey, circular economy strategies can help India reduce 44% of its projected greenhouse gas emissions by 2030.



Source: World Economic Forum

#### STEPS TAKEN BY THE GOVERNMENT OF INDIA TO PROMOTE CIRCULAR ECONOMY:

1. **Policy Initiatives:** The government has introduced various policies and initiatives to encourage circular economy practices.
  - a. Example: The National Resource Efficiency Policy aims to promote sustainable resource use, waste reduction, and recycling to achieve a circular economy.
2. **Extended Producer Responsibility (EPR):** The EPR framework has been implemented to hold producers responsible for managing post-consumer waste of their products.
  - a. Example: EPR guidelines for plastic waste management mandate producers to take back and recycle a certain percentage of plastic packaging.
3. **Waste Management Rules:** The government has revised waste management rules to prioritize recycling and proper disposal.
  - a. Example: The Plastic Waste Management Rules, 2016, focus on waste segregation, recycling, and the ban on certain single-use plastic items.
4. **Startup and Innovation Support:** The government has launched schemes and funding support for startups and businesses promoting circular economy innovations.
  - a. Example: The Startup India scheme provides funding, mentoring, and other support to startups developing circular economy solutions.
5. **Green Public Procurement:** The government has encouraged green procurement practices to drive demand for eco-friendly and recycled products.
  - a. Example: Government departments are encouraged to procure products with higher recycled content, promoting the use of recycled materials.
6. **Waste-to-Wealth Initiatives:** The government has launched projects to convert waste into valuable resources.

- a. Example: Swachh Bharat Mission's Waste-to-Wealth component promotes waste segregation and composting, generating organic manure from biodegradable waste.

#### Additional Data:

- According to the Central Pollution Control Board, India generated over 9.46 million metric tons of plastic waste in 2019-20.
- NITI Aayog estimates that adopting circular economy principles in India's construction and automotive sectors could lead to a potential economic gain of \$382 billion by 2030.

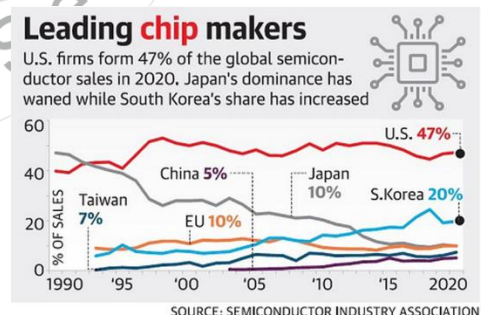
#### WAY FORWARD:

- **Awareness and Education:** Raise awareness among citizens, businesses, and policymakers about the benefits and importance of circular economy practices.
- **Policy Support:** Strengthen and implement supportive policies that incentivize circular economy initiatives and penalize wasteful practices.
- **Collaboration and Partnerships:** Foster collaboration between governments, businesses, academia, and civil society to drive circular economy projects and research.
- **Research and Innovation:** Invest in research and innovation to develop sustainable technologies and circular business models.
- **Infrastructure Development:** Develop efficient waste management systems, recycling facilities, and resource recovery infrastructure.
- **Extended Producer Responsibility (EPR):** Strengthen EPR frameworks to ensure producers take responsibility for their products throughout their lifecycle.

### 3.SEMICONDUCTORS

#### ABOUT SEMICONDUCTORS:

- **Definition of Semiconductors:** Semiconductors are substances with conductivity levels falling between conductors and insulators. They include pure elements like silicon or germanium, as well as compounds like gallium arsenide or cadmium selenide.
- **Importance of Semiconductor Chips:** Semiconductor chips act as fundamental components, serving as the central processing units and data processors in modern electronic devices and communication technologies.
- **Diverse Applications:** Semiconductor chips are now essential components in various everyday items such as automobiles, household appliances, and critical medical equipment like ECG machines.



#### WHY DO WE NEED TO PROMOTE SEMICONDUCTOR INDUSTRY & WHERE DOES INDIA STAND?

##### SIGNIFICANCE:

- **Economic Growth and Employment:**
  - The Indian semiconductor market is projected to reach USD 32.35 billion by 2025, growing at a CAGR of 10.1% during 2020-2025. (Source: Mordor Intelligence)

- The semiconductor industry in India employs thousands of skilled professionals and offers job prospects in design, manufacturing, research, and development.
- **Information and Communication Technology (ICT) Advancements:**
  - The rising adoption of smartphones in India has led to significant growth in the semiconductor industry. By 2023, India is projected to have over 1.1 billion mobile phone users. (Source: Statista)
- **Electronics Manufacturing and Exports:**
  - The "Make in India" initiative aims to boost domestic electronics manufacturing, including semiconductor components.
  - India's electronics exports are estimated to be USD 16.8 billion during 2020-21, a significant portion of which includes semiconductor devices. (Source: Electronics & Computer Software Export Promotion Council)
- **Space and Défense Technologies:** contributing to India's strategic capabilities.
- **Driving Automotive Revolution:** India's electric vehicle market is projected to reach 6.34 million units by 2027, highlighting the increasing demand for semiconductor-based technologies. (Source: Allied Market Research)

#### INDIA'S POSITION:

- At present, India imports all chips, and the market is projected to reach \$100 billion by 2025, up from \$24 billion currently. Despite this, India is working towards developing domestic semiconductor chip manufacturing capabilities.

#### INITIATIVES LAUNCHED:

- India has initiated the **Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECES)** to boost the production of electronic components and semiconductors within the country.
- In 2021, the Ministry of Electronics and Information Technology (MeitY) introduced the **Design Linked Incentive (DLI) Scheme** with the aim of supporting at least 20 domestic semiconductor design companies and helping them achieve a turnover of over Rs. 1500 Crore in the next 5 years.

#### CHALLENGES FOR INDIA:

- Semiconductor manufacturing requires **significant capital investment**, involves high risk, and has lengthy gestation and payback periods.
- The government's fiscal support for the industry is insufficient considering the substantial investments needed in various sub-sectors of semiconductor manufacturing.
- Although India has skilled chip design talent, it **lacks indigenous chip fab capacity**, with existing foundries primarily serving ISRO and DRDO's requirements and not being as advanced as international facilities.
- India has only one old semiconductor fab in Mohali, Punjab.
- Establishing a semiconductor fabrication facility can be extremely expensive, with costs reaching billions of dollars and potential technological lag.
- Chip fabs demand abundant clean water, stable power supply, vast land areas, and a highly skilled workforce.



## INDIA SEMICONDUCTOR MISSION:

### ABOUT:

- Launched in 2021, the ISM has a financial outlay of Rs76,000 crore and operates under the Ministry of Electronics and IT (MeitY).
- The main objective of the program is to offer financial assistance to companies involved in semiconductors, display manufacturing, and design ecosystem.
- Led by global experts in the semiconductor and display industry, the ISM will act as the central agency to ensure efficient and coherent implementation of the schemes.

### COMPONENTS:

#### Scheme for Semiconductor Fabs:

- Provides fiscal support to eligible applicants aiming to establish semiconductor wafer fabrication facilities in India.
- Aims to attract significant investments for setting up these facilities in the country.

#### Scheme for Display Fabs:

- Provides fiscal support to eligible applicants intending to establish TFT LCD / AMOLED based display fabrication facilities in India.
- Aims to attract substantial investments for setting up display fabs in the country.

#### Scheme for Compound Semiconductors / Silicon Photonics / Sensors Fab and Semiconductor Assembly, Testing, Marking and Packaging (ATMP) / OSAT facilities:

- Offers fiscal support of 30% of the Capital Expenditure to eligible applicants establishing Compound Semiconductors / Silicon Photonics (SiPh) / Sensors Fab and Semiconductor ATMP / OSAT facilities in India.

#### Design Linked Incentive (DLI) Scheme:

- Provides financial incentives and design infrastructure support for semiconductor design at various stages of development and deployment.
- Covers Integrated Circuits (ICs), Chipsets, System on Chips (SoCs), Systems & IP Cores, and semiconductor linked design.

### WAY FORWARD:

- Semiconductors and displays are crucial for modern electronics, powering the digital transformation in **Industry 4.0**.
- **India's Public Sector Enterprises (PSEs)**, like Bharat Electronics Ltd and Hindustan Aeronautics Ltd, could **collaborate with global majors** to establish semiconductor fab foundries.
- The **India Semiconductor Mission's** recent move to offer subsidies to global small and medium-sized enterprises in the upstream supply chain is commendable, especially for existing facilities like the SCL.
- To achieve the goals in the next five years, the SCL requires a full-time director with prior experience in "**More than Moore**" foundries, rather than a career scientist from the Department of Space, as is the current situation.
- This is because the semiconductor market requires a multifaceted approach to be effectively served.

## 4. INDIA'S 1<sup>ST</sup> GIG WORKERS'S RIGHTS BILL – by Rajasthan Govt.



### WHY IN NEWS?

The Rajasthan government has made a groundbreaking move to protect gig workers by passing the Rajasthan Gig Workers Bill, 2023. This pioneering legislation aims to create a Welfare Board and dedicated welfare fund to provide social security to platform-based gig workers in the state.

### ABOUT GIG WORKERS:

Gig workers in India are independent contractors or freelancers engaged through digital platforms to perform short-term tasks or services. According to a report by the International Labour Organization (ILO), **India has over 15 million gig workers as of 2021**, and this number is expected to grow in the coming years. Despite their growing presence in the economy, gig workers often face challenges related to job security, lack of social security benefits, and legal protections.

### GIG, A NEW-AGE ECONOMY

<b>BENEFITS</b> <ul style="list-style-type: none"> <li>■ Creation of jobs on mass scale</li> <li>■ Freedom and flexibility of work</li> <li>■ Easy access to services</li> <li>■ Price advantage for consumers</li> </ul>	<b>DOWNSIDE</b> <ul style="list-style-type: none"> <li>■ Inconsistency in services</li> <li>■ Partners arm-twisted by service providers</li> <li>■ Difficult to trust a service provider without a recommendation from someone you trust</li> </ul>	 <b>CHALLENGES FOR GOVT</b> <ul style="list-style-type: none"> <li>■ Highly unregulated</li> <li>■ Lack of policies on job structure, tax, privacy</li> <li>■ Exponential growth</li> </ul>
<b>CRUISE MODE</b> <ul style="list-style-type: none"> <li>■ Ola, Uber offered fat incentives in the initial years</li> <li>■ Targets were pretty achievable</li> <li>■ Hundreds of thousands availed bought cars to partner with Ola, Uber</li> <li>■ Few claimed to earned Rs 1 lakh a month</li> </ul>	 <b>FOR OLA, UBER DRIVERS</b>	<b>REVERSE GEAR</b> <ul style="list-style-type: none"> <li>■ Drivers hit downhill road as Ola, Uber gained market share</li> <li>■ Incentives became unattractive</li> <li>■ Needed more trips to meet targets, had to face growing traffic</li> <li>■ Crimes on passengers compounded problems</li> </ul>
<b>FEW KEY PLAYERS</b>		
UBER, OLA, ZOMATO, FOODPANDA, SWIGGY, AIRBNB, UPWORK		

### KEY FEATURES OF THE BILL:

- **Scope:** The bill covers both aggregators and primary employers engaging platform-based gig workers in the state.
- **Welfare Board:** A Welfare Board chaired by the Labour Department's minister will be established to oversee and implement welfare measures for gig workers. It will have nominated members, including at least one-third representing women.
- **Registration and Unique ID:** Gig workers and aggregators will be registered, and each gig worker will receive a unique ID applicable across all platforms for easy access to welfare schemes.
- **Social Security and Welfare Fund:** The state will create a dedicated fund, The Rajasthan Platform Based Gig Workers Social Security and Welfare Fund, to provide social security benefits to gig workers.
- **Welfare Fee:** Aggregators will contribute to the welfare fund by deducting a percentage of the transaction value from each gig worker's earnings.
- **Access to Benefits:** Gig workers will have access to various social security benefits, including accidental insurance and health insurance, as formulated by the state government.
- **Grievance Redressal:** Gig workers will have the right to present grievances, and a robust redressal mechanism will be in place to address their concerns.
- **Representation:** Gig workers will be represented on the Welfare Board, allowing them to have a say in decisions affecting their welfare.
- **Compliance and Fines:** Aggregators must comply with the Act and rules set by the Welfare Board, and failure to do so may result in fines imposed by the state government, ranging from Rs 5 lakh to Rs 50 lakh depending on the severity of the contravention.

#### CONCERNS RAISED OVER THE BILL:

- **Ambiguous Terminologies:** Labor unions are concerned about the use of vague terms in the bill, potentially creating loopholes for companies and weakening gig workers' protection.
- **Funding Concerns:** Labor unions fear gig workers may bear an undue burden in contributing to the welfare fund, suggesting aggregator companies and State funds should shoulder the primary funding responsibility.
- **Limited Social Security Benefits:** Critics point out that the bill's focus on accidental and health insurance may not adequately cover all gig workers' needs, urging a comprehensive benefits list.
- **Grievance Redressal Effectiveness:** Doubts are raised about the bill's grievance redressal mechanism's responsiveness and efficiency based on reports of ineffective systems for gig workers.
- **Definition of Gig Workers:** Some stakeholders question the bill's scope in defining gig workers, suggesting other gig worker forms may not be covered.
- **Recognition of Rights:** Despite improvements, critics argue gig workers may not be fully recognized as employees entitled to certain labour rights.
- **Implementation Challenges:** The bill's success hinges on the Welfare Board and State government's effectiveness in seamless registration, representation, and benefit distribution for gig workers.

#### WAY FORWARD FOR SOCIAL AND ECONOMIC PROTECTION OF GIG WORKERS:

- **Comprehensive Legal Framework:** Develop a comprehensive legal framework that clearly defines gig workers' rights and protections to ensure their social security and welfare.
- **Strengthening Social Security Benefits:** Expand the scope of social security benefits for gig workers, including health insurance, accident coverage, maternity benefits, and pension schemes.
- **Inclusive Registration Process:** Establish an inclusive and user-friendly registration process for gig workers to access welfare schemes and benefits easily.
- **Skill Development and Training:** Implement skill development and training programs to enhance the employability of gig workers and improve their earning potential.
- **Public Awareness Campaigns:** Conduct public awareness campaigns to educate gig workers about their rights and entitlements under the new legal framework.
- **Collaboration with Aggregator Companies:** Collaborate with aggregator companies to ensure fair treatment and adequate compensation for gig workers, promoting a responsible gig economy.

#### Growing gigs

Construction, manufacturing, retail, transportation and logistics sectors may create around 70 million 'gigable' jobs within 8-10 years.

No. of gig jobs projected (in mn)

Gig workers may service 23.5 million jobs in three to four years

Type of gig roles



Source: Unlocking the Potential of Gig Economy in India Report

#### 5. PM SVANIDHI SCHEME

SOURCE: [PIB](#)

CONTEXT: REVIEW MEETING WAS HELD REGARDING SVANIDHI SCHEME

#### ABOUT PM SVANIDHI SCHEME:

The PM SVANIDHI (Pradhan Mantri Street Vendor's AtmaNirbhar Nidhi) scheme is an initiative launched by the Indian government to support and empower street vendors. The scheme was introduced in June 2020 to mitigate the financial distress faced by street vendors during the COVID-19 pandemic.

#### ADVANTAGES OF SCHEME:

- **Financial Inclusion:** PM SVANidhi scheme promotes financial inclusion by providing street vendors access to
- Formal credit, empowering them to expand their businesses and improve their livelihoods.
- **Boost to Street Vendors:** The scheme offers working capital loans to street vendors, enabling them to maintain and grow their businesses, leading to increased income and economic upliftment.
- **Interest Subsidy:** Under the scheme, beneficiaries are eligible for an interest subsidy, which reduces the cost of borrowing and makes credit more affordable for street vendors.
- **Collateral-Free Loans:** Street vendors can avail of collateral-free loans, making it easier for them to access credit without the burden of providing assets as security.
- **Digital Empowerment:** The scheme encourages the adoption of digital payment systems among street vendors, enhancing their digital literacy and financial capabilities.

**OBJECTIVES OF SCHEME: FIG.1** Describes objectives of scheme

#### PRELIMS SPECIFIC:

**Ministry:** Ministry of Housing & Urban Affairs.

**Implementation agency:** Small Industries Development Bank of India (SIDBI).

**Objective:** Providing affordable Working Capital loans to street vendors to resume their livelihoods that have been adversely affected due to the Covid-19 lockdown.

**Duration of the scheme:** The duration of the scheme initially was until March 2022. It has been extended till December 2024

**Central sector schemes:** schemes with 100% funding by the Central government and implemented by the Central Government machinery.

#### OBJECTIVES OF SCHEME

- [FINANCIAL INCLUSION]
- [EMPOWERMENT OF STREET VENDORS]
- [POVERTY ALLEVIATION]
- [MICRO ENTREPRENEURSHIP]
- [INCLUSIVE GROWTH]

#### LIMITATIONS OF SCHEME:

- **The loan amount is too small.** The maximum loan amount under the PM SVANIDHI Scheme is Rs. 10,000.
- The scheme is **not available to all street vendors.** The scheme is only available to street vendors who are registered with the government.
- The scheme is **not well-publicized.** Many street vendors are not aware of the PM SVANIDHI Scheme.
- The **repayment terms are too short.** The loan under the PM SVANIDHI Scheme has to be repaid within one year. This may be difficult for some street vendors, especially if their businesses are not doing well.
- **Lack of documentation:** Some street vendors may not have the necessary documentation, such as an Aadhaar card or bank account, to apply for the scheme.



**WAY FORWARD:**

- **Coordinate with state governments:** Coordination between the central government and state governments is essential to ensure that the scheme is implemented effectively.
- **Involve banks and financial institutions:** Involving banks and financial institutions in the design and implementation of the scheme would help to ensure that the scheme is accessible to all eligible street vendors.
- **Monitor the scheme:** The PM SVANidhi scheme should be monitored to assess its effectiveness and identify any areas where it can be improved.

**6. MULTIDIMENSIONAL POVERTY**

**CONTEXT: NITI AAYOG REPORT SAYS THAT 13.5 CRORE PEOPLE LIFTED OUT OF MULTIDIMENSIONAL POVERTY.**

**ABOUT MULTIDIMENSIONAL POVERTY INDEX:**

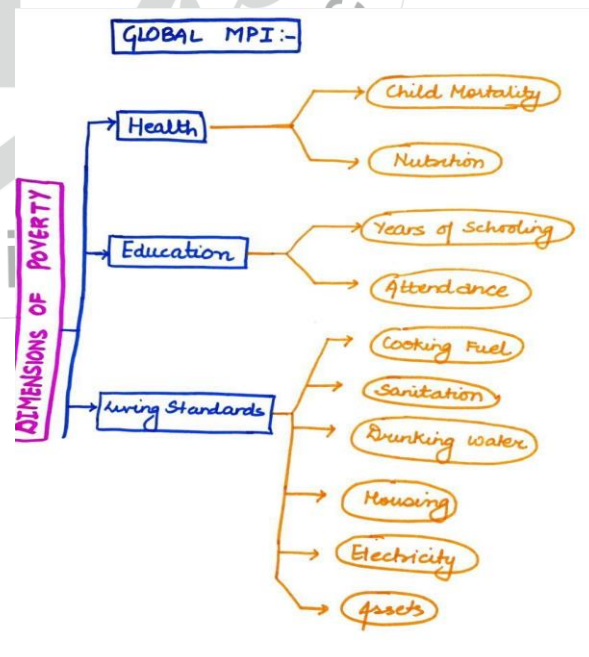
Multidimensional poverty is a measure of poverty that goes beyond income to consider other factors that affect people's well-being, such as health, education, and living standards. It is often used to provide a more comprehensive picture of poverty than traditional measures, which focus solely on income.

The Multidimensional Poverty Index (MPI) was developed by the Oxford Poverty & Human Development Initiative (OPHI) and the United Nations Development Programme (UNDP)

**GLOBAL MPI:** Developed by the Oxford Poverty & Human Development Initiative (OPHI) and the United Nations Development Programme.

**MAIN CAUSES OF POVERTY IN INDIA:**

- **High population growth:** India has one of the highest population growth rates in the world, which puts a strain on resources.
- **Inequality in income distribution:** The richest 10% of Indians control more than 50% of the country's wealth, while the poorest 20% of Indians control less than 5% of the wealth.
- **Low levels of education:** India has a high illiteracy rate, especially among women. This lack of education makes it difficult for people to get good jobs and improve their living standards.
- **Lack of access to basic necessities:** Many Indians lack access to basic necessities such as clean water, sanitation, and healthcare. This makes it difficult for them to live healthy and productive lives.
- **Unemployment and underemployment:** India's economy has not been able to create enough jobs to keep up with the growing population. This has led to high levels of unemployment and underemployment, which trap people in poverty





**WAY FORWARD:**

- **Launch a national employment guarantee scheme:** This would guarantee a job to anyone who is willing to work. This would help to reduce unemployment and underemployment, which are major contributors to poverty.
- **Expand the public distribution system:** This would provide subsidized food to the poor. This would help to improve the nutrition of the poor and reduce their vulnerability to poverty.
- **Invest in rural development:** This would include improving infrastructure, providing rural employment, and promoting agricultural growth. This would help to reduce poverty in rural areas, where most of the poor in India live.
- **Reform the education system:** This would make education more accessible and affordable for the poor. This would help to improve the skills of the poor and make them more employable

**PRELIMS SPECIFIC****Various reports on Poverty**

- **Poverty and Shared Prosperity 2022: Correcting Course** - This report is published by the World Bank.
- **The State of the Poor 2022: Overcoming Inequality and Enabling Prosperity** Brookings Institution.
- **India's Multidimensional Poverty Index 2021** - This report is published by Niti Aayog.
- **The World's Poorest: A New Portrait of Global Poverty** - World Bank

**7. HOW TO REAP THE DEMOGRAPHIC DIVIDEND?****CONTEXT:**

- The editorial focuses on Demographic Dividend, its benefits, challenges in reaping the Demographic dividend and some of the Government initiatives taken.
- The topic forms an important part of the examination and having necessary data and clarity around it is important.

**WHAT IS DEMOGRAPHIC DIVIDEND?**

- Demographic dividend is the economic growth potential that can result from shifts in a population's age structure.
- It occurs when the proportion of working people in the total population is high because this indicates that more people have the potential to be productive and contribute to growth of the economy.
- India's average age is 29 years, whereas the average age in US, China, France, Germany and Japan is 38, 38, 42, 45 and 48 years, respectively.
- India is in a phase where its working-age population is rising and the old-age dependency ratio is coming down. For example, India's old-age dependency ratio will reach 37 per cent in 2075, whereas the same will be 55.8 per cent in France, 75.3 per cent in Japan, 49.3 per cent in the US.
- India is the youngest among the most populous countries in the world.

**WHAT ARE THE BENEFITS OF DEMOGRAPHIC DIVIDEND?**

- **Increase in Economic growth rate** – More people part of productive workforce, more economic activities, higher working-age population and reduced spending on dependent population.
- **Increase in labour force** – more input for labour force, increased competitiveness, can help in bridging manpower shortage.

- **Increase in savings and investment** - Demographic dividends can create an incentive for the working population to save more for their future retirement, which can increase the domestic savings and investment rates. These savings and investments can be used to stimulate the economy and finance various development projects.
- **Increase in human capital** - Demographic dividend can enable higher investment per child in terms of education, health and nutrition, which can enhance the human capital, skills and well-being of the future workforce. This can also improve the quality of life and social outcomes for the population.

#### WHAT ARE THE CHALLENGES OF DEMOGRAPHIC DIVIDEND IN INDIA?

- **Asymmetric Demography** – Growth in the working age group is likely to be concentrated in some of India's poorest states. So, to reap rewards of Demographic dividends these states should have potential to create jobs, Human Resources and financial resources.
- **Lack of employability** – According to Skills India Report 2021, only 45.9% of graduates in India are employable.
- **Huge Skill Gap** – The same report states that only 5% of workforce is formally skilled in India. US – 52%, Japan 80%.
- **Gender inequality** - India has one of the lowest female labour force participation rates in the world, at 23.3% (latest data). This means that a large section of the potential working-age population is not contributing to the economy.
- **Poor performance in Human Development Indicators** – HDI – 130th rank/189 countries. India also lags behind in key nutrition indicators!
- **Rising unemployment**
- **93% of employment** in India is absorbed by the **unorganized sector**, where workers are employed in underpaid jobs. Thus, there is need to upscale many employees in unorganized sector

#### HOW CAN INDIA REAP ITS DEMOGRAPHIC DIVIDEND?

- create better opportunities for existing labour force and new entrant into the labour market improving their productivity. Focus on **skilling, re-skilling and up-skilling of labour force**.
- Need to shift major chunk of the 45.5% of the labour force engaged in agriculture with low and negligible labour productivity to more labour-intensive and productive manufacturing industries such as textiles, toys, footwear and auto components etc.
- Focus on **quality education** and **health facilities** is equally important.
- Address barriers that prevent entry of women in workforce, address issues that limit women's potential.

#### WAY FORWARD TO REAP BENEFITS OF DEMOGRAPHIC DIVIDENDS:

- **Enhance Investment in Children and Adolescents:** India's human capital spending is lagging in Asia. Prioritizing investment in the nutrition and early learning of children and adolescents is essential.
- **Strengthen Health Investments:** Despite economic growth, health spending hasn't kept up.. India's public health expenditure has stagnated at approximately 1% of GDP.
- **Improve Education:** Education plays a vital role in addressing gender disparities. Gender inequality in education needs reversal through policy measures.

- **Promote Employment Generation:** Strategies encompass enhancing social infrastructure, which includes education and health services, as well as addressing credit and technology issues faced by Small Scale Industries (SSI) units.

- **Transform the Informal Sector:** The informal sector employs around 93% of the workforce. Simplifying access to self-employment opportunities during the shift to an organized economic structure is crucial.

- **Boost Female Workforce Participation:** Increasing women's workforce engagement is a priority. Implementing policies for new skills and opportunities can elevate their contribution to the economy.

- **Foster Favourable Business Environment:** Stable policies can encourage investments and job creation.

- **Invest in Emerging Technologies:** India can harness Quantum Technology, Blockchain, Internet of Things, etc., through research, development, and startup support to empower its youth on a global scale.

- **Address State Diversity:** States with varying demographic transitions need tailored strategies. Cooperation among states can tap into demographic diversity.

#### CONCLUSION:

According to the Economic Survey 2018-19, India's demographic dividend will peak around 2041, when the share of working-age (20-59 years) population is expected to hit 59%. Thus, it is important to focus on labour-intensive manufacturing and subsequent structural transformation just like countries like China, Japan, and South Korea did and sustained an almost 10% annual average growth rate.

#### 8. A MACRO-VIEW OF FISCAL HEALTH OF STATES

**News:** Here we will discuss about the fiscal operations of the Indian states and understand the importance of improving state finances to improve country's fiscal situation.

#### BACKGROUND:

- Indian states mobilize over a third of total revenue, spend 60% of combined government expenditure, and have around 40% share in government borrowing.
- The basis of this analysis relies on the data collected from the budgets (2023-24) of 17 major States in India

#### KEY FINDINGS:

- The general government deficit and debt, which increased during the COVID-19 pandemic, has started to recede.
- There have been significant post-pandemic fiscal corrections at the Union and State levels.
- The Union level fiscal deficit declined from 9.1% of GDP in 2020-21 to 5.9% in 2023-24 (BE).
- All-State fiscal deficit was 4.1% of GDP in 2020-21, and it is expected to be 2.9% of GDP for the major States in 2023-24 (BE).

#### FISCAL CHALLENGES FACED BY INDIAN STATES:

- **Lack of Consolidated Fiscal Data:**
- - The absence of aggregated State Budget data prevents a comprehensive view of general government finances.
  - The data is typically accessible only after the Reserve Bank of India (RBI) releases its Annual Study on State Finances, a process that is demanding and time-consuming.
  - Due to this, the RBI's publication timeline falls within the second half of the fiscal year.

➤ **Addressing States' Revenue Deficits:**

- The decline in fiscal deficit hasn't been accompanied by a corresponding decrease in revenue deficit.
- As of 2023-24 (Budget Estimate), among the 17 major States, 13 possess revenue account deficits.
- Within these 13, seven States' fiscal deficits stem mainly from revenue deficits. These States are Andhra Pradesh, Haryana, Kerala, Punjab, Rajasthan, Tamil Nadu, and West Bengal. Additionally, these States exhibit substantial debt to Gross State Domestic Product (GSDP) ratios.

• **Long-Term Fiscal Implications:**

- Several successive Finance Commissions, beginning from the Twelfth Finance Commission, have identified Kerala, Punjab, and West Bengal as fiscally stressed States.
- The increasing role of revenue deficit in driving fiscal imbalance holds significant long-term fiscal consequences.
- Correcting the revenue account imbalance is crucial to mitigate these consequences.

**WAY FORWARD:**

• **Addressing Revenue Deficit:**

- The reoccurrence of revenue deficit can be effectively managed through an incentivized framework.

➤ **Interest-Free Loans:**

**PRELIMS SPECIFIC: FISCAL RESPONSIBILITY AND BUDGET MANAGEMENT (FRBM) ACT:**

**Enactment:** The FRBM Act was established in August 2003.

**Objectives:** Its primary goal is to ensure inter-generational equity in fiscal management and maintain long-term macro-economic stability.

**Central Government's Responsibilities:**

- The Act sets limits on the Central government's debt and deficits.
- It restricts the fiscal deficit to 3% of the GDP.

**State Involvement:**

- The 12th Finance Commission's recommendations in 2004 linked debt relief for States with the enactment of similar laws to ensure financial prudence.
- States subsequently enacted their Financial Responsibility Legislation, capping their annual budget deficits at 3% of Gross State Domestic Product (GSDP).

**Transparency and Medium-Term Framework:**

- The Act promotes transparency in Central government's fiscal operations and guides fiscal policy in a medium-term framework.
- The Union government's Budget incorporates a Medium-Term Fiscal Policy Statement outlining annual revenue and fiscal deficit targets over three years.

**Implementation Rules:**

- The Act's implementation rules were notified in July 2004.
- Amendments were made in 2018, including a recent target of 3.1% for March 2023.

**Recommendations by the NK Singh Committee:** The committee, established in 2016, proposed a fiscal deficit target of 3% of GDP up to March 31, 2020, followed by reductions to 2.8% in 2020-21 and 2.5% by 2023.

- Union Government can provide interest-free loans to States to discourage substituting their own capital expenditures.
- This step also prevents diverting borrowed funds toward revenue-related spending.
- **Fiscal Adjustment Plan:**
  - Implementing a clearly outlined time-bound path alongside a credible fiscal adjustment plan would aid in reinstating fiscal equilibrium.
  - This strategy would enhance expenditure quality.
- **Performance Incentive Grants:**
  - Exploring forward-looking performance incentive grants based on approaches from previous Finance Commissions is advisable.
- **Adherence to FRBM Act:**
  - Meeting the targets set forth in the Fiscal Responsibility and Budget Management Act 2003 (FRBM Act) is essential.

## 9. RBI PANEL RECOMMENDATIONS FOR INTERNATIONALIZATION OF RUPEE

**Why in news?** Reserve Bank of India (RBI) Inter-Departmental Group (IDG) has recommended several measures for Internationalization of rupee.

**Background:** Reserve Bank of India (RBI) had set up an Interdepartmental Group (IDG) under RBI Executive Director Radha Shyam Ratho.

### ABOUT INTERNATIONALIZATION OF RUPEE:

- Internationalization of the rupee is a process that involves increasing the use of the Indian currency in cross-border transactions, such as trade, investment, borrowing and lending.
- It can have various benefits for India, such as reducing the exchange rate risk, enhancing the global role and influence of India, diversifying the sources of funding, and promoting the development of domestic financial markets.



### WHAT ARE THE SHORT-TERM MEASURES SUGGESTED BY COMMITTEE?

- Enabling rupee as an additional settlement currency in existing multilateral mechanisms, such as Asian Clearing Union (ACU), to promote its use in regional trade and payments.
- Integrating Indian payment systems with other countries for cross-border transactions, such as allowing non-residents to open INR accounts in India or abroad, and enabling interoperability between UPI and other payment systems.
- Inclusion of Government Securities (G-Secs) in global bond indices to attract more foreign portfolio investors (FPIs) to the Indian debt market and increase the demand for rupee-denominated assets.
- Providing equitable incentives to exporters for rupee trade settlement, such as allowing them to retain a higher percentage of their export proceeds in INR accounts or offering them concessional interest rates on pre-shipment or post-shipment credit in INR.

### WHAT ARE THE LONG-TERM MEASURES?

- **Reviewing taxes on Masala bonds** (rupee-denominated bonds issued outside India by Indian entities) to make them more attractive for issuers and investors.



- **International use of Real Time Gross Settlement (RTGS)** system for cross-border trade transactions to reduce transaction costs and time lag.
- Allowing banking services in rupee outside India through offshore branches of Indian banks or foreign banks.
- **Inclusion of the rupee in Special Drawing Rights (SDR)** basket of the International Monetary Fund (IMF).
- Examining taxation issues in financial markets to harmonize tax regimes of India and other financial centers. For example, rationalizing securities transaction tax (STT) or stamp duty on financial transactions to make them more competitive with other jurisdictions.

#### ADVANTAGES OF RUPEE INTERNATIONALIZATION:

- **Enhanced Currency Value:** The internationalization of the rupee will bolster its desirability in global trade. This could result in heightened convenience and decreased transaction expenses for entities and individuals engaged in transactions involving India.
- **Diminished Fluctuations in Exchange Rates:** The process of making a currency international often leads to greater stability in its exchange rate. The heightened global demand for the currency can contribute to reducing its volatility, rendering it more foreseeable and dependable for worldwide transactions.
- **Geopolitical Benefits:** The global acceptance of the Rupee can amplify India's geopolitical influence. This move can fortify economic connections with other nations, facilitate mutual trade accords, and foster diplomatic relationships.

#### CHALLENGES:

- **Limited Global Demand:** The rupee's daily average participation in the worldwide foreign exchange market stands at a mere 1.6%. In comparison, India's portion of global merchandise trade is approximately 2%.
- **Concerns Regarding Convertibility:** The INR lacks full convertibility, leading to limitations on its usage for specific purposes such as capital transactions. This hampers its widespread adoption in international trade and financial activities.
- **Effects of Demonetization:** The 2016 demonetization initiative and the recent discontinuation of the ₹2,000 note have adversely affected confidence in the rupee, especially in neighbouring countries like Bhutan and Nepal.
- **Complications in Trade Settlement:** Despite attempts to engage in transactions with about 18 nations using the rupee, trade activities have remained restricted. Furthermore, negotiations with Russia to finalize trade settlements in rupees have been sluggish, impeded by concerns over currency depreciation and inadequate awareness among traders.

#### WAY FORWARD:

- **Full Convertibility and Trade Settlement:** facilitating unrestricted movement of financial investments between India and other nations.
- **Developing a Liquid Bond Market:** The RBI should prioritize the development of a more liquid market for rupee bonds, offering investment opportunities for foreign investors and trading partners.
- **Expanding the RTGS System:** The Real-Time Gross Settlement (RTGS) system should be extended to include international transaction settlement. Moreover, granting tax incentives to foreign businesses utilizing the rupee within India would stimulate its utilization.
- **Currency Swap Agreements:** Increasing currency swap agreements, similar to those established with Sri Lanka, would facilitate trade and investment dealings in rupees. Ensuring

consistent and predictable currency issuance and retrieval, coupled with a stable exchange rate framework, is crucial for maintaining confidence.

- **Incorporation into the SDR Basket:** Efforts should be made to include the rupee in the Special Drawing Rights (SDR) basket. Additionally, incorporating Indian Government Bonds (IGBs) into global indices would attract foreign investments into the Indian debt markets.
- **Drawing Lessons from China's Experience:** India can learn from China's strategy in internationalizing the Renminbi: Gradual Approach: Similar to China, India could adopt a phased approach, initially enabling the use of the Rupee for current account transactions and specific investment transactions before progressing towards its role as a reserve currency.
- **Establishment of Offshore Markets:** Emulating China's creation of offshore markets like the Dim Sum bond and offshore RMB bond market could aid the internationalization process.

## 10. CRITICAL MINERALS FOR INDIA

**CONTEXT:** Recently, the first-ever report of the country on "Critical Minerals for India", prepared by an expert team constituted by the Ministry of Mines was released.

### ABOUT CRITICAL MINERALS:

- Critical minerals are minerals that are essential for the economic development and national security of a country but have limited availability and high supply risks.
- Different countries have identified their own lists of critical minerals based on their specific needs and priorities. For example, the US has 35 critical minerals, the EU has 30, Australia has 24 and Japan has 31.

### WHAT ARE CRITICAL MINERALS FOR INDIA?

- Expert Committee under the Ministry of Mines has identified a set of 30 critical minerals for India.
- The list comprises 30 minerals, including 17 rare earth elements (REEs) and six platinum group elements (PGE), each designated as critical based on their economic importance and limited availability in India's geological reserves.
- Some of the minerals are antimony, beryllium, bismuth, cobalt, copper, gallium, germanium, graphite, hafnium, indium, lithium, molybdenum, niobium, nickel, PGE, phosphorous, potash, REE, rhenium, silicon, strontium, tantalum, tellurium, tin, titanium,

Elements identified by Committee	High EI	High SR	Both High	Elements identified by Committee	High EI	High SR	Both High
1. Copper	Orange			18. Gallium			Green
2. Cobalt			Green	19. Niobium			Green
3. Graphite			Green	20. Tungsten			Green
4. Lithium			Green	21. Magnesium			Green
5. Nickel			Green	22. Hafnium			Green
6. PGE			Green	23. Strontium			Green
7. REE		Blue		24. Boron			Green
8. Silicon	Orange			25. Manganese			Green
9. Tellurium	Orange			26. Bismuth		Blue	
10. Tin			Green	27. Germanium		Blue	
11. Titanium	Orange			28. Indium		Blue	
12. Phosphorous			Green	29. Tantalum		Blue	
13. Potash	Orange			30. Vanadium		Blue	
14. Zirconium	Orange			31. Rhenium		Blue	
15. Molybdenum	Orange			32. Selenium	Orange		
16. Antimony			Green	33. Cadmium	Orange		
17. Beryllium			Green				

■ High Economic Importance  
■ High Supply Risk  
■ High Economic Importance as well as High Supply Risk

tungsten, vanadium, zirconium, selenium, and cadmium.

#### WHAT IS THE IMPORTANCE OF CRITICAL MINERALS FOR INDIA?

- Critical minerals are required to meet the **manufacturing needs of green technologies**, such as zero emission vehicles, wind turbines, solar panels and hydrogen.
- Critical minerals are also vital for **information and communication technologies**, such as semiconductors, high-end electronics, telecommunications and digital infrastructure.
- Critical minerals are also key for **advanced manufacturing inputs and materials**, such as defence applications, permanent magnets, ceramics, alloys and superconductors.
- These materials are important for India to **strengthen its national security and strategic capabilities** in sectors like defence, space and nuclear energy.

#### WHAT ARE THE CHALLENGES INDIA FACES IN SECURING SUPPLY OF CRITICAL MINERALS?

- It is largely dependent on imports from other countries, especially China.
- India also lacks adequate exploration, mining, processing and recycling capacities for critical minerals.
- India has limited reserves for critical minerals and over-reliance on imports comes with cost of increased price fluctuations, supply chain disruptions and geopolitical concerns.
- However, India can look to diversify our source of supply of minerals from different countries. India's recent agreement with US over joining Minerals supply partnership is a right step and bilateral agreements can be made with countries (Australia, Chile, South Africa) who have rich reserves of critical minerals.

#### Which minerals are listed as 100% import-dependent?

Lithium cobalt, nickel, vanadium, niobium, germanium, rhenium, beryllium, tantalum, and strontium.

#### WHAT RECOMMENDATIONS WERE GIVEN BY COMMITTEE?

- Set up a national institute or a centre of excellence for critical minerals
- A wing in the Ministry of Mines can be established as a Centre of Excellence for Critical Minerals (CECM).
- The centre of excellence collaborates with international agencies or Khanij Bidesh India Ltd (KABIL) for the strategic acquisition of foreign assets of critical minerals.
- CECM will also periodically update the list of critical minerals for India.

#### CRITICAL MINERALS: INDIA'S NET IMPORT RELIANCE (2020)

Critical Mineral	%age	Major import sources
Lithium	100%	Chile, Russia, China, Ireland, Belgium
Cobalt	100%	China, Belgium, Netherlands, US, Japan
Nickel	100%	Sweden, China, Indonesia, Japan, Philippines
Vanadium	100%	Kuwait, Germany, South Africa, Brazil, Thailand
Niobium	100%	Brazil, Australia, Canada, South Africa, Indonesia
Germanium	100%	China, South Africa, Australia, France, US
Rhenium	100%	Russia, UK, Netherlands, South Africa, China
Beryllium	100%	Russia, UK, Netherlands, South Africa, China
Tantalum	100%	Australia, Indonesia, South Africa, Malaysia, US
Strontium	100%	China, US, Russia, Estonia, Slovenia
Zirconium (zircon)	80%	Australia, Indonesia, South Africa, Malaysia, US
Graphite (natural)	60%	China, Madagascar, Mozambique, Vietnam, Tanzania
Manganese	50%	South Africa, Gabon, Australia, Brazil, China
Chromium	2.5%	South Africa, Mozambique, Oman, Switzerland, Turkey
Silicon	<1%	China, Malaysia, Norway, Bhutan, Netherlands

Source: 'Unlocking Australia-India Critical Minerals Partnership Potential', Australian Trade and Investment Commission, July 2021

## 11. WORLD COIN: A CRYPTOCURRENCY

### CONTEXT:

The CEO of OpenAI, Sam Altman, has reintroduced Worldcoin, a project initially overshadowed by the popularity of ChatGPT. The project involves users getting their irises scanned or becoming "Orb operators" to scan irises, creating a World ID that allows them to claim the WLD cryptocurrency for transactions.

### ABOUT WORLD COIN:

- Worldcoin is an initiative to create a digital network where everyone can claim a stake and participate in the global digital economy.
- The project aims to provide a World ID, a **unique identifier**, to individuals by scanning their **iris patterns** through a device called "**Orb**."
- Worldcoin is designed to be an open network accessible to people worldwide.

#### PRELIMS SPECIFIC: WHAT IS CBDC?

- The RBI's CBDC pilot in the retail segment utilizes blockchain technology.
- CBDCs are digital versions of paper currency and differ from unregulated cryptocurrencies, as they are legal tender issued and supported by a central bank.
- CBDCs are equivalent to fiat currency and can be exchanged on a one-to-one basis with physical currency.
- Digital currency, also referred to as the digital rupee or e-rupee, represents the digital form of the Indian rupee.

### HOW DOES WORLD COIN WORK?

- Worldcoin users can engage in the network through iris scanning or by becoming "**Orb operators**" who scan others' irises.
- Orb operators, as volunteers, undergo basic training and are provided with a biometric device to scan irises. They can even rent out the Orb for scanning purposes.
- Upon obtaining a **World ID** via iris scanning, individuals become eligible to claim **WLD crypto**, a token based on the **Ethereum blockchain**.
- Users can utilize WLD for transactions or investment purposes. Moreover, WLD can be bought or sold independently without undergoing the iris scanning process.
- Orb operators are rewarded with WLD incentives for enrolling more people into the Worldcoin network.

### CHALLENGES & CRITICISM:

- Worldcoin encounters challenges related to the **availability of the Orb** and the expansion of its user base.
- To encourage registrations, the project intends to provide incentives such as coupons or access to loans.
- Worries revolve around the **privacy and security** of biometric data and the **risk of potential misuse**.
- The **feasibility and scalability** of reaching unbanked or underbanked populations are questioned.



- The value and practicality of the Worldcoin token, as well as its **competitiveness** compared to other cryptocurrencies or fiat currencies, are also under scrutiny.

#### LEGAL STATUS OF CRYPTOCURRENCY IN INDIA:

- The legal status of cryptocurrency in India is currently uncertain.
- The RBI has cautioned against using cryptocurrencies, citing investor risks and their non-recognition as legal tender.
- In 2018, the Supreme Court overturned an RBI circular that prohibited financial institutions from dealing with digital or cryptocurrencies.
- As of 2022, the Government of India has proposed a **30% tax deduction on the transfer of virtual currency/cryptocurrency assets in the Union budget 2022-23.**
- The government has also established a panel to investigate blockchain technology's potential applications and the feasibility of introducing a **Central Bank Digital Currency (CBDC).**

#### COCERNS AND CHALLENGES OVER CRYPTOCURRENCY:

- **Volatility:** Cryptocurrencies are highly volatile, meaning that their prices can fluctuate wildly. This can make them a risky investment.
  - Eg: - In 2017, the price of Bitcoin rose from \$900 to over \$20,000. This was a massive increase in a short period of time, and it made Bitcoin a very risky investment.
- **Fraud:** There have been a number of cases of fraud involving cryptocurrencies. Eg: - in 2017, a group of scammers stole over \$2 billion worth of Bitcoin from investors.
- **Illicit activity:** Cryptocurrencies have been used for illicit activity, such as money laundering and drug trafficking.
  - Eg: - In 2020, the Financial Action Task Force (FATF) warned that cryptocurrencies could be used to finance terrorism.
- **Lack of regulation:** This can make it difficult for investors to protect themselves from fraud and other risks.
- **Technological and Security Risks:** Cryptocurrencies' reliance on technology exposes them to potential vulnerabilities, such as hacking and cyberattacks, leading to loss of funds and user data.

#### WAY FORWARD:

- **Establish Clear Regulations:** Develop unambiguous and tailored regulations specifically for cryptocurrencies to provide legal certainty.
- **Prioritize Consumer Protection:** Implement measures to combat fraud, scams, and protect investors in the cryptocurrency market.
- **Mitigate Risks:** Conduct risk assessments and develop strategies to address financial stability, systemic risks, and vulnerabilities associated with cryptocurrencies.
- **AML and KYC Compliance:** Enforce strict adherence to Anti-Money Laundering (AML) and Know Your Customer (KYC) norms.
- **Foster International Cooperation:** Collaborate with international bodies and other jurisdictions to create standardized regulations.
- **Implement Regulatory Sandboxes:** Use regulatory sandboxes for controlled testing of new cryptocurrency products and services.
- **Promote Financial Education:** Educate the public about cryptocurrencies to empower informed decision-making.



## ENVIRONMENT & GEOGRAPHY

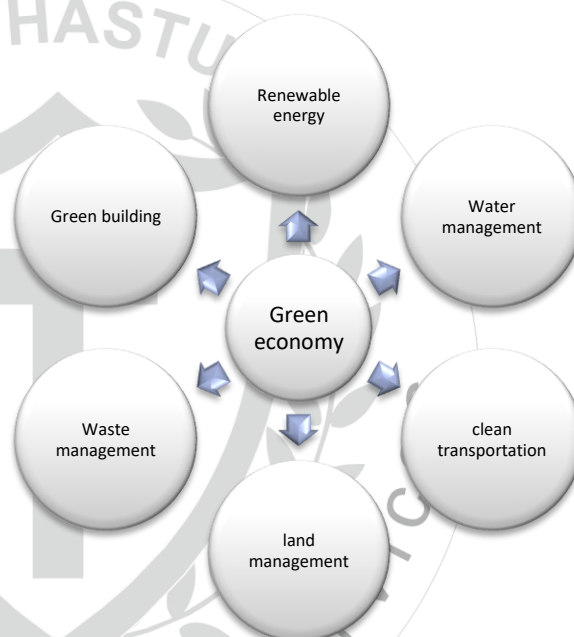
### CLIMATE CHANGE

#### 1. FINANCING THE GREEN TRANSITION

**WHY IN NEWS?** - “Financing the Green Transition” is the cornerstone of the global shift towards sustainability. At the Paris Finance Summit, world leaders addressed the financial disparities impeding this transition, particularly for developing nations. The editorial is covered in context of recently concluded ‘Global Financial Pact on Climate Change’ in Paris.

#### WHAT IS GREEN TRANSITION?

- The green transition is a general concept of moving from a carbon-based economy to a more sustainable economy. Many organizations, countries and businesses are pursuing a green transition in order to align with the global decarbonization goals of 2030 and 2050.
- The key elements of the green transition include – shift to renewable energy, energy efficiency, sustainable transportation, sustainable agriculture and forestry, circular economy, and green infrastructure.



#### WHAT IS THE NEED FOR GREEN TRANSITION?

- It is key to **tackling Climate change** and creating **sustainable economies**.
- **Renewable energy is now the cheapest form of energy**, and capacity is set to rise significantly over the next few decades.
- The energy transition offers a great window of opportunity for **economic well-being, employment and social development**.
- The **finite nature of fossil fuels** and their impending depletion necessitate the shift towards renewable energy sources.
- **Air pollution**, primarily caused by burning fossil fuels, is causing a public health crisis, with millions of premature deaths each year.
- The **alarming rate of biodiversity loss**, as highlighted in the “Global Assessment Report on Biodiversity and Ecosystem Services”, demands an immediate shift towards more sustainable practices.

#### WHAT STEPS HAVE BEEN TAKEN BY INDIA IN ITS QUEST FOR GREEN TRANSITION?

- In 2019, India announced that it would take up its installed capacity of renewable energy to 450 GW by 2030.



- India, as a developing nation with growing energy demands, has set a goal of **achieving net-zero emissions by 2070**.
- In the Budget 2023-24, the government identified “**Green Growth**” as one of its **Saptrishi priority**.
- **National Bank for Financing Infrastructure and Development (NaBFID)** – which looks after financing infrastructure needs emphasizes on Sustainable and climate-resilient development.
- The **Reserve Bank of India** has introduced guidelines for banks and Non-Bank Financial Companies (NBFCs) to accept “**green deposits**”. These funds are allocated towards **environmentally sustainable projects**, such as energy efficiency, clean transportation, sustainable water and waste management etc.
- The Indian government has authorized **100% annual Foreign Direct Investment (FDI)** for **renewable power generation** and distribution projects.

#### WHAT ARE INITIATIVES TAKEN AT GLOBAL LEVEL?

- **Role of Multilateral Development Banks** – Announced for additional lending capacity of \$200 billion for emerging economies at the summit.
- **World Bank** – It supported pausing loan repayments for countries struggling with climate disasters.
- The **IMF** announced **Special Drawing Rights (SDR) of \$ 100 billion to Global South**.
- There was significant support for the **imposition of taxes on polluting industries** such as shipping.
- The **European Union** unveiled a call to action on ‘**Paris Aligned Carbon Markets**’ with a goal of covering at least 60% of global emissions with carbon pricing mechanisms and allocating a proportion of revenues to climate finance.

#### WAY FORWARD:

- As far as India is concerned, we must frame regulations that are friendly for private investors who are willing to invest in renewable energy projects.
- Tap the potential options through Green Climate Fund and Global Environment facility.
- Upgrading India’s technological capabilities is key to making the green transition cost-effective.

## 2. SOLAR GEOENGINEERING

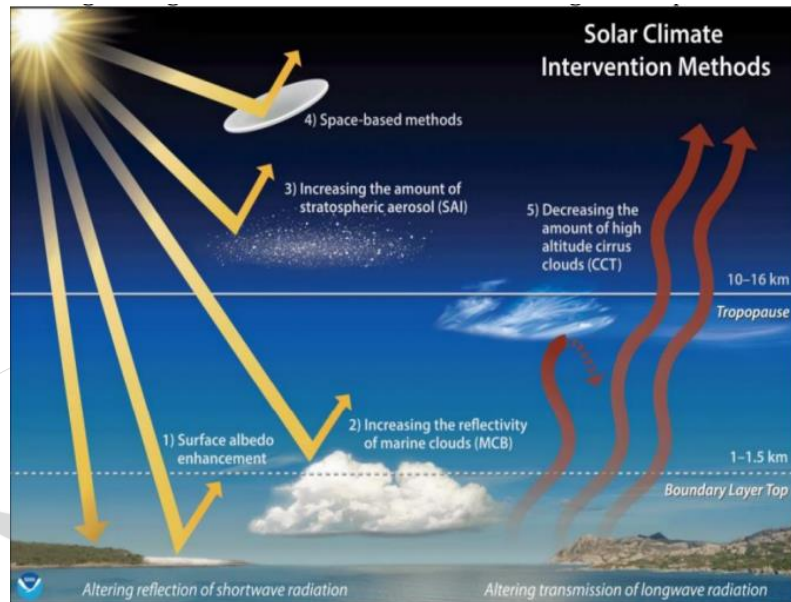
**News:** The United States is eyeing a controversial tool to counter global warming: Solar radiation management (SRM), which involves reflecting a small fraction of sunlight into space.

**SOURCE:** [TH](#)

**Background:** In a report released June 30, 2023, the White House stated that public or private actors could carry out activities such as injecting aerosols and brightening marine clouds to reflect more sunlight into space.

#### WHAT IS SOLAR GEOENGINEERING?

- Solar geoengineering is a type of climate engineering that aims to reflect some sunlight back into space to limit or offset human caused climate change.
- There are different methods of solar geoengineering, such as stratospheric aerosol injection (SAI), which involves injecting tiny particles into the upper atmosphere, and marine cloud brightening (MCB), which uses sea salt to stimulate cloud formation over the ocean.
- Solar geoengineering is not a substitute for reducing greenhouse gas emissions, but a possible temporary measure to limit warming while emissions are reduced and carbon dioxide is removed.



#### WHAT ARE THE BENEFITS OF SOLAR GEOENGINEERING?

- **Reducing climate changes around the globe**, such as extreme temperatures, changes in water availability, and intensity of tropical storms.
- Offsetting some of the warming from a doubling of CO<sub>2</sub>.
- Cooling the poles more than the tropics, and thus slowing or stopping ice loss.
- **Being affordable and feasible** compared to other climate interventions.
- Lowering Earth's global temperature and offsetting the costs of global warming

#### WHAT ARE RISKS OF SOLAR GEOENGINEERING?

- **Shifts in weather patterns** and creation of droughts in some regions due to changes in precipitation and atmospheric circulation
- **Lower crop yields and hunger** due to a less-intense sun, which could affect photosynthesis and plant growth.
- Possibility of catastrophic heat wave across the world if the spraying of aerosols is stopped abruptly, leading to a rapid rise in temperature
- **Intensification of ozone depletion** due to the interaction of aerosols with stratospheric chemistry.
- **Threats to national security** and international stability due to the unequal distribution of benefits and harms, as well as the potential for unilateral or rogue actions.



- Challenges related to issues of **environmental justice and equity**, such as who gets to decide, monitor, and regulate solar geoengineering, and who bears the costs and risks

## Ways to engineer a cooler planet

Scientists are publicly contemplating last-ditch efforts to slow climate change, ranging from forests of artificial trees that would reduce carbon dioxide in the atmosphere to trillions of small disks in space that would act as an umbrella to block the sun's heat.

**High-altitude balloon**  
Submicrometer sulfate particles would last up to two years in the stratosphere.

**VOLCANO EFFECT**  
**Proposal:** Use balloons, jet engines, and artillery to put millions of tons of sulfates into the stratosphere to mimic the cooling effects of a volcanic eruption.  
**Problems:** Expensive; tens of thousands of pounds needed per month to produce enough cooling; no effect on carbon dioxide; could cause drying of the Mediterranean and the Middle East.

**ARTIFICIAL TREE**  
**Proposal:** Use industrial-size artificial trees to filter 90,000 tons of carbon dioxide from the air each year. Each tree could filter 6.6 pounds of CO<sub>2</sub> per second.  
**Problems:** Separation, transportation, and disposal costs are high; leakage a risk to humans, ecosystems.

**SOLAR UMBRELLA**  
**Proposal:** In 20 million launches, deploy 16 trillion refracting disks in orbit between Earth and the sun.  
**Problems:** Cost could be \$4 trillion; no effect on carbon dioxide.

One-ton payload of 800,000 fliers deployed over one year.

The disks would block 1.8 percent of solar flux.

Configuration

CO<sub>2</sub> is captured from air

197 feet

Pivots

Resulting sodium carbonate is dissolved and flushed through tree.

CO<sub>2</sub> is then transported to processing center and stored underground.

Drawings are schematic

## CONSERVATION EFFORTS

### 3. CORAL BLEACHING

**WHY IN NEWS:** The Australian Institute of Marine Science (AIMS) reported that the coral reef cover in Australia's northern and central Great Barrier Reef has experienced substantial growth over a 36-year period.

#### KEY HIGHLIGHTS OF THE REPORT:

##### 1. Quick Recovery:

- Reef systems show resilience and can recover after disturbances like heat stress, cyclones, and predatory attacks.

##### 2. Record Coral Cover:

- Northern and central Great Barrier Reef areas exhibit the highest-ever recorded levels of coral cover since the first AIMS survey.
- Coral cover measured by assessing the increase in hard corals.

##### 3. Growth in Central & Northern Regions:

- Hard coral cover in the northern GBR reached 36%, and in the central region, it reached 33%.
- However, the southern region experienced a decline, from 38% in 2021 to 34% in 2022.

#### 4. Dominance of Acropora Corals:

- The recovery is driven by an increase in fast-growing Acropora corals, which are dominant in the Great Barrier Reef.
- Acropora corals are susceptible to environmental pressures, such as rising temperatures, cyclones, pollution, and crown-of-thorn starfish attacks.

#### 5. Fewer Natural Calamities:

- The recent recovery in some reef areas is attributed to lower levels of acute stressors in the past 12 months.
- Factors include the absence of tropical cyclones, reduced heat stress in 2020 and 2022 compared to 2016 and 2017, and fewer crown-of-thorn starfish outbreaks.

### ISSUES HIGHLIGHTED BY THE REPORT:

#### 1. Climate Change Threat:

- The main concern for the reef's health is climate change-induced heat stress, leading to coral bleaching.
- Despite global initiatives, sea temperatures are expected to rise by 1.5°C to 2°C by the end of the century.
- The United Nations' 2021 assessment warns that the world is approaching 1.5°C heating in the next decade, leading to more frequent bleaching with reduced recovery.

##### CRYOMESH TECHNOLOGY

Cryomesh is an innovative mesh designed specifically for cryopreservation purposes. It is lightweight and cost-effective, making it an ideal substrate for preserving coral. This technology mimics the properties of cryoplates and enables the storage of coral larvae at an incredibly low temperature of -196°C (-320.8°F).

##### BIOROCK TECHNOLOGY

Biorock Technology' is a technique that utilizes gentle, low voltage electrical currents passed through seawater to trigger the crystallization of dissolved minerals on structures, leading to the growth of a white limestone (CaCO<sub>3</sub>) similar to the natural composition of coral reefs and tropical white sand beaches.

#### 2. Frequent Mass Bleaching:

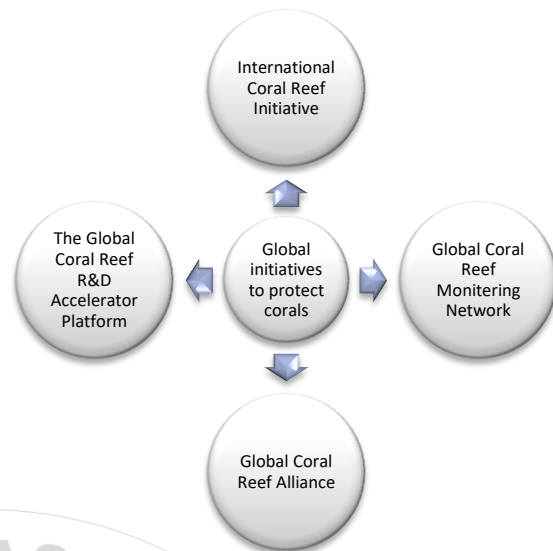
- Mass bleaching events have become more common in recent times. - The first event occurred in 1998 due to the El Niño weather pattern, causing 8% of the world's coral to die.
- The second event happened in 2002, but the most damaging event occurred from 2014 to 2017.
- AIMS aerial surveys revealed that 45 out of 47 surveyed reefs experienced coral bleaching, leading to reduced growth and reproduction though not causing immediate coral death.

### CAUSES OF CORAL BLEACHING:

- **Sea temperature increases** can damage corals, particularly as many species thrive near their temperature limits. El Nino events worsen this by causing temperature spikes, harming coral reefs.



- **Rising carbon dioxide levels** lead to **ocean acidification**, hindering corals' ability to form vital calcareous skeletons.
- Disruptions in weather patterns reduce cloud cover, exposing corals to higher solar and ultraviolet radiation, triggering coral bleaching.
- **Infectious microorganisms like vibrio shiloi** disrupt coral health, especially with rising sea temperatures.
- **Chemical pollution** stimulates competition for space as increased nutrients boost phytoplankton growth.
- **Deforestation and coastal development** cause sedimentation, suffocating corals and impacting their growth.
- **Human activities** like overfishing, pollution, coral extraction, and industrial development further threaten coral ecosystems.



#### WAY FORWARD:

- Addressing the preservation of coral's future must extend beyond social, economic, and cultural boundaries.
- **Stopping haphazard coastal development** would play a crucial role in reversing reef degradation in certain areas.
- Promoting **sustainable fishing** and creating ecotourism opportunities can contribute to coral conservation.
- The **use of chemically enhanced fertilizers, insecticides, pesticides, and herbicides should be minimized** due to their non-biodegradability and harmful effects on corals.
- **Industrial waste** that poses a threat **should be treated** before disposal into water bodies.
- **Preventing water pollution** is vital, with the avoidance of chemical and oil dumping into aquatic environments.
- All feasible actions to mitigate worsening global warming are essential, as climate change stands as the paramount global threat to coral reef ecosystems.

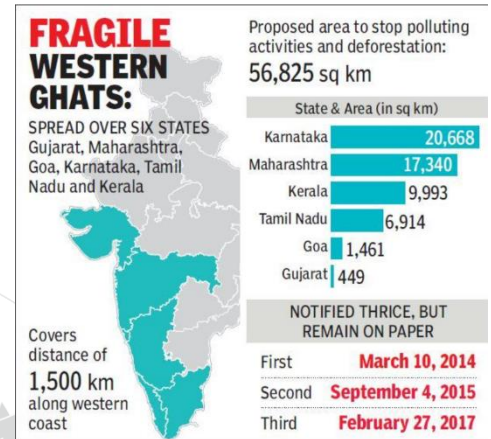
#### 4. CONSERVATION OF WESTERN GHATS: MADHAV GADGIL & KASTURIRANJAN REPORTS

##### WHY IN NEWS?

A recent landslide in Maharashtra's Raigad district resulted in the loss of 27 lives, complete destruction of a village, and raised concerns about preserving the Western Ghats. In a Maharashtra Assembly discussion, the state congress chief questioned the status of the Madhav Gadgil Committee report on ecologically sensitive zones in the Western Ghats.

##### ABOUT WESTERN GHATS - A BRIEF BACKGROUND:

- The Western Ghats harbour high mountain forests, playing a crucial role in moderating the tropical climate and showcasing an **exemplary monsoon system**.
- Unfortunately, human activities like deforestation for tea, coffee, and teak plantations have significantly fragmented the forest cover in the Western Ghats.
- In response, the Union Environment Ministry appointed the **Western Ghats Ecology Expert Panel (WGEEP) in 2010**, with **Dr. Madhav Gadgil**, an ecologist, as its chair.
- The Gadgil commission was tasked with assessing the impact of population pressure, climate change, and development activities on the Western Ghats, and its report was submitted to the Centre in 2011.



##### RECOMMENDATIONS OF WGEEP / Dr. MADHAV GADGIL COMMITTEE:

1. **Ecologically Sensitive Zones (ESZs):** demarcation of **Ecologically Sensitive Zones** in the Western Ghats, comprising areas with high ecological significance, to be designated as "**No-Go**" zones for certain activities.
2. **Regulatory Framework:** The WGEEP recommended the establishment of a comprehensive regulatory framework to ensure sustainable development and conservation in the Western Ghats region.
3. **Land Use Planning:** The panel emphasized the need for strict land use planning, restricting activities like mining, deforestation, and large-scale construction in ecologically sensitive areas.
4. **Conservation and Community Participation:** The report highlighted the importance of involving local communities in conservation efforts and **promoting community-based eco-restoration projects**.
5. **Biodiversity Protection:** The panel suggested measures to safeguard the rich biodiversity of the Western Ghats, including the protection of endangered species and habitats.
6. **Climate Change Mitigation:** The WGEEP stressed the importance of addressing climate change impacts on the Western Ghats region and implementing measures to enhance resilience.
7. **Water Resource Management:** The report recommended **sustainable water resource** management practices to maintain the ecological balance of the region.
8. **Environmental Impact Assessment (EIA):** The panel suggested **strengthening the EIA process** for development projects in the Western Ghats, ensuring thorough scrutiny and adherence to environmental norms.

### RECOMMENDATIONS OF KASTURIRANGAN-LED PANEL:

1. **Zoning Approach:** The panel proposed a zoning approach (red, orange & green category) to classify areas based on their ecological sensitivity, with varying levels of restrictions on developmental activities.
2. **No-Go Areas:** The HLWG recommended that only the most **ecologically sensitive areas, covering about 37% of the Western Ghats**, should be classified as No-Go areas, where certain **activities like mining and thermal power plants should be prohibited**.
3. **Regulated Development:** The panel suggested that **about 60% of the region should be designated as the ESA** (Ecologically Sensitive Area), where certain developmental activities are subject to stringent regulations and clearance procedures.
4. **Cultural Landscape:** The report recognized the cultural and historical significance of some areas in the Western Ghats and proposed a separate category for such regions, where sustainable development can be allowed.
5. **Local Participation:** The panel stressed the importance of involving local communities in conservation efforts and encouraged community-based initiatives for ecological restoration.
6. **Green Fund:** The HLWG recommended the establishment of a **Green Fund to provide financial support** for conservation activities in the Western Ghats.
7. **Sustainable Livelihoods:** The report emphasized the need to promote sustainable livelihood options for local communities that are in harmony with the ecological balance of the Western Ghats.

### PRELIMS SPECIFIC:

- The Western Ghats, spanning an **area of 160,000 sq Km** and extending for 1,600 Km along the western coast of the Indian peninsula, passes through the states of **Gujarat, Maharashtra, Goa, Karnataka, Kerala, and Tamil Nadu**.
- This mountain range is a **UNESCO World Heritage Site** and is recognized as **one of the 36 biodiversity hotspots worldwide**.

### WAY FORWARD:

- **Strengthen ESA Protection:** Enforce strict regulations and monitoring to safeguard identified Ecologically Sensitive Areas.
  - E.g., buffer zones around national parks.
- **Reforestation and Afforestation:** Launch large-scale tree planting projects to restore degraded areas and create wildlife corridors.
  - E.g., Kerala's "Haritha Keralam Mission."
- **Sustainable Agriculture:** Promote eco-friendly farming techniques.
  - E.g., organic farming, to protect soil health and coexist with the ecosystem.
- **Community Participation:** Involve local communities in conservation efforts and raise awareness about biodiversity importance.
- **Ecosystem-based Planning:** Integrate conservation principles into development plans, e.g., avoiding disruptions to critical habitats.
- **Wildlife Corridor Creation:** Establish safe passages for animal movement between protected areas.
  - E.g., Karnataka's "Project Elephant."
- **International Cooperation:** Collaborate with neighbouring countries and international organizations for cross-border conservation challenges,
  - E.g., UNESCO's support for World Heritage Site management.

Implementing these strategies with active stakeholder engagement can lead to effective conservation of the Western Ghats' unique biodiversity and ecological significance

## 5. FOREST CONSERVATION AMENDMENT BILL

SOURCE: TH

### CONTEXT: LOK SABHA PASSES FOREST AMENDMENT BILL

### HIGHLIGHTS OF BILL

- Applies to specific types of land which includes land that has been declared as a forest under **The Indian Forest Act, 1927**, or in government records after the 1980 Act was implemented. However, the Act will not apply to land that was converted for non-forest purposes **before December 12, 1996**.
- Excludes specific types of land from the scope of the Act including land within 100 km of India's border required for national security projects, small roadside facilities, and public roads leading to a settlement.
- State government needs permission from the central government before giving forest land to a private company.
- Specifies some activities that can be carried out in forests, such as establishing check posts, fencing, and bridges, running zoos, safaris and eco-tourism facilities.

#### PRELIMS SPECIFIC:

FEATURES	RESERVED FOREST	PROTECTED FOREST
<b>Purpose</b>	To protect the forest's natural resources, such as timber and wildlife	To protect the forest's natural resources and to provide a habitat for wildlife
<b>Activities allowed</b>	Lumbering, grazing, and hunting are banned	hunting and lumbering are banned
<b>Management</b>	Managed by the Forest Department	Managed by the Forest Department, but local communities may have some involvement in management decision
<b>Status</b>	More than half of the forest area in India is reserved forest	About one-third of the forest area in India is protected forest.

#### KEY FEATURES OF THE BILL:

- 1. Land under the purview of the Act:** The Bill provides that two types of land will be under the purview of the Act:
  - a. Land declared/notified as a forest under **the Indian Forest Act, 1927** or under any other law.
  - b. Land not covered in the first category but notified as a forest on or after October 25, 1980 in a government record.
  - c. Act will not apply to land changed from forest use to non-forest use on or before **December 12, 1996** by any authority authorised by a state/UT.
- 2. Exempted categories of land:** Such as **forest land along a rail line or a public road** maintained by the government. **Forest land exempted includes:**
  - a. Land **situated within 100 km from international borders, Line of Control, or Line of Actual Control, for construction of a strategic linear project of national importance** and concerning national security.
  - b. Land up to **10 hectares, for constructing security-related infrastructure.**

- c. Land proposed to be used for constructing defence related projects, camps for paramilitary forces, or public utility projects up to five hectares in a left-wing extremism affected area.
3. **Leasing of forest land:** The new Bill extends the requirement for approval from the central government before assigning forest land to any entity, whether it is government-owned or not. The central government will also set the terms and conditions for such approvals.
  4. **Permitted activities in forest land:** The Act lists activities exempted from non-forest purposes, meaning **they are allowed on forest land**. These activities involve conserving, managing, and developing forests and wildlife, like setting **up check posts, fire lines, fencing, and wireless communication**. Bill adds more activities to this list such as:
    - (i) zoos and safaris under the Wild Life (Protection) Act, 1972 owned by the government or any authority, in forest areas other than protected areas,
    - (ii) ecotourism facilities,
    - (iii) Silvicultural operations (enhancing forest growth), and
    - (iv) Any other purpose specified by the central government.
    - (v) The central government may specify terms and conditions to exclude any survey (such as exploration activity, seismic survey) from being classified as non-forest purpose.
  5. **Power to issue directions:** The Bill adds that the central government may issue directions for the implementation of the Act to any authority/organisation under or recognised by the centre, state, or union territory (UT).

#### KEY CHALLENGES:

1. **Certain types of forest land may be excluded:** The Bill amends the Act to cover specific forest lands, and exclude certain forest lands.
2. **Exclusion of land that has been recorded as a forest before October 25, 1980, but not notified as such:** The Supreme Court clarified the scope of the 1980 Act, stating that its purpose is to address deforestation that disturbs the ecological balance. As a result, the Act should be applicable to all types of forests, regardless of their ownership or classification.
3. **Exemption of land which changed from forest use to non-forest use before December 12, 1996:** The Bill declares that any land that transitioned from forest to non-forest use prior to the date of the judgment will not fall under the scope of the 1980 Act. By including this exemption, the Bill might be contradicting the ruling.
4. **Exemptions near border areas would cover large parts of the north-eastern region:** Allowing diversion of forest land for construction of security-related projects and within 100 km of the international border/LoC/LAC may hasten the decline in forest cover in these areas.
5. **Security projects:** Giving a blanket exemption for all security related projects may not be appropriate given the impact it may have on forest cover and biodiversity.



### WAY FORWARD:

- Before presenting the Bill in Parliament, it is essential to seek further input from experts in the relevant field.
- As evidence of climate change and environmental degradation grows, the government should take this opportunity to reaffirm its strong commitment to safeguarding the country's abundant biodiversity.

## RENEWABLE ENERGY

### 6. INDIA'S FOCUS ON BATTERY ELECTRIC VEHICLES (BEVs) IN ELECTRIC MOBILITY PLAN

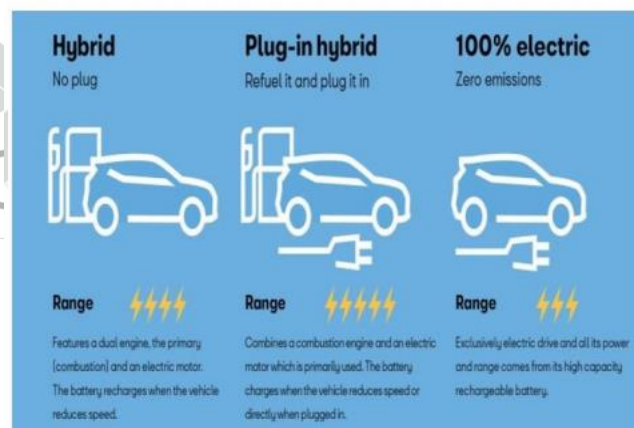
#### ABOUT BEVS:

- BEVs, or Battery Electric Vehicles, are fully electric vehicles that run on rechargeable batteries and do not have a gasoline engine.
- These vehicles rely on battery power, which is recharged from the grid, making them zero-emission vehicles without harmful tailpipe emissions.
- India's electric mobility plan primarily centers around BEVs replacing internal combustion engine (ICE) vehicles, with Li-ion batteries being the most viable option currently.

#### INDIA'S ELECTRIC VEHICLE GOALS:

- India is the fourth-largest emitter of carbon dioxide globally and has committed to achieving net-zero carbon emissions by 2070 at the COP26 summit.
- The country aims to have EVs account for 30% of private cars, 70% of commercial vehicles, and 80% of two and three-wheelers by 2030.
- India actively promotes EV adoption through various incentives at the central and state levels for both buyers and manufacturers.
- It is also a supporter of the global EV30@30 campaign, targeting at least 30% new vehicle sales to be electric by 2030.

#### Types of Electric Vehicles



#### ADVANTAGES OF ELECTRIC VEHICLES IN INDIA:

- Lower Cost of Ownership: Research shows that EVs have significantly lower lifecycle ownership costs compared to fossil fuel vehicles, with savings of up to 27%.

- **Ease of Maintenance:** EVs have fewer moving parts, making maintenance simpler and reducing ownership costs.
- **State EV Policies:** Several states in India have introduced EV policies that support the supply and demand sides through incentives and benefits.
- **Cleaner Environment:** EVs do not emit pollutants into the air and operate silently, contributing to a cleaner and quieter environment.

#### **CHALLENGES ASSOCIATED WITH EV ADOPTION IN INDIA:**

- **High Initial Cost:** The upfront cost of EVs is still higher than traditional vehicles, posing affordability challenges for some consumers.
- **Limited Charging Infrastructure:** The lack of charging infrastructure makes long-distance travel in EVs difficult.
- **Battery Technology:** Current battery technology has limitations, such as limited range and long charging times.
- **Limited Domestic Manufacturing:** India relies on imports due to limited domestic manufacturing capabilities for EV components and batteries.
- **Lack of Awareness:** There is a need to increase awareness among the public about the benefits of EVs.
- **Limited Government Initiatives:** While the Indian government has set ambitious goals, concrete action plans and initiatives are lacking.
- **Lack of Standardization:** Charging infrastructure and regulations vary across states and union territories, lacking uniformity.
- **Power Grid Infrastructure:** The power grid infrastructure is still underdeveloped to handle the high-power demand of EV charging stations.

#### **WAY FORWARD:**

##### **1. Energy Security and Local Manufacturing:**

- EVs will enhance energy security by reducing crude oil imports, which account for over 80% of the country's requirements, valued at around \$100 billion.
- The push for EVs will boost the local EV manufacturing industry, leading to job creation.

##### **2. Strengthening the Grid with EVs:**

- EVs can provide grid support services, enabling higher renewable energy penetration while ensuring a stable grid operation.
- As India aims for a 450 GW energy capacity target by 2030, EVs can play a crucial role in maintaining grid stability.

##### **3. Battery Manufacturing and Storage Opportunities:**

- Battery storage presents a significant opportunity for promoting sustainable development in India.
- Government initiatives for e-mobility and renewable power create a favourable environment for battery manufacturing.
- Rising demand for consumer electronics requiring advanced chemistry batteries further enhances the economic potential

#### **4. Developing EV Charging Infrastructure:**

- Establishing EV charging infrastructure powered by the local electricity supply is essential for EV adoption.
- Charging stations can be set up at various locations, including residential premises, petrol pumps, malls, railway stations, and bus depots.
- Government mandates, such as the Ministry of Power's requirement for one charging station every 3 km and every 25 km on highways, promote widespread adoption.
- The Model Building Bye-laws, 2016, necessitate 20% of parking spaces in residential and commercial buildings to be reserved for EV charging facilities.

#### **5. Encouraging Indigenous Research and Development:**

- India should focus on promoting indigenous EV technologies for strategic and economic reasons.
- Investing in local research and development will lead to cost reductions and improved technology.
- Collaboration with countries like the UK can further boost EV development by leveraging expertise and resources.

### **GOVERNMENT INITIATIVES PROMOTING ELECTRIC VEHICLE (EV) ADOPTION IN INDIA:**

#### **1. Faster Adoption and Manufacturing of Electric Vehicles (FAME) Scheme II**

- FAME Scheme II is a government initiative aimed at promoting the faster adoption of electric vehicles and boosting their manufacturing in India.
- It provides incentives and support for the purchase of electric vehicles and the development of EV infrastructure.

#### **Types of Batteries Used in Automobiles:**

##### **1. Lead-Acid Batteries:**

- They contain a mild solution of sulfuric acid in an open container and are currently used in electric vehicles to supplement other battery loads.
- While they are high-powered, inexpensive, safe, and reliable, their short calendar life and poor cold-temperature performance limit their use in electric vehicles.

##### **2. Nickel Metal Hydride (NiMH) Batteries:**

- Widely used in hybrid-electric vehicles and some all-electric vehicles due to their longer lifecycle.
- However, their high cost, high self-discharge rate, and significant heat generation at high temperatures make them less suitable for rechargeable electric vehicles.

##### **3. Lithium-Ion (Li-ion) Batteries:**

- Widely used in electronic devices like laptops, cell phones, and computers due to their light weight and low maintenance requirements.
- Considered the best candidate for powering electric cars of the future due to their high power-to-weight ratio, energy efficiency, and good high-temperature performance.
- Li-ion batteries hold a lot of energy for their weight, making them ideal for electric cars to travel longer distances on a single charge.
- They are environmentally friendly as most of their parts are recyclable and have good charge holding ability over time.

## 2. National Electric Mobility Mission Plan (NEMMP)

- NEMMP is a comprehensive plan designed to encourage the widespread adoption of electric mobility in the country.
- It outlines strategies and policies to promote the manufacturing and usage of electric vehicles.

## 3. National Mission on Transformative Mobility and Battery Storage

- This mission focuses on transforming mobility by promoting electric vehicles and supporting battery storage technologies.
- It aims to accelerate the adoption of electric vehicles and enhance the development of indigenous battery technologies.

## 3. Go Electric Campaign

- The Go Electric campaign is an awareness initiative to promote the benefits of electric vehicles among the public.
- It encourages people to make the switch to electric vehicles and reduce their carbon footprint.

## 4. Production Linked Incentive (PLI) Scheme for EV Manufacturing

- The PLI scheme provides incentives to manufacturers of electric vehicles and their components.
- It aims to boost domestic manufacturing and make India a global hub for EV production.
- The Ministry of Power's Revised Guidelines on Charging Infrastructure
- The Ministry of Power has issued guidelines to ensure adequate charging infrastructure for electric vehicles.
- The guidelines mandate the presence of at least one charging station in a grid of 3 km and at every 25 km on both sides of highways.
- The amendment to Model Building Bye-laws, 2016 (MBBL)
- The amendment to MBBL makes it mandatory for residential and commercial buildings to allocate 20% of parking space for EV charging facilities.
- This promotes the development of charging infrastructure in buildings.
- India is actively supporting the global EV30@30 campaign, which aims to achieve a 30% share of electric vehicles in the automotive market by 2030.
- This demonstrates India's commitment to sustainable and green mobility solutions.

### **CONCLUSION:**

India is emerging as a global leader in EV manufacturing, supporting higher renewable energy penetration and grid stabilization. EVs are seen as crucial for achieving India's carbon emission reduction goals and promoting sustainable transportation.

## GEOGRAPHY

### 7. INDIAN OCEAN DIPOLE

**News:** With the El Nino phenomenon almost certain to affect the Indian monsoon this year, high hopes are pinned on the development of a positive Indian Ocean Dipole (IOD) and its ability to counterbalance the El Nino effect.

#### WHAT IS INDIAN OCEAN DIPOLE?

- The IOD is an ocean-atmosphere interaction very similar to the El Nino fluctuations in the Pacific Ocean, playing out, as the name shows, in the Indian Ocean. It is also a much weaker system than El Nino, and thus has relatively limited impacts.
- IOD, sometimes referred to as the Indian Nino is a phenomenon playing out in the relatively smaller area of the Indian Ocean between the Indonesian and Malaysian coastline in the east and the African coastline near Somalia in the west.
- One side of the ocean, along the equator, gets warmer than the other.

#### WHAT IS A POSITIVE IOD? WHAT IS ITS IMPACT?

- IOD is said to be positive when the western side of the Indian Ocean, near the Somalia coast, becomes warmer than the eastern Indian Ocean.
- A positive IOD enhances monsoon rainfall over the Indian subcontinent and along the African coastline but it suppresses rainfall over Indonesia, south-east Asia and Australia.

#### WHAT IS A NEGATIVE IOD? WHAT IS ITS IMPACT?

- IOD is said to be negative when the western side of the Indian Ocean becomes cooler than the eastern Indian Ocean.
- A negative IOD shows opposite impacts of Positive IOD.

#### WHICH ARE THE FACTORS CONSIDERED WHILE MAKING FORECASTS ABOUT MONSOON IN THE MONTH OF APRIL?

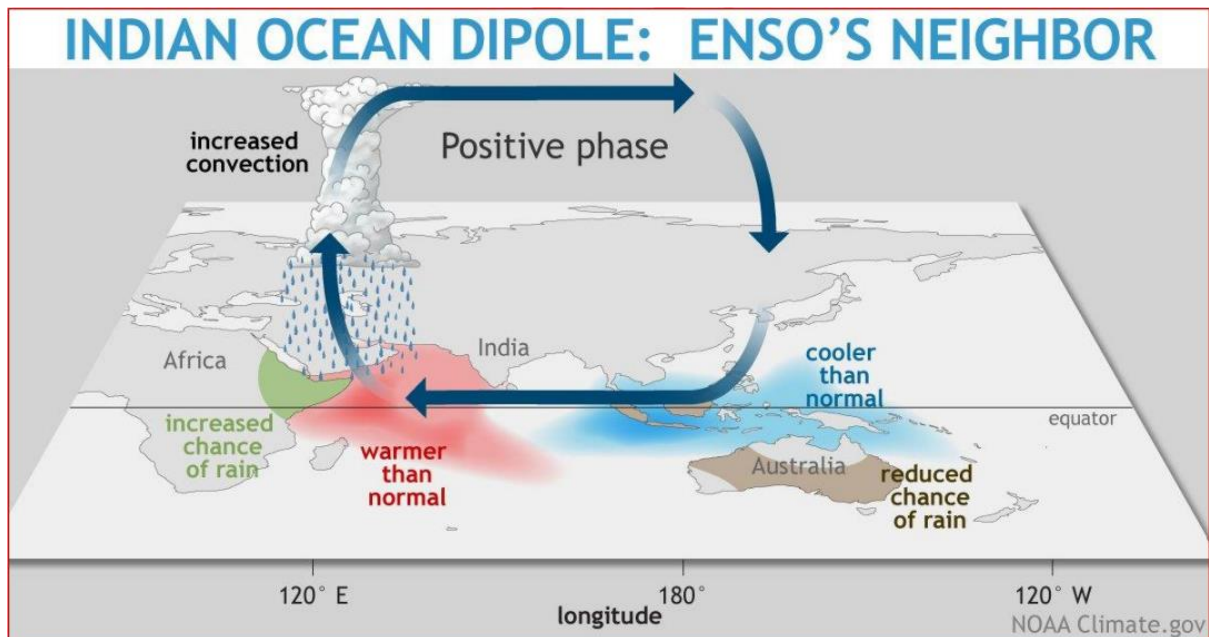
The Earth System Science Organisation (ESSO) and the IMD take into account five factors:

#### What is ENSO?

1. In a typical year, the eastern portion of the Pacific Ocean, close to the northwestern coast of South America, is colder compared to the western side near the Philippines and Indonesia islands.
2. This occurs due to prevailing wind systems that blow from the east to the west, pushing warmer surface waters toward the Indonesian coast.
3. Cooler waters from deeper layers rise to take the place of the displaced warm water.
4. An El Nino event develops when the wind systems weaken, causing less movement of warmer waters.
5. This leads to the eastern Pacific becoming warmer than usual. In contrast, during La Nina, the reverse occurs.
6. These two conditions, collectively referred to as El Nino Southern Oscillation (ENSO), have effects on global weather patterns.
7. In India, El Nino results in reduced monsoon rainfall, as it suppresses the normal monsoon pattern.



- The Sea Surface Temperature (SST) gradient between the North Atlantic and the North Pacific (conditions during December of the previous year and January of the present year)
- SST of the equatorial south Indian Ocean (conditions during February and March of the present year)
- Mean Sea Level pressure in East Asia (conditions during February and March of the present year)
- The surface air temperature over northwest Europe (conditions during January of the present year)
- The warm water volume of the equatorial Pacific Ocean (conditions during February and March of the present year)



#### IMPACT OF INDIAN OCEAN DIPOLE (IOD) ON INDIAN MONSOON:

1. Research has indicated that during a positive IOD year, central India experiences higher-than-usual rainfall.
2. In various ENSO years like 1983, 1994, and 1997, it was observed that a positive IOD index counteracts the impact of ENSO, leading to increased Monsoon rainfall.
3. Additionally, investigations have found that the two poles of the IOD – the eastern pole near Indonesia and the western pole off the African coast – independently and cumulatively influence the amount of rainfall over the Indian subcontinent during the Monsoon.
4. A correlation exists between below-normal sea surface temperatures (SST) in the eastern Indian Ocean and above-normal rainfall in central India, and vice versa.
5. Conversely, a negative IOD collaborates with El Niño to bring about severe drought conditions.
6. Simultaneously, a positive IOD contributes to a higher number of cyclones in the Arabian Sea than usual.
7. In the Bay of Bengal, a negative IOD results in more robust cyclogenesis (formation of tropical cyclones) than usual, while cyclogenesis in the Arabian Sea decreases.
8. Nevertheless, there is an anomaly in the IOD-Monsoon relationship.

## 8. INDIAN OCEAN GEOID LOW

**News:** Researchers at the Indian Institute of Science have revealed the secrets of the giant gravity hole that rests in the Indian Ocean.

### WHAT IS INDIAN OCEAN GEOID LOW?

- The Indian Ocean Geoid Low (IOGL) is a giant 'gravity hole' in the Indian Ocean, where the gravity is lower than average and the sea level is 106 meters lower than the global average.
- It is the largest and deepest geoid anomaly on Earth, covering more than three million square kilometres.
- The IOGL is a result of a mass deficit inside the Earth's mantle beneath the Indian Ocean, caused by the interaction of plumes and slabs. Plumes are hot, buoyant upwellings of mantle material that rise from the core-mantle boundary, while slabs are cold, dense downwellings of tectonic plates that sink into the mantle.

### TAKING A DEEP LOOK

**What is a Geoid** | The earth's surface is not a perfect ellipsoid but is more like an irregular shaped potato. Therefore, **scientists use an imaginary sea level shape called 'geoid' which has highs and lows from place to place.** The Indian Ocean exhibits the **largest drop** in the world, a depression of around **106 metres**

**What is a tectonic plate** | The **earth's outer shell is broken into massive pieces** of rock which are **around 100kms thick.** **Called tectonic plates,** they float over an underlying thick layer of hot, molten magma

### HOW DID THE SCIENTISTS REVEAL THE SECRETS? WHAT WENT INTO THE PROCESS?

- A study by Indian scientists, published in Geophysical Research Letters in 2023, showed that the IOGL was formed by plumes that originated from the edges of the African Large Low Shear Velocity Province (LLSVP), a massive thermochemical pile at the core-mantle boundary. These plumes were triggered by slabs from the Tethys Ocean, a long-lost sea that subducted under Africa and Eurasia millions of years ago.
- The study used global mantle convection models to reconstruct the plate tectonic movements and mantle dynamics since 140 million years ago, and showed that the IOGL took its present shape about 20 million years ago, when the plumes spread within the upper mantle.
- The study also explored various parameters that affect the shape and amplitude of the IOGL, such as the density and viscosity of the LLSVP, the Clapeyron slope and density jump at 660 km depth, and the strength of slabs.

### HOW DOES IOGL AFFECT OCEAN CURRENT?

- The IOGL affects ocean currents by creating a pressure gradient that drives the flow of water from high to low geoid regions.
- The IOGL also influences the thermohaline circulation, which is the global conveyor belt of ocean currents driven by differences in temperature and salinity.
- The IOGL may also have implications for climate change, as it modulates the heat and salt transport by ocean currents, which in turn affect the atmospheric circulation and precipitation patterns over the Indian Ocean region.

## 9. NORTH INDIA'S MONSOON MAYHEM: A COMPLEX INTERACTION

SOURCE: [TH](#)

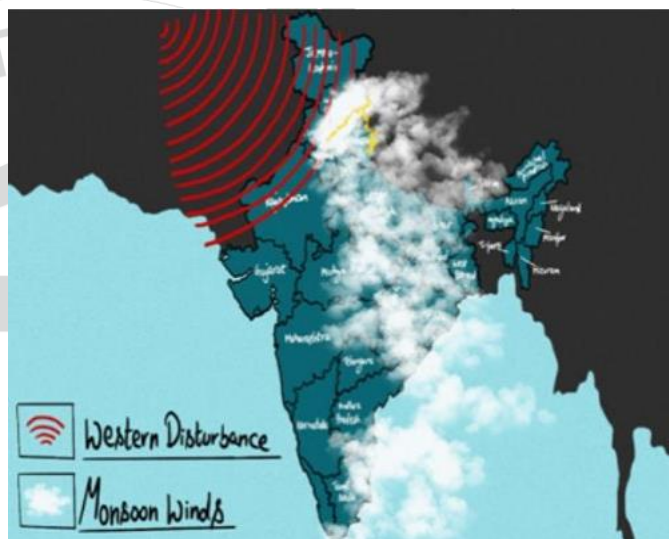
**Recent news:** Reports highlighted the occurrence of heavy monsoon rains in North Indian states, leading to extensive destruction, loss of lives, and damage to property. The rainfall in the region was caused by the convergence of two weather systems, namely the monsoon winds and a western disturbance.

### WESTERN DISTURBANCES:

- Western Disturbances are extratropical storms originating in the Mediterranean region.
- They affect weather conditions in northern India, bringing rainfall and snowfall to the Himalayan region and influencing the Indo-Gangetic plains.

### UNIQUE MONSOON ONSET:

- This year's monsoon onset was delayed due to interactions between typhoons and cyclones.
- Cyclone Biparjoy's extended presence delayed the monsoon's arrival in Mumbai by nearly two weeks.
- Mumbai and Delhi saw simultaneous monsoon arrival for the first time in over 50 years.



### INCESSANT HEAVY RAIN:

- A rare interaction of climatic factors led to incessant heavy rain in large parts of north India.
- Delhi recorded 153 mm of rain in 24 hours on July 9, the highest for July since 1982.

### INTERACTION OF SYSTEMS:

- The heavy rain in Himachal Pradesh and Uttarakhand resulted from the interaction of monsoonal winds with a western disturbance.
- A trough extended from Rajasthan to the north Arabian Sea associated with a western disturbance.
- The confluence of these systems with monsoon winds from the Bay of Bengal caused very heavy showers.

### GLOBAL WARMING'S INFLUENCE:

- In a warmer and more humid world due to global warming, all weather events have some contribution from it.
- Excess rainfall in northwest India is consistent with the Arabian Sea warming by about 1.5 degrees Celsius since January.



### ROLE OF UPPER ATMOSPHERIC CIRCULATION:

- Upper atmospheric winds can break into clockwise and anticlockwise patterns, influencing weather conditions.
- Convergence of winds near the surface can drive excess rainfall.

The ongoing monsoon mayhem in North India

results from a complex interaction of various factors, including western disturbances, monsoonal winds, global warming's impact, and the Atlantic Ocean's behaviour. Understanding these interactions is crucial for forecasting and managing extreme weather events in the region.

### PRELIMS SPECIFIC FACTS ON INDIAN MONSOON

- Near the southernmost point of the Indian peninsula, the monsoon often arrives in the first week of June. The Arabian Sea branch and the Bay of Bengal branch are the two subsequent divisions.
- The Monsoon onset occurs between early and mid-June, when the first wave of winds from the monsoon arrives on the Indian peninsula's western coast.
- The thunderstorm formation over the Bay of Bengal is mango showers.
- In Bengal, they are also referred to as "Kaal Baisakhi,"
- In Assam, as "Bordoisila," and
- In Karnataka, as "Cherry Blossom Showers" or "Coffee Showers."

## 10. EVIDENCE OF THE ANTHROPOCENE EPOCH AT CRAWFORD LAKE IN CANADA

SOURCE: [IE](#)

**Recent news:** The Anthropocene Working Group (AWG) has put forward a proposition stating that the Anthropocene, a distinct geological epoch marked by substantial human influence on Earth's systems, commenced in 1950.

### What is the Global Boundary Stratotype Section and Point (GSSP)?

- **GSSP Definition:** The GSSP is a specific geological reference point that identifies the demarcation between two distinct geological time units.
- **International Standard:** It serves as a universally accepted criterion for defining and correlating various periods in Earth's geological history.
- **Importance of GSSPs:** GSSPs play a critical role in establishing the boundaries of epochs, ages, and other subdivisions within the geological time scale.

### ABOUT ANTHROPOCENE EPOCH:

- This is a proposed epoch that characterizes the current period in geological time, during which significant alterations in the Earth's ecosystem have occurred due to human influence.
- The term "Anthropocene" is formed by combining the Greek words "anthropo," meaning "human," and "cene," signifying "new." This term was introduced and gained popularity in 2000 by biologist Eugene Storer and chemist Paul Crutzen.
- Within this suggested epoch, various phenomena are linked to it, including global warming, the elevation of sea levels, the acidification of oceans, extensive soil erosion, the onset of deadly heatwaves, the decline of the biosphere, and other harmful modifications in the environment.

### THE ANTHROPOCENE WORKING GROUP (AWG):

- An interdisciplinary research group studying the Anthropocene as a geological time unit.



- Established in 2009 as part of the International Commission on Stratigraphy (ICS) and the Subcommission on Quaternary Stratigraphy (SQS).

#### EARTH'S GEOLOGICAL TIMELINE:

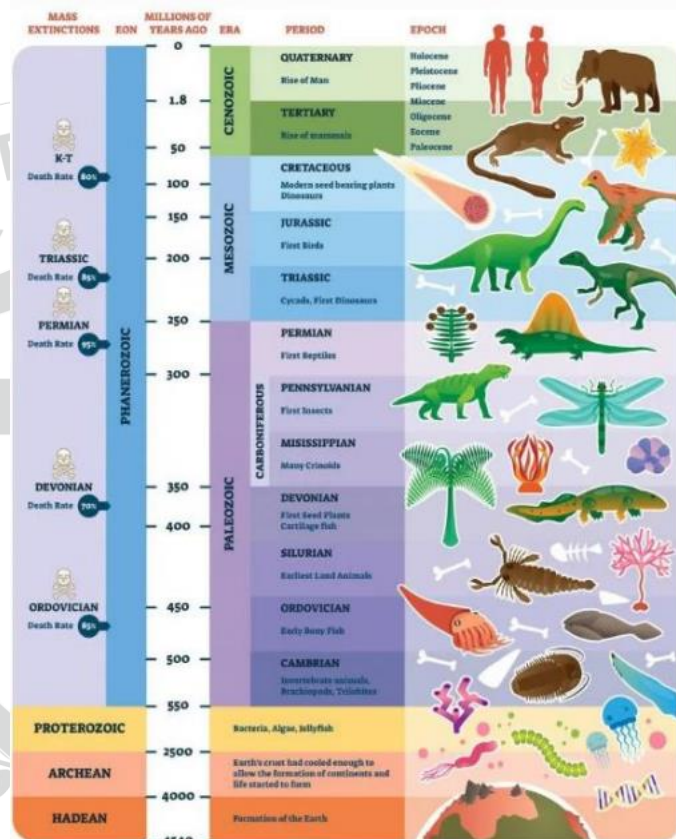
- The geologic time scale divides all time into eons, eras, periods, epochs, and ages.
- Earth's history includes four eons: Hadean, Archean, Proterozoic, and Phanerozoic.
- The current epoch is the Holocene, which began around 11,700 years ago after the Last Glacial Period.

#### GEOLOGISTS' FINDINGS AT CRAWFORD LAKE:

- Multiple signals suggest the beginning of the Anthropocene around 1950 when human activity significantly impacted the Earth.
- The presence of plutonium from nuclear weapon detonations indicates humanity's dominant influence on the planet.
- However, it is essential to note that this evidence doesn't definitively prove the advent of the Anthropocene epoch.

#### CONCLUSION:

The sediments at Crawford Lake in Canada's Ontario provide compelling evidence of the beginning of the Anthropocene epoch, characterized by profound changes to Earth's ecosystem due to human activities. Nevertheless, further research and consensus within the scientific community are required to officially establish this epoch in Earth's geological timeline.



#### The International Union of Geological Sciences (IUGS) :-

- Global Non-Governmental Organization: The IUGS is a worldwide non-governmental organization with a primary goal of promoting and advancing the Earth sciences.
- Coordination and Education: Serving as the international coordinating body for professional geological research and education, the IUGS plays a crucial role in fostering collaboration and knowledge exchange in the field.
- Established in 1961: The IUGS was founded in 1961, and since then, it has been actively involved in supporting geological research and education initiatives globally.
- Member of International Science Council: As a member of the International Science Council (ISC), the IUGS collaborates with other international organizations to address global scientific challenges and promote sustainable development.

#### 10. MARINE HEAT WAVES

SOURCE: [Down to Earth](#)



A marine heatwave is a period of abnormally high ocean temperatures relative to the average seasonal temperature in a particular marine region.

**Eg: The 2015-2016 marine heatwave in the Pacific Ocean, known as the "Blob", was one of the most severe marine heatwaves on record.**

#### CAUSES OF MARINE HEATWAVES:

**Warming oceans:** This warming is causing the oceans to store more heat, which can lead to more severe marine heatwaves.

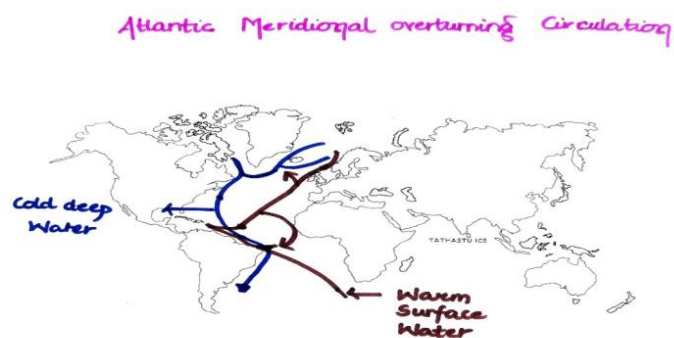
**Weather patterns:** Marine heatwaves can also be caused by weather patterns, such as El Nino Events.

**Ocean currents:** Ocean currents can also play a role in marine heatwaves. For example, the Gulf Stream is a warm ocean current that flows from the Gulf of Mexico to the North Atlantic Ocean. This current can help to transport warm water to the North Atlantic, which can increase the risk of marine heatwaves in that region.

**Coastal upwelling:** Coastal upwelling is a process where cold, nutrient-rich water from the ocean depths is brought to the surface but it can also lead to marine heatwaves if the upwelling is weak or if the water that is brought to the surface is already warm.

#### PRELIMS SPECIFIC:

**Atlantic Meridional Overturning Circulation (AMOC)**  
The Atlantic Meridional Overturning Circulation (AMOC) is a significant oceanic current system that moves tropical warm surface waters northwards in the Atlantic and transports cold deep waters, which are part of the thermohaline circulation, southwards.



#### EFFECTS OF MARINE HEATWAVES ON ENVIRONMENT:

**Coral bleaching:** Coral bleaching occurs when the water temperature is too warm for corals to survive. This leaves the corals white and vulnerable to death.

**Fish kills:** Marine heatwaves can cause fish kills by making it difficult for fish to find food or by making them more susceptible to diseases.

**Harmful algal blooms:** Harmful algal blooms (HABs) are blooms of algae that produce toxins that can harm humans, animals, and the environment.

**Mass mortality of benthic communities:** Marine heatwaves can cause mass mortality of benthic communities by making it difficult for these organisms to find food or by making them more susceptible to diseases.

#### IMPACTS OF MARINE HEATWAVES ON HUMANS:

**Reduced food security:** Marine heatwaves can damage marine ecosystems, which can lead to a decline in fish stocks. This can have a negative impact on food security.

**Increased risk of harmful algal blooms:** Harmful algal blooms (HABs) are blooms of algae that produce toxins that can harm humans, animals, and the environment.

**Damage to coastal infrastructure:** Marine heatwaves can cause coastal erosion and flooding, which can damage coastal infrastructure, such as roads, bridges, and buildings.

**Disruption of tourism:** Marine heatwaves can disrupt tourism, as people may be less likely to visit coastal areas if the water is too warm or if there are harmful algal blooms.

### CONCLUSION

Monitoring and understanding marine heatwaves are crucial for predicting their occurrence, assessing their impacts on marine ecosystems, and informing management and conservation strategies. As climate change continues to progress, addressing the causes and consequences of marine heatwaves becomes even more important for the health of our oceans and the planet as a whole.

## 11. YAMUNA FLOODS

SOURCE: [TH](#), [Indian Express](#), [MINT](#)

### RECENT CONTEXT:

Heavy rains have caused flooding in Delhi's elite neighbourhoods close to the Yamuna River's floodplains, including Civil Lines, Rajghat, and the Supreme Court. The flooding is attributed to haphazard construction, urbanization, inadequate housing, and weak regulations, despite the floodplains being designated as protected areas in the past.

### CAUSES OF URBAN FLOODING:

1. **Poor Drainage Infrastructure:** Inadequate drainage systems and blocked drains result in waterlogging during heavy rainfall. Example: Mumbai's annual monsoon flooding.
2. **Encroachment of Water Bodies:** Unplanned urbanization leads to the filling and construction over water bodies, reducing their capacity to hold water. Example: Bengaluru's vanishing lakes.
3. **Deforestation and Impermeable Surfaces:** Concrete jungles and reduced green cover increase surface runoff, leading to flooding. Example: Urban areas with excessive concrete development.
4. **Climate Change:** Changing weather patterns result in more intense and erratic rainfall, contributing to urban flooding. Example: Increased frequency of extreme rainfall events.
5. **Heavy Monsoon Rains:** Intense and prolonged monsoon rainfall leads to river overflow. Example: Kerala floods in 2018.
6. **Deforestation and Land Use Changes:** Clearing forests and altering land use increase surface runoff and soil erosion, exacerbating river flooding.

### PRELIMS SPECIFIC:

- The Yamuna River is a significant **tributary of the Ganges** in Northern India and a part of the extensive Yamuna-Ganga Plain.
- It originates from the **Yamunotri Glacier** in the lower Himalayan ranges at an elevation of 6,387 meters.
- Flowing through **Uttarakhand, Himachal Pradesh, Haryana, and Delhi**, it meets the Ganges at the **Sangam in Prayagraj, Uttar Pradesh.**
- The river is associated with important **dams** such as **Lakhwar-Vyasi Dam** in Uttarakhand and **Tajewala Barrage Dam** in Haryana.
- It is nourished by several essential **tributaries like Chambal, Sindh, Betwa, and Ken.**
- The government has undertaken initiatives like the **Yamuna Action Plan** and **Delhi Government's Six-Point Action Plan to Clean Yamuna by February 2025** to address the river's pollution and conservation issues.

7. **Dam Mismanagement:** Poor management of dams and reservoirs can lead to sudden releases and aggravate river flooding. Example: Dam release during heavy rains in Tamil Nadu.
8. **River Encroachment:** Encroachment on river banks reduces the natural floodplains, causing water to overflow onto inhabited areas. Example: Unauthorized constructions along riverbanks.

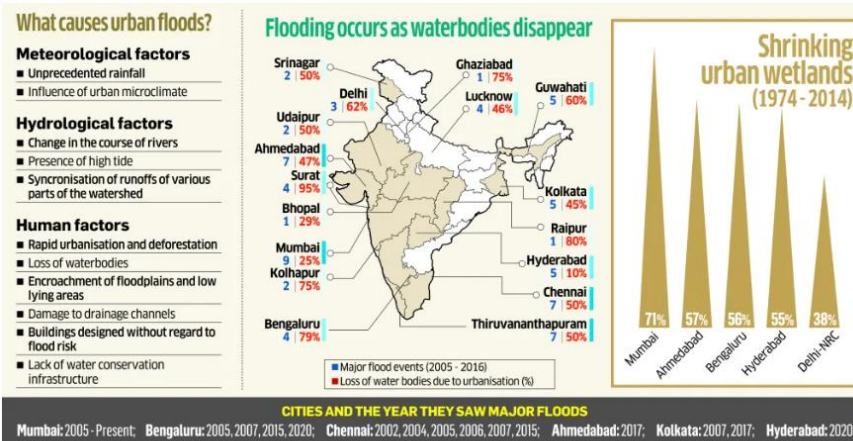
Data: Over 40 million Indians are affected by floods each year, with river flooding being a significant contributor, according to the National Disaster Management Authority (NDMA).

#### IMPACTS OF URBAN FLOODING:

1. **Infrastructure Damage:** Urban flooding damages roads, bridges, buildings, and utility networks.
2. **Disruption of Transportation:** Flooded roads and public transport systems disrupt travel and commute. Eg: Waterlogged streets in Mumbai cause traffic jams and delays.
3. **Health Hazards:** Stagnant water becomes a breeding ground for diseases like dengue and cholera.
4. **Economic Losses:** Flooding leads to business disruptions and loss of productivity. Floods in commercial areas of major cities impact businesses and result in financial losses.
5. **Property Damage:** Floodwaters can cause extensive damage to homes and properties.
6. **Environmental Impact:** Urban flooding harms ecosystems, affecting wildlife and vegetation. Eg: Floods in cities like Bengaluru affect parks and green spaces.
7. **Social Displacement:** People may be forced to evacuate their homes, leading to temporary displacement.
8. **Impact on Vulnerable Communities:** Low-income communities in informal settlements are more vulnerable to flooding's adverse effects. Eg: Slums in cities suffer the most during urban floods due to lack of proper infrastructure and services.

#### GOVERNMENT INITIATIVES TO MANAGE AND MITIGATE URBAN FLOODING:

- **National Urban Flood Management Program (NUFM):** Launched by the Ministry of Urban Development to address urban flooding issues through integrated flood management plans.
- **Smart Cities Mission:** The mission focuses on developing climate-resilient and sustainable infrastructure in selected cities to tackle urban flooding.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** Aims to upgrade basic urban infrastructure, including drainage systems, to mitigate flooding.
- **National Disaster Management Authority (NDMA):** The NDMA works on disaster management policies and strategies, including flood management and mitigation.
- **River Rejuvenation and Conservation:** Various programs like **Namami Gange and National River Conservation Plan (NRCP)** aim to restore and rejuvenate rivers to reduce the risk of flooding.
- **Green Initiatives:** Government initiatives like Swachh Bharat Abhiyan and Clean India Mission contribute to reducing waste and promoting better waste management, indirectly reducing urban flooding risks.



Source: Deccan Herald

#### WAY FORWARD:

- **Improved Drainage Systems:** Enhancing and maintaining stormwater drainage systems to efficiently carry excess water away from urban areas.
- **Floodplain Management:** Restricting construction in flood-prone areas and preserving natural floodplains to allow water absorption during heavy rains.
- **Green Infrastructure:** Promoting green spaces, rain gardens, and permeable pavements to absorb rainwater and reduce surface runoff.
- **Urban Planning:** Implementing better urban planning and zoning regulations to avoid construction in flood-prone regions.
- **Early Warning Systems:** Developing and implementing effective early warning systems to alert residents and authorities about imminent floods.
- **Flood Insurance:** Encouraging and facilitating flood insurance coverage to mitigate financial losses for affected individuals and businesses.
- **Climate Resilient Infrastructure:** Building and retrofitting infrastructure with climate resilience in mind to withstand extreme weather events.

NEWS IN SHORT:	
<b>AMERICAN BALD EAGLE</b>	<ul style="list-style-type: none"> <li>• The successful conservation story of American Bald Eagle was in news recently</li> <li>• The American bald eagle was removed from the endangered species list in 2007, marking a significant milestone in its conservation.</li> <li>• The bird's population has steadily increased since then, with a 2021 report stating that the number of bald eagles in the wild has quadrupled since 2009.</li> </ul>
<b>GUCCHI MUSHROOM</b>	<p>Unpredictable weather patterns, early springs, and above-average temperatures have left gucchi mushroom hunters in distress, facing another season of low yield for the second consecutive year.</p> <p><b>What is Gucchi Mushroom?</b></p> <ul style="list-style-type: none"> <li>• Gucchi mushroom is a species of fungus that belongs to the Morchellaceae family of the Ascomycota division. It is also known by its scientific name Morchella esculenta.</li> <li>• It has a spongy and honeycombed appearance, with a pale-yellow cap and a white stem.</li> <li>• It is one of the most expensive mushrooms in the world, as it cannot be cultivated commercially and grows wild only in some regions of the Himalayas, such as Jammu and Kashmir, Himachal Pradesh and Uttarakhand.</li> <li>• It is prized for its unique flavour, earthy aroma and health benefits.</li> </ul>
<b>MAUTAM FAMINE</b>	<p>News: Every 48-50 years, bamboo-producing states of India, of which Mizoram is one, face a famine known as 'Mautam'.</p> <p><b>What is Mautam?</b></p> <ul style="list-style-type: none"> <li>• In Mizo, mau means bamboo and tam means death.</li> <li>• At a particular time, the Melocanna baccifera, a species of bamboo, undergoes flowering across a wide area during Mautam. This leads to a temporary windfall of seeds, from which the bamboo regenerates after it dies.</li> <li>• Bamboo seeds are also food for rats, who consume these and multiply rapidly. As the rat population explodes and the bamboo seeds get exhausted, the rats leave the forests to forage on stored grain and destroy cultivated crops.</li> </ul> <p><b>Why does the Bamboo flower suddenly?</b></p> <ul style="list-style-type: none"> <li>• The flowering of bamboo all of a sudden every 48 years is believed to be an ecological control mechanism of predator satiation.</li> <li>• Predator satiation is an anti-predator adaptation technique that has been perfected by bamboo after millions of years of predation on its seeds.</li> <li>• Bamboo undergoes flowering once every half-century in huge numbers as a defence mechanism. Due to flowering in huge quantities, the rats (predators) are flooded with bamboo seeds (prey) to feast on. In this way, the bamboo satiates the predator.</li> </ul>



	<ul style="list-style-type: none"> <li>• By occurring at high densities, the prey benefits from a safety-in-numbers effect. Even though most of the seeds may be eaten by rodents, enough will survive to ensure a healthy plant population.</li> </ul>
<b>ENERGY TRANSITION INDEX</b>	<p><b>News:</b> The Energy Transition Index 2023 is a report published by the <b>World Economic Forum (WEF) in collaboration with Accenture.</b></p> <p><b>Key Findings:</b></p> <ul style="list-style-type: none"> <li>• The report finds that after a decade of progress, the global energy transition has plateaued amid the global energy crisis and geopolitical volatilities.</li> <li>• The report says that while there has been broad progress on clean, sustainable energy, there are emerging challenges to the equity of the transition – just, affordable access to energy and sustained economic development – due to countries shifting their focus to energy security.</li> <li>• The report ranks Sweden as the top performer on the Energy Transition Index 2023, followed by Denmark, Norway, Finland and Switzerland in the top five. France (7) was the only G20 country in the top 10, followed closely by Germany (11), the U.S. (12), and the U.K. (13).</li> </ul> <p><b>India-specific findings:</b></p> <ul style="list-style-type: none"> <li>• India is ranked at 67th place globally on the index. The report says that India is the only major economy with energy transition momentum accelerating across all dimensions.</li> <li>• India also emerged relatively less affected by the recent energy crisis, largely due to the low share of natural gas in power generation and increased use of existing generation capacities.</li> </ul>



## SOCIAL ISSUES

**1. MAHILA SAMMAN SAVINGS CERTIFICATE SCHEME****SOURCE:** [PIB](#)

**News:** The Centre has authorised all public sector banks and eligible private sector banks — ICICI Bank, Axis Bank, HDFC Bank Ltd. and IDBI Bank — to implement and operationalise the Mahila Samman Savings Certificate scheme.

**WHAT IS THE MAHILA SAMMAN SAVINGS CERTIFICATE SCHEME?**

It is a new small savings scheme launched by the government of India in 2023 to commemorate the Azadi ka Amrit Mahotsav. It is a scheme exclusively for women and girls, aimed at empowering them financially and increasing their participation in investments.

**Is 'Mahila Samman Savings Certificate' worth it?**

Principal	₹2,00,000
Plus: Year 1 (Interest 7.5%)	₹15,000
Plus: Year 2 (Interest 7.5%)	₹16,125
Value (end of 2 years)	₹2,31,125

Assumes annual compounding of interest

**KEY FEATURES:**

- It is a one-time scheme available for two years, from April 2023 to March 2025.
- It offers a fixed interest rate of 7.5% per annum, compounded quarterly but payable at maturity. • It has a minimum deposit amount of Rs. 1,000 and a maximum deposit amount of Rs. 2 lakh per account holder.
- It has a maturity period of two years, with a partial withdrawal facility of up to 40% of the balance after one year.
- It is backed by the government and does not have any credit risk.
- It does not have any tax deduction at source (TDS), but the interest income is taxable as per the income tax slab of the account holder.
- An account under this scheme can be opened by a woman for herself or by the guardian on behalf of a minor girl child.

**OTHER SOCIAL SECURITY SCHEMES FOR WOMEN:**

<b>Beti Bachao Beti Padhao (BBBP)</b>	Address gender imbalance and promote girl child education.
<b>Pradhan Mantri Matru Vandana Yojana (PMMVY)</b>	Financial support for pregnant and lactating women.
<b>Sukanya Samridhi Yojana</b>	Encourage saving for girl child's education and marriage.
<b>Ujjwala Yojana</b>	Provide LPG connections to economically disadvantaged women.

<b>Mahila E-Haat</b>	Online platform for women entrepreneurs to showcase products.
<b>SWAYAM</b>	Online platform offering free courses for education and skills.
<b>STEP (Support to Training and Employment Programme for Women)</b>	Skill development for women's empowerment.
<b>National Scheme of Incentive to Girls for Secondary Education</b>	Financial incentives to encourage girl education.
<b>Working Women Hostels</b>	Safe accommodation for working women, especially from rural areas.
<b>One Stop Centre (Sakhi)</b>	Comprehensive support for women affected by violence.
<b>Nari Shakti Puraskar</b>	Recognize and honor women's exceptional contributions.
<b>Swadhar Greh</b>	Shelter and support for women in difficult circumstances.
<b>Indira Gandhi National Widow Pension Scheme</b>	Financial assistance for widows below the poverty line.
<b>Pradhan Mantri Surakshit Matritva Abhiyan</b>	Free antenatal care and check-ups for pregnant women.
<b>National Mission for Empowerment of Women (NMEW)</b>	Promote gender equality and women's empowerment.

## 2. MANIPUR VIOLENCE - CONFLICT BETWEEN KUKIS AND MEITEIS

**News:** Recent violent conflicts in Manipur have arisen from deep-rooted tensions between the hill and valley communities, the Meitei community's persistent demand for Scheduled Tribe (ST) status, and a recent ruling by the Manipur High Court.

### SUMMARY OF CAUSES OF CONFLICT BETWEEN THE COMMUNITIES:

- **Land Survey and Evictions:** The Meitei-dominated Manipur government conducted a land survey of reserve forests, protected areas, wetlands, and wildlife, resulting in the identification of encroachers. Eviction notices were served, and some of these evictions were forcible, leading to clashes between villagers and officials.
- **Allegations of Illegal Settlement:** The government claimed that illegal migrants from Myanmar had settled in the state's reserved and protected forests. Measures were taken against these migrants, including the suspension of the Free Regime Movement with Myanmar and detentions.

- **"War on Drugs" Campaign:** The government launched a campaign targeting areas with large-scale illegal poppy cultivation. This adversely affected the livelihood of the Kuki community, which cultivated poppy.
- **Protests and Clashes:** The government's actions, such as land survey, evictions, and anti-drug campaigns, triggered large-scale protests, particularly in Kuki-dominated districts. These protests often turned violent, resulting in clashes between protesters and security forces.
- **Accusations and Unilateral Withdrawal:** The government accused Kuki militant organizations, including Kuki National Army (KNA) and Zomi Revolutionary Army (ZRA), of influencing and instigating protests. The government unilaterally withdrew from the Suspension of Operations (SoO) agreement with Kuki militant groups, raising concerns among the Kuki community and potentially affecting the resolution of the Kuki militancy problem.
- **Doubts about Fulfilling Kuki Demands:** The peace talks between the government and militant groups had given hope to the Kuki community that their demand for a separate Kukiland would be met. However, the government's actions and withdrawal from the SoO agreement have raised doubts about the fulfillment of this demand.

#### **AUTONOMOUS DISTRICT COUNCILS (ADCs) AND ISSUES:**

- **Establishment of ADCs:** The Manipur (Hill Areas) District Councils Act was enacted in 1971, leading to the establishment of ADCs in 1973 to administer the hill areas of Manipur.
- **Role of HAC:** The Hill Areas Committee (HAC), operating under the Manipur Legislative Assembly, is responsible for planning, implementing, and monitoring development activities in the hill areas. It also scrutinizes laws affecting these districts.
- **Limited Powers of ADCs:** Unlike ADCs in other northeastern states under the Sixth Schedule, Manipur's ADCs lack judicial and legislative powers. They possess limited financial autonomy and serve as weak administrative agencies.
- **Supersession of ADCs:** From 1988 to 1990, the six ADCs were superseded, and their administration was entrusted to district officials due to resistance from tribal groups.
- **Demands for Sixth Schedule Extension:** Tribespeople in Manipur hill areas have demanded the extension of the Sixth Schedule to grant greater autonomy to ADCs, similar to those in Sixth Schedule areas.
- **Recommendations and Amendments:** The National Commission to Review the Working of the Constitution recommended extending the Sixth Schedule to Manipur's hill areas in its March 2002 report. In October 2008, the Manipur Legislative Assembly passed the Manipur (Hill Areas) District Councils (Third Amendment) Bill, increasing seats and devolved subjects to the ADCs.
- **2021 Draft Bill:** The HAC drafted the Manipur (Hill Areas) Autonomous District Councils Bill in 2021, proposing more council members, increased autonomy and financial powers for ADCs, and the creation of a Hill Areas Secretariat.
- **Development and Territorial Integrity:** The new bill aims to promote the development of hill areas while safeguarding the territorial integrity of Manipur.

- **Controversial Provisions:** Some valley-based civil organizations oppose the bill due to provisions for the creation of Naga Autonomous Territorial Council and Kuki Autonomous Territorial Council, which they oppose.

#### WAYS TO FOSTER PEACE AND DEVELOPMENT IN MANIPUR:

- **Embrace Compromise:** All communities, including the Meitei-dominated state government, should be willing to compromise and step back from their confrontational stances to achieve sustainable peace while maintaining territorial integrity.
- **Grant Greater Autonomy:** The Meitei-dominated state government should take the lead in granting greater autonomy to the hill tribes, allowing them to govern their own affairs and have a say in decisions affecting their communities.
- **Reconsider Demands:** The Kuki community should reconsider their demand for a separate state or autonomous territorial council, taking into account potential future ethnic conflicts and the lack of contiguous Kuki-Chin-Mizo inhabited areas.
- **Address Intra-Tribe Differences:** Recognition and addressing of existing intra-tribe differences and rivalries within the Kuki community is essential to prevent exacerbating tensions and conflicts within their own community.
- **Diversify Economic Opportunities:** Prioritize the development of industry and service sectors to provide non-farm economic opportunities, reducing dependence on land and creating a more resilient and diversified economy.
- **Inclusive Governance:** Work towards providing effective, transparent, and inclusive governance, ensuring that the voices, needs, and rights of the people of Manipur are heard, addressed, and protected.

### 3. SARPANCH PATI

**News:** Recently, The SC of India has stated that the onus handling issue pertaining the infamous practice of Sarpanch Pati where men wield power behind elected women in grassroots politics needs to be addressed by the political class and not the judiciary.

#### WHAT IS SARPANCH PATI?

- Sarpanch Pati is a term used to describe the phenomenon of men who exercise power and authority in local self-governance bodies by making their wives contest from constituencies reserved for women under the Constitution 73rd Amendment Act. This act guarantees 33% reservation for women to promote their political participation in Panchayati Raj Institutions.

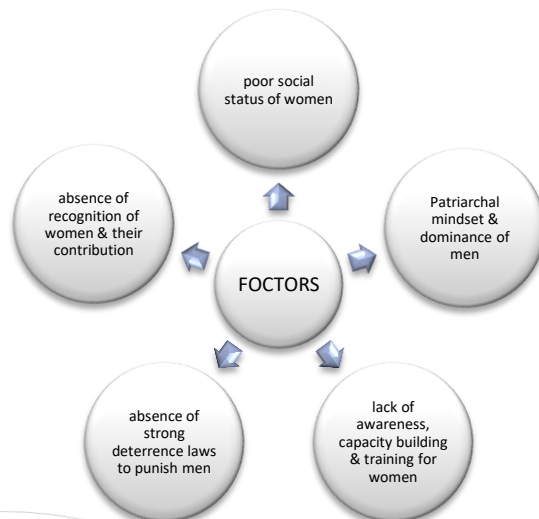
- In April 2015, Prime Minister Narendra Modi spoke about ending the Sarpanch Pati culture and urged women sarpanch's to assert their rights and





responsibilities. He also praised the contribution of women to the functioning of panchayats and said that they had shown more honesty and concern for development than men.

- In March 2021, a man named Rajesh took oath as the sarpanch of Hanukhedi village in Shajapur district of Madhya Pradesh in place of his wife Sunita, who was elected from a seat reserved for women. The secretary who administered the oath was suspended and the process to act against the husband was initiated.



### WHAT ARE THE CAUSATIVE FACTORS FOR THIS PHENOMENON?

#### IMPACT OF THIS PHENOMENON:

- Undermining of women's rights and empowerment
- Violation of the spirit and purpose of the constitutional amendment
- Deprivation of women's voice and representation in decision-making
- Loss of accountability and transparency in governance • Hindrance to the development and welfare of the community

#### 73rd Constitution Amendment Act:

The 73rd Amendment of 1992 brought about a transformation in the structure, establishing a three-tiered panchayat system across India with regular elections. This amendment mandated direct local democracy to ensure efficient decentralization.

Key provisions encompassed in Article 243D are as follows:

- One-third of the reserved seats under clause (1) should be allocated for women from Scheduled Castes or Scheduled Tribes.
- It also stipulates that no fewer than one-third of the total seats filled through direct elections in each panchayat must be reserved for women, including those from Scheduled Castes and Scheduled Tribes. These reserved seats may be rotated among various constituencies within a panchayat.

In 2009, the Constitution (110th Amendment) Bill was introduced in the Lok Sabha to elevate women's reservation from one-third (33%) to one-half (50%) of the total panchayat seats. However, this bill did not receive approval.

In 2006, Bihar emerged as the pioneer state to enhance the reservation percentage to 50%.

Sikkim followed this stride and implemented a 40% reservation policy for women in panchayat elections in 2008, which now stands at 50%.

Chhattisgarh, Madhya Pradesh, Rajasthan, and Uttarakhand subsequently enacted laws to elevate women's reservation in panchayats to 50%.

At present, 20 states, including Madhya Pradesh, have implemented a 50% reservation for women at the panchayat level.

#### WHY THE PRACTICE OF SARPANCH PATI IS PROMINENT?

- In traditional and conservative societies, deeply ingrained patriarchal gender norms hinder the emergence of effective female leadership.
- Lack of adequate capacity building and training for women to assume leadership roles in local governance acts as a barrier.
- The low social status of women, often compounded by illiteracy and financial dependence on men, further constrains their ability to lead effectively.
- Weak enforcement of laws that should deter men from taking over elected women's roles adds to the problem.
- Due to limited political education and overall educational opportunities, women struggle to engage in politics, perpetuating gender inequality in India.
- Women's contributions often go unrecognized, and the persistence of caste and gender-based discrimination remains despite their political positions.
- In Gram Sabhas, disorderliness prevails, and women encounter restrictions on their freedom to speak openly.
- Several instances of attacks on women leaders in Panchayats and even casualties have been reported, reflecting resistance to challenging conservative norms.
- Balancing official responsibilities with domestic duties presents challenges for women leaders.

#### WAY FORWARD:

1. **Promote Gender Sensitization:** Initiate comprehensive gender sensitization programs for both men and women in the community to raise awareness about the importance of women's leadership and their rights in local governance.
2. **Capacity Building:** Provide training and capacity-building workshops specifically tailored for Sarpanch Pati, focusing on their supportive role in empowering their spouses and facilitating women's participation in decision-making processes.
3. **Legal Awareness:** Ensure that Sarpanch Pati is well-informed about the legal framework that promotes women's representation and participation in Panchayats, emphasizing their role in upholding these laws.
4. **Encourage Partnerships:** Foster collaborations between Sarpanch Pati and his spouse to create a harmonious working relationship, enabling them to jointly address community issues and contribute effectively.
5. **Community Engagement:** Organize community dialogues and discussions to encourage open conversations about the benefits of gender equality, the active role of women in leadership, and the positive impact on overall community development.
6. **Male Champions:** Empower Sarpanch Pati to become advocates for gender equality within the community, encouraging other men to support women's involvement in local governance.

#### 4. BILL IN LOK SABHA TO ADD TWO SYNONYMS FOR MAHAR COMMUNITY IN CHHATTISGARH TO STATE'S SCHEDULED CASTES LIST

SOURCE: [TH](#)

**CONTEXT:** The Union Social Justice Ministry on Monday introduced the Constitution (Scheduled Castes) Order (Amendment) Bill, 2023 in the Lok Sabha to add two synonyms for the Mahar community in Chhattisgarh to the State's Scheduled Castes list.

The newly introduced Bill includes "**Mahara**" and "**Mahra**" as synonyms for the Mahar community, resulting in an expansion of government schemes and benefits meant for Scheduled Castes (SCs) in the State to approximately two lakh additional individuals.

#### CONSTITUTIONAL PROVISIONS:

- **Article 366(25)** of the Constitution outlines the process of defining Scheduled Tribes, stating that it includes tribes, tribal communities, or specific groups within such tribes or tribal communities as designated under **Article 342 for the purpose of the Constitution**.
- **Article 342(1), the President of India**, in consultation with the Governor of the state, has the authority to officially notify tribes or tribal communities, or specific parts or groups thereof, as Scheduled Tribes in relation to a particular State or Union Territory.
- The **Fifth Schedule of the Constitution** contains provisions for the Administration and Control of Scheduled Areas and Scheduled Tribes in states other than Assam, Meghalaya, Tripura, and Mizoram.
- The **Sixth Schedule** deals with the administration of tribal areas in Assam, Meghalaya, Tripura, and Mizoram.

#### PRELIMS SPECIFIC

#### RECENTLY ADDED COMMUNITIES IN SC ST LIST:

1. Narikoravan and Kurivikkaran (Tamil Nadu)
2. Gond Community (Uttar Pradesh)
3. Betta-Kuruba' (Karnataka)
4. Hatti Tribe (Himachal Pradesh)
5. Binjhia (Chhattisgarh)

#### LEGAL PROVISIONS:

- **Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989:** This act aims to prevent atrocities against SC and ST communities and provides for the strict punishment of offenders. It defines various offenses and safeguards the rights of these communities.
- **The Constitution (Scheduled Castes) Order, 1950, and The Constitution (Scheduled Tribes) Order, 1950:** These orders specify the list of castes and tribes deemed as Scheduled Castes and Scheduled Tribes, respectively.
- **National Commission for Scheduled Castes (NCSC) and National Commission for Scheduled Tribes (NCST):** These commissions are statutory bodies established to safeguard the rights and interests of SC and ST communities.
- **The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006:** Aims to recognize and vest forest rights and occupation of forestland in tribal communities and other traditional forest dwellers.

#### PROCESS OF INCLUSION IN SC / ST LIST

- The process of including communities in the ST/SC list begins with a recommendation from State governments or Union Territories.
- These recommendations are then forwarded to the Tribal Affairs Ministry for review and further they are sent to the Registrar General of India, under the Home Ministry, for approval.
- Once approved, the proposals are forwarded to either the National Commission for Scheduled Tribes or the National Commission for Scheduled Castes. After their scrutiny, the final step involves sending the proposals to the Cabinet for a conclusive decision.
- Once the Cabinet finalizes the proposals, a bill is introduced in Parliament to amend the **Constitution (Scheduled Castes) Order, 1950, and the Constitution (Scheduled Tribes) Order, 1950**, respectively. This amendment bill goes through both the Lok Sabha and the Rajya Sabha for approval.
- At last President takes the ultimate decision **under Articles 341 and 342** of the Constitution to officially include the recommended communities in the Scheduled Castes or Scheduled Tribes list.



<b>NEWS IN SHORTS:</b>	
<b>PEN PINTER PRIZE</b>	<p><b>What is the PEN Pinter Prize?</b></p> <ul style="list-style-type: none"> <li>• An award dedicated to English writer Harold Pinter, the PEN Pinter Prize is a prestigious award which is given to a writer who reflects a “fierce intellectual determination (to) define the real truth of our lives and our societies,”.</li> <li>• Established in 2009, previous winners of the PEN Pinter Prize include Hanif Kureishi (2010), Salman Rushdie (2014), and Lemn Sissay (2019).</li> <li>• The prize is given to a writer from the UK, Ireland, and the Commonwealth who is committed to fearless exposition of truth about contemporary life.</li> </ul>
<b>HUL DIWAS</b>	<p><b>News:</b> The Prime Minister has commemorated Hul Diwas, honouring the sacrifice of Santhals in their fight against British colonial authorities.</p> <p><b>What is Hul Diwas?</b></p> <ul style="list-style-type: none"> <li>• Hul Diwas is a day to commemorate the Santhal rebellion against British colonial rule in 1855-57. It is celebrated on June 30 every year by the Santhal people and other tribal communities in Jharkhand, West Bengal, Bihar and Odisha.</li> <li>• The rebellion was led by two brothers, Sidhu and Kanhu Murmu, who mobilized thousands of Santhals to fight against the oppression and exploitation of the British and their collaborators.</li> <li>• It also includes women who played an important role. Phulo Murmu and Jhalo Murmu, sisters from the same family, participated in the Hul, inspiring women to join the rebellion.</li> <li>• The rebellion was one of the earliest and largest uprisings against colonialism in India and is considered a precursor to the 1857 revolt.</li> </ul>
<b>ALLURI SITARAM RAJU</b>	<p><b>News:</b> Recently, the President of India attended the closing ceremony of the 125th Birth Anniversary of Alluri Sitarama Raju in Hyderabad.</p> <p><b>Who was Alluri Sitaram Raju?</b></p> <ul style="list-style-type: none"> <li>• Alluri Sitaram Raju was an Indian revolutionary who fought against the British colonial rule in India in the early 20th century.</li> <li>• He was born on 4 July 1897 or 1898 in Pandrangi, Madras Presidency, British India (present-day Andhra Pradesh, India).</li> </ul> <p><b>Which rebellion was he part of?</b></p> <ul style="list-style-type: none"> <li>• He led the Rampa Rebellion of 1922-1924, an armed campaign against the British authorities who imposed oppressive laws on the forest dwellers and exploited them.</li> <li>• He was known as Manyam Veerudu (Hero of the Jungle) by the local people for his bravery and leadership. He was captured and executed by the British on 7 May 1924 at Koyyuru village in Chintapalle forests.</li> <li>• He was inspired by the Non-Cooperation Movement and persuaded people to wear khadi and give up drinking. He also asserted that India could be liberated only by the use of force, not non-violence.</li> <li>• He used guerrilla tactics to attack police stations, kill British officials and acquire firearms. He also spread Gandhiji’s ideas of swaraj and self-reliance among the rebels.</li> <li>• He sacrificed his life for the cause of freedom and became a symbol of courage and resistance for the people.</li> </ul>



<p><b>FARMERS DISTRESS INDEX</b></p>	<p><b>News:</b> Central Research Institute for Dryland Agriculture (CRIDA), an institution under the Indian Council of Agricultural Research (ICAR) has developed an early warning system called ‘farmers distress index’.</p> <p><b>What is Farmers Distress Index?</b></p> <ul style="list-style-type: none"> <li>• The Farmers Distress Index is a tool that measures the level of hardship and suffering faced by farmers due to various factors such as climate change, crop failure, price volatility, and income loss.</li> <li>• It is developed by the Central Research Institute for Dryland Agriculture (CRIDA), an institution under the Indian Council of Agricultural Research (ICAR).</li> <li>• The index is based on a survey of farmers using 21 questions that cover seven indicators of distress, such as exposure to droughts, floods, pest attacks, debt, adaptive capacity, triggers for immediate distress, and socio-psychological factors.</li> <li>• The index will help in identifying the degree of distress in different regions and providing timely preventive measures and support packages for farmers in need. The index is currently being worked out in the form of a mobile or desktop application.</li> </ul> <p><b>How is the index calculated?</b></p> <ul style="list-style-type: none"> <li>• The index is calculated by assigning weights to the seven indicators of distress based on their relative importance and aggregating them to form a composite score for each farmer and sub-district.</li> <li>• The index ranges from 0 to 1, where 0 indicates no distress and 1 indicates extreme distress.</li> </ul>
<p><b>SWAMIH INVESTMENT FUND</b></p>	<p><b>News:</b> Recently, PM Modi congratulated new homeowners in Bengaluru’s first project under SWAMIH Fund which has helped more than 3000 families in owning their dream homes.</p> <p><b>What is SWAMIH investment fund?</b></p> <ul style="list-style-type: none"> <li>• The Special window for affordable and mid-income housing (SWAMIH) investment fund is a social impact fund that aims to provide priority debt financing for the completion of stressed, brownfield and RERA registered residential projects that fall in the affordable, mid-income housing category.</li> <li>• The fund is sponsored by the Ministry of Finance, Government of India, and is managed by SBICAP Ventures Ltd, a State Bank Group company.</li> <li>• The Fund’s presence in a project often acts as a catalyst for better collections and sales primarily in projects that were delayed for years.</li> <li>• The fund has so far provided final approval to about 130 projects with sanctions worth over Rs 12,000 crore.</li> </ul>

## SCIENCE AND TECHNOLOGY

## HEALTH, BIOLOGY &amp; BIOTECHNOLOGY

## 1. LYMPHATIC FILARIASIS

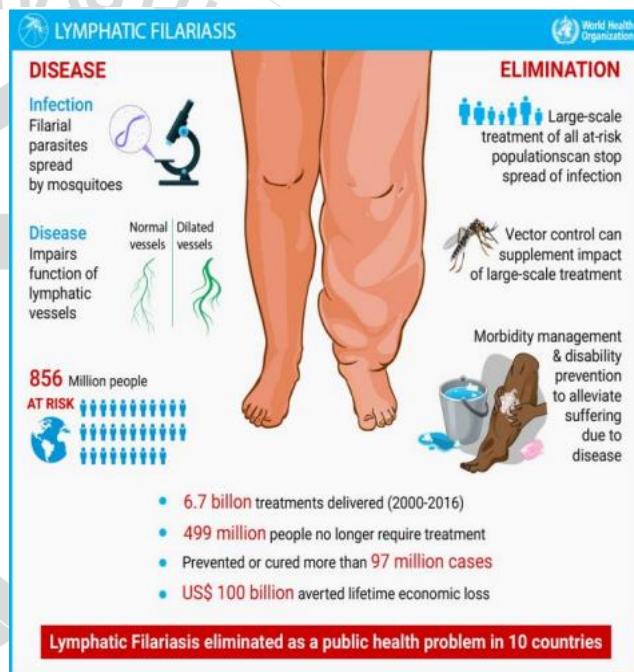
**News:** Climate change, a major threat to global health, has had the most vulnerable effects on lymphatic filariasis (LF).

## WHAT IS LF?

- LF is a mosquito-borne disease that causes chronic swelling of the limbs, known as elephantiasis. It is a major cause of disability and disfigurement, and can also lead to social exclusion.
- LF is a major cause of morbidity and mortality in India, affecting about 670 million people in 336 districts.

## HOW DOES CLIMATE CHANGE AFFECT LF?

- Rising temperatures will allow mosquitoes to expand their range to higher altitudes and latitudes. This will put more people at risk of infection, as well as increase the transmission season in some areas.
- Climate change is expected to increase the frequency and intensity of extreme weather events, such as floods and droughts. These events can damage mosquito breeding sites and disrupt vector control efforts, leading to outbreaks of LF.
- Climate change is also expected to lead to changes in rainfall patterns, which could affect the availability of breeding sites for mosquitoes. This could make it more difficult to control LF transmission in some areas.



## WHERE IS IT PREVALENT MOST IN INDIA? WHAT STEPS HAVE BEEN TAKEN TO PREVENT LF?

- Lymphatic filariasis is endemic in India and is seen most commonly in the states of Uttar Pradesh, Bihar, Jharkhand, Orissa, Andhra Pradesh and Tamil Nadu.
- The Indian government has taken several steps to control the disease. The National Vector Borne Disease Control Programme under the Ministry of Health is running an elimination programme for lymphatic filariasis with the World Health Organization, Gates Foundation and other partner NGOs.
- Mass drug administration campaigns provide an annual dose of anti-filarial drugs to those in endemic zones. The treatment is a few pills taken once a year for five years.
- The triple drug therapy that administers a single dose of three anti-filarial drugs: Ivermectin, Diethylcarbamazine and Albendazole (IDA), is a radical step towards intensifying LF prevention efforts and the Government of India is committed to scale-up these efforts across the country in 21 of 37 endemic states and UTs.

### SCENARIO IN INDIA:

- Lymphatic filariasis presents a serious danger to India. Approximately 650 million individuals in 21 states and union territories of India face the risk of this disease. India accounts for over 40% of global cases.
- In 2018, the government introduced the Accelerated Plan for Elimination of Lymphatic Filariasis (APELF). To further enhance elimination efforts, the government subsequently introduced the phased implementation of IDA treatment (triple drug therapy).

### GLOBAL INITIATIVES:

1. **Global Programme to Eliminate Lymphatic Filariasis (GPELF):** Launched by the World Health Organization (WHO) in 2000, it aims to eliminate lymphatic filariasis as a public health problem by 2020 through mass drug administration and other interventions.
2. **WHO Roadmap for Neglected Tropical Diseases:** This roadmap, established in 2012, emphasizes the need to tackle neglected tropical diseases, including lymphatic filariasis, through increased political commitment, expanded partnerships, and enhanced access to essential medicines.
3. **London Declaration on Neglected Tropical Diseases (2012):** A public-private partnership committing to controlling, eliminating, or eradicating ten neglected tropical diseases, including lymphatic filariasis, by 2020.
4. **Global Alliance to Eliminate Lymphatic Filariasis (GAELF):** A network of partners working together to support and accelerate lymphatic filariasis elimination efforts worldwide.

## 2. NATIONAL SICKLE CELL ANAEMIA ELIMINATION MISSION

**News:** Prime Minister Narendra Modi recently launched a national sickle cell anaemia elimination mission aiming to screen more than seven crores young tribals so that the debilitating disease can be detected early and managed with therapies.

### WHAT IS SICKLE CELL DISEASE (SCD)?

- Sickle cell disease is a genetic blood disorder that affects the shape and function of red blood cells. It causes them to become sickle-shaped and sticky, leading to blockage of blood vessels and reduced oxygen supply to various organs.
- SCD can cause severe pain, anaemia, infections, organ damage and premature death. SCD is more common in the tribal population of India but also occurs in non-tribals.
- SCD is inherited from both parents.
- It is estimated that about 1.5 crore people in India have SCD or carry the sickle cell gene.

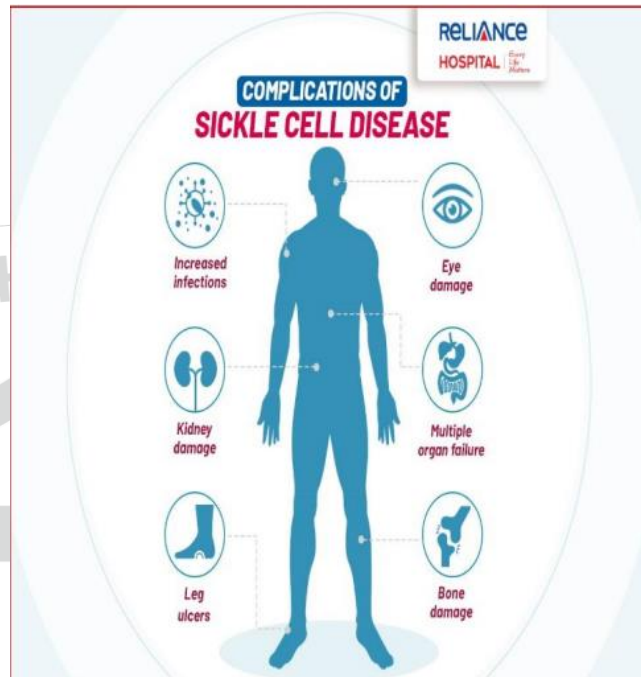
### IS THERE ANY CURE FOR SCD?

- There is no single cure for sickle cell disease, but treatments are available to help manage the symptoms and complications.
- **Medicines:** There are different types of medicines that can help prevent or reduce the sickling of red blood cells, the frequency of pain crises, the risk of infections and the inflammation of blood vessels.
- **Transfusions:** Blood transfusions can help increase the number of normal red blood cells in the body and improve the oxygen delivery to organs. Transfusions can also lower the risk of stroke, acute chest syndrome and other complications.

- **Bone marrow transplant:** A bone marrow transplant is a procedure that replaces faulty bone marrow (the soft tissue inside the bones that produces blood cells) with healthy bone marrow from a donor. This can cure sickle cell disease in some cases, but it is not widely available and has many challenges such as finding a suitable donor, undergoing chemotherapy or radiation to prepare for the transplant, and dealing with possible rejection or complications after the transplant.

#### WHAT IS THE NATIONAL SICKLE CELL ANAEMIA ELIMINATION MISSION?

- The mission aims to eliminate SCD as a public health problem by 2047, the 100th year of India's independence.
- The mission has strategies – Health promotion (creating awareness about SCD), Prevention (conducting universal screening), Management (strengthening primary, secondary, and tertiary healthcare facilities) and Convergence (co-ordinating with different ministries).
- The mission is implemented by the Ministry of Health and Family Welfare under the National Health Mission (NHM), in collaboration with the Ministry of Tribal Affairs, Ministry of Social Justice and Empowerment, Ministry of Women and Child Development, Ministry of Education, Ministry of Science and Technology, Indian Council of Medical Research (ICMR), National Health Authority (NHA) and other partners.



#### WAY FORWARD:

1. **Awareness Campaigns:** Launch public awareness programs to educate communities about sickle cell anemia's causes, risks, and preventive measures.
2. **Genetic Counselling:** Offer genetic counselling to individuals and families to understand carrier status and risk factors.
3. **Screening Programs:** Implement widespread pre-marital and prenatal screening to identify carriers and inform reproductive choices.
4. **Newborn Screening:** Establish newborn screening to detect the disease early and enable timely interventions.
5. **Healthcare Services:** Provide accessible and affordable healthcare, focusing on proper disease management and treatment.

### 3. ONE HEALTH PRIORITY RESEARCH AGENDA ON AMR

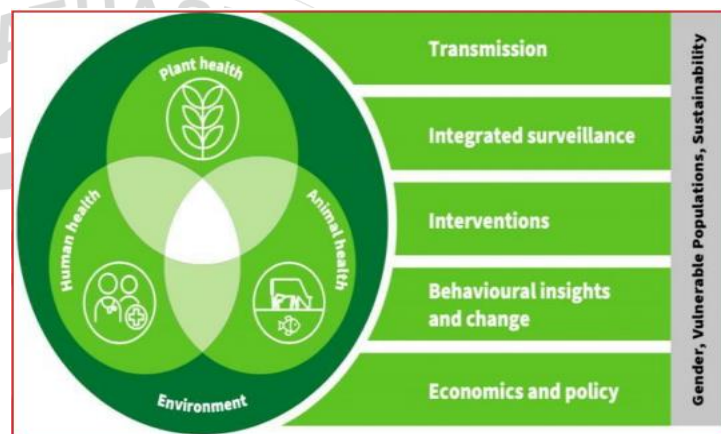
**News:** The 'Quadripartite' — comprising the United Nations (UN) Food and Agriculture Organization (FAO), the UN Environment Programme (UNEP), the World Health Organization (WHO) and the World Organisation for Animal Health (WOAH) has released the One Health Priority Research Agenda on Antimicrobial Resistance (AMR).

### WHAT IS ONE HEALTH APPROACH?

- One Health is an integrated, unifying approach that aims to balance and optimize the health of people, animals and ecosystems. It recognizes that the health of humans, domestic and wild animals, plants, and the wider environment (including ecosystems) are closely linked and interdependent.
- One Health is not a new concept, but it has become more important in recent years due to the increasing interactions between people, animals and the environment as a result of factors such as population growth, urbanization, deforestation, globalization, travel and trade.
- These factors can create conditions for the emergence and spread of new or re-emerging diseases that can have serious impacts on human health, animal health, food security, biodiversity and economic development.

### WHAT IS ONE HEALTH PRIORITY RESEARCH AGENDA ON AMR?

- **The research agenda covers four main areas -** epidemiology, burden and drivers of AMR; context specific and cost-effective strategies to prevent infections and emergence of resistance; discovery of new diagnostic tests and improved treatment regimens; and cost-effective methods to collect data and translate it into policy.



- The research agenda also identifies crosscutting issues, such as gender, equity, ethics, governance, communication and education.
- The research agenda aims to catalyse innovation and implementation research, generate evidence that informs policy and practice, and foster collaboration and coordination among various stakeholders.
- **It focuses on 5 key pillars** – Transmission, Integrated surveillance, Interventions, Behavioural insights and change, Economics and Policy, and Significance of the agenda.

### FIVE KEY PILLARS:

1. **Transmission:** This aspect centers on the ecosystems of the environment, plants, animals, and humans, where the occurrence, propagation, and dissemination of AMR transmission take place.
2. **Integrated surveillance:** This element seeks to identify pivotal research inquiries that span different sectors, fostering enhanced shared understanding and the exchange of information among stakeholders in the One Health approach.
3. **Interventions:** This facet directs attention to initiatives, methodologies, tools, and endeavours designed to prevent, manage, or mitigate the occurrence, prevalence, and propagation of AMR.
4. **Behavioural insights and change:** This aspect concentrates on research that addresses human behaviours influencing AMR, encompassing strategies to counter its impact.



5. **Economics and policy:** This pillar encompasses evaluating the cost-effectiveness of investments in AMR, ensuring financial viability, and assessing the sustained financial repercussions over the long term.

#### WAY FORWARD:

- **Enhanced Research Collaboration:** Foster collaborations among researchers, institutions, and stakeholders from various sectors, promoting a holistic approach to tackling AMR.
- **Interdisciplinary Research Platforms:** Establish interdisciplinary research platforms that bring together experts from human health, animal health, agriculture, and environmental sciences to address AMR comprehensively.
- **Capacity Building:** Invest in training programs to develop skilled professionals who can conduct research and implement strategies to combat AMR effectively.
- **Integrated Surveillance Systems:** Develop robust surveillance systems that monitor AMR trends across human, animal, and environmental sectors, enabling timely interventions.

#### 4. IMPROVING PALLIATIVE CARE IN INDIA: CHALLENGES AND THE WAY FORWARD

SOURCE: [TH](#)

#### UNDERSTANDING PALLIATIVE CARE:

- Palliative care is a specialized branch of medicine focused on enhancing the quality of life and alleviating suffering among individuals with life-limiting illnesses such as heart failure, kidney failure, neurological diseases, and cancer.
- Often mistaken for end-of-life care, it emphasizes holistic support for patients, addressing their physical, psychological, spiritual, and social needs.

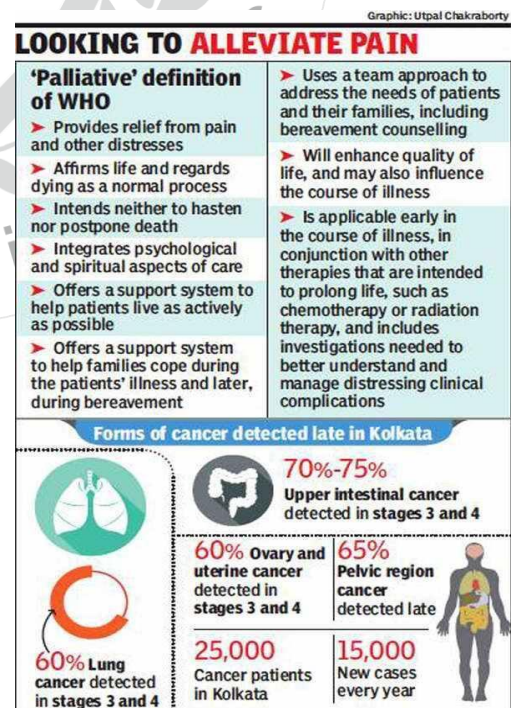
#### OBJECTIVES OF PALLIATIVE CARE:

- Identify patients at risk of over-medicalization to ensure a balance between quality of life and medical interventions, reducing financial burden on families.
- Address the multidimensional aspects of health for those with life-limiting diseases, offering support in various areas.
- Provide bereavement and grieving support to caregivers after the patient's death.

#### PALLIATIVE CARE NEEDS IN INDIA:

- India is experiencing a significant rise in lifestyle-related non-communicable diseases, including cancer, diabetes, hypertension, and respiratory ailments.
- **Approximately 7-10 million people in India** require palliative care at some point in their disease trajectory.

#### CURRENT STATUS OF PALLIATIVE CARE IN INDIA:



- Palliative care services are disproportionately available in tertiary healthcare facilities, mainly in **urban areas**, reaching **only 1-2%** of those who need it across the country.
- Health-related expenditures push **55 million people below the poverty line** annually, indicating the impact of over-medicalization.

#### INITIATIVES TAKEN:

- The government has implemented various health programs and schemes, including the **Ayushman Bharat Health Insurance Scheme** and the **National Programme for Health Care for the Elderly**.
- NGOs like Pallium India, Karunashraya, and CanSupport play a significant role in providing palliative care, although they face limitations in terms of resources compared to the government.
- The **National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD)** was launched to address non-communicable diseases and now incorporates palliative care in its revised operational guidelines.

#### GAPS IN GUIDELINES:

- The guidelines focus on palliative care **only in the context of cancer**, whereas there is a higher need for it in non-cancer illnesses as well.
- **Lack of mention of home-based palliative care services**, which are crucial for patients with debilitating diseases.
- Paediatric palliative care is not addressed, **neglecting** the needs of **children with chronic illnesses**.
- Linking multiple programs, including NPPC, **without clear mechanisms** for convergence creates uncertainty.

#### Prelims Specific Information on Palliative care

- The main goal of the policy is to **lower the high expenses of treating rare diseases** by placing more **focus on domestic research**.
- It is a part of the **National Health Mission's Non-Communicable Disease Control Programs**.
- **Enhance** the ability of government health programs like the **National Program for the Prevention and Control of Cancer, Cardiovascular Disease, Diabetes, and Stroke, National Program for the Health Care of the Elderly, National AIDS Control Program, and National Rural Health Mission** to deliver palliative care services.

#### WAY FORWARD:

##### Strengthening State-level Implementation:

- Enhance the implementation and monitoring of the National Palliative Care Policy (NPPC) at the state level.
- **Allocate adequate funding, human resources, and infrastructure** to support palliative care services.

##### National Standards and Guidelines:

- Develop and implement **national standards and guidelines** for palliative care services.
- Focus on **quality assurance** to ensure consistent and effective care.

##### Education and Training:

- Enhance education and training programs for palliative care professionals and volunteers.
- Offer training at various levels and settings to improve service delivery.

### Integration into Health Systems:

- Respond to the **67th World Health Assembly's call** for integrating palliative care into health systems at all levels.
- Integrate palliative care into mainstream healthcare services.

### Referral and Linkage Mechanisms:

- Improve the referral and linkage mechanisms between different healthcare providers for palliative care.
- Facilitate **seamless coordination** and **collaboration among healthcare professionals** for comprehensive care.

## 5. NATIONAL POLICY FOR RARE DISEASES 2021: PROVIDING SUPPORT FOR RARE DISEASES TREATMENT

SOURCE: [BS](#)

### ABOUT THE NATIONAL POLICY FOR RARE DISEASES 2021:

- The policy's main **objective** is to reduce the high treatment costs for rare diseases through increased emphasis on indigenous research.
- Financial assistance of up to Rs. 20 lakhs are offered for one-time treatment.
- A crowd funding mechanism is introduced to aid in funding treatments.
- The policy establishes a registry of rare diseases to facilitate early detection.
- Rare diseases are categorized into three groups based on their treatment requirements.

### PREVALENCE AND TREATMENT AVAILABILITY OF RARE DISEASES:

- There are approximately 6,000-8,000 classified rare diseases, but only less than 5% of them have available therapies for treatment.
- Examples include **Lysosomal Storage Disorders (LSD)**, Pompe disease, cystic fibrosis, muscular dystrophy, spina bifida, and haemophilia.
- A vast majority, about 95%, of rare diseases lack approved treatments, leaving less than 1 in 10 patients with disease-specific remedies.

### GENETIC ORIGINS AND PREVALENCE:

- Around 80% of rare diseases are of genetic origin, making their management challenging.
- The prevalence of rare diseases varies across countries, affecting as few as 1 in 10,000 individuals to 6 per 10,000 people.
- A broad definition of '**rare disease**' describes it as a health condition with low prevalence, impacting only a small number of individuals compared to more prevalent diseases in the general population. Many rare diseases are severe, chronic, and life-threatening.

### RARE DISEASES IN INDIA:

- India has an estimated 50-100 million individuals affected by rare diseases or disorders, with nearly 80% of these cases involving children.
- These rare conditions are a leading cause of not reaching adulthood due to high morbidity and mortality rates associated with life-threatening diseases.

### THREE GROUPS OF RARE DISEASES

- **Group 1:** Rare disorders that can be treated with a one-time curative approach.
- **Group 2:** Diseases needing long-term or lifelong treatment with relatively lower costs, supported by documented benefits in literature and regular surveillance.
- **Group 3:** Diseases with available definitive treatment but challenges lie in patient selection for optimal benefits due to high costs and lifelong therapy.

#### ACCESSING FINANCIAL ASSISTANCE FOR TREATMENT:

- Patients residing nearby may approach the nearest Centre of Excellence for assessment and benefits.
- Eight Centers of Excellence (CoEs) have been identified for diagnosis, prevention, and treatment of rare diseases.
- CoEs will receive a one-time grant of up to Rs. 5 crore each for infrastructure development to support screening, tests, and treatment.

#### Recent GST Council Decision:

- Integrated Goods and Services Tax (IGST) on medicines and Food for Special Medical Purposes (FSMP) used for treating rare diseases under the National Policy for Rare Diseases, 2021, will be exempted when imported for personal use.

#### CHALLENGES IN COMBATING RARE DISEASES:

- These illnesses exhibit fundamentally different difficulties from those of more widespread illnesses and have distinct definitions in different nations.
- Inheritable malignancies, autoimmune conditions, congenital deformities, Hirschsprung's disease, Gaucher disease, cystic fibrosis, muscular dystrophies, and Lysosomal Storage Disorders (LSDs) are examples of rare diseases, according to the Organization for Rare Diseases India.
- Less than 5% of patients have treatments that can be used to treat them, whilst 95% do not have any approved medications, and less than 10% of patients receive disease-specific therapy.
- When pharmaceuticals are accessible, they are extremely expensive and put a tremendous strain on resources. Additionally, the government has not been able to offer drugs for free.
- This is particularly clear during the clinical development phase, when rarity greatly increases the difficulty of the task.
- The logistics and the limited patient population are issues.

## 6. ARTIFICIAL SWEETENERS: WHO COMMITTEE'S STAND ON ASPARTAME AND ITS EFFECTS

SOURCE: [IE](#)

#### UNDERSTANDING ARTIFICIAL SWEETENERS:

- Low-calorie sweeteners (LCS) are sugar substitutes with fewer calories than regular sugar.
- They are also known as non-nutritive sweeteners, sugar substitutes, or high-intensity sweeteners.
- Found in various food and beverage products labeled "sugar-free" or "diet."

#### KEY FINDINGS OF WHO REPORT:

- The World Health Organization discourages the utilization of artificial sweeteners for managing weight or lowering non-communicable disease risks.
- Although temporary usage might lead to weight reduction and decreased body mass index (BMI), extended consumption of artificial sweeteners has been linked to weight gain.
- Certain studies propose a potential link between artificial sweeteners and conditions like bladder cancer and premature birth among pregnant women.
- Elevated intake of artificial sweeteners, especially in beverages and as additives in foods, is correlated with heightened susceptibility to type-2 diabetes, cardiovascular ailments (including stroke and high blood pressure), and premature birth.

#### WHO Recommendations for Sugar Intake:

- Explore Alternative Methods: Instead of relying solely on non-sugar sweeteners, WHO suggests considering other approaches to reduce free sugar intake. This includes consuming naturally occurring sugars from fruits or choosing unsweetened food and beverages.

#### TYPES OF SUGARS:

Name of LCS	Source
1. Sucralose	<ul style="list-style-type: none"> <li>• Made from adding chlorine to sugar molecules.</li> </ul>
2. Saccharin	<ul style="list-style-type: none"> <li>• The oldest artificial sweetener.</li> <li>• Made from benzoic sulfonimine and is up to 700 times sweeter than table sugar.</li> </ul>
3. Acesulfame	<ul style="list-style-type: none"> <li>• Made from acesulfame potassium.</li> </ul>
4. Aspartame	<ul style="list-style-type: none"> <li>• Made from the amino acids phenylalanine and aspartic acid. Also includes methanol.</li> </ul>
5. Neotame	<ul style="list-style-type: none"> <li>• Similar to aspartame and made from phenylalanine and aspartic acid.</li> </ul>
6. Stevia	<ul style="list-style-type: none"> <li>• Extracted from the leaves of the stevia plant.</li> <li>• The extracts are processed before they're packaged and sold, putting them in the same category as an artificial sweetener.</li> </ul>
7. Sugar alcohols	<ul style="list-style-type: none"> <li>• Sugar molecules with an alcohol attached. Naturally occur in some fruits.</li> </ul>

#### HOW THE BODY REACTS TO ARTIFICIAL SWEETENERS:

- Regular sugar is processed by the body for energy or stored as glycogen or fat.
- Artificial sweeteners, being man-made chemicals, are not easily absorbed by the body.
  - Some sugar alcohols like xylitol or sorbitol can cause digestive issues.
- When absorbed, artificial sweeteners go to the liver for elimination, similar to how the liver processes alcohol.

#### PRELIMS SPECIFIC NEWS:

**DIABETES:** It is a chronic condition that arises when Pancreas fails to produce enough insulin or when the body fails to use the insulin that is produced adequately.

**Diabetes type 1** is believed to be brought on by an unintentional autoimmune response in which the body fights itself. Body can't produce insulin as a result of this reaction.

**DIABETES Type 2:** In this condition, the body has trouble using insulin and cannot maintain normal blood sugar levels.

**Gestational Diabetes:** It appears in pregnant women who have never had diabetes.



## 7. AVIAN INFLUENZA OUTBREAKS: RISKS AND PRECAUTIONS

SOURCE: [AIR](#)

### AVIAN INFLUENZA OVERVIEW:

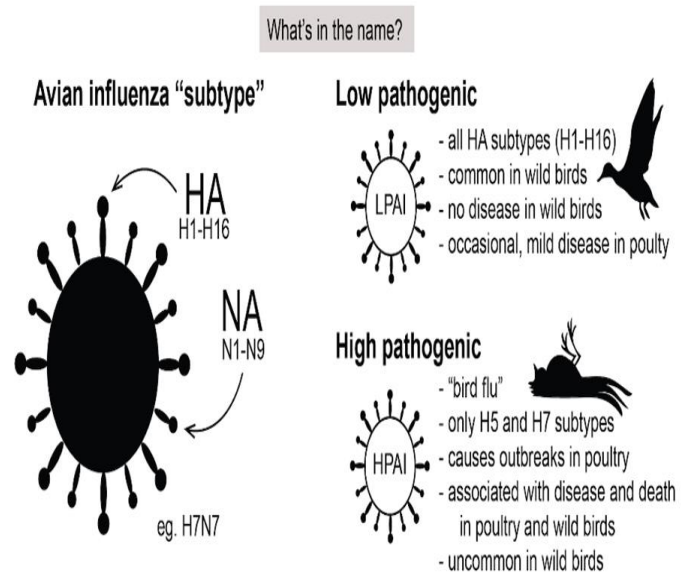
- Avian influenza, or bird flu, is caused by infection with avian (bird) influenza A viruses.
- Influenza viruses are classified into types A, B, C, and D, with type A viruses infecting humans and various animals.
- Subtypes of Influenza A viruses, such as A(H5N1), A(H7N9), and A(H9N2), are known to cause flu pandemics.

### AVIAN INFLUENZA IN BIRDS AND ANIMALS:

- Avian influenza primarily affects birds and can be highly contagious among them.
- Influenza A(H5N1) is particularly deadly for poultry.
- While avian influenza viruses do not usually infect humans, sporadic human infections have been reported.

### RISK AND PREVENTION FOR HUMANS:

- The main risk factor for humans is exposure to infected live or dead poultry or contaminated environments, like live bird markets.
- Prevention involves controlling the disease in animal sources, avoiding contact with infected birds or their environments, and practicing quality surveillance.



### TREATMENT FOR HUMAN INFECTIONS:

- Antiviral drugs like oseltamivir and zanamivir (neuraminidase inhibitors) can reduce viral replication and improve survival chances.
- Treatment is recommended for a minimum of 5 days, with the possibility of extension based on clinical improvement.

### VACCINATION AND CURRENT STATUS:

- No commercially available vaccine exists for preventing avian influenza infections in humans.
- Vigilant surveillance, risk-based pandemic planning, and proper investigation of human infections are crucial for managing the disease.

### Types of Influenza Virus: A Closer Look

1. **Influenza Virus Types:** There are four main types of influenza viruses: A, B, C, and D.
2. **Epidemic Seasonal Infections:** Influenza A and B are the two types that cause epidemic seasonal infections almost every year.

3. **Influenza C Occurrence:** Influenza C primarily affects humans, but it has also been identified in dogs and pigs.
4. **Influenza D in Cattle:** Influenza D is predominantly found in cattle and, as of now, does not infect or cause illness in humans.
5. **Avian Influenza Type A Viruses:** Type A viruses of influenza are categorized based on two surface proteins – Hemagglutinin (HA) and Neuraminidase (NA).
  - There are approximately 18 HA subtypes and 11 NA subtypes.
  - Various combinations of these proteins result in subtypes like H5N1, H7N2, H9N6, H17N10, H18N11, and others.
6. **Hosts of Influenza A:** All known subtypes of influenza A viruses can infect birds, except for H17N10 and H18N11, which have only been detected in bats.

## 8. NATIONAL IMMUNIZATION COVERAGE ESTIMATES FOR 2022

### WHY IN NEWS?

Recently, the WHO and UNICEF released national immunization coverage estimates for 2022. **India's DPT3 vaccine coverage reached an all-time high of 93%, surpassing the pre-pandemic record of 91% in 2019 and showing significant growth from 85% in 2021.**

### UNIVERSAL IMMUNIZATION PROGRAMME (UIP): -

#### Background:

- The Expanded Programme on Immunization **began in 1978** and later expanded beyond urban areas, becoming the Universal Immunization Programme (UIP) in 1985.
- It became part of the Child Survival and Safe Motherhood Programme in 1992 and was included in the National Reproductive and Child Health Programme in 1997.
- Since the launch of the National Rural Health Mission in 2005, UIP has remained an integral part of it.

#### About:

- The Universal Immunization Programme **targets around 2.67 crore newborns and 2.9 crore pregnant women annually.**
- It provides **free immunization against 12 vaccine-preventable diseases.**
- Nationally, it covers **9 diseases**, including **Diphtheria, Pertussis, Tetanus, Polio, Measles, Rubella, severe form of Childhood Tuberculosis, Hepatitis B, and Meningitis & Pneumonia caused by Hemophilus Influenza type B.**
- Sub-nationally, it covers **3 diseases: Rotavirus diarrhoea, Pneumococcal Pneumonia, and Japanese Encephalitis.**
- A child is considered fully immunized if they receive all due vaccines as per the national immunization schedule within the first year of age.

#### Major milestones:

- The UIP achieved two significant milestones: the **elimination of polio in 2014** and the **elimination of maternal and neonatal tetanus in 2015.**

## THE KEY FINDINGS:

### Global Coverage:

- Global immunization services reached approximately 4 million more children in 2022 compared to the previous year.
- However, around 20.5 million children worldwide remained either unvaccinated or under-vaccinated, missing out on one or more routine immunization vaccines.

### Coverage in India:

- India accounted for 1.6 million of the unvaccinated and under-vaccinated children for DPT-3 (diphtheria, pertussis, and tetanus) vaccine.
- **DPT vaccine** is given in three doses to **children below 7 years of age** and is used to assess routine immunization service provision.
- India's coverage rate for **DPT3 (diphtheria, pertussis, and tetanus)** vaccines reached an **all-time high of 93%**, surpassing the pre-pandemic record of 91% in 2019.
- This significant increase indicates a sharp rise from the 85% coverage recorded in 2021.

### Performance of WHO South-East Asia Region:

- The WHO South-East Asia Region showed the best immunization recoveries among all WHO regions.
- This progress is largely attributed to efforts made by India and Indonesia.

### Impact of Inequities in Immunization Coverage:

- Inequities in immunization coverage create pockets of unvaccinated children, posing risks of outbreaks of preventable diseases like measles and diphtheria.

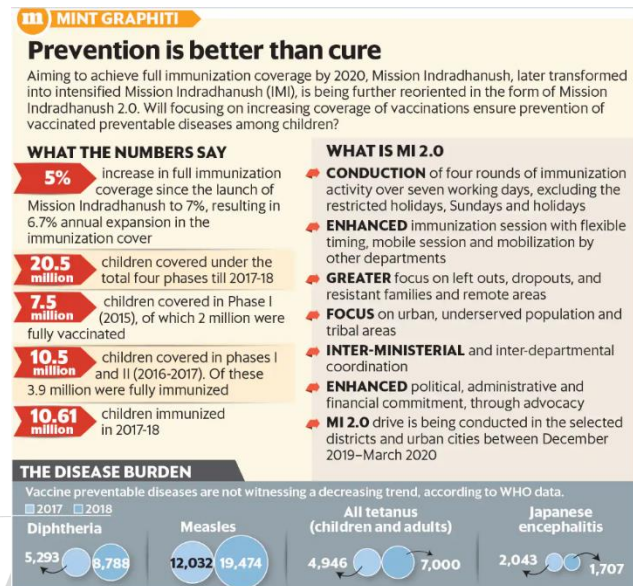
## WAY FORWARD:

- **Strengthening Routine Immunization Services:** Eg- the Indian state of Kerala, the "Mission Indradhanush" campaign targeted underserved areas, leading to a significant increase in immunization coverage from 61% to 81%.
- **Innovations in Vaccine Delivery:** Eg- In Rwanda, Zipline, a drone delivery service, successfully transported vaccines and blood products to remote health centers, ensuring timely vaccinations.
- **Digital Health Technologies:** Eg- In Bangladesh, the "mHealth" project used mobile phones to track children's vaccination status, leading to an increase in immunization coverage.
- **Community Engagement:** Eg- In Nepal, the "Female Community Health Volunteers" program increased immunization coverage by involving local women as advocates and immunization providers.

## PRELIMS SPECIFIC: - Mission Indradhanush:

- Launched in December 2014, Mission Indradhanush (MI) seeks to achieve a 90% full immunization coverage for children.

- MI focuses on areas with low immunization rates and hard-to-reach regions, where unvaccinated and partially vaccinated children are most prevalent.
- So far, six phases of MI have been completed, covering 554 districts throughout India.
- In 2017, the Intensified Mission Indradhanush (IMI) was introduced to further boost the immunization campaign significantly.



## 9. National Research Foundation (NRF) Bill, 2023

### WHY IN NEWS?

One of the significant bills scheduled to be presented in the current monsoon session of Parliament is the National Research Foundation (NRF) Bill, 2023.

### NATIONAL RESEARCH FOUNDATION (NRF) BILL, 2023:

- The NRF Bill proposes the establishment of a **centralized body** to fund research with a **budget of ₹50,000 crore** over the next five years.
- The NRF takes inspiration from successful models like the US National Science Foundation and the European Research Council.
- The plan is to **source a significant portion of its budget (₹36,000 crore) from the private sector**.
- The rationale behind attracting more private money is based on the fact that the private sector contributes around 70% of research expenditure in many developed countries.
- The **aim is to galvanize university research in India** by increasing private sector participation and investment.

### THE CURRENT SITUATION OF RESEARCH IN INDIA:

- **Spending on research** in India has historically been around **0.6%-0.8% of GDP**, lower than the 1%-2% seen in science and technology-driven economies.
- In countries like China, the US, and Israel, the **private sector** contributes nearly 70% of research expenditure, whereas in India, it accounts for only **about 36% of the total research spending**, roughly ₹1.2 lakh crore in 2019-20.
- The number of students enrolled in PhD programs in 2018 was 161,412, representing less than 0.5% of the total student enrolment in higher education, which includes undergraduate and postgraduate students in universities, colleges, and standalone institutes.

### CHALLENGES:

- The **lack of scientific training** hampers researchers, leading to a shortage of competent researchers in the country.
- There is **insufficient coordination** between university research departments, businesses, government departments, and research institutions.
- **Inadequate investment** in research and development contributes to the scarcity of private sector research companies in India.
- The **absence of a code of conduct for researchers** and **inter-university rivalries** are common challenges that need addressing.
- Delays in research studies occur due to inadequate secretarial and computer assistance.
- The **lack of rewards for researchers** is a significant factor behind the underperformance of Indian institutions in research.

#### WAY FORWARD:

- **Foster Industry-Academia Collaboration:** Eg- Massachusetts Institute of Technology (MIT) in the USA collaborates extensively with private companies, leading to innovations like the development of 3D printing technologies.
- **Increase Research Funding:** Eg- countries like South Korea increased their research and development expenditure from 2.2% of GDP in 1996 to 4.5% in 2018
- **Promote Research in Emerging Fields:** in emerging fields such as artificial intelligence, biotechnology, and renewable energy can put India at the forefront

## 10. GM MUSTARD

#### WHY IN NEWS:

Over the last two decades, India has experienced a strong discourse surrounding GM crops, with environmentalists, scientists, farmers, and the higher judiciary raising inquiries about their safety, efficacy, and necessity. Recently, activists have even approached the Supreme Court to seek a ban on the cultivation of the Genetically-Modified (GM) food crop - Dhara Mustard Hybrid-11 (DMH-11) - citing various concerns.

#### ABOUT GM MUSTARD:

- DMH-11 is a homegrown genetically modified variety of mustard, known as **transgenic mustard**.
- It is created by **crossing** the Indian mustard variety '**Varuna**' with the East European '**Early Heera-2**' mustard.
- DMH-11 contains two foreign genes, '**barnase**' and '**barstar**,' obtained from **Bacillus amyloliquefaciens, a soil bacterium**. These genes facilitate the breeding of high-yielding commercial mustard hybrids.
- The **barnase gene** in Varuna induces **temporary sterility**, preventing natural self-pollination, while the **barstar gene** in Heera **counteracts barnase's effect**, allowing seed production.
- DMH-11 has demonstrated approximately **28% higher yield** compared to the national check and 37% more than the zonal checks, receiving approval from the GEAC.
- The "**Bar gene**" maintains the genetic purity of hybrid seeds.



#### ISSUES REGARDING GM MUSTARD:

- GM mustard is a crop designed to be **tolerant to herbicides**, but **concerns** have been raised by **farmers and campaigners** about the **potential adverse health effects** of spraying hazardous chemicals on the plant. They also argue that it may not be suitable for India's agricultural conditions and is **environmentally unsustainable**.
- A wide range of stakeholders, including environmentalists, scientists, lawmakers, farmers, consumers, and members of the higher court, have expressed **doubts about the necessity, safety, and effectiveness of Genetically Modified (GM) food**.
- Committees involved in the evaluation of GM mustard have highlighted **significant weaknesses in the regulatory system** and emphasized the need for utmost caution. They have also pointed out **deficiencies in the safety assessment of GM crops**.
- The Government has not made the full biosafety dossier of GM mustard publicly available and has stated that it should not be categorized as a Herbicide Tolerant (HT) crop.

#### WHY GM MUSTARD IS NECESSARY?

- **India's import of edible oils is increasing** to meet domestic demand, causing a reduction in foreign exchange reserves.
- GM Mustard is seen as crucial to **reduce the forex drain** caused by agricultural imports.
- The **productivity of oilseed crops** like soybean, rapeseed mustard, groundnut, sesame, sunflower, safflower, and linseed in India **is significantly lower than global productivity** of these crops.
- Crossing genetically diverse parents leads to hybrids with higher yield and better adaptation, which can potentially **address the productivity gap** in oilseed crops.

#### PRELIMS SPECIFIC: OTHER GM CROPS IN INDIA

- **Bt Cotton:** Bt cotton contains foreign genes from *Bacillus thuringiensis* (Bt) bacterium, enabling the crop to produce a protein toxic to the pink bollworm insect. It is the only permitted GM crop in India. Additionally, Bt cotton has a gene from another soil bacterium, making it resistant to the pesticide glyphosate.
- **Bt Brinjal:** Bt brinjal has a gene that protects the plant from fruit and shoot borer infestations. The government faced opposition from NGOs and anti-GMO campaigners, leading to delays in its commercial distribution.
- **DMH 11 Mustard:** DMH-11 mustard, created by Deepak Pental and colleagues at the University of Delhi's South Campus, has genetic modifications that allow cross-pollination in a naturally self-pollinating crop.
- **Worldwide variants:** Genetically modified versions of maize, canola, and soybeans are available globally.

## 11. BIOSIMILARS

SOURCE: [TH](#)

Biosimilars are novel versions of original biologic drugs that receive approval after **the patent of the original drug expires**.

Essentially, a biosimilar is a biological medicine that closely resembles another biological medicine that has already been approved (known as the 'reference medicine'). These biosimilars go through **the same rigorous standards of pharmaceutical quality**, safety, and effectiveness that are applicable to all biological medicines.

PRELIMS SPECIFIC:		
FEATURES	GENERIC DRUGS	BIOSIMILARS
<b>Composition</b>	Small molecules that are chemically synthesized	Large molecules that are produced from living organisms
<b>Similarity to Reference Drug</b>	Identical	Not identical
<b>Regulatory Approval Process</b>	Abbreviated New Drug Application (ANDA)	Biologics License Application (BLA)
<b>Cost</b>	Typically, 40-50% less than the brand-name drug	Typically, 15-20% less than the reference biologic
<b>Availability</b>	Widely available	limited availability

### FEATURES OF BIOSIMILAR DRUGS

- **Structure:** Biosimilars are made using the same manufacturing process as the reference biologic, so they have the same overall structure.
- **Function:** Biosimilars have the same biological function as the reference biologic, meaning that they work in the same way to treat the same medical conditions.
- **Clinical safety and efficacy:** Biosimilars have been shown to be safe and effective in clinical trials, with no clinically meaningful differences from the reference biologic.
- **Approval:** Biosimilars are approved by the FDA after rigorous evaluation and testing. This process includes comparing the biosimilar to the reference biologic in terms of structure, function, safety, and efficacy.
- **Cost:** Biosimilars can be a cost-effective alternative to the reference biologic. This is because biosimilars are typically priced lower than the reference biologic, and they can be used to treat the same medical conditions.

### ISSUES FACED BY BIOSIMILARS:

- **Regulatory challenges:** The regulatory approval process for biosimilars is complex and time-consuming.
  - For example, the FDA approval process for biosimilars typically takes several years, and the cost of development can reach up to \$100 million.
- **Acceptance by healthcare providers:** Some healthcare providers may be hesitant to prescribe biosimilars, even though they have been shown to be safe and effective.

- For example, a study published in the journal JAMA found that only 38% of physicians were willing to prescribe a biosimilar instead of the reference biologic.
- **Pricing:** Biosimilars are typically priced lower than the reference biologic, but they may not be as affordable as generic drugs.
- **Immunogenicity:** There is a small risk that biosimilars may cause an immune response in some patients. This is because biosimilars are not identical to the reference.
  - For example, a study published in the journal Nature Medicine found that a small number of patients who were treated with a biosimilar to infliximab developed an immune response.

#### WAY FORWARD

- **Address concerns about safety and efficacy:** These concerns can be addressed through education and outreach, as well as by conducting additional clinical trials.
- **Reduce regulatory barriers:** . Regulatory barriers can be reduced by harmonizing global regulatory standards, as well as by streamlining the approval process.
- **Improve patient access:** These barriers can be addressed by increasing awareness of biosimilars among healthcare providers and patients, as well as by expanding insurance coverage for biosimilars.

#### VALUE ADDED:

- **The World Health Organization (WHO) has developed a set of guidelines for the development and regulation of biosimilars. These guidelines have helped to harmonize global regulatory standards for biosimilars.**
- Biosimilar medicines in India are regulated by the **Central Drugs Standard Control Organization (CDSCO) under the Ministry of Health and Family Welfare (MoHFW)**. The CDSCO is responsible for the approval of all drugs in India, including biosimilars.

## NUCLEAR SCIENCE

### 11. PRESSURIZED HEAVY WATER REACTORS

**News:** Recently, India's first indigenously developed 700 MW nuclear power reactor at the Kakrapar Atomic Power Project (KAPP) in Gujarat started commercial operations.

#### BACKGROUND:

- The Nuclear Power Corporation of India Limited (NPCIL) is building two 700 MW pressurised heavy water reactors (PHWRs) at Kakrapar.
- The government has sanctioned the building of 10 indigenously developed PHWRs in fleet mode at four locations -- Gorakhpur in Haryana, Chutka in Madhya Pradesh, Mahi Banswara in Rajasthan and Kaiga in Karnataka.

#### WHAT ARE PHWRs?

- A PHWR is a nuclear reactor that uses heavy water (deuterium oxide D<sub>2</sub>O) as its coolant and neutron moderator. PHWRs frequently use natural uranium as fuel, but sometimes also use very low enriched uranium.
- The heavy water coolant is kept under pressure to avoid boiling, allowing it to reach a higher temperature without forming steam bubbles, exactly as for a pressurized water reactor.

#### WHY PHWR?

- It uses heavy/hard water as compared to soft water (H<sub>2</sub>O).
- The advantage of using heavy water is that it has low absorption of neutrons, which means that more neutrons can cause further nuclear fission in the fuel and sustain a chain reaction. It also ensures that there is an element of safety.
- Fuel flexibility – It uses Natural Uranium U-238. There is no need for enrichment and therefore no headache of international sanctions as well.
- Stable power supply - They can adjust the amount of electricity they produce based on the needs of the power grid. This helps in keeping the power supply stable, so we don't have sudden changes in electricity availability.
- Produces useful things – Beyond electricity, it also helps in making medical isotopes.

#### WHAT IS THE DIFFERENCE BETWEEN PHWRs AND PRESSURIZED WATER REACTORS (PWRs)?

PHWR	PWR
PHWRs use heavy water (deuterium oxide D <sub>2</sub> O) as a coolant and moderator	PWRs use ordinary water (light water H <sub>2</sub> O).
PHWRs use natural or very low-enriched uranium as fuel	PWRs use low to moderately enriched uranium
PHWRs have a separate primary and secondary loop of coolant	PWRs have a single primary loop
PHWRs have horizontal pressure tubes containing the fuel bundles. It means that PHWRs can refuel online, by replacing individual fuel bundles without shutting down the reactor	PWRs have vertical pressure vessels containing the fuel rods. PWRs have to refuel offline, by opening the pressure vessel and replacing a large number of fuel rods at once

**ADVANTAGES OF PHWR:**

- **PHWR System Basics:** The PHWR (pressurized heavy water reactor) employs heavy water as a moderator.
- **Fuel Compatibility:** The use of heavy water moderator allows the utilization of natural uranium as fuel. Specifically, the fuel takes the form of ceramic UO<sub>2</sub>.
- **Uranium Enrichment Avoidance:** This setup eliminates the need for costly uranium enrichment facilities.
- **Efficient Mechanical Design:** The PHWR's mechanical arrangement concentrates most moderator at lower temperatures. This design yields efficiency benefits.
- **Enhanced Thermal Neutrons:** The resulting thermal neutrons are more pronouncedly thermal. In contrast, traditional designs have moderators at higher temperatures.
- **Effective Fuel Utilization:** The characteristics of PHWR allow effective use of natural uranium and alternative fuels. This is achieved with greater efficiency than light water reactors (LWRs).

**DRAWBACKS OF PHWR:**

- **Cost of Heavy Water:** Typically, heavy water is priced at several hundred dollars per kilogram, which serves as a trade-off against lower fuel expenses.
- **Fuel Replacement Frequency:** The comparative lower energy content of natural uranium versus enriched uranium mandates more frequent fuel replacement. This replacement is typically managed through an on-power refuelling system.
- **Increased Fuel Movement:** The accelerated movement of fuel through the reactor leads to larger quantities of spent fuel, especially when compared to LWRs utilizing enriched uranium.
- **Spent Fuel Heat Generation:** Due to the reduced density of fission products in unenriched uranium fuel, it produces less heat. This diminished heat generation permits more efficient and compact storage.



## SPACE TECHNOLOGY

### 12. CHANDRAYAAN-3: INDIA'S LUNAR MISSION

Source: [TH](#)

#### LAUNCH AND OBJECTIVE:

- Indian Space Research Organisation (ISRO) launched Chandrayaan-3, India's third lunar mission, on July 14.
- Objective: Develop and demonstrate new technologies for inter-planetary missions.

#### MISSION COMPONENTS:

- Chandrayaan-3 comprises an indigenous lander module (LM), propulsion module (PM), and a rover.
- Three Modules: Propulsion, Lander, and Rover.
- Propulsion Module: Carries the lander and rover to the Moon.
- Lander Module: Contains the rover, which will explore the lunar surface.

#### PAYLOADS:

- Chandrayaan-3 carries six payloads for various studies:
  - **RAMBHA**: Measures near-surface plasma density and changes with time.
  - **ILSA**: Measures seismic activity and lunar crust and mantle structure.
  - **LIBS**: Determines elemental composition of lunar soil and rocks.
  - **APXS**: Derives chemical and mineralogical composition of the Moon's surface.
  - **SHAPE**: Studies earth's Spectro-polarimetric signatures in the near-infrared range.
  - **Lunar Lander Vikram**: Will take photos of the rover Pragyaan and study seismic activity by dropping instruments.

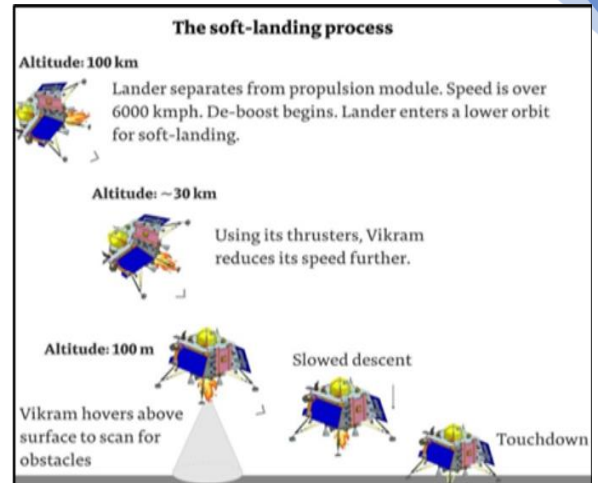


### PREVIOUS MOON MISSIONS:

- Chandrayaan-3 is similar to its predecessor, Chandrayaan-2 (launched in July 2019).
- Chandrayaan-1 was launched in October 2008, and communication was lost in August 2009.

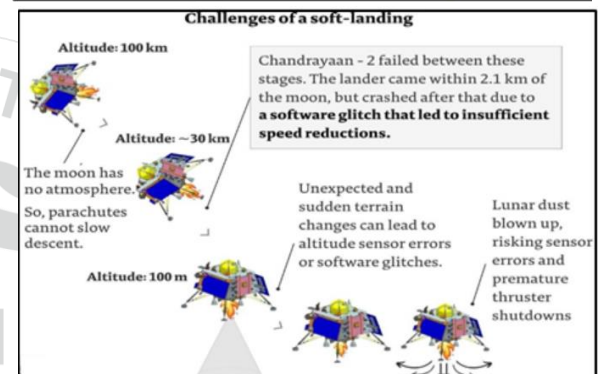
### SOFT LANDING:

- Soft landing refers to a controlled and gentle touchdown of a spacecraft on the lunar surface.
- Chandrayaan-3's soft landing process involves reducing velocity and aligning with the landing site using retro-rockets or thrusters.



### SOFT LANDING CHALLENGES:

- Chandrayaan-2 faced challenges during the landing phase, losing contact with the lander Vikram.
- Identified issues included guidance software problems and unexpected dispersion in the propulsion system.



### IMPROVEMENTS IN CHANDRAYAAN-3:

- The rocket will place the payload in an elliptical orbit around Earth, then the propulsion module will pilot the lander to a circular orbit around the Moon.
- Enhancements include strengthening the lander's legs, lowering minimum thrust, increasing power availability, and upgrading the landing sequence.

### Types of Moon Missions: Exploring the Lunar Realm

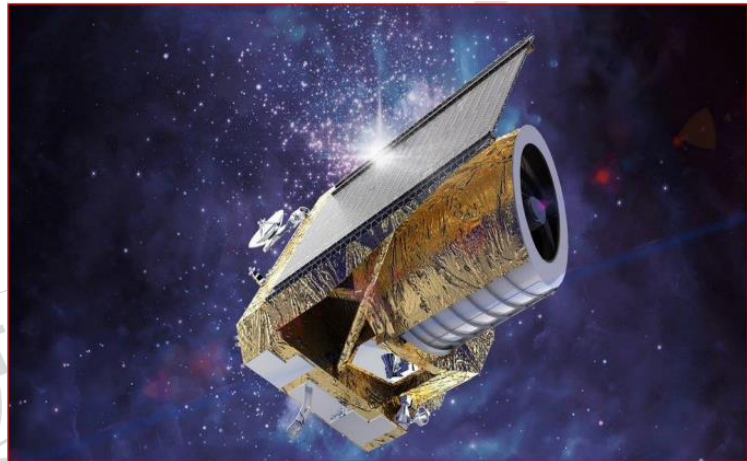
1. **Flybys:** Flyby missions observe the moon from a distance without entering its orbit.
  - Pioneer 3 and 4 (United States) and Luna 3 (USSR) are notable examples of flyby missions.
2. **Orbiters:** Orbiters enter the moon's orbit for prolonged study of its surface and atmosphere.
  - Chandrayaan-1 and 46 other missions have utilized orbiters to explore the moon.
3. **Impact Missions:** Extensions of orbiter missions, impact missions involve instruments landing on the moon's surface for valuable data collection before being destroyed.
  - Chandrayaan-1's Moon Impact Probe (MIP) followed this approach.
4. **Landers:** Landers attempt a soft landing on the moon's surface for up-close observations.
  - The USSR's Luna 9 achieved the first successful moon landing in 1966.
5. **Rovers:** Rovers are specialized payloads that detach from landers to explore the lunar surface independently.
  - Chandrayaan-2's rover, Pragyan, and the upcoming Chandrayaan-3 rover share this purpose.
6. **Human Missions:** Human missions involve astronauts landing on the moon's surface.
  - NASA achieved this milestone with six successful moon landings between 1969 and 1972.
  - NASA's planned Artemis III mission in 2025 will mark humanity's return to the moon.

### 13. EUCLID MISSION

**News:** The European Space Agency launched its Euclid spacecraft on a SpaceX Falcon 9 rocket to chart the history of the universe as far back as 10 billion years ago.

#### WHAT IS EUCLID'S MISSION?

- Euclid is a spacecraft carrying a wide-angle space telescope with a 600-megapixel camera to record visible light and a near-infrared spectrometer and photometer to determine the redshift of the detected galaxies.



- The objective of the Euclid mission is to better understand dark energy and dark matter by accurately measuring the accelerating expansion of the universe. To

achieve this, the telescope will measure the shapes of galaxies at varying distances from Earth and investigate the relationship between distance and redshift.

- Euclid will create the most accurate three-dimensional map of the cosmos to date, covering more than a third of the extragalactic sky over six years.

- Euclid is named after the ancient Greek mathematician Euclid.

- Euclid is a medium-class mission and is part of the Cosmic Vision campaign of ESA's Science Programme.

#### Regarding Dark Matter and Dark Energy:

- The observable universe, comprising Earth, the sun, stars, and galaxies, is constructed from atoms formed by protons, neutrons, and electrons. This constitutes less than 5 percent of the universe's mass. The rest of the universe is composed of enigmatic imperceptible substances known as dark matter (~25 percent) and a repulsive gravitational force termed dark energy (~70 percent).
- Distinct from regular matter, dark matter does not interact with electromagnetic forces. Consequently, it neither absorbs, reflects, nor emits light, rendering it extraordinarily challenging to detect. Scientists examine its effects on observable entities to study dark matter.
- Dark matter is hypothesized to confer galaxies with additional mass, thereby generating the extra gravitational pull required for their stability. On the other hand, dark energy refers to the baffling force behind the accelerated expansion of the universe, contrary to the anticipated deceleration over time.

#### OBJECTIVES OF EUCLID MISSION:

- **Dark Energy and Dark Matter Study:** Investigate the nature of dark energy and dark matter, which constitute the majority of the universe's content.
- **Cosmic Expansion Rate Measurement:** Measure the rate of cosmic expansion with unprecedented precision to understand the universe's evolution.

- **Galaxy Clustering Analysis:** Analyse the clustering of galaxies to uncover insights into the growth of cosmic structures.
- **Weak Gravitational Lensing Mapping:** Map weak gravitational lensing effects to study the distribution of matter and its influence on light paths.
- **Galaxy Evolution Examination:** Examine the evolution of galaxies over cosmic history to unravel their formation and development.
- **Baryon Acoustic Oscillations (BAO) Mapping:** Map the characteristic scale of baryon acoustic oscillations to trace the universe's history.
- **Redshift Surveys and Spectroscopy:** Conduct redshift surveys and spectroscopy to analyze the properties of galaxies and cosmic structures.
- **Dark Energy Equation of State:** Constrain the equation of state of dark energy to comprehend its effects on cosmic expansion.
- **Large-Scale Structure Surveys:** Perform extensive surveys of large-scale cosmic structures to enhance our understanding of the universe's architecture.
- **Infrared and Visible Observations:** Observe both visible and infrared spectra of galaxies to gather comprehensive data for analysis.
- **Euclidean Spacecraft Design:** Design and deploy the Euclid spacecraft with advanced instruments to achieve mission objectives.
- **Scientific Collaboration:** Facilitate collaboration among international scientific communities to achieve comprehensive results.

The Euclid mission aims to deepen our understanding of fundamental cosmic phenomena and contribute to unraveling the mysteries of the universe's composition and evolution.





## DEFENCE

### 14. LCA TEJAS

**News:** Indigenous Light Combat Aircraft (LCA) Tejas completed seven years of service in the Indian Air Force (IAF) on July 1.

#### BACKGROUND OF LCA TEJAS PROGRAMME:

- The LCA programme was started by the Government of India in 1984 to replace ageing Mig 21 fighter planes. The government established the Aeronautical Development Agency (ADA) (under the Department of Defence Research and Development) to manage the LCA programme.



- It is designed by ADA and manufactured by Hindustan Aeronautics Limited (HAL).

- After more than a decade of trials, the first jet was finally inducted by the IAF in 2016 in the No. 45 squadron 'Flying Daggers'.

- In 2020, the No.18 squadron 'Flying Bullets' became the second squadron to start operating the jet.

#### WHAT IS TEJAS MK-1?

- The Tejas Mk-1 is a light supersonic multirole jet, capable of doing multiple missions including - air defence (air-to-air), intelligence, surveillance and reconnaissance (ISR), air-interdiction (striking enemy targets deep into enemy territory) and maritime strike and reconnaissance missions.

- It is a fourth-generation fighter with critical operational capabilities such as an active electronically scanned array (AESA) radar, electronic warfare (EW) suite, and air-to-air refuelling (AAR)

- It can carry a range of modern weapons, including beyond-visual-range (BVR) missiles, precision-guided and standoff weapons, and air-to-ground munitions.

- Air-to-air refuelling capability, carefree handling, enhanced manoeuvrability, multi-mode airborne radar, and self-protection suite.

- Maximum payload capacity of 4000 kg, Maximum speed of Mach 1.8 and the range of the aircraft is 3,000 km.

#### KEY VARIANTS:

- Tejas Trainer: 2-seater operational conversion trainer for training air force pilots.

- LCA Navy: Twin- and single-seat carrier-capable for the Indian Navy.

- LCA Tejas Navy MK2: Phase 2 of the LCA Navy variant.

- LCA Tejas Mk-1A: Improvement over the LCA Tejas Mk1 with a higher thrust engine.

- LCA Mk2 is an upgraded version of the LCA Tejas Mk1. It will replace Jaguars, MiG-29s, and Mirage 2000s. The General Electric GE-414 engine (from the USA) will power the LCA Mk2.



### WHAT IS THE IMPORTANCE OF LCA TEJAS FOR INDIA?

- The LCA Tejas has been praised for its agility, manoeuvrability, low maintenance cost, and high survivability.
- It has also been tested in various scenarios, such as high-altitude operations, hot weather trials, weapon firing trials, and maritime trials.
- The LCA Tejas programme is also expected to have a positive impact on the Indian economy, as it involves more than 500 Indian companies, including public sector units, private sector firms, and micro, small and medium enterprises (MSMEs)
- The LCA Tejas programme is not only a matter of pride for India, but also a strategic asset for its defence and security. The recent approval of the purchase of 73 Tejas Mk-1A fighter jets and 10 trainer aircraft by the Cabinet Committee on Security (CCS) for Rs 48,000 crore is a testament to the importance of LCA Tejas for India.
- Countries such as Egypt, Sri Lanka, Bangladesh, Malaysia, Argentina, UAE, and Indonesia have shown interest in buying LCA Tejas thus reflecting its Export potential.

### DO WE HAVE ENOUGH FIGHTER JETS?

- The IAF presently has 32 squadrons (16-18 planes each) of fighter jets against the 42 needed to tackle a collusive two-front threat against Pakistan and China.
- Over the next two-three years, all four squadrons (each one has 16-18 planes) of the Soviet-era MiG-21 fighter jets will retire.
- The IAF's Jaguar, MiG-29 and Mirage 2000 jet fleets — all inducted in phases during the 1980s — are slated to retire in batches beyond 2029-30.
- These four types of jets are about 250 in number and are operating on an extended lifecycle.

## 15. PROJECT-75I: INDIA'S ADVANCED CONVENTIONAL SUBMARINE PROCUREMENT

SOURCE: [TH](#)

### ABOUT PROJECT-75I:

- The Indian Navy plans to acquire six advanced conventional submarines through the **Strategic Partnership (SP) model**.
- These **diesel-electric submarines** will be equipped with **advanced Air-independent propulsion (AIP)** systems.
- A teaming agreement has been signed between Spanish submarine manufacturer Navantia and India's Larsen and Toubro (L&T) to jointly bid for Project-75I.
- The project requires an Indian bidder to collaborate with a foreign partner for building the submarines, with increasing indigenous content from 45% in the first to 60% in the sixth submarine.

### WHAT IS SUBMARINE?

- A submarine is a vessel, or ship, that can go underwater. Submarines are called **subs for short**. Militaries and scientists use submarines to travel deep under the ocean.

#### TYPES OF SUBMARINES:

- **Conventional or Diesel-electric submarines:** They **require atmospheric oxygen** to run the diesel generator, which charges the batteries for propulsion.
- **Nuclear Submarines:** These are powered by a **nuclear reactor and offer significant performance** advantages over conventional submarines.

#### AIR-INDEPENDENT PROPULSION (AIP) SYSTEM:

- AIP systems were developed to address the challenge of finding effective propulsion methods underwater.
- It is typically used as an **auxiliary source**, supplementing traditional diesel engines for surface propulsion.
- AIP systems **generate electricity to power electric motors for propulsion** or recharge the submarine's batteries.
- They allow submarines to **remain submerged for longer periods by reducing the need for surfacing to recharge batteries**.
- AIP systems **decrease the noise levels of submarines**, making them harder to detect.

#### TYPES OF AIP SYSTEMS:

- Open-cycle systems
- Closed-cycle diesel engines
- Closed-cycle steam turbines
- Stirling cycle engines
- Fuel cells

#### ADVANTAGES OF AIR INDEPENDENT PROPULSION (AIP) SYSTEM:

##### 1. Enhanced Lethality and Stealth:

- AIP-equipped submarines **need to surface less frequently**, increasing their lethality and stealth capabilities.
- Diesel-electric submarines require **frequent surfacing to charge batteries**, limiting their underwater endurance.

##### 2. Reduced Dependency on Surface Air:

- AIP technology makes **diesel generators less reliant on surface air**, extending the submarines' submerged operation time.

#### CLASSES OF SUBMARINES IN THE INDIAN NAVY:

### 1. Arihant Class:

- Indian nuclear-powered ballistic missile submarines classified as '**strategic strike nuclear submarines.**'

### 2. Scorpene Class:

- Conventional powered submarines weighing 1,500 tonnes with a depth capacity of 300m.

### 3. Sindhughosh Class:

- Kilo-class diesel-electric submarines designated as 877EKM.

### 4. Shishumar Class:

- Diesel-electric submarines developed by the German yard Howaldtswerke-Deutsche Werft (HDW).

## IMPORTANCE OF SUBMARINES FOR INDIA:

### 1. Maritime Security:

- Submarines are crucial for India's maritime security to safeguard its coastal waters and territorial interests.

### 2. Rising Chinese Presence:

- With China increasing its naval presence in the Indian Ocean, India needs submarines to maintain strategic dominance.

## ANALYSIS AND CLARIFICATIONS:

### 1. P-75I Project:

- Claims of the P-75I being unviable lack evidence, and the Navy has not indicated any such concerns.
- The condition for foreign collaborators to provide a proven AIP system limits the number of eligible bidders.

### 2. Aatmanirbhar Bharat:

- Canceling P-75I for repeat orders does **not significantly** promote '**Aatmanirbhar Bharat.**'
- Previous projects like Project 75 faced technology transfer issues with foreign companies.

### 3. Lithium-ion Batteries vs. AIP:

- Claims favoring lithium-ion batteries over AIP are flawed.
- While lithium batteries offer certain advantages, they suffer from stability and safety risks, making AIP a viable alternative.

Project-75I aims to enhance the Indian Navy's underwater capabilities by acquiring advanced submarines equipped with AIP technology through collaboration with foreign partners and increasing indigenous content over time.

## COMPUTER & COMMUNICATION

### **16. BHARAT 6G ALLIANCE**

**News:** Bharat 6G Alliance is a collaborative platform launched by the Department of Telecommunications (DoT) on 4 July 2023 to drive innovation and collaboration in next-generation wireless technology.

**Background:** Additionally, with a grant of 240.51 crores under the Telecom Technology Development Fund (TTDF), two agreements were signed for projects.

#### **WHAT IS 6G TECHNOLOGY?**

- 6G technology is the sixth generation of wireless communication technology that is currently under development. 6G technology will likely be significantly faster, more reliable, more secure and more intelligent than 5G technology.
- It will also support new applications beyond current mobile use scenarios, such as ubiquitous instant communications, pervasive intelligence and the Internet of Things (IoT).
- 6G technology will use higher frequencies than 5G technology, such as millimetre waves (30 to 300 GHz) and terahertz radiation (300 to 3000 GHz), which can provide higher data rates and lower latency.
- One of the goals of 6G technology is to support one microsecond-latency communication, which is 1000 times faster than the latency of 5G technology.

#### **WHAT IS BHARAT 6G ALLIANCE?**

- The B6GA is a collaborative platform comprising public and private companies, academia, research institutions, and standards development organizations.
- The alliance will forge partnerships and synergies with other 6G global alliances to facilitate international collaboration and knowledge exchange.
- Its primary objective is to understand the business and societal needs of 6G technology, foster consensus, and drive high-impact research and development initiatives.
- The alliance also aims to achieve at least 10% of the 6G intellectual property rights from India by 2029 or 2030.

#### **WHAT IS TTDF?**

- Telecom Technology Development Fund (TTDF) Scheme is a scheme launched by the Universal Service Obligation Fund (USOF), a body under the Department of Telecommunications, on 1 October 2022 to fund research and development in rural-specific communication technology applications and to promote indigenous technology and manufacturing in the telecom sector.

- The scheme provides grants to Indian entities involved in technology design, development, commercialization of telecommunication products and solutions, to enable affordable broadband and mobile services in rural and remote areas.

<b>NEWS IN SHORTS:</b>	
<b>GRAVITATIONAL VIBRATIONS</b>	<p><b>News:</b> Scientists have found evidence suggesting the presence of a continuous background of gravitational waves in the universe.</p> <p><b>What are Gravitational waves?</b></p> <ul style="list-style-type: none"> <li>• Gravitational waves are disturbances in the fabric of spacetime caused by the movement of large objects, such as the collision of two black holes.</li> <li>• The waves were first detected in 2015, but this new research indicates that multiple gravitational waves constantly deform and reshape spacetime, influencing the motion of celestial bodies.</li> </ul> <p><b>Key Findings:</b></p> <ul style="list-style-type: none"> <li>• Scientists have discovered a ‘background hum’ rumbling throughout the universe. It confirms the presence of low-frequency (long-wavelengths) gravitational waves, thought to be constantly rolling through space noise.</li> <li>• India’s Giant Metre wave Radio Telescope (GMRT, Pune) was among the world’s six large telescopes that played a vital role in providing evidence. The other 5 are located in Germany, the UK, France, Italy and the Netherlands.</li> </ul>
<b>AMBERGRIS</b>	<p><b>News:</b> A pathologist has recently discovered Ambergris in a dead whale, which could be worth nearly Rs 4 crore.</p> <p><b>What is Ambergris?</b></p> <ul style="list-style-type: none"> <li>• Ambergris is a solid, waxy, flammable substance of a dull grey or blackish colour produced in the digestive system of sperm whales. It is sometimes found floating on the sea or washed up on coastlines.</li> <li>• It is rare and highly valued by perfume makers as a fixative that allows the scent to endure much longer. Ambergris has a marine, fecal odor when fresh, but it acquires a sweet, earthy scent as it ages.</li> </ul> <p><b>Is its trade regulated?</b></p> <ul style="list-style-type: none"> <li>• It is seen that there is a ban on the possession and trade of ambergris in countries like the USA, Australia and India. But in several other countries, it is still a tradable commodity.</li> <li>• In the Indian context, sperm whales are a protected species under Schedule 2 of the Wildlife Protection Act therefore possession or trade of its by-products, including Ambergris and its byproducts, is illegal under provisions of the Wildlife Protection Act, 1972.</li> </ul>
<b>CMV and ToMV</b>	<p><b>News:</b> Tomato growers in Maharashtra and Karnataka have reported crop losses due to attacks by two different viruses ◊ The cucumber mosaic virus (CMV) in Maharashtra and the tomato mosaic virus (ToMV) in Karnataka.</p>



	<p><b>About:</b></p> <ul style="list-style-type: none"> <li>• CMV and ToMV are two plant pathogenic viruses that can infect a wide range of crops, especially tomatoes and cucurbits (such as cucumbers, melons, squash, etc.).</li> <li>• They belong to different viral families, but cause similar symptoms in plants, such as leaf mosaic or mottling, yellowing, ringspots, stunting, and distortion of leaves, flowers and fruits.</li> <li>• CMV is spread by aphids, which are sap-sucking insects that transmit the virus from plant to plant. CMV can also be spread by human touch, infected seeds, saplings, tools, or parasitic weeds such as dodder.</li> <li>• ToMV is mainly spread by infected seeds, saplings, tools, or human touch. It can also be transmitted by some aphid species, but less efficiently than CMV.</li> <li>• These viruses can cause significant losses in yield and quality of the affected crops.</li> </ul>
<p><b>FOREVER CHEMICALS</b></p>	<p><b>News:</b> At least 45% of the nation's tap water could be contaminated with at least one form of PFAS known as "forever chemicals," according to a newly released study by the U.S. Geological Survey.</p> <p><b>What are Forever chemicals?</b></p> <ul style="list-style-type: none"> <li>• Forever chemicals are a class of chemicals collectively known as per- and polyfluorinated alkyl substances (PFAS), which were first introduced in the 1940s.</li> <li>• Their high thermal and chemical stability, coupled with their ability to repel grease and water, make these chemicals uniquely suited for a variety of engineering and commercial uses.</li> <li>• They are used to make nonstick cookware, water-repellent clothing, stain-resistant fabrics, cosmetics, firefighting foams and many other products that resist grease, water and oil.</li> <li>• Research has linked exposure to certain PFAS to adverse health effects in humans, from an increased risk of certain cancers, increased obesity and high cholesterol risk, decreased fertility and developmental effects like low birth weight in children.</li> </ul>
<p><b>Exercise SALVEX</b></p>	<p><b>News:</b> The Indian Navy and the US Navy recently collaborated for the seventh edition of the IN-USN Salvage and Explosive Ordnance Disposal (EOD) exercise, known as SALVEX.</p> <p><b>What is SALVEX?</b></p> <ul style="list-style-type: none"> <li>• Exercise Salvex is a biennial, bilateral maritime exercise between the Indian Navy (IN) and the United States Navy (USN) that focuses on salvage and explosive ordnance disposal (EOD) operations.</li> <li>• The exercise is designed to enhance interoperability between the two navies and to share best practices in the field of salvage and EOD.</li> <li>• The exercise features the participation of ships, such as INS Nireekshak and USNS Salvor, as well as specialist diving and EOD teams from both navies.</li> </ul>

## SCHEMES IN NEWS:

### 1. PM-PRANAM SCHEME

**News:** The cabinet approved a string of schemes aimed at promoting sustainable agriculture and ensuring well-being of farmers.

#### ABOUT PM-PRANAM SCHEME

- The scheme's goal is to decrease the reliance on chemical fertilizers by motivating state participation.
- Under this initiative, states adopting alternative fertilizers will receive incentives equivalent to the saved subsidy from reduced chemical fertilizer usage.
- The primary aim of the scheme is to promote a balanced approach to fertilization by integrating bio and organic fertilizers.
- **Funding Approach:**
  - There won't be a distinct budget; instead, funding will be sourced from existing fertilizer subsidy savings in programs.
  - Half of the saved subsidy will be granted to states achieving savings.
  - Within this grant, 70% can be invested in technological adoption of alternative fertilizers and production units at local levels.
  - The remaining 30% will reward and encourage stakeholders involved in reducing fertilizer usage and spreading awareness.
- Government assessment will compare current year's fertilizer consumption change with the average of the previous three years.
- The Integrated Fertilizers Management System (iFMS) will serve as the platform to monitor fertilizer usage.

#### KEY FEATURES OF THE SCHEME:

- **State and UT Incentivization:**
  - The program encourages states and Union Territories to endorse alternative fertilizers and achieve a balanced approach to chemical fertilizer usage.
  - States showcasing substantial savings from reduced chemical fertilizer consumption receive grants as incentives.
- **Allocation of Subsidy Savings:**
  - Approximately 50% of the savings from reduced chemical fertilizer consumption will be granted to the state with the highest savings.
  - This strategy spurs active participation among states in adopting alternative fertilizers.
- **Asset Creation:**
  - A significant proportion (70%) of the grant funds will be utilized for establishing assets linked to the technological integration of alternative fertilizers.
  - This encompasses setting up production units at local levels (village, block, and district), facilitating local production and access to alternative fertilizers.
- **Farmers' Recognition and Incentives:**
  - The remaining 30% of the grant funds will be employed to incentivize and acknowledge farmers and village entities for their contributions towards lower fertilizer usage.

- This acknowledges their role in adopting sustainable agricultural practices.
- **Promotion of Eco-friendly Farming:**
  - The scheme's goal is to advocate ecologically sound farming practices by promoting the adoption of alternative fertilizers.
  - This reduces reliance on chemical fertilizers, thereby contributing to environmental conservation and sustainability.
- **Sustainable Soil Health and Agriculture:**
  - By endorsing a balanced fertilizer approach, the scheme ensures the enduring well-being and fertility of agricultural ecosystems.
  - It emphasizes sustainable farming practices that safeguard soil health and preserve natural resources.
- **Integration of Technology:**
  - The scheme supports the infusion of technology into agriculture for both producing and using alternative fertilizers.
  - This involves establishing grassroots production units to encourage local manufacturing and accessibility of alternative fertilizers.

## 2. BHOOMI SAMMAN AWARDS: RECOGNIZING EXCELLENCE IN DIGITAL INDIA LAND RECORDS MODERNIZATION PROGRAMME (DILRMP)

Source: PIB

### PRESIDENT PRESENTS BHOOMI SAMMAN AWARDS:

- Recently, the President of India presented the "Bhoomi Samman" 2023 at an event organized by the Union Ministry of Rural Development in New Delhi.
- The awards were given to 9 state Secretaries and 68 District Collectors who demonstrated exceptional achievement in implementing the Digital India Land Records Modernization Programme (DILRMP).

### PURPOSE OF BHOOMI SAMMAN AWARDS:

- The awards aim to acknowledge and motivate outstanding performance in the execution of the Digital India Land Records Modernization Programme (DILRMP).
- Madhya Pradesh secured the top position in the country for its remarkable progress in digitizing land records.
- 15 districts in Madhya Pradesh received Platinum Grading for achieving 100 percent success in all components of the Digital India Land Records Management Programme.

### PRELIMS SPECIFIC :

#### **SWAMITVA SCHEME**

- **SVAMITVA (Survey of Villages and Mapping with Improved Technology in Village Areas) is a Central Sector Scheme of the Ministry of Panchayati Rajasthan.**
- **The objective of the scheme is to provide a record of rights (RoR) to all house owners in rural areas in the country.**
- **This will be done through the use of drone technology and other modern surveying techniques.**
- **The RoR will be a legally valid document that will give the property owners clear title to their land.**

- The scheme is being implemented in partnership with the Survey of India (Sol) and the State Governments.
- The RoRs will be issued in electronic format.
- The scheme is being funded by the Government of India.

#### **Cooperative Federalism Approach:**

- The Bhoomi Samman Awards exemplify the cooperation and partnership between the central and state governments, based on trust and mutual collaboration.
- The grading system relies significantly on reports and inputs provided by the States/Union Territories regarding computerization and digitization of land records.

#### **Key Aspects of Digital India Land Records Modernization Programme (DILRMP):**

##### **Implementation and Authorities:**

- The DILRMP is a central sector scheme being executed by the Department of Land Resources under the Ministry of Rural Development.

##### **Objectives:**

- The program aims to capitalize on commonalities in land records across different states and
- Develop an Integrated Land Information Management System (ILIMS) nationwide.
- The ILIMS integrates land records databases, processes, and various sectors such as banks, financial institutions, circle rates, and Registration Offices.

##### **Major Components:**

- **Computerization of land records:** Modernizing land records through digital technologies.
- **Survey/re-survey:** Conducting surveys or re-surveys to update land records accurately.
- **Computerization of Registration:** Digitizing land registration processes for efficient management.

## PLACES IN NEWS:

**1. TURKMENISTAN**

**News:** Recently, Turkmenistan inaugurated Arkadag, a \$5 billion 'smart city'. The city is built in honour of former strongman leader Gurbanguly Berdimukhamedov.

**About Turkmenistan:**

- Turkmenistan is a landlocked country in Central Asia, bordered by Kazakhstan, Uzbekistan, Afghanistan, Iran and the Caspian Sea.
- It is the second largest state in Central Asia, after Kazakhstan, and has a population of about six million people.
- Turkmenistan became independent from the Soviet Union in 1991. It is a presidential republic with a totalitarian hereditary dictatorship.

**2. PORT OF DUQM**

**News:** National Security Advisor Ajit Doval visited the strategic Port of Duqm where Muscat has given access to the Indian Navy to facilitate its presence in the Indian Ocean Region.

**About Duqm port:**

- Oman's Duqm port is a seaport and road terminal located at Duqm in the Al Wusta governorate of Oman. It is part of the Special Economic Zone at Duqm (SEZAD)
- Duqm port is strategically located on the Arabian Sea and the Indian Ocean, overlooking major shipping lanes and markets in Asia, Africa and Europe.

**India Eyes Strategic Heft Through Duqm****Why is it important for India?**

- First, it is a strategic location that overlooks the Gulf of Oman, the Indian Ocean, and the Arabian Sea, giving India access to major shipping lanes and markets in Asia, Africa and Europe.
- Second, it is a part of India's maritime strategy to counter China's growing presence and influence in the Indian Ocean Region, where it has been developing its 'string of pearls' strategy of building ports and naval bases in countries such as Pakistan, Sri Lanka, Bangladesh, Myanmar and Djibouti.



- Third, it is a key component of India's defence and security partnership with Oman, which is India's oldest and closest ally in West Asia.
- Lastly, it is an alternative option for India to enhance its connectivity projects and routes in the region, especially in light of the challenges faced by Chahbahar port in Iran due to US sanctions.

### 3. ZANZIBAR

**News:** Recently, Zanzibar has been in the news for hosting the first overseas campus of the Indian Institute of Technology (IIT), which will be set up under the name of IIT Madras at Zanzibar.

#### ABOUT:

- Zanzibar is an insular semi-autonomous province of Tanzania, located in the Indian Ocean off the coast of the African mainland.
- It consists of many small islands and two large ones - Unguja (the main island, referred to informally as Zanzibar) and Pemba Island.
- Its historic centre, Stone Town, is a World Heritage Site.
- Zanzibar has also received praise for its Kiduthani project, which will provide drinking water to 30,000 households in rural areas with the help of India's development assistance. (Remember the name of the project)



### 4. SECOND THOMAS SHOAL

**News:** The South China Sea's Second Thomas Shoal, part of the Spratly Islands, has sparked tensions between China and the Philippines after a recent incident involving accusations of harassment and intrusions, highlighting the intricate nature of territorial disputes in the region.

- **Geographical Features of Second Thomas Shoal:** Second Thomas Shoal is an atoll with a tear-drop shape, consisting of coral reefs and a lagoon with depths up to 27 meters.
- **Territorial Claims in the Area:** The atoll is located in an area where China, Brunei, the Philippines, Malaysia, and Vietnam have territorial claims within the Spratly Island group.
- **Philippine Sovereignty Assertion:** The Philippines affirms its sovereignty by maintaining the BRP Sierra Madre (LT-57), a

#### Disputed claims in the South China Sea



Philippine Navy landing craft intentionally grounded in 1999, on the shoal.

- **China's "Nine-Dash Line" Claim:** China's territorial claim over the South China Sea is depicted through the "nine-dash line" on its maps. This line stretches into the exclusive economic zones of neighbouring countries.
- **Legal Challenge to China's Claim:** In 2016, the Permanent Court of Arbitration ruled that China's "nine-dash line" claim lacks a legal foundation. This ruling contradicts China's extensive territorial assertions.

## 5. BATAGAIIKA CRATER

**News:** Deep within Russia's Far East lies the Batagaika crater, an alarming testament to the consequences of global warming. As the world's largest permafrost crater, its expansion serves as a stark reminder of the ongoing impacts of climate change.

- **Location of the Batagaika Crater:** The Batagaika crater is positioned in Russia's Far East, specifically within the Sakha Republic. This remote locale serves as a focal point for investigating the impact of climate change on permafrost.
- **Cause of Crater Expansion:** The expansion of the Batagaika crater is linked to the thawing of permafrost, an outcome of global warming. Rising temperatures lead to permafrost thawing, causing the previously frozen ground to degrade and resulting in the formation of this vast crater.
- **Understanding Permafrost:** Permafrost denotes ground or soil that remains frozen at or below freezing (0°C or 32°F) for two or more consecutive years. It is commonly found in high-latitude regions like the Arctic and subarctic areas, near the poles.



## 6. MHADEI WILDLIFE SANCTUARY

**News:** Lately, the Goa division of the Bombay High Court directed the government of Goa to officially designate the Mhadei Wildlife Sanctuary and other areas outlined in the National Tiger Conservation Authority (NTCA) communications and plans prepared by the Goa forest department as a tiger reserve under the Wildlife Protection Act, all within a span of three months.



### REGARDING THE SANCTUARY

Situated within the Indian state of Goa, the Mhadei Wildlife Sanctuary presents an enchanting destination for nature enthusiasts, celebrated for its abundant biodiversity and breathtaking scenery. Encompassing 208.5 square kilometers, this sanctuary stands as a valuable treasure within the Western Ghats of Southern India. It finds its location in the North Goa District, Sattari taluka, proximate to Valpoi town. Acknowledged for its ecological importance, the sanctuary has earned distinction owing to its varied assortment of plant and animal life.

## 7. ADICHANALLUR MUSEUM

**News:** The Adichanallur Museum, an exceptional archaeological venture, is poised to offer a fascinating exploration of India's ancient history to its visitors. In a significant event, the foundation stone for this museum was laid by the Union Finance Minister, Nirmala Sitharaman, signifying a significant milestone in the Thoothukudi district of Tamil Nadu.



- **Adichanallur Museum's Objective:**

- The main goal of the Adichanallur Museum is to highlight the archaeological significance of the Thamirabarani valley.
- It is recognized as one of the "iconic sites" identified by the NDA government's 2020-21 budget proposal.
- The museum aims to reveal the cultural heritage and historical importance of the region.

- **Journey Through Time with Artefacts:**

- The Archaeological Survey of India (ASI) initiated a unique project by covering excavated trenches with durable glass.
- This innovation allows visitors to witness in situ antiquities and urn burials dating back around 3,800 years, an unprecedented endeavor in India.
- These artefacts provide insights into the practices and lifestyles of ancient inhabitants, enriching our knowledge of the past.

- **Inspired by International Examples:**

- Taking inspiration from museums in Europe, China, and Iran, the Adichanallur Museum seeks to offer an immersive experience.
- The museum's objective is to conserve and display the region's archaeological treasures, similar to its global counterparts.





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