VISIONIAS
INSPIRING INNOVATION

May 2023

Monthly CURRENT AFFAIRS

8468022022 | 9019066066 www.visionias.in

DELHI | JAIPUR | HYDERABAD | LUCKNOW | AHMEDABAD | PUNE
BHOPAL | PRAYAGRAJ | RANCHI | GUWAHATI | CHANDIGARH

"You are as strong as your Foundation"

FOUNDATION COURSE

GENERAL STUDIES

PRELIMS CUM MAINS 2024

Approach is to build fundamental concepts and analytical ability in students to enable them to answer questions of Preliminary as well as Mains Exam

- Includes comprehensive coverage of all the topics for all the four papers of GS Mains, GS Prelims & Essay
- Access to LIVE as well as Recorded Classes on your personal student platform
- Includes All India GS Mains, GS Prelims, CSAT & Essay Test Series
- Our Comprehensive Current Affairs classes of PT 365 and Mains 365 of year 2024

Live - online / Offline Classes

Scan the QR CODE to download VISION IAS app

ONLINE Students

NOTE - Students can watch LIVE video classes of our COURSE on their ONLINE PLATFORM at their homes. The students can ask their doubts and subject queries during the class through LIVE Chat Option. They can also note down their doubts & questions and convey to our classroom mentor at Delhi center and we will respond to the queries through phone/mail.

DELHI:	15 JUNE 5 PM	27 JUNE 1 PM	6 JULY 9 AM	13 JULY 5 PM	19 JULY 9 AM	28 JULY 1 PM

AHMEDABAD: 12 June, 8:30 AM | **JAIPUR:** 22 June, 7:30 AM & 5 PM
CHANDIGARH: 15 June, 5 PM | **BHOPAL:** 30 June, 5 PM | **LUCKNOW:** 1 June, 5 PM
HYDERABAD: 12 June, 8 AM & 4 PM | **PUNE:** 5 June, 8 AM | 3 July, 4 PM

LAKSHYA
Mains Mentoring Programme 2023

Lakshya

Mains Mentoring Programme 2023

70-Days Expert Intervention

Starts: 20 June

- Personalised & Systematic Mentoring
- Smart Study for Mains Exam
- Result Orientated Approach
- Continuous Assessment & Improvement

Table of Contents

1. POLITY AND GOVERNANCE ____ 4

1.1. National Capital Territory of Delhi (Amendment) Ordinance, 2023 ____ 4

1.2. Model Prisons Act 2023 ____ 5

1.3. News in Shorts ____ 7

1.3.1. Whip ____ 7

1.3.2. Article 142 ____ 7

1.3.3. District Judiciary ____ 8

1.3.4. Recusal by Judges ____ 8

1.3.5. e-governed State ____ 9

1.3.6. World Press Freedom Index 2023 ____ 9

1.3.7. Internet Shutdowns ____ 9

1.3.8. Narco Analysis Test ____ 9

2. INTERNATIONAL RELATIONS ____ 11

2.1. 25 years to Pokhran Nuclear Tests ____ 11

2.2. United Nation ____ 13

2.3. World Trade Organisation ____ 14

2.4. Group of Seven (G-7) ____ 16

2.5. ADB-India: Country Partnership Strategy 2023-27 ____ 18

2.6. West Asia ____ 19

2.7. India and Pacific Island Countries (PIC) ____ 21

2.8. News in Shorts ____ 23

2.8.1. India-European Free Trade Association (EFTA) Trade Pact ____ 23

2.8.2. North Atlantic Treaty Organization (NATO) Plus 23

2.8.3. Israel-Palestine Conflict ____ 23

2.8.4. Advance Notices ____ 24

2.8.5. Business Ready (B-READY) Project ____ 24

2.8.6. Innovative Finance Facility for Climate in Asia and the Pacific (IF-CAP) ____ 25

2.8.7. World Bank President ____ 25

2.8.8. Washington Declaration ____ 25

2.8.9. International Organisation for Migration (IOM) 25

2.8.10. 6th Indian Ocean Conference (IOC) ____ 26

2.8.11. 'Silkworm Eating' Strategy ____ 26

3. ECONOMY ____ 27

3.1. Competition (Amendment) Act 2023 ____ 27

3.2. Transition from London Interbank Offered Rate (LIBOR) ____ 28

3.3. Liberalised Remittance Scheme (LRS) ____ 30

3.4. Insurance Sector ____ 31

3.5. Demographic Dividend ____ 33

3.6. Ruralisation in India ____ 35

3.7. Food Storage in India ____ 36

3.8. CITIIES 2.0 ____ 38

3.9. News in Shorts ____ 39

3.9.1. Surplus Transfer by RBI ____ 39

3.9.2. Rs 2,000 Notes Withdrawn from Circulation ____ 39

3.9.3. Report on Currency and Finance (RCF) for 2022-23 ____ 40

3.9.4. Increase in Gold Holdings ____ 40

3.9.5. Expected Credit Loss (ECL) ____ 41

3.9.6. Angel Tax ____ 41

3.9.7. PLI 2.0 for IT Hardware scheme ____ 41

3.9.8. Vivad se Vishwas I scheme ____ 42

3.9.9. Assistance to Medical Device Clusters for Common Facilities Scheme ____ 42

3.9.10. e-Appeals Scheme ____ 42

3.9.11. Inter-State Transmission System (ISTS) Charges 42

3.9.12. Ease of Doing Business (EoDB) in Telecom and Broadcasting Sector ____ 43

3.9.13. One Station One Product (OSOP) Scheme ____ 43

3.9.14. Centre for Processing Accelerated Corporate Exit (C-PACE) ____ 43

3.9.15. Harit Sagar the Green Port Guidelines 2023 ____ 43

3.9.16. Jawaharlal Nehru Port (JNP) ____ 44

3.9.17. NYMEX WTI Crude Oil and Natural Gas Futures Contracts ____ 44

3.9.18. Future of Jobs Report 2023 ____ 44

4. SECURITY ____ 46

4.1. International Terrorism ____ 46

4.2. Drug Menace in India ____ 48

4.3. News in Shorts ____ 50

4.3.1. Thermobaric Bomb ____ 50

4.3.2. Khorramshahr-4 Ballistic Missile ____ 50

4.3.3. Indian Naval Sailing Vessel (INSV) Tarini ____ 51

4.3.4. Exercises in News ____ 51

4.3.5. ASEAN India Maritime Exercise (AIME-2023) ____ 51

5. ENVIRONMENT ____ 52

5.1. Decarbonisation of Indian Economy ____ 52

5.1.1. Climate Finance for Decarbonization ____ 54

5.1.2. Technology Adoption for Decarbonisation ____ 55

5.1.3. Carbon Market to Aid Decarbonization ____ 55

5.1.4. Biofuel Opportunity in Decarbonization ____ 56

5.1.5. Green Hydrogen Opportunity for Decarbonization ____ 57

5.2. Gas-based Economy ____ 57

5.3. News in Shorts ____ 60

5.3.1. Central Asian Flyway (CAF) ____ 60

5.3.2. Cheetah Project ____ 60

5.3.3. Tiger Translocation ____ 60

5.3.4. Wild Life Protection (WLP) Act, 1972 ____ 61

5.3.5. Sea Butterfly ____ 61

5.3.6. Gekko Mizoramensis ____ 61

5.3.7. Baobabs ____ 62

5.3.8. Global Financial Innovation Network (GFIN) ____ 62

5.3.9. UNEP report on Plastic pollution ____ 62

5.3.10. One-stop Centres for Zero Waste ____ 63

5.3.11. Debt for Climate Swaps ____ 63

5.3.12. Climate Change and Inflation ____ 64

5.3.13. 1.5°C Target ____ 64

5.3.14. Arctic Amplification ____ 64

5.3.15. River-Cities Alliance (RCA) ____ 65

5.3.16. Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) ____ 65

5.3.17. Aurora ____ 65

5.3.18. Sun Halo ____ 66

5.3.19. World's 2nd Deepest Blue Hole in Mexico ____ 66
5.3.20. Palghat Gap ____ 66
5.3.21. Amrit and Moonga Blocks in Arabian Sea ____ 67
6. SOCIAL ISSUES ____ 68
6.1. Accreditation of Higher Education Institutions 68
6.2. Sexual harassment at Workplace ____ 69
6.3. News in Shorts ____ 72
6.3.1. Poshan Bhi, Padhai Bhi (PBPB) Scheme ____ 72
6.3.2. Child Malnutrition ____ 72
6.3.3. Issue of Child Marriage ____ 72
6.3.4. Internal Displacement ____ 73
6.3.5. National Human Rights Commission (NHRC) Accreditation ____ 73
6.3.6. SAKSHAM Learning Management Information System (LMIS) ____ 74
7. SCIENCE AND TECHNOLOGY ____ 75
7.1. Three Parent Baby ____ 75
7.2. Antimicrobial Resistance (AMR) ____ 77
7.3. Non-Communicable Diseases (NCDs) ____ 80
7.4. Generic Drugs ____ 82
7.5. Small Modular Reactors (SMRs) ____ 84
7.6. Facial Recognition Technology ____ 86
7.7. Super Computers ____ 88
7.8. Crypto Mining ____ 90
7.9. News in Shorts ____ 92
7.9.1. NavIC (Navigation by Indian Constellation) ____ 92
7.9.2. X-Ray Polarimeter Satellite (XPoSat) Mission ____ 92
7.9.3. Japan's Private Moon Lander ____ 92
7.9.4. A Sign in Space project ____ 93
7.9.5. New Belts of Asteroid ____ 93
7.9.6. Exoplanet ____ 93
7.9.7. Saturn ____ 94
7.9.8. Telangana's Robotics Policy Framework ____ 94
7.9.9. QUAD's Open Radio Access Network (RAN) Security ____ 94
7.9.10. Health for All Report ____ 94
7.9.11. End to COVID-19 as PHEIC ____ 95
7.9.12. MPox (Monkey Pox) ____ 95
7.9.13. Respiratory Syncytial Virus (RSV) ____ 96
7.9.14. Thalassemia Bal Sewa Yojana (TBSY) ____ 96
7.9.15. International Pathogen Surveillance Network (IPSN) ____ 96
7.9.16. Acinetobactor Baumannii ____ 96
7.9.17. Human organs and tissue transport ____ 96
7.9.18. Trans-Fat ____ 96
7.9.19. Rice Fortification ____ 97
7.9.20. Fission Molybdenum-99 ____ 97
7.9.21. Radiometric Dating ____ 97
8. CULTURE ____ 99
8.1. Inscriptions as Sources of History ____ 99
8.2. Jantar Mantar ____ 100
8.3. News in Shorts ____ 101
8.3.1. Tungnath Temple ____ 101
8.3.2. Juna Khatiya Site ____ 101
8.3.3. Gongadi Shawls ____ 101
8.3.4. Cham Lama Dance ____ 102
8.3.5. Govind Swarup Lifetime Achievement Award ____ 102
9. ETHICS ____ 103
9.1. Clinical Trials ____ 103
9.2. Child Artists and Ethics ____ 105
10. SCHEMES IN NEWS ____ 109
10.1. Ude Desh Ka Aam Nagrik (UDAN) ____ 109
10.2. FAME II ____ 110

NOTE:

Dear Students,

Memorisation and recollection of information in Current Affairs is as important as understanding the articles. In order to enhance the learning outcomes from the Monthly Current Affairs Magazine, we are introducing following additions:

- A thematic based colors has been used in the document in the boxes, tables etc to enable easy identification and recollection of various concepts and topics.
- Questions are an important tool to assess and retain information. To enable this we are adding a Smart Quiz at the end of each section in the document for practicing the questions.
- A wide variety of infographics have been added to ensure smoother learning experience and enhanced retention of the information. This will also help in effective presentation of information in the answer writing as well.
- Places and persons in news are being presented in an objective manner through Maps, Tables & Pictures. This will help in easier recollection of factual information.

VISIONIAS
DAKSHA MAINS
MENTORING PROGRAM 2024

DAKSHA MAINS MENTORING PROGRAM 2024

(A Strategic Revision, Practice, and Enrichment Mentoring Program for Mains Examination 2024)

DATE	DURATION
4th July	5 Months

HIGHLIGHTS OF THE PROGRAMME

- Highly experienced and qualified team of mentors
- Emphasis on score maximization and performance improvement
- Scheduled group sessions for strategy discussions, live practice, and peer interaction
- Personalized one-to-one sessions with mentors
- Well-structured revision and practice plan for GSMains, Essay & Ethics
- Subject-wise strategy documents based on thorough research
- Access to Daksha Mains Practice Tests
- Continuous performance assessment, monitoring and smart interventions

For any assistance call us at:
+91 8468022022,+91 9019066066 I enquiry@vision.in

1. POLITY AND GOVERNANCE

1.1. NATIONAL CAPITAL TERRITORY OF DELHI (AMENDMENT) ORDINANCE, 2023

Why in news?

Recently, Central government **issued the Government of National Capital Territory of Delhi i.e., GNCTD (Amendment) Ordinance, 2023** which seeks to **amend GNCTD Act, 1991.**

More about News

- Ordinance **nullifies the effect of the recent Supreme Court's decision** that gave the Delhi government **powers over administrative services** (**excluding public order, police and land**) in the national capital.

Key highlights of Ordinance

- **Powers to legislate over services**: Ordinance specifies that the Delhi Legislative Assembly will **not have the power to legislate on the subject of 'services', which comes under the State List.**
  - Services include matters **related to appointments and transfers of employees** of the Delhi government, and vigilance.
- **National Capital Civil Services Authority (NCCSA)**: It creates a new **statutory authority NCCSA – to make recommendations to LG** regarding transfer posting, vigilance and other incidental matters.
  - NCCSA will **consist of Chief Minister (CM) of Delhi** who shall be the **Chairperson of the Authority, Chief Secretary and Principal Secretary** of Home department.
  - All matters required to be decided by NCCSA shall be **decided by majority of votes of the members present and voting**.
  - **Central government will appoint both** the Principal Secretary and Chief Secretary.
- **Powers of the Lieutenant Governor**: LG will act in his sole discretion. It expands the discretionary role of the LG by giving him powers to **approve the recommendations of the Authority**, or return them for reconsideration.
  - The **LG's decision will be final in the case of a difference of opinion** between him and the Authority.

2023 Supreme Court Verdict

- While quoting Article 239-AA, **SC ruled that Elected government** of the NCTD has **legislative and executive power over "Services" under Entry 41, List II of the 7th schedule.**
- **LG is bound by the aid and advice of CoM** of NCTD in relation to matters within the legislative scope of NCTD.

Related information
Article 239AA

- **Article 239-AA**, inserted by **69th Amendment Act, 1991**, **conferred special status on Delhi** (on recommendations of S Balakrishnan Committee).
  - It provides that **NCT of Delhi will have an administrator and a Legislative Assembly**.
  - **Legislative Assembly** shall have power **to make laws with respect to any of matters in State List or Concurrent List except on** subjects of **police, public order, and land.**
  - **In case of difference of opinion** between L-G and his Ministers, **L-G shall refer it to President.**

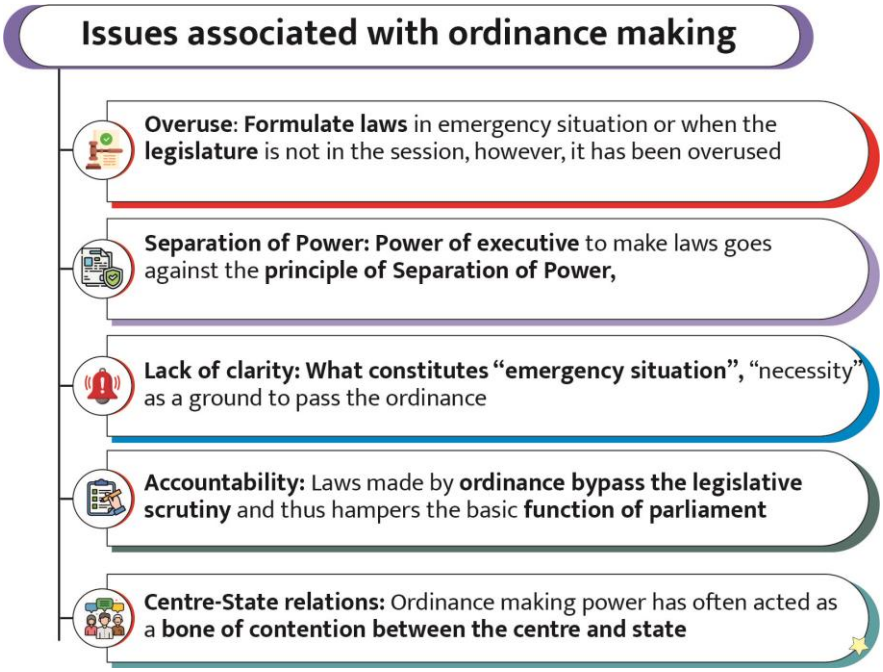
Judicial pronouncements related to Ordinance

- **RC Cooper v. Union of India**, **1970:** Apex court held that **President's decision could be challenged on the grounds that 'immediate action' was not required**; and the Ordinance had been passed primarily to by-pass debate and discussion in the legislature.
- **DC Wadhwa vs. State of Bihar, 1987**: Court held that **legislative power of executive to promulgate Ordinances is to be used in exceptional circumstances** and not as a substitute for law making power of the legislature.
- **Krishna Kumar Singh v. State of Bihar, 1994**: Court held that the **satisfaction of the President** under Article 123 **and Governor** under Article 213 while issuing an Ordinance is **not immune from judicial review**.

Ordinance making power of President and Governor

- Word "Ordinance" is defined as a **law promulgated by the State or Central Government without the approval of the Legislature.**
  - Power to promulgate the Ordinance is vested in the **Indian Councils Act, 1861, Government of India (GoI) Act, 1909, and GoI Act, 1935.**
- Ordinance is listed under **Article 123 (Power of President to promulgate Ordinances during recess of Parliament)** and **Article 213 (Power of Governor to promulgate Ordinances during recess of Legislature).**

- These promulgated ordinances have the **same force and effect as an Act of the Legislature** but these acts are likely in **temporary nature**.
- Ordinance is **valid for 6 weeks from the date when the next session starts**. If the two Houses start their sessions on different dates, the later of the dates will be considered.
- The **ordinance may lapse earlier if the President/Governor withdraws** it or if **both Houses pass resolutions disapproving it.**
- Ordinances can **only be issued on matters on which Parliament or Legislature can make laws** and are subject to the same limitation as Parliament/Legislature to make laws.



- However, **Governor of a State cannot make an ordinance without the reference of the President** in the following cases:
  - **Bills that have similar provisions require the prior approval of President** to introduce the Bill in Assembly.
  - If Governor would have deemed it necessary to **reserve a bill containing similar provisions for consideration of the President**.
  - If an **act of state legislature containing same provisions would have been invalid** without receiving President's assent.

Conclusion

There is need to define the terms mentioned under Article 123 and 213 i.e. "**emergency situation", "necessity", should be defined clearly to prevent misuse**. Also, **executive should exercise self-restraint** and use ordinance making power sparingly as mandated by the constitution makers.

To read more about Delhi vs Centre, kindly refer to Article 1.2 Federalism: Unique Status of Delhi of January 2023 Monthly Current Affairs Magazine.

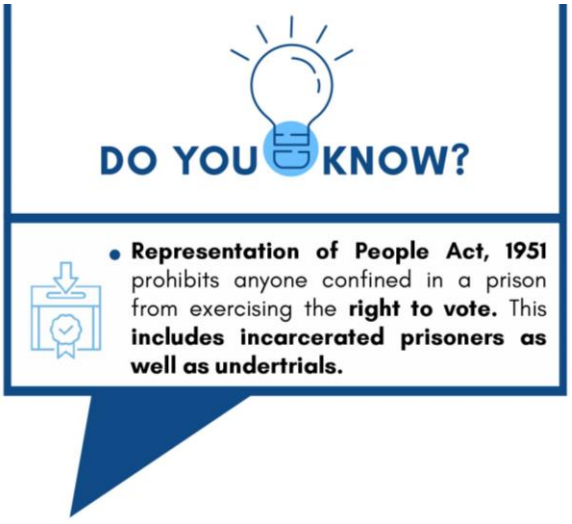
1.2. MODEL PRISONS ACT 2023

Why in news?

Ministry of Home Affairs (MHA) has prepared the 'Model Prisons Act 2023' that will replace the Prisons Act of 1894.

About Prisons Act 1894

- The **first legislation** that governed the management and administration of prisons in India was the Prisons Act, of 1894.
- The Act had its origins in the recommendations of the "**Prison Discipline Committee**" appointed in 1836 by Lord Macaulay.
- It **defined a "prison"** as "any jail or place used permanently or temporarily for the detention of prisoners", excluding police custody and subsidiary jails.
- It also laid down provisions for the prisoners' **employment, health, and visits.**
- MHA found **various shortcomings in the Act** and noticed a significant **lack of emphasis on corrective measures**.



- It directed the Bureau of Police Research and Development (BPR&D) to review the laws and prepare a new draft, which culminated in the Model Act 2023.

What Constitution says?

- As per the provisions of the Constitution, '**prisons' and 'persons detained therein**' fall under the State List.
- This means that the responsibility of prison management and administration **solely vests with the state government,** which alone is competent to make appropriate legislative provisions in this regard.
- Thus, the Model Act "**may serve as a guiding document for the States"** so that they may benefit from its adoption in their jurisdictions.

Need for reforming the Act

- **Colonial hangover**: India's incarceration system is prone to abuse since it was set up by the British to subjugate political prisoners. The Act permitted "whipping, provided that the number of stripes shall not exceed thirty," albeit for only male prisoners.
- **To make prisons reformative institutions**: Prisons Act, 1894, focused on keeping criminals in custody and enforcing discipline and order in prisons, leaving "no provision for reform and rehabilitation of prisoners". Today prisons are seen as "**reformative and correctional institutions**".
- **For better living facilities of prisoners:** There is a need to make jails modern and technologically adept with stringent security measures.
  - Also, there is a need to introduce better living and health facilities, libraries, and training programmes for prisoners to help them get back to society.
- **Killings and violence within prisons**: There have been incidents of killings and gang violence within prisons. E.g. Recently, 33-year-old inmate was allegedly stabbed to death by members of a rival gang inside Tihar jail.

What proposals are included under Model Prisons Act 2023?

- **To encourage good conduct**:
  - Provisions for the grant of **parole, furlough, and remission** to prisoners.
  - Parole is a system **of conditional release of** a prisoner with **suspension of the sentence for a specific period of time.**
  - Furlough is given in cases of long-term imprisonment. The **period of furlough granted to a prisoner is treated as remission (reduction)** of his sentence.
  - Bail means **procurement of release from prison** of a person awaiting trial or an appeal.
- **For reformation and rehabilitation:**
  - Bring about "**attitudinal change towards prisoners**"
  - **Vocational training and skill development**.
- **For better safety and security:**
  - **Separate accommodation for women** and transgender inmates.
  - Use of **technology in prison administration**; Establishing **high-security jails**.
- **Other measures:**
  - Provisions for and open, semi-open jails have also been inserted.
  - Measures for prisoners to video conference with courts have also been introduced.
- Along with the Prisons Act, 1894, the **Prisoners Act, 1900, and the Transfer of Prisoners Act, 1950'** have also been reviewed, and their relevant provisions have been assimilated into the Model Act.

Other issues faced by prisons

- **High undertrials**: **Prison Statistics of India 2021** show that more than **77 per cent of jail inmates are undertrials.** The same data set also records 25 per cent of this prisoner population as being illiterate.
- **High occupancy rate of prisons**: As per NCRB's 2021 statistics, there were a total of 5,54,034 people in prisons across India, as against a capacity of 4,25,609. Prisons in Delhi had occupancy rate of 183%.
- **Difficulty in obtaining bail**: Delay in the adjudication process, lack of support for filing of bail applications, or inability to comply with bail conditions in the bail system further leads to prolonged incarceration.
  - In this context**, Supreme Court directed the Union government to consider introducing a separate bail act** to streamline the process of granting bail.
- **Vacancies in prison officials**: In Uttarakhand, Chhattisgarh, Bihar and Jharkhand over 60% of officer positions were vacant. This increases burden on officers and also leads to poor management of prisons including crimes within prisons.
- **Unnatural deaths in prisons**: According to Prison statistic of India 2021, there were 185 **un-natural deaths** of inmates in 2021, with 150 inmates committing suicide.

Suggestions to reform prisons

- Supreme Court has outlined **three broad principles** regarding imprisonment and custody, which shall be followed:
  - First, a person in prison does not become a non-person.
  - Second, a person in prison is entitled to all human rights within the limitations of imprisonment.
  - Third, there is no justification for aggravating the suffering already inherent in the process of incarceration.
- **Easier bail provisions**: Section 436A of the CrPC stipulates that a person having undergone detention for half as much time as the maximum period of imprisonment except in death penalty, is entitled to be released on bail with or without sureties.
- **Faster disposal of bail cases**: In Hussain and Anr. v/s Union of India (2017), the apex court had ordered expeditious disposal of bail applications along the principle of bail being the norm and jail being the exception.
- **Mulla Committee**: In 1980 the Government of India set-up a **Committee on Jail Reforms under the Chairmanship of Justice A. N. Mulla.** Some of the prominent recommendations of the Mulla committee are:
  - The prison staff to be properly trained and organized into different cadres. Setting up an All India Service called the **Indian Prisons & Correctional Service**.
  - **After-care, rehabilitation and probation** to be an integral part of prison service.
  - The **press and public to be allowed** inside prisons and allied correctional institutions periodically.
  - **Undertrials in jails to be reduced to bare minimum** and they be kept away from convicts.

Some steps taken for prison reforms

- **Model Prison Manual 2016**: Government in 2016 introduced the '**Model Prison Manual'**. It aims at bringing in basic **uniformity in laws, rules and regulations** governing the administration of prisons and the management of prisoners all over the country.
  - However, only 11 states and Union territories have adopted the new manual.
- **Open Prisons**: An open prison is penal establishment in which the prisoners serve their sentence with **minimal supervision and perimeter security,** and are **not locked up** in prison cells.
  - **Open prison model adopted in Rajasthan**, has promoted a reformative form of punishment and succeeded in transforming the lives of inmates.
  - Open prisons **need 92% less staff than closed jails**, and incur **monthly costs of only ₹500 per prisoner.**

1.3. NEWS IN SHORTS

1.3.1. WHIP

- **Constitution Bench in Shiv Sena case** ruled that **power to appoint a whip and a leader rest with the "political party" and not the "legislature party,"** as stated in the Tenth Schedule of the Constitution.
- **Key Observations of SC**
  - **Appointment of whip**: Speaker must **recognise the whip** and leader authorised by the political party, **based on the party constitution, after conducting an inquiry**.
    - ✓ Allowing the legislative wing to act independently from the political party contradicts the constitutional system of governance.
  - **Speaker to decide disqualification**: Disqualification ought to be decided as per established procedures in law and the Speaker is the appropriate authority for this under the Tenth Schedule of the Constitution, which lays down the anti-defection law.
    - ✓ Emphasised that the **Speaker should decide on pending disqualification petitions in a reasonable timeframe.**
    - ✓ **MLAs have the right to participate in proceedings of the House regardless of pendency** of any petitions for disqualification.
  - **Floor test:** A floor test is **to be conducted by the Governor only on obtaining objective material** to show that the incumbent government had lost the confidence of the House.

Whip in India

- A whip may refer to both **a written order to members of a party in the House** to abide by a certain direction, and to a designated official of the party who is authorised to issue such a direction.
- **All parties can issue whips to their members**. Parties appoint a senior member from among their House contingents to issue whips — this member is called a chief whip, and he/ she is assisted by additional whips.

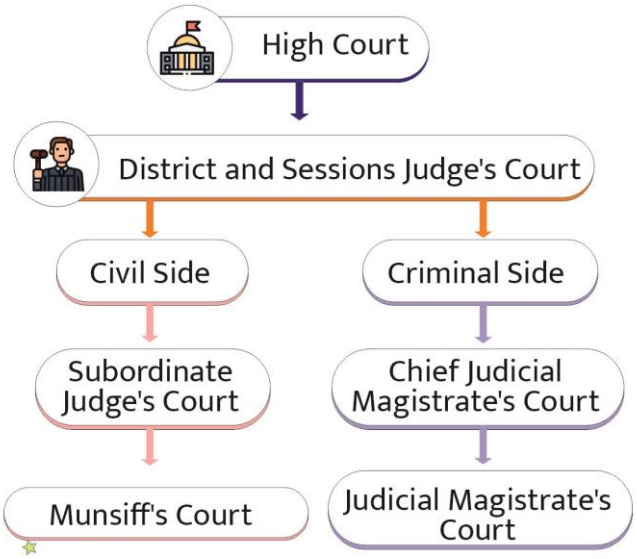
1.3.2. ARTICLE 142

- Supreme Court (SC) rules it **can directly grant divorce to couples under Article 142.**
- SC held that it **could directly grant divorce**, in cases **where marriage** has **irretrievably broken down**,

dispensing with period prescribed **under Hindu Marriage Act (HMA), 1955**.
    - As per Section 13-B of HMA, **after filing first motion** seeking divorce through mutual consent, **parties have to wait for a minimum of six and a maximum of 18 months** before moving the second motion.
- However, **SC clearly stated that grant of divorce** on ground of irretrievable breakdown of marriage is **not a matter of right, but a discretion.**
- **Article 142 provides SC power, to do "complete justice**" between parties, where, at times, law or statute may not provide a remedy.
- While **powers under Article 142 are sweeping** in nature, **SC has defined its scope and extent through various judgments.**
    - **Prem Chand Garg case (1962):** Demarcated contours for powers under Article 142.
    - **Union Carbide Corporation vs Union of India**: SC in 1991, while highlighting wide scope of Article 142, ordered compensation for the victims.
    - **Supreme Court Bar Association vs Union of India** (1998): Powers under Article 142 are supplementary and could not be used to supplant or override a substantive law.

1.3.3. DISTRICT JUDICIARY

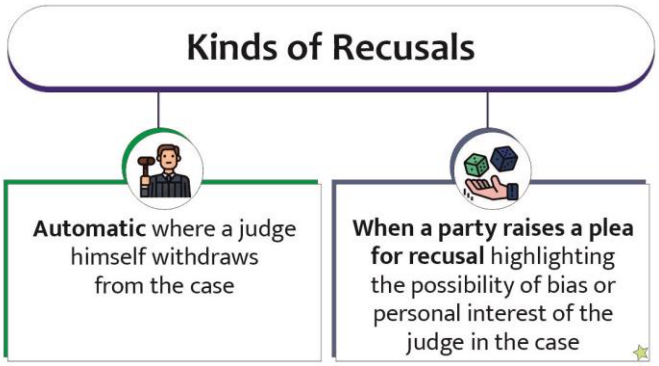
- Supreme Court (SC) stated that **District judiciary's independence is part of basic structure**.
- **SC,** while pronouncing judgement in **All India Judges Association v. Union of India** case, **highlighted certain principles concerning judiciary including:**
    - **Independence of District Judiciary** equally a **part of basic structure of Constitution** as it performs an important role in **upholding rule of law**.
        - Judicial independence and access to justice **ensures implementation of part III of Constitution**.
    - **Integration in terms of pay, pension and other service conditions** between District Judiciary, High Courts and SC.
    - **Separation of Power:** officers of judiciary be treated separately **from staff of legislative and executive wings**.
    - **Uniformity in designations and service conditions:** A unified judiciary entails that service conditions of judges of one state are equivalent to similar posts of judges of other states.
- As per court record, **on a single day,** district judiciary **handled nearly 11 lakh cases.**
    - District judge is the **highest judicial authority in district**.
    - **Organisational structure, jurisdiction and nomenclature** of subordinate judiciary **are laid down by states.** Hence, **they differ slightly** from state to state (**Broadly three tiers** below high court)
    - **Appointment, posting and promotion** of district judges are **made by governor** of the state **in consultation with High Court.**



1.3.4. RECUSAL BY JUDGES

- Supreme Court (SC) judge **refused to recuse himself from hearing a plea** by a former Indian Police Service (IPS) officer.
- Whenever there is a **potential conflict of interest, a judge can recuse or withdraw from a case** to prevent the perception of being biased.
- **Key principles guiding recusal by judges**
    - **Nemo judex in sua causa** that is, no person shall be a judge in his own case.
    - **'Justice must not only be done but must also be seen to be done'** propounded in 1924 in Rex v. Sussex Justices by the then Lord Chief Justice of England.
- India has **no codified rules governing recusals** and the **decision to recuse rests solely on the conscience and discretion of the judge.**
    - If a judge recuses himself, the **case is listed before the Chief Justice for allotment to an alternate Bench.**

- **SC judgement on recusal**
  - **Ranjit Thakur v Union of India (1987)**, the Supreme Court ruled that the test for determining the likelihood of bias is based on the reasonableness of the apprehension perceived by the party involved.
  - **State of West Bengal v. Shivananda Pathak (1998), SC defined judicial bias** as a preconceived opinion to decide a case or an issue in a particular manner.



1.3.5. E-GOVERNED STATE

- Kerala has become the **first full 'e-governed state' in India**.
- It has digitized a range of government services, ensuring prompt and transparent delivery to its citizens.
- E-governance, meaning '**electronic governance' is using ICTs such as Wide Area Networks, the Internet, and mobile computing for the purpose of enhancing governance**.
- **Initiatives of Kerala:**
  - **Kerala Fibre Optic Network (KFON) project**, which has made internet access a citizen's right.
  - **e-Sevanam**, a single portal for 900 public services to taluk-level offices.

1.3.6. WORLD PRESS FREEDOM INDEX 2023

- **India was ranked 161** out of 180 countries. **Norway, Ireland and Denmark** occupied the **top three** positions.
- It is released **by Paris based Reporters Without Borders** (RSF), one of the world's leading NGOs in defense and promotion of freedom of information.
  - It is **published on World Press Freedom Day** (3 May).
- **Evaluation is done using five contextual indicators**: political context, legal framework, economic context, sociocultural context and safety.

1.3.7. INTERNET SHUTDOWNS

- **Supreme Court** (SC) has issued notice **seeking the compliance of the Government** with respect **to its judgement in Anuradha Bhasin's case.**
  - In **Anuradha Bhasin's Case (2020)**, the suspension of mobile, landline and internet services in the **state of Jammu and Kashmir** at the time of the revocation of Article 370 along with restrictions on movement in certain areas was challenged.
- **Key Guidelines Proposed in Anuradha Bhasin's Case**
  - An order **suspending internet services indefinitely** is **impermissible** under the **Temporary Suspension of Telecom Services (Public Emergency or Public Service) Rules, 2017.**
  - Suspension can be utilised for **temporary duration** only.
  - Any order **suspending the internet issued** under the **Suspension Rules**, must adhere to the principle of **proportionality** and must not **extend beyond necessary duration**.
  - Any order suspending the internet **under the Suspension Rules** is subject to **judicial review**.
  - The court had also declared that **freedom of speech and expression** as well as **freedom of trade and commerce through internet** are constitutionally **protected rights under Article 19(1)(a) and Article 19(1)(g).**

Internet shutdowns related provisions in India

- Currently, **suspension of telecom services (including internet shutdowns) is governed by Temporary Suspension of Telecom Services (Public Emergency & Public Safety) Rules, 2017,** notified under Indian Telegraph Act, 1885.
- 2017 Rules provide for **temporary shutdown of telecom services in a region on grounds of public emergency** (up to 15 days at once).

1.3.8. NARCO ANALYSIS TEST

- Recently, wrestler protestors at Delhi have asked for undergoing Narco tests provided it is monitored by Supreme Court.
- As part of a narco test, **sodium pentothal, also called 'truth serum'**, is injected into a person.
  - Doing this **lowers a person's self-consciousness**, thereby allowing them to speak without inhibition.
  - This test is **performed under the guidance and supervision of a psychologist**, an investigating officer, or a forensic expert.
- The **Supreme Court in Selvi & Ors vs State of Karnataka & Anr (2010)** ruled that narco analysis, brain mapping and polygraph tests cannot be conducted on any person without his or her consent.

- The judgement was given taking view of the fundamental rights:
  - ✓ **Article 20(3)** (Right against self-incrimination) enumerated in the Constitution states that no person accused of an offence shall be compelled to be a witness against himself/herself.
  - ✓ **Article 21 (Right to life and personal liberty)** has been judicially expanded to include a 'right against cruel, inhuman or degrading treatment'.
- Those who volunteer must have access to a lawyer and have the **physical, emotional, and legal implications of the test** explained to them by the police and the lawyer.

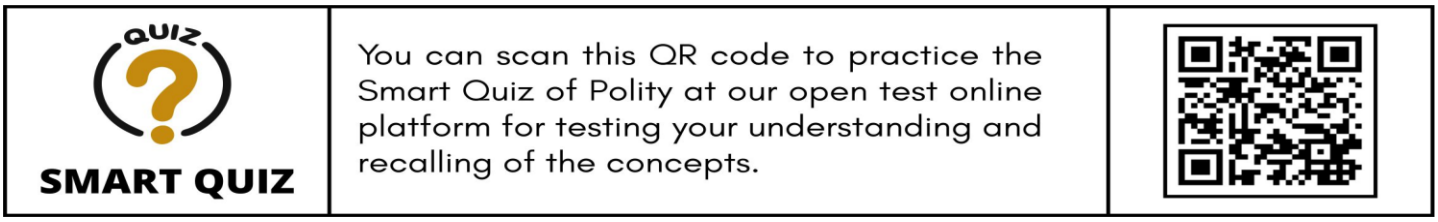
- Narco analysis report is **not admissible as primary evidence in the court**.
  - However, **any information or material that is subsequently discovered** with the help of voluntary administered test results **can be admitted**, in accordance with Section 27 of the Evidence Act, 1872.

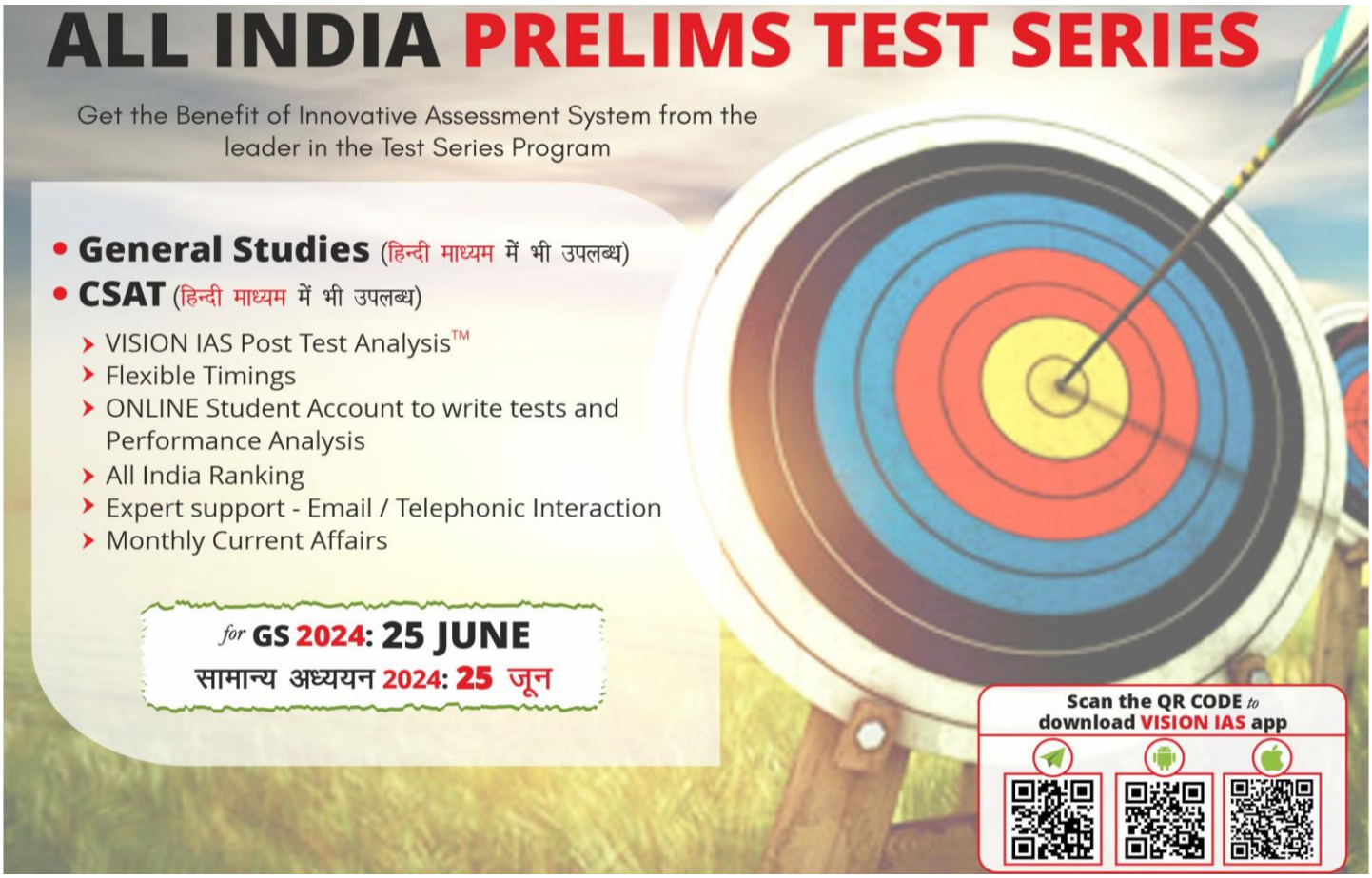
Polygraph test

- A polygraph test is another form of physiological examination, but in this test, **no substances are injected into the person's body**.
  - Instead, instruments to **measure blood pressure, pulse rate, breathing, sweat glands and blood flow is attached to the person**. After this, he/she would have to answer some questions.

Brain mapping test

- The P-300 test, or the brain mapping test involves the **mapping of brain activity rather than physiological behaviour.**
  - It is done in the same manner as the polygraph test. Brain mapping may **cover aspects of the field of neuroimaging** as it produces images of the brain that have been enhanced by the result of additional (imaging or non-imaging) data processing or analysis.





2. INTERNATIONAL RELATIONS

2.1. 25 YEARS TO POKHRAN NUCLEAR TESTS

Why in news?

On May 11, 2023, India celebrated 25 years of Pokhran-II nuclear tests.

Pokhran I and Pokhran II tests

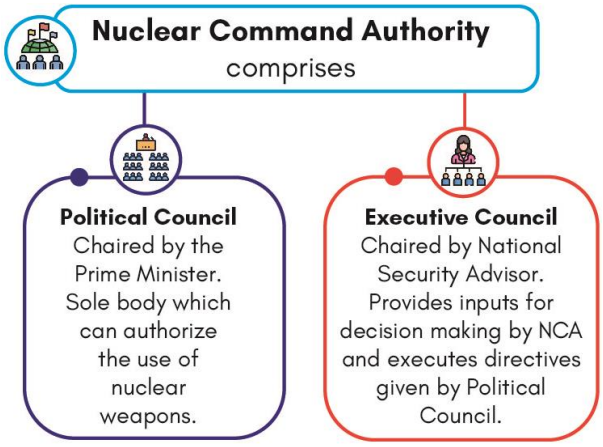
- India **declared itself a nuclear weapon state** after it carried out a series of three nuclear detonations on **May 11, 1998.**
  - These included **thermonuclear device**, along with a fission device.
  - A **second test followed two days later** and having attained the requisite degree of techno-strategic capability, India announced a **self-imposed moratorium** on further testing.
- The operation was code-named '**Operation Shakti'**. It was second nuclear test by India.
- India conducted its **first nuclear tests on May 18, 1974, in Pokhran**.
  - Its code name- **Operation Smiling Buddha** came from the test's date being on the same day as Buddha Jayanti.
- India's **rationale and intentions regarding the development of nuclear weapon** were outlined in the Official nuclear doctrine.

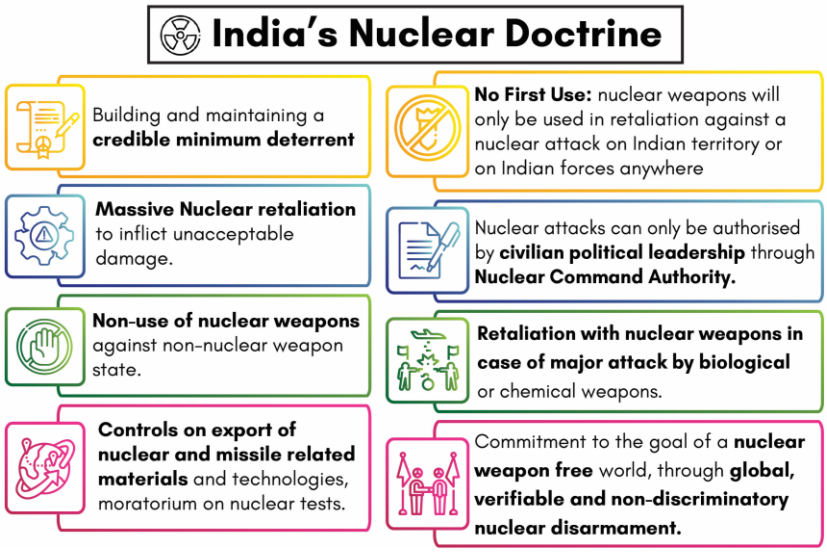
Why did India choose to exercise the nuclear option in 1998?

- **China as nuclear weapon state**: China had acquired its nuclear weapon in October 1964. By the mid-1990s, China had already conducted as many as 45 nuclear tests, which increased concerns of India.
- **Reports of Pakistan acquiring nuclear weapons**: China had also conducted a nuclear test for Pakistan, reportedly in May 1990, thereby boosting Pakistan's nuclear confidence and emboldening it to foment insurgency in J&K and Punjab.
- **Pressure to sign NPT and CTBT**: If India signed on to CTBT, India would have been closing nuclear option forever. If India refused to sign, it would have to explicitly state why it does not want to sign.
- **Existing discriminatory nuclear order**: Global nuclear governance set-up based on NPT had divided the world into the P-5 and others. India, though fully embedded to the peaceful uses of atomic energy, was not very happy with this discriminatory world.

India's nuclear doctrine

- A nuclear doctrine **states how a nuclear weapon state would employ its nuclear weapons both during peace and war**.
- India first released **Draft Nuclear Doctrine** (DND) in August 1999. In January 2003, India released its **official nuclear doctrine**.





Significance of India becoming nuclear weapon state

- **Improved international standing**: India is now a member of three out of four multilateral export control regimes — MTCR, Wassenaar Arrangement, Australia Group — and is in the reckoning for membership of the NSG.
- **Security situation along the border**: With respect to China and Pakistan, it has helped balance the military asymmetry by ensuring a credible deterrent.

- **India among foremost global military powers**: India is part of an elite group of global military powers having an operational **nuclear triad** capability. That means India can launch nuclear weapons from land, air, and sea.
- **Energy security for the future**: India has installed generating capacity of 2,225 MW in 1998-99 which increased 205 per cent to 6,780 MW in FY23.
- **Transformation in relations with USA**: Post tests, by the turn of the century, India's relations with the US and the West had begun to crystallise into a substantive relationship. With Indo US civil nuclear deal in 2008, **India became a de facto nuclear power**.
- **Expression of technological capability**: The most important fall-out has been with regards to access to international technology.
    - For example, with the United States, we now have a high-tech defence cooperation, the NSSP (Next Steps in Strategic Partnership).
- **Perception of India and national pride**: The tests not only helped India prove its scientific capabilities, but also gave a boost to the global stature of the nation. India has been recognised as responsible nuclear power.

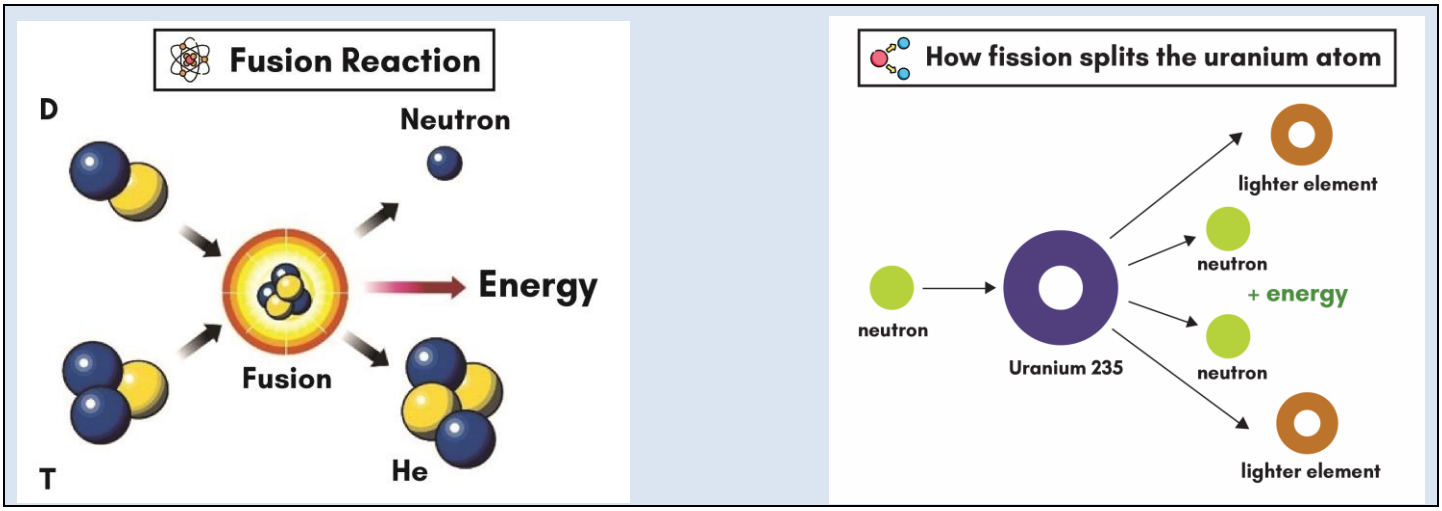
Do we need to revise No first use (NFU) policy?

- India's NFU policy has been criticised on following grounds.
    - It **limits strategic space for Indian decision-makers** in crisis situations where they have limited room to execute escalation-related measures.
    - **Continuation of attacks** like- Kargil in 1999, and the Mumbai attacks in 2008 is seen as **evidence of the failure of nuclear deterrence**.
    - Nuclear-armed states, including in India's neighbourhood, are undertaking arsenal expansion and an offensive and defensive capability build-up, like **developing tactical nuclear weapons.**
- **Arguments in favour of the NFU policy**
    - It **obviates pre-emption**, which would otherwise place considerable pressure on Indian decision-makers to carry out a nuclear First Strike in the heat of a crisis.
    - It helps India avoid the pitfalls of **building a technologically advanced nuclear capability deployed on hair-trigger alert**, which is a financially costly nuclear posture.
    - It also **conveys nuclear restraint to the world and India's adversaries**, ensuring stability.
    - **Conventional attacks and incursions can be tackled at the conventional level**, keeping nuclear weapons out of the equation. Surgical strikes by India in Pakistan Occupied Kashmir in 2016 and air strikes in Balakot in 2019 are illustrative of this.

Conclusion

At the first level India needs to address immediate security threats by intelligently building sufficient and resilient retaliatory capability to signal credible deterrence. And at the second level, India needs to make long-term innovative diplomatic investments towards the **creation of a global environment conducive to peace and universal nuclear disarmament.**

- **Thermonuclear device**
    - The thermonuclear device was a **two-stage device of advanced design**, which had a fusion-boosted fission trigger as the first stage and a fusion secondary stage.
    - Thermonuclear weapons, utilize **both atomic fission and nuclear fusion** to create an explosion.
- **Nuclear Fission reaction**
    - Fission occurs when a **neutron slams into a larger atom** (like Uranium or plutonium), forcing it to excite and split into two smaller atoms.
    - When **each atom splits**, a tremendous amount of energy is released.
- **Nuclear fusion reaction**
    - Fusion occurs **when two atoms slam together to form a heavier atom**, like when two hydrogen atoms fuse to form one helium atom.
    - This is the **same process that powers the sun** and **creates huge amounts of energy**—several times greater than fission.



2.2. UNITED NATION

Why in News?

During the 49th Group of Seven (G7) summit, India questioned the United Nations' (UN) ability to effectively prevent conflicts.

More in News

- India also raised questions regarding why UN hadn't **been able to arrive at a definition** of **terrorism**.
- India also **retreated** for the **reform** in the **United Nation** and other international organisation.

Why UN is not able to prevent the Conflict and resolve them?

- **Security Council Dynamics**: **UN Security Council (UNSC)** , supreme **decision-making** body holds significant power in making decisions related to peace and security.
  - Permanent members have Veto power, which they used to serve their interest or their partner's interest. For instance, China uses Veto power for its interest in Pakistan.

Role Played by United Nation historically

- **Maintenance of Peace and Security**: Successfully negotiated and implemented peace agreements, such as **the Good Friday Agreement** in **Northern Ireland** and the **Comprehensive Peace Agreement** in Sudan.
  - UN **peacekeeping missions** have also contributed to maintaining stability and facilitating political transitions in various conflict-affected regions.
- **Decolonization and Self-Determination**: UNGA adopted the Declaration on the **Granting of Independence to Colonial Countries and Peoples in 1960** which helped numerous territories in transitioning from colonial rule to sovereign nations.
- **Human Rights and International Law**: are being set by it with the help of initiatives like **Universal Declaration of Human Rights** (1948), etc.
- **Sustainable Development Goals (SDGs)**: In 2015, the UN adopted the 2030 Agenda for Sustainable Development, which includes 17 SDGs. It is **making efforts** for **international cooperation** to achieve the objective of SDGs.
- **Humanitarian Assistance and Relief**: with the help its specialized agencies and initiatives, such as the **United Nations High Commissioner for Refugees (UNHCR)**, **World Health Organization (WHO)** and the **World Food Programme (WFP)**, it has transformed the life of millions of people

- **Limited Enforcement Mechanisms**: Resolutions passed by UN General Assembly (UNGA) lacks enforcement mechanism.
    - For the implementation of the decisions is **dependent on member states** to contribute troops and resources to peacekeeping missions, and their participation is voluntary.
    - In certain cases member states are unwilling or unable to commit resources to implement and enforce its resolutions effectively.

Role of India in resolving global Conflicts

- **Mediation and Diplomacy**: It focuses on **promoting dialogue**, **encouraging peaceful resolutions**, and facilitating reconciliation among conflicting parties.
- **Non-Aligned Movement (NAM)**: India, as a founding member of NAM, has advocated for peaceful resolutions to global conflicts and supported the principles of **sovereignty**, **self-determination**, and **non-interference** in the affairs of other nations.
- **Development Cooperation**: India's approach to addressing global conflicts also emphasizes development cooperation. For instance development assistance for the people of Afghanistan etc.
- **Counterterrorism Efforts**: India actively participates in international **counterterrorism efforts** and **advocates** for global cooperation to combat this shared threat.
- **Peacekeeping Operations**: Indian peacekeepers have played vital roles in maintaining stability, protecting civilians, and facilitating peace processes in countries like Lebanon, Congo, South Sudan, and Haiti, among others.

- **Sovereignty and National Interests**: These values of the nations **hinders collective action** and **compromise** the effectiveness of UN interventions.
- **Complexity and Divisions:** Involvement of the **multiple stakeholders** and **interests** make it difficult for UN to provide a solution which is accepted to everyone.
    - Conflict often involves deep-rooted political, economic, social, and religious factors that are difficult to address comprehensively.
- **Lack of Financial Resources**: This limits the UN's capacity to implement its initiatives and provide adequate support to countries affected by conflicts and terrorism.

How UN can be more effective?

- **Strengthening Conflict Preventive Efforts**: Emphasis should be given on **preventive diplomacy** and instruments like mediation and reconciliation can be effectively utilised.
- **Reforms in UNSC**: More representation to Asian and African nation need to be given in UNSC.
    - Inclusion of a country like India as a permanent member will promote effective use of Veto power.
- **Improving Peacekeeping Operations**: Enhancing the **training**, **capabilities**, and **mandate** of peacekeepers, will enhance their effectiveness on the ground. They shall not be used as a tool to fulfil the interest of powerful nations.
- **Enhancing Cooperation with Regional Organizations**: such as the African Union, European Union, or **Association of Southeast Asian Nations (ASEAN)** can strengthen the UN's capacity to address conflicts.
- **Addressing Root Causes of Conflict**: Sometimes real cause of conflicts are neglected by the concerned authorities . It may include causes such as poverty, inequality, governance issues, and human rights violations.
- **Mobilizing Sufficient Resources**: Member states should fulfil their **financial commitments**, and alternative funding mechanisms, such as peacebuilding and prevention funds, can be explored to support long-term peacebuilding initiatives.
- **Strengthening the Responsibility to Protect (R2P) principle**: It will promote the trust of people and countries in UN.

Conclusion

It is biggest **multilateral organisation** of the world and it has enough capability to prevent and resolve the conflicts around the world, but it need to be utilized in pro-active way. Reforms in UN are need of the hour to make it more effective.

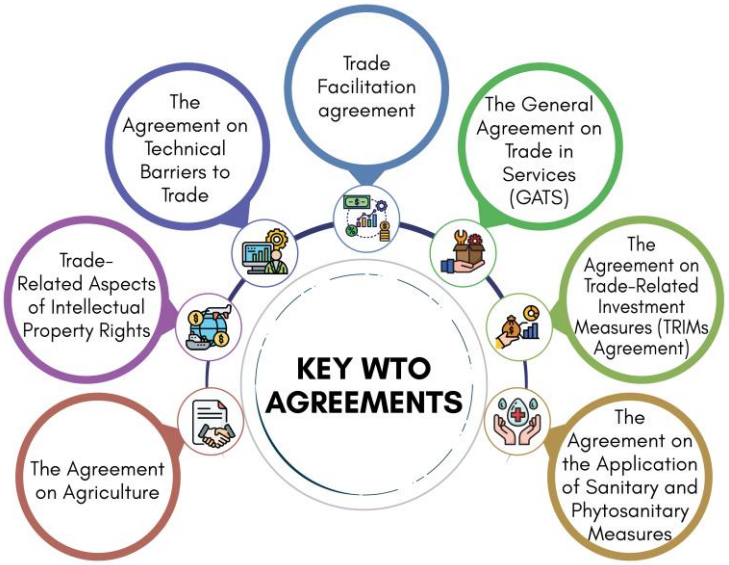
2.3. WORLD TRADE ORGANISATION

Why in news?

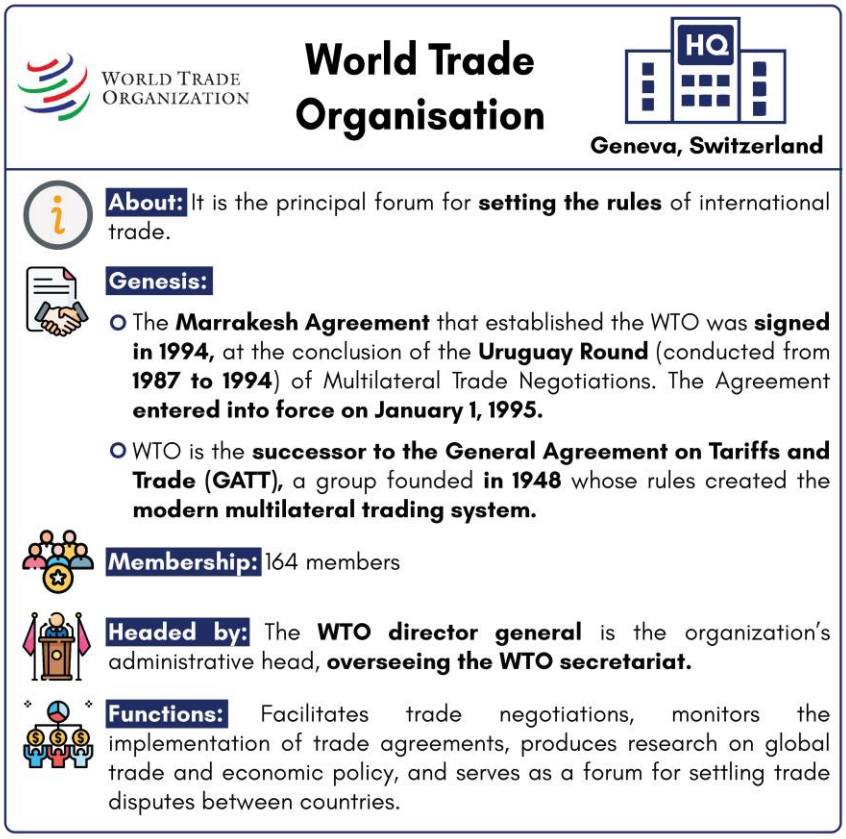
India appealed against a ruling by the dispute settlement body at the **World Trade Organization (WTO)** that India violated its zero-tariff commitment under Information Technology Agreement (ITA).

More about news

- The appeal filed **before the appellate body** (the highest adjudicating authority) at the WTO is considered **an 'appeal into the void',** as the body is **currently dysfunctional**.
- India argued that at the time of signing the ITA, **products such as smartphones did not exist**, and hence, it was not bound to eliminate tariffs on such items.
    - The ITA covers many **high technology products**, including computers, telecommunication equipment, semiconductors, software etc.
        - **Achievements of WTO**



- **Wide coverage:** The WTO is by far the **largest trade body** in the world. It encompasses **more than 85% of the population** in the world. **95% of the trade** that happens across the world is done by WTO members.
- **Transformed international trade**: Binding rules for global trade have facilitated **dramatic growth in cross-border business activity**.
- **Rise of Global Value Chains (GVCs):** The predictable market conditions fostered by the WTO have combined with **improved communications to enable the rise of GVCs**.
    - Trade within these value chains today **accounts for almost 70% of total merchandise trade.**
- **Non-Discrimination:** The WTO promotes the principles of non-discrimination in trade.
    - **The most-favored-nation (MFN) principle** ensures that countries do not discriminate between trading partners, granting them the same favorable treatment given to any other member.
    - **The national treatment principle** ensures that foreign goods and services are treated no less favorably than domestic ones once they enter a member country's market.
- **Special provisions for developing and least developed countries:** The GATT and the General Agreement on Trade in Services (GATS) allow developing countries **some preferential treatment**.
    - The WTO **provides technical assistance and capacity building programs** to help developing and least-developed countries participate effectively in global trade.
- **Global Cooperation**: WTO membership encourages global cooperation among countries. It provides a platform for member countries to engage in discussions and negotiations on various trade-related issues, including agriculture, intellectual property, services, and investment.
- **Dispute resolution:** The WTO's trade dispute mechanism has been used extensively, helping to **avoid unilateral responses** to disputes.



Issues with the WTO

- **Negotiation Deadlocks**: Consensus-based decision-making process has often resulted in negotiation deadlocks, making it difficult to reach meaningful agreements on critical issues, such **as agricultural subsidies, intellectual property rights, and market access.**
- **Developing Country Concerns:** Developing countries argue that developed countries tend to dominate negotiations and have an advantage in shaping the rules to their benefit.
  - Developing countries often struggle to fully participate in the negotiation process and face challenges in implementing and complying with complex trade rules and standards.
- **Rising Protectionism and Bilateralism**: In recent years, there has been a rise in protectionist measures and a shift towards bilateral or regional trade agreements, which bypass the multilateral framework of the WTO.
- **Emerging issues**: There are concerns that WTO has **not kept pace with 21st-century trade**, which requires **new/updated provisions** in multilateral agreements.
  - Several new issues have emerged since 1995, such as the linkages between trade and **climate change, SDGs, gender issues and human rights**.
- **Members' Development Status**: Concerns have been raised regarding ability of certain members to **self-designate as developing countries** and thereby to benefit from the **special and differential treatment** provisions.
- **Dispute settlement crisis**: The WTO dispute settlement is in crisis as the **US blocked appointments to the Appellate Body**. Members face challenges enforcing WTO obligations without a functioning appeals mechanism.
- **Inadequate monitoring mechanism:** Experts raise concerns that WTO is **unable to identify and address violation**s of its multilateral agreements in an **effective and timely manner**.

Measures to reform WTO

- **Making dispute settlement mechanism work**: Given its unique role in ensuring that **WTO rules are applied consistently** across members, earnest efforts should be made in this regard.
- **Improve transparency to enhance legitimacy**: It requires **refraining from mini-ministerials or green rooms**, which **exclude members** of critical decisions, and **foster suspicion** among members. Improved transparency at national and international level is needed to **improve the quality and legitimacy** of WTO rules.
- **Institutional reforms**: To improve the WTO's decision-making process, some reform proposals have called for the **creation of an executive committee**. This committee would address the **lack of leadership** at the WTO and would provide guidance regarding future negotiations.
- **Balancing demands**: The WTO must **balance the demands** of 21st-century trade and **unresolved old trade issues**.
- **Due voice to smaller countries:** As included in the cornerstone principle of consensus, **respect views of all members**, even the smallest ones. This also means that **political and economic pressure should not be applied** to force a country to agree to decisions completely adverse to its fundamental interests.
- **Others**
  - Strengthen the Secretariat's role **as an agenda setter** in the WTO and enhancing its **capacity to undertake research and collect data.**
  - **Improved technical assistance** to developing countries as well as other measures to facilitate their full participation (funding/access to independent advice such as UNCTAD).
  - The **WTO's rules and agreements were established before the advent of certain important trade issues,** such as digital trade, e-commerce, and data flows.

2.4. GROUP OF SEVEN (G-7)

Why in News?

49th Summit of G-7 group was recently held in Hiroshima, Japan.

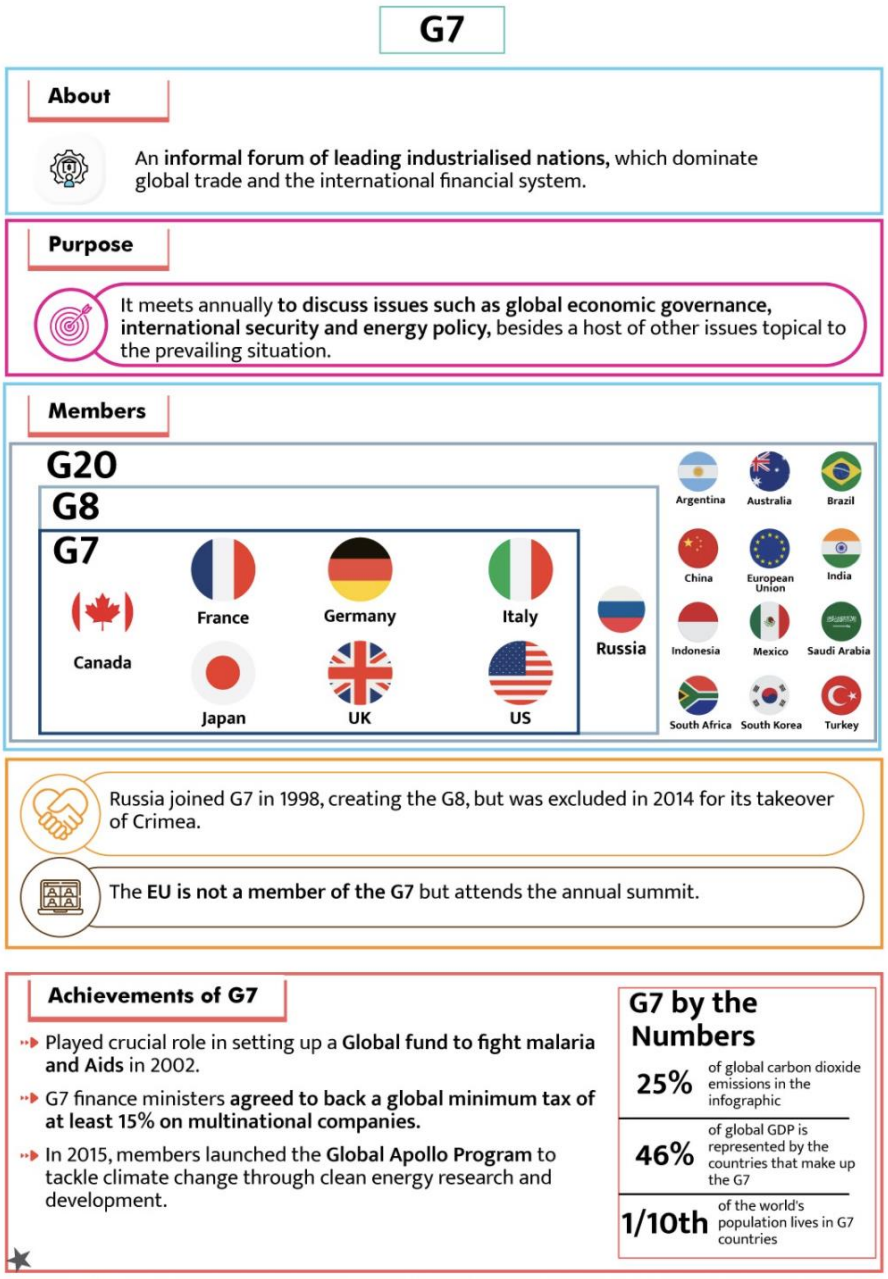
More on News

- **India** along with countries like **Australia, Brazil etc.** was invited to the summit.

- India gave **10-point action plan** to address food, health, and development-related problems currently facing the world (Refer box).

Major Outcomes of the Summit

- **Economic resilience and economic security:** Agreed to set up a **Coordination Platform on Economic Coercion** to counter any attempts to "**weaponize" trading** and **economic dependencies** in "critical and emerging technologies such as microelectronics.
    - They agreed on "de-risking" commercial ties with China.
- **Standards for Artificial intelligence (AI)**: **Development** and **adoption** of international technical standards for "trustworthy" AI.
- **Climate and energy**: Members pledged to achieve **net-zero emissions** by **2050** and to limit global warming to 1.5°C.
    - They also endorsed the **G7 Clean Energy Economy Action Plan**, which emphasizes the importance trade policies will play main role in reaching net-zero emissions.
- **Resilient Global Food Security**: G7 produced a **Hiroshima Action Statement** on food security.



Relevance of G7 in current geo-politics

- **Economic Power**: Their collective **economic power allows** them to **shape** global **economic policies**, **coordinate financial regulations**, and address **economic challenges** such as trade imbalances, currency stability, and financial crises.
- **Political Influence and International Cooperation**: They have a strong voice in shaping global agendas such as conflicts, nuclear proliferation etc.
- **Symbolic Importance**: The G7 represents a select group of **influential democracies** with shared values and interests.
- **Catalyst for Global Governance**: It has played a key role in the creation of international financial institutions like the Financial Action Task Force (FATF).

10-point action plan by India

- **Inclusive food systems that protect the most vulnerable**
- **Depoliticise global fertiliser supply chains**
- Develop an **alternative model to fertilizers**
- **Stop food wastage to strengthen food security**
- **Development** models inspired by the **needs of Global South**
- **Promote holistic healthcare**
- **Adopting Millet**
- **Resilient healthcare systems**
- Promote **digital healthcare**
- Ensure **mobility of healthcare professionals**

Why it is not much effective?

- **Limited Representation and Exclusion of Key Players**: This limited representation has been criticized for not **adequately reflecting the diversity of the global economic and political landscape**.

- Many argue that emerging economies, **such as China, India, Brazil, and South Africa, should have a greater say** in global governance and decision-making processes.

- **Divergence of Interest**: G7 countries often have diverse national interests, policy priorities, and approaches to global issues.
  - This can lead to disagreements and hinder their ability to present a unified front.
- **Change in Global dynamics**: The rise of alternative forums, such as the G20, has been seen as a response to address the changing global order.
- **Implementation of Commitments**: Implementation of agreed-upon policies is hindered by domestic political considerations, differing priorities, and the complex nature of global challenges.

India and G7	
Opportunities	**Concerns**
Expansion of G7: India may become **member of G7** after its expansion along with other potential countries like Australia.	**Divergence of Opinion:** All the members of G7 have been **vocal against Russia** after it invaded Ukraine. However, **India's stand has been diplomatic**. ○ Also, In **World Trade Organization (WTO),** most of the **G7** have **conflicting views. For instance** they are **opposing food subsidies while India is in favour of food subsidies.**
Global South: India is this year's president of the G-20, which is seen as a **crucial bridge** between **G7 economies** and the **Global South**.	
Countering China: China's **rising aggression** is one of the most important issues of G7 summits.	**Commitment**: Initiative like **Partnership for Global Infrastructure and Investment** are not implemented in letter and Spirit.
Other: Good relation with G7 will enhance **India's voice at the global level**. Also, it will help in further strengthening **bilateral relation** with the member countries such as US, France etc.	**Ineffectiveness: G7** is not taking **effective measures** for reforming **global institutions** and **groupings** to reflect modern-day geopolitical realities.

Conclusion

G7 is one of the most important groups after **Global Multilateral Institutions** like WTO, WB etc. Close cooperation with the G7 will be beneficial for India and fulfilling aspiration like reforming the global economic order, mitigating climate change, promoting greener growth, making the world immune to future pandemics, and constructing trusted supply chains into concrete outcomes.

2.5. ADB-INDIA: COUNTRY PARTNERSHIP STRATEGY 2023-27

Why in news?

Asian Development Bank (ADB) launched a new country partnership strategy (CPS) for India.

Key highlights of the strategy

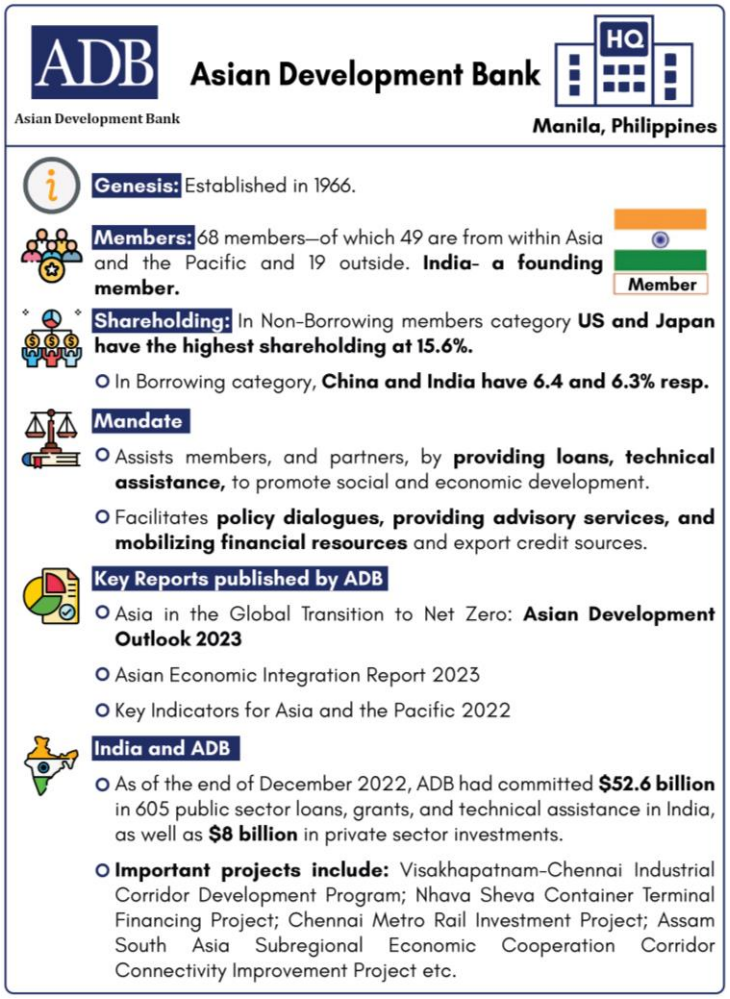
- **The Country Partnership Strategy (CPS), 2023-2027** will advance ADB's **Strategy 2030's** seven operational priorities.
  - Under **Strategy 2030**, ADB aims to expand its vision to achieve a **prosperous, inclusive, resilient, and sustainable Asia and the Pacific**, while sustaining its efforts to eradicate extreme poverty.
  - **Cost-Sharing Arrangements**: ADB and domestic cost-sharing in the **ratio of 70:30**, for the overall loan portfolio during the CPS period.

- **There are 3 pillars of strategy**

Accelerate structural transformation and job creation	Promote climate-resilient green growth	Deepen social and economic inclusiveness
• Support **investments** and strengthen the **logistics–industry–urban skilling nexus.** • **Strengthen MSMEs** and help them integrate into global value chains. • **Augment government capacity** to catalyze private sector.	• Will support Clean energy transition, Transport decarbonization, Circular economy, **climate proofing** of physical infrastructure etc.	• Life cycle approach in **human capital formation.** • Improved access to quality **basic urban services** • Increasing agricultural productivity through **modernizing irrigation**, and the introduction of **improved inputs such as clean planting material** etc.

India-ADB Partnership

- **Prospects:** Over the years, ADB-India Partnership has manifested in diverse sectors. **ADB has provided technical assistance in sectors like agriculture, education, energy, health, finance, etc. (refer infographic)**
  - **Plus, it has also aided trade, supply chain and microfinancing in India.**



Challenges:

- **Differential Approach:** India being a diverse nation, ADB faces difficulties in approaching various states with different developmental achievements. It requires a differentiated approach across and within lower- and higher-income states.
  - Support to **lower-income states focuses on basic infrastructure and services to accelerate inclusive growth**.
  - Support to **higher income states includes transformative projects marked by replicable innovation and good practices**.
- **Private Sector Investment**: ADB support to boost government infrastructure financing through non-sovereign operations will depend on the volume and type of private sector investment opportunities available. With private sector investment more or less stagnant in India, this becomes a challenge for ADB.

Conclusion

CPS for India is well aligned with India's national development priorities to be achieved by 2047. Also, it will leverage India's unique position to deepen regional cooperation and integration in South Asia.

2.6. WEST ASIA

Why in News?

Saudi Arabia hosted a special meeting of the **National Security Advisers (NSAs)** of **India**, the **U.S.** and the **UAE**.

More on News

- Meeting was held to **advance share vision** all the four countries which is to **secure** and **prosperous** West Asia.
- Fundamental notion behind the partnership was to "**connect South Asia** to **the Middle East** to the **United States** in ways that promotes economic technology and diplomacy".

- Coming together of all these countries is **referred** as a formation of **Second Quad of West Asia in the making after the First Quad-I2U2 (**India, Israel, United Arab Emirates, and United States).
    - However, this Quad is different from the **Indo-Pacific Quad having India, US, Japan and Australia**.
- It is also seen as **a success of India's "Look West" policy.**

Significance of this development for India

- **Ties with West Asia**: It will help India to deepen its ties with West Asia, which serves India's energy and economic interests and has a large diaspora presence.
    - It will **compliment** earlier **initiatives** such as in 2021 comprehensive economic partnership agreement was signed between India and the UAE.
    - Additionally, it will enhance opportunity to expand ties with the US beyond Asia.
- **Strengthen global position**: New Quad development will further align India with other major powers like Russia, Europe, and China to address its national and regional concerns strategically.

Why West Asia is Important for India and World?

- **Energy Resources**: It is home to some of the **world's largest oil** and **gas reserves**. Countries like Saudi Arabia, Iran, Iraq, and the United Arab Emirates are major producers and exporters of oil.
- **Geostrategic Location**: It is **strategically** located between Europe, Africa, and Asia, serving as a crossroad between different continents and trade routes. It also connects major powers, enabling them to project influence and maintain military presence in the region.
- **Conflicts and Security**: Region has been marked by various conflicts, including the Israeli-Palestinian conflict, the Syrian civil war, and the ongoing tensions between Iran and its neighboring countries.
    - These conflicts have had regional and global implications, impacting stability, crude oil prices, etc.
- **Religious and Cultural Significance**: It is the birthplace of major world religions like Judaism, Christianity, and Islam.
- **Economic and Trade Opportunities**: **Gulf Cooperation Council (GCC)** countries, such as Saudi Arabia, the UAE, and Qatar, have been investing in infrastructure development, attracting foreign investments and promoting business partnerships.

- **Peace and Security**: It will facilitate greater engagement across **western Indian ocean** which lies between **India**, Suez Canal and South Africa.
    - At least 12 percent of world trade passes through the Suez Canal that links the Indian Ocean to the Mediterranean via the Red Sea.
    - It would help to minimise threats like **maritime piracy**, **illegal smuggling** of drugs and **weapons**, and **terrorism**.
- **Access to market**: It will help to enhance bilateral trade, facilitate access to strategic markets in West Asia, starting with the UAE, and could lead to significant job creation in India.
    - Also, it can be utilised to promote acceptance of Indian rupee in the region especially for the payment of oil import.

- **Countering China**: China facilitated diplomatic breakthrough between Saudi Arabia and Iran indicated a significant escalation of the Chinese diplomatic footprint in the region.
  - In 2021, Iran and China have signed a long-gestating 25-year cooperation.
  - It thus becomes pertinent for India to establish it footprint to a larger extent in the region.

Issues associated with this New Group

- **Lack of clarity**: Strategic goals of this group not clearly stated. It is in initial stage of its formation and not much work has been on the ground.
- **Asymmetry among members**: The member nations have asymmetric power as USA is militarily stronger as compared to India, Saudi Arabia and UAE.
- **Cooperation**: Countries in this group have conflicting positions on how to deal with China, Russia and that may affect the future of the group and its prospects of success.
  - For instance, India abstains from voting on Russia- Ukraine war.
- **Strategic autonomy**: This group may pose challenge for India i.e. US-sponsored security deal would complicate India's 'strategic autonomy' in the Middle East as a state that chooses not to take sides.
- **Internal conflict in west Asia**: The internal conflicts in the Arab world may lead to the significant partners of India like Iran splitting from the former into another group.
  - Developing situation might lead to the creation of two groups: China, Pakistan, Russia, Iran, and Turkey, while India, Saudi Arabia, the USA, and UAE are likely to be on the other side.

Way forward

- **Addressing bilateral concerns**: Cooperation among the four countries is necessary as there are difficulties in managing the complexities of the West Asian region.
  - Balancing the rival countries diplomatically and strategically to maintain friendly relations can be done through cooperation among the four countries.
- **Cooperation**: It can expand by advancing cooperation in new areas in the future or by pursuing cooperation with other partners in both the Middle East and South Asia.
- **Development**: Concentrated efforts to strengthen infrastructure, climate change mitigation, public health, can help in development of west Asia.
- **Maintain peace**: Group should aim to address growing concerns like energy, food security and economic growth in the west Asia region and South Asia along with steps towards maintaining peace in the region.

2.7. INDIA AND PACIFIC ISLAND COUNTRIES (PIC)

Why in News?

Third **Forum for India–Pacific Islands Cooperation (FIPIC)** Summit held at Port Moresby, the capital of Papua New Guinea.

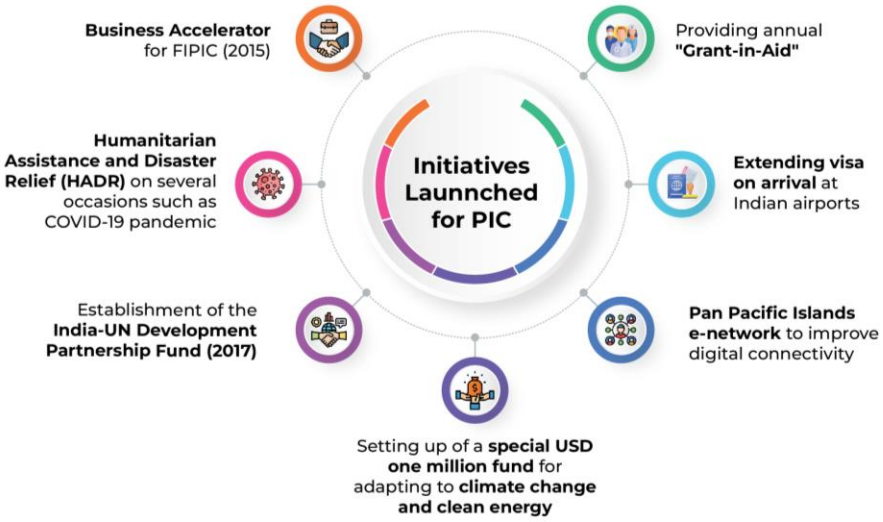
More on News

- India also announced a **12-point development plan** for the Pacific Island nations.
  - **Development plan focuses** on a range of areas including healthcare, renewable energy, and cyber-security.
- **FIPIC** is a manifestation of India's **Act East Policy** and **Indo-Pacific policy**.
- India has also fostered its relationships with them through developmental aid as part of **South-South Cooperation.**

Significance of Pacific Islands Countries (PIC)

- **Geo-Strategic**- Sea-lanes of the **Indo-Pacific region** are critical to **international commerce** and the Pacific Islands are at the centre of PIC.
- **Maritime Security**- India with its **rising naval capabilities has** begun to look beyond the east of Malacca. The PIC's would become inevitably significant in India's **broader maritime strategy.**
- **Economic**- PICs with their resource rich **Exclusive Economic Zones (EEZs)** are sources of natural and mineral resources like LNG.
    - Some of the PICs have EEZs that are larger than the landmass and EEZ of India taken together. Kiribati, one of the smallest countries, alone has an EEZ of 3.5 million square kilometres.
- **Regionals and Global Engagements**: Engagement with PIC allows India to strengthen its network of alliances and partnerships in regional and global organisation such as United Nation.
- **Cultural Ties**: Fiji and Papua New Guinea have significant **Indian diaspora communities**, with historical ties to India.
    - It contributes to the promotion of Indian culture, language, education, and trade within the Pacific Island nations.

Challenges in Strengthening Relationships:



- **Competition from Global Powers**: On a regional and global scale, PICs have **garnered considerable attention from countries** such as China, Japan, the United States, Russia.
    - India finds it **challenging to counter their influence.**
- **Unutilized Trade Potential**: Total annual trade is about a meagre $300 million between the Indian and Pacific Island countries.
- **Emphasis on Traditional Approach**: **India's foreign policy** is focused much more on the **Indian Ocean region** and the Pacific region including the **PICs was relatively neglected**.
- **Limited Engagement**: India's interaction with the PICs still largely revolves around its engagement with Fiji and Papua New Guinea, mainly driven by the presence of sizeable Indian Diaspora.
- **Geographical Distance**: These countries are located far away from India, making **physical connectivity** and **regular engagement** difficult.
    - The long distances increase the cost and time required for travel, trade, and communication.
- **People-to-people contacts**: In comparison to West and East, there is less emphasis on people to people contact with PIC's.

Way Forward

- **High-level Engagements**: Need to initiate **high-level visits** and **exchanges** with **leaders** from the PIC.
- **Development Assistance**: India can enhance development assistance (grants, concessional loans, and technical cooperation etc.) to the Pacific Island Countries.
    - India can collaborate with them on **climate resilience and adaptation strategies by sharing best practices, providing technical expertise**, and supporting sustainable development projects.
    - This is important as **the PICs are highly vulnerable to climate change induced sea level rise.**
- **Trade and Investment Promotion**: India can explore avenues to enhance trade and investment relations with the PIC's.
- **Cultural Exchanges**: Promoting cultural exchanges is a valuable way to foster **people-to-people** contacts and mutual understanding.
- **Connectivity and Infrastructure Development**: India can **explore opportunities for investment** in ports, airports, roads, and digital infrastructure in the Pacific Island Countries.

Indo-Pacific

- It unites the **Pacific** and **Indian oceans** with the surrounding land masses to form an integrated geo-political theatre.
- From the **Indian perspective, it extends from the coast of East Africa across the Indian Ocean** to the Western Pacific.
  - However as per the, US National Security Strategy document, in 2017, it is described as the region from the "**west coast of India to the west coast of the United States**".

Relevance of Indo-Pacific

- **Nearly 50% of India's trade is** centered in the Indo-Pacific Region and the Indian Ocean carries 90% of India's trade and its energy sources.
- **India's maritime security** is linked with it, domination of China has increased.
- **Enhancing Trade and Investment Cooperation**
- Promoting **sustainable** development
- **Other Interests**: include- Combating marine pollution, Regulating illegal, unregulated, etc.

Initiatives

- In 2019, India set up an **Indo-Pacific wing** in the Ministry of External Affairs (MEA).
- Further in 2020, **Oceania division** was created in the MEA.
- Launched **Free and Open Indo-Pacific (FOIP)** idea, forums like the **Security and Growth for All in the Region (SAGAR) (2015)**, and the **Indo-Pacific Oceans Initiative (IPOI)** (2019).
- Groups like **QUAD** are having special emphasis on Indo-Pacific.

2.8. NEWS IN SHORTS

2.8.1. INDIA-EUROPEAN FREE TRADE ASSOCIATION (EFTA) TRADE PACT

- Ministry of Commerce and Industry has **discussed modalities of engagement** for working towards a comprehensive **Trade and Economic Partnership Agreement (TEPA)** with representatives of **EFTA states.**
- TEPA is a **Free Trade Agreement (FTA) between India and members of EFTA (Iceland, Liechtenstein, Norway, and Switzerland).**
  - Under FTA, two trading partners **significantly reduce or eliminate customs duties on the maximum number of goods** traded between them, besides easing norms to promote trade **in services and investments.**
  - Thus, **TEPA could bring** significant **economic benefits**, such as **integrated and resilient supply chains increased trade and investment flows, job creation, and economic growth, etc.**
- EFTA is an **inter-governmental organisation** for the **promotion and intensification of free trade**.
  - EFTA countries are **not part of European Union** (EU) and was founded as an **alternative for states** that did not wish to join European Community.
- **India's trade with EFTA**
  - India is the **9th largest trading partner of EFTA.**
  - **India's exports to EFTA countries** stood at **USD 1.67 billion** in 2022-23 as against USD 1.74 billion in 2021-22.
  - **Imports aggregated at USD 15 billion** in 2022-23 as compared to USD 25.5 billion in 2021-22.

2.8.2. NORTH ATLANTIC TREATY ORGANIZATION (NATO) PLUS

- **China Select Committee of US House** recommends **making India part of North Atlantic Treaty Organization (NATO) Plus.**
- **NATO Plus 5** is a security **arrangement** bringing **together NATO and five aligned nations** (Australia, New Zealand, Japan, Israel, and South Korea) **to boost global defence cooperation.**
  - NATO **is a 31-member military alliance** with 29 European nations, and two American**.**
- **Importance of recommendation**
  - **For the US**, It is aimed at **winning the strategic competition with China** across the Indo-Pacific region and ensuring the **security of Taiwan.**
    - ✓ It also aims to **effectively implement economic sanctions** in partnership with QUAD and G7 allies.
      - India is **a key member of the Quad grouping,** which also includes the US, Australia and Japan.
  - **For India,** it would facilitate **seamless intelligence sharing between these countries and India**.
    - ✓ India would **access the latest military technology** without much of a time lag.

Related information
Major Non-NATO Ally (MNNA) status

- MNNA status is a **designation under U.S. law** that provides foreign partners with certain benefits in the **areas of defense trade and security cooperation.**
- While MNNA status **provides military and economic privileges**, it **does not entail any security commitments to the designated country.**
- **The US has designated 30 other countries** including Japan, South Korea, Israel, etc as MNNA
- **India is not a MNNA.**

2.8.3. ISRAEL-PALESTINE CONFLICT

- UN marked **75 years since displacement of 700,000 Palestinians.**

- **Mass displacement** (in 1948), **from land that was to become Israel**, is **known as Nakba** (meaning catastrophe in Arabic).
- **Israel-Palestine Conflict**
  - **Dates to early 20th century** with Jews Claiming Palestinian land as ancestral property while Arabs being the majority.
    - ✓ **Balfour Declaration by Britain** in 1917 aimed to establish **a national home for the Jewish people** in Palestine.
    - ✓ Between 1920-40, **jews migration to Palestine grew** because of persecution in Europe.
  - In **1947**, UN voted to **split Palestine into a separate Jewish and Arab state**.
    - ✓ Rejected by **Arab state**s, it led to declaration of state of Israel in 1948 and **first Arab-Israeli war**.
    - ✓ At ceasefire, **Jordan occupied West Bank**, **Egypt occupied Gaza** and **Jerusalem** was divided **between Israel and Jordan.**
  - In **1967**, **six-day war** started between Arabs and Israel**.**
    - ✓ At its end, **Israel gained territorial control of Sinai Peninsula** and **Gaza Strip** from **Egypt**; **West Bank** and **East Jerusalem** from **Jordan**; and **Golan Heights** from **Syria**.
  - Israel still occupies **West Bank** and **East Jerusalem**.
- **India has adopted de-hyphenation Policy** which simply means that India's relationship with Israel would stand on its own merits, independent and separate from India's relationship with Palestinians.

2.8.4. ADVANCE NOTICES

- **US proposed advance notices** of tariff changes and export restrictions **for IPEF.**
- Indo-Pacific Economic Framework (IPEF) is a **U.S.-led economic grouping comprising 14 partners** (including India) which **represent 40% of global GDP** and **28% of global goods and services trade.**
  - **Based on 4 pillars:** Trade; Supply Chains; Clean Energy, Decarbonization, and Infrastructure; and Tax and Anti-Corruption.
  - IPEF partners are **not required to join all four pillars** (**India** has **not joined trade pillar**).
- **Under the supply chain tract**, US has proposed that **IPEF members should give advance notices before changing their import tariffs** or putting restrictions on exports.
- **Benefits of Advance Notices**
  - **Eliminates surprises**, gives **time for adjustment** and **minimizes losses** of trading partners.
  - Will provide **safeguards against export restrictions** that can go as far as disturbing the macro-economic indicators of a country.
- **Concerns against Advance Notices**
  - **Disruptions** and opportunities **for extracting undue gains** will emerge.
  - **Might expose the countr**y putting tariffs and restrictions **to pressure from fellow members of IPEF**.
  - **Put limits on the powers** of member-countries **to pursue an independent tariff policy**.
- **India has raised concerns** that such an exercise **could amount to a violation of the WTO rules** as well as a **possible loss of policy space to the government.**

2.8.5. BUSINESS READY (B-READY) PROJECT

- **World Bank Group Launched** Business Ready (B-READY) Project.
- Business Ready reflects a more **balanced and transparent approach toward evaluating a country's business and investment climate** and to make it **ready for a dynamic private sector**.
- Business Ready **improves upon and replaces the World Bank Group's earlier Doing Business project**.
  - **World Bank had scrapped** Doing Business report (in 2021) after probe revealed that **rankings for China, Saudi Arabia, UAE and Azerbaijan had been altered.**
- **About Business Ready Project**
  - **It will focus on ten topics covering a firm's life cycle –**business entry, business location, utility services, labour, financial services, international

trade, taxation, dispute resolution, market competition, and business insolvency.
    - **First report**, covering 54 economies, **will be published in 2024**. It will be further **scaled up to cover 180 economies by 2025-26.**
    - Will facilitate **private investment, generate employment, and improve productivity** in inclusive and sustainable ways.

Doing Business Project	Business Ready Project
• Considered **perspective of certain individual firms** only. • **Some parameters considered de jure info** (statutory laws and regulations) **and some relied on de facto info** (practical implementation). • **Data and the calculation** process were **mostly opaque.** • **Covered only the major business city** in an economy.	• To evaluate **standpoint of private sector development as a whole.** • Aims to **collect both de jure information and de facto measurements for all parameters.** • To **publish all data's collected and calculation methodology** used, to **ensure transparency.** • **No such limitations** and expected to cover wide range of cities in an economy.

2.8.6. INNOVATIVE FINANCE FACILITY FOR CLIMATE IN ASIA AND THE PACIFIC (IF-CAP)

- **Asian Development Bank (ADB) announced** the Innovative Finance Facility for Climate in Asia and the Pacific (IF-CAP).
- IF-CAP is a **multi-donor financing partnership facility** with **goal of scaling-up finance for accelerated action against climate change** in Asia and Pacific.
    - IF-CAP is a **landmark program of ADB** with initial partners being **Denmark, Japan, Republic of Korea, Sweden, United Kingdom, and United States.**
    - This is the first time any multilateral development bank has adopted a program of this kind.
- **Need of IF-CAP**
    - Asia and Pacific is **uniquely vulnerable to impacts of climate change**, such as hurricanes, droughts, heat waves, floods, and sea-level rises.
    - **Immense climate financing gap** to fight against climate change.
- **Benefits of IF-CAP**
    - **Multiplier effect** i.e., for **every $1 of guarantees**, ADB will be able to **accelerate up to $5 in much needed climate finance.**
    - **Empowering: Financing will help vulnerable countries** in Asia and Pacific region meet their **mitigation and adaptation goals.**
    - Support **ADB's raised ambition for $100 billion in climate finance** from 2019-2030.
- **Other climate financing mechanisms are** Global Environment Facility (GEF), Green Climate Fund (GCF), Adaptation Fund, and Loss and Damage Fund etc.

2.8.7. WORLD BANK PRESIDENT

- Recently, **first-ever Indian-American Ajay Banga** was **appointed the World bank President**.
- Selection is done through an **open, merit-based and transparent** process. Candidates must **be nationals of the Bank's member countries.**
- **Candidates should meet** several conditions including a proven **track record of accomplishment, Experience of managing large organizations** etc
- Candidate **nominations must be made by Executive Directors**, or by Governors through their Executive Directors.
- President is **ex officio chair of Board of Executive Directors** of **International Bank for Reconstruction and Development** (IBRD) and **International Development Association** (IDA).

2.8.8. WASHINGTON DECLARATION

- **On 70th anniversary of U.S.-South Korea bilateral relations** both side signed Washington Declaration.
- Declaration **advocates for nuclear deterrence policy in the region**, aiming to **balance power dynamics against North Korea.**
- **Key highlights of the declaration**
    - An **American nuclear ballistic submarine** would be deployed **in Korean peninsula.**
    - U.S. will **strengthen South Korea's nuclear deterrence** capabilities.
    - Reaffirmed that **South Korea would not focus on** creation of its own **independent nuclear capabilities.**
- **Note:** It is different from the Washington Declaration (1994) that formally ended state of war between Jordan and Israel.

2.8.9. INTERNATIONAL ORGANISATION FOR MIGRATION (IOM)

- **Amy Pope** of USA set **to become the first woman to head IOM.**
- **About IOM**
    - **It was established in 1951,** it is leading **intergovernmental organization** in the **field of migration.**

- **IOM is part of the United Nations system**, as a related organization.
- It **has 175 member states (India is a member).**
- It works to help **ensure the orderly and humane management of migration** to promote international cooperation on migration issue.

2.8.10. 6TH INDIAN OCEAN CONFERENCE (IOC)

- Conference has been jointly organized by the **Bangladesh's foreign ministry** and the **India Foundation**, a New Delhi-based think tank.
  - **Theme**: **Peace Prosperity and Partnership for a Resilient Future.**
- It is a forum to discuss how the countries of the **Indian Ocean region (IOR)** can promote economic development while maintaining peace and stability.
  - **First IOC was held in 2016** (Singapore) and with time it has emerged as the flagship consultative forum for countries in the region over regional affairs.
- It provides a common platform to countries to deliberate upon the prospects of regional cooperation for **Security And Growth for All in the Region (SAGAR)**.
  - SAGAR was launched in 2016 to promote **cooperation among the state actors and creates an environment of peace and stability.**

2.8.11. 'SILKWORM EATING' STRATEGY

- Recently, the Chinese idea called 'silkworm eating' has been witnessed with regular incursions in Taiwan.
- **Silkworm eating is a colloquial for gradual encroachments** by a country by successfully making inroads in another territory.
- It is Chinese equivalent to the Western notion of **'salami-slicing' tactic.**
  - "Salami-slicing" is a **divide-and-conquer tactic** used to dominate opposition territory piece by piece.
  - Such military operations are too small to result in a war.
  - The term was coined by **Hungarian communist politician Matyas Rakosi**. He used the term to justify the actions of the **Hungarian Communist Party to grab complete power in Hungary.**

QUIZ

SMART QUIZ

You can scan this QR code to practice the Smart Quiz of International Relations at our open test online platform for testing your understanding and recalling of the concepts.

ALL INDIA MAINS TEST SERIES

Get the Benefit of Innovative Assessment System from the leader in the Test Series Program

- General Studies (हिन्दी माध्यम में भी उपलब्ध)
- Essay (हिन्दी माध्यम में भी उपलब्ध)
- Philosophy (हिन्दी माध्यम में भी उपलब्ध)
- Sociology
- Political Science & IR
- Anthropology

for GS 2023: 18 JUNE
सामान्य अध्ययन 2023: 18 जून

Scan the QR CODE to download VISION IAS app

for GS 2023: 18 JUNE
सामान्य अध्ययन 2023: 18 जून

3. ECONOMY

3.1. COMPETITION (AMENDMENT) ACT 2023

Why in News?

The Centre **notified several provisions** of the Competition (Amendment) Act (CAA) 2023, which **amended the Competition Act (CA), 2002**.

Competition Act 2002

- It **replaced the Monopolies and Restrictive Trade Practices (MRTP) Act**, 1969.
- It provided for the **establishment of the Competition Commission of India** (CCI).
- The Act **forbids anti-competitive agreements, corporate abuse of dominant positions, and combinations** (including acquisitions, takeovers of control, and mergers and acquisitions) that have or are likely to have a materially **negative impact on competition** in India.

Amended definitions in the Act

- **Definition of Combination:** The CAA **expands the definition of combinations** (mergers, acquisitions, or amalgamation of enterprises) to include **transactions with a value above Rs 2,000 crore**.
- **Reduction in the time limit for approval of combinations:** From 210 days to **150 days**.
  - The CCI is now required to form a **prima facie opinion** on a combination **within 30 days**, otherwise, the combination shall be deemed to have been approved.
- **Definition of control for classification of combinations:** CAA modifies the definition of control as the **ability to exercise material influence** over management, affairs, or strategic commercial decisions.
- **Expansion of Scope of Cartels to Include "Hub and Spoke Arrangements"**: Companies which are not engaged in identical or similar business activities can also be held **liable for an anti-competitive horizontal agreement (cartelization)**, where they participate or intend to participate in facilitating such an agreement.

Grievance Redressal and Penalty provisions

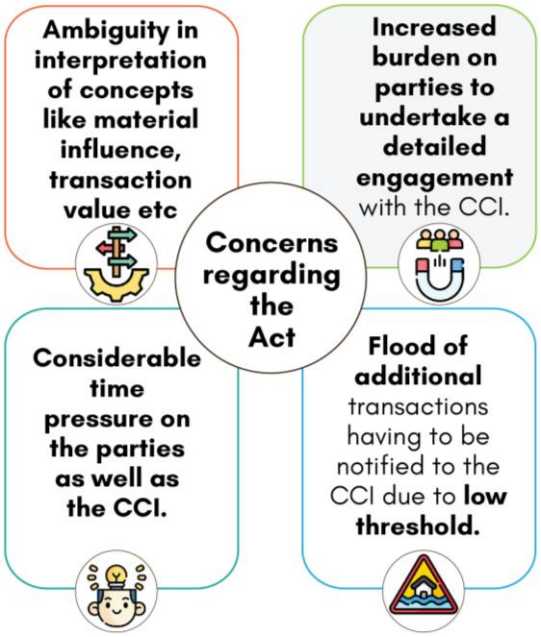
- **Limitation Period for Filing Information**: A complaint against anti-competitive conduct needs to be filed before the Competition Commission of India (CCI) **within 3 years** from the date on which the cause of action arose. The CCI is **empowered to condone delays**.
- **Increased Penalty:** For **false statements/ omission of material information** from ₹ 1 crore to ₹ 5 crore.
- **Penalty based on global turnover:** The penalties for anti-competitive agreements and abuse of dominant position would be **imposed based on the global turnover** derived from all products and services by such person or an enterprise.

- **Compounding of Offences**: CAA introduces a provision which allows the **compounding of any offence** (which does not entail imprisonment).
  - Compounding an offence indicates that the individual with whom the crime has been perpetrated has **acquired some compensation from the accused, not exclusively of monetary nature**, to avoid the litigation process.
- **Leniency Regime:** Where a party implicated in a cartel investigation makes a **true and vital disclosure** of an alleged violation or another undisclosed cartel, CCI is empowered to also grant an **additional lesser penalty** for the cartel already being investigated.

- **Decriminalisation of certain offences:** The CAA changes the nature of punishment for certain offences **from the imposition of fines to penalties**.
    - These offences include failure to comply with orders of CCI and directions of the Director General with regard to anti-competitive agreements and abuse of dominant position.

Other provisions of the CAA

- **Settlement and commitment mechanism:** Under the CAA, CCI may initiate proceedings against enterprises on grounds of entering into anti-competitive agreements. CAA permits CCI to close inquiry proceedings if the enterprise offers settlement (may involve payment), or commitments (may be structural or behavioural).
- **Implementation of Open Offer/purchases of Shares:** CAA permits the implementation of an open offer or acquisition of shares or securities through transactions on a regulated stock exchange before CCI's approval.
    - The acquirer would be allowed to acquire shares but **cannot exercise any ownership or beneficial rights or voting rights or receive dividends** / any other distributions, till the CCI approves such acquisition.
- **Appointment of Director General (DG):** As per the CAA, the DG shall now be **appointed by the CCI with prior approval of the Central Government** as against the erstwhile power being vested with the Central Government.



Significance of the Amendments

- **Speedy Approvals:** The reduction in the maximum time limit for the approval of combinations would provide **more speedy approvals**.
- **Fair competition:** By requiring CCI's approval for transactions that exceed Rs 2000 crore threshold, the Act seeks to ensure that large-scale mergers and acquisition transactions **do not result in anti-competitive practices and promote fair competition** in the market.
- **Higher Penalties:** The computation of penalties based on the global turnover will result in **higher penalties for global multi-product companies**. Thus, increasing deterrence.
- **Increase in jurisdiction: Increase in the number of transactions** to be caught under **merger control jurisdiction** of the CCI, through the introduction of the deal value threshold and dilution of the threshold for control.
- **Faster resolution:** Facilitating **faster resolution of enforcement proceedings** through settlements and commitments.

Conclusion

The amendments are forward-looking and capable of handling competition law issues of the future. The next phase of reforms aims towards clearing any possible ambiguity and creating processes to ensure easy and effective compliance with the provisions.

3.2. TRANSITION FROM LONDON INTERBANK OFFERED RATE (LIBOR)

Why in News?

The Reserve Bank of India (RBI) has issued an **advisory to banks and other RBI-regulated entities** asking them to take steps to ensure a complete **transition away from the London Interbank Offered Rate (LIBOR)** from July 1.

More on News

- LIBOR and the Mumbai Interbank Forward Outright Rate **(MIFOR)** will be **phased out by June 30.**
    - MIFOR, a domestic interest rate benchmark, is presently published by **Financial Benchmarks India Pvt Ltd (FBIL).**
- Banks / Financial Institutions (FIs) have been advised to ensure that **no new transactions** undertaken by them or their customers **rely on or are priced using the U.S. Dollar LIBOR or MIFOR.**

- **The global transition from LIBOR** was necessitated after British financial authorities decided to **phase it out in 2017** after discovering that some **large banks manipulated the reference rate up or down** by providing false data.

Need for global transition from LIBOR

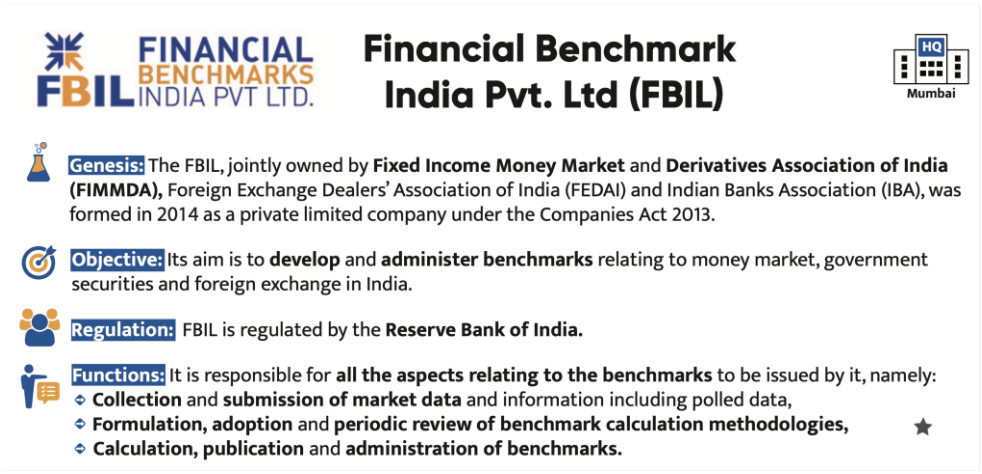
- **Reliance on banks:** The central flaw in the mechanism was that it **relied heavily on banks to be honest** with their reporting, disregarding their commercial interests.
- **Manipulation:** In 2012, extensive investigations into the way LIBOR was set uncovered a widespread, long-lasting scheme among multiple banks to **manipulate LIBOR rates for profits**.
- **Role in the 2008 financial crisis:** The **use and abuse of Credit Default Swaps (CDS)** was one of the major drivers of the 2008 financial crisis. Rates for CDS were set using LIBOR.

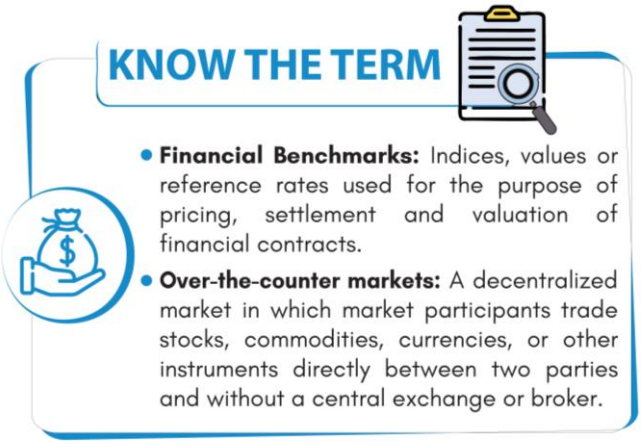
LIBOR

- **Benchmark rate:** LIBOR is a **global benchmark interest rate** at which major **global banks lend to one another** in the **international interbank market** for short-term loans.
- **Regulation:** Prior to 2014, LIBOR was administered by the British Bankers' Association (BBA). Later, the maintenance of the benchmark was brought under the **purview of the U.K. Financial Conduct Authority (FCA)**.
- **Calculation:** Before December 31, 2021, LIBOR was **calculated for five currencies** (U.S. dollar, Euro, Pound, Swiss Franc and Japanese Yen) for **seven tenors**.
  - After announced its **phased rollback** in March 2021, **only U.S.-dollar LIBOR** were **allowed to be published**.
- **Uses as Benchmark:** It is used as a benchmark to **settle trades in futures, options, swaps and other derivative financial instruments** in over-the-counter markets and on exchanges globally.
  - It is used for **commercial products** like floating rate certificate of deposits, variable rate mortgages etc.
  - **Consumer lending products** including mortgages, credit cards and student loans, among others, **too use it as a benchmark rate**.

Additional transition benefits to India

- **Reduction in financing cost:** Potential to reduce the cost of financing in several ways as the **calculation of reference rates going forward** will be more **robust and transparent**.
- **Reduced borrowing cost:** Resultantly, lenders and investors may **require lower interest rates or spreads,** leading to reduced borrowing costs for borrowers.
  - Moreover, customers and clients will be benefited from the **elimination of "LIBOR premium"** which was typically included in their lending rates to compensate for the potential volatility and uncertainty associated with LIBOR.
- **More competition:** The introduction of alternate reference rates may introduce more **competition in the market for reference rates**. This can lead to more transparent and competitive pricing of financial products.





India's Transition Scenario

- **Exposure**: Exposures to LIBOR are from **loan contracts** linked to it, **Foreign Currency Non-Resident Accounts (FCNRA-B) deposits** with floating rates of interest and **derivatives**.
- **Alternative Reference Rates (ARRs):** The RBI has established a **system of Alternative Reference Rates (ARRs)** that allows banks to choose rates from a basket of currencies rather than the British pound for international financial transactions.

- RBI has **added MMIFOR to the list of significant benchmarks** administered by FBIL. MMIFOR would be based on adjusted SOFR.

- **Fallback Clause:** RBI has pushed for the **insertion of fallback clauses** in all remaining legacy financial contracts that reference LIBOR or MIFOR.
  - The fallback clause refers to an agreement for **revised considerations** when the reference rate is no more published – important for transparency and consistency.

Challenges in Transition

- **Identifying and adopting suitable ARRs to replace LIBOR:** Different jurisdictions and markets have chosen different rates, such as the SOFR in the US, TIBOR in Japan etc.
- **Addressing fallback:** As the basket of currency becomes wider, banks and financial institutions need to assess the suitability of ARRs for their specific products and contracts to avoid contractual fallbacks. Updating these provisions can be complex, as they involve legal, operational, and documentation changes.
- **Investment in transition:** Transitioning from LIBOR requires making significant **adjustments to internal systems, processes, and models**.
  - Banks/FIs in India need to **invest in the necessary technology upgrades** and ensure smooth integration without disrupting day-to-day operations.
- **Liquidity challenge:** The introduction of ARR also poses challenges to **market liquidity** and consequently can lead to **market inefficiencies and impact pricing**.

Way forward

The transition from LIBOR to ARRs involves several steps and **financial institutions** such as non-banking institutions **still face challenges** to assess the impact of the LIBOR transition products.

Going forward, standardized research-based guidelines should be created to **supplement the capacity of these institutions.** Enable them to choose ARRs which create smooth transitions for these institutions and the economy alike.

3.3. LIBERALISED REMITTANCE SCHEME (LRS)

Why in news?

Under the RBI's Liberalised Remittance Scheme (LRS), the finance ministry has included the overseas use of credit card by an Indian resident within the $250,000 limit.

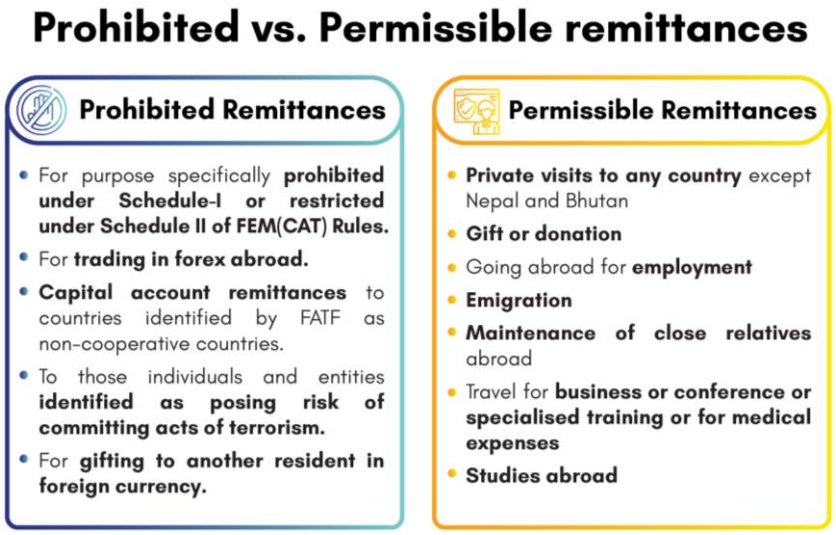
About LRS

- **Current status:** Until now, a provision in the **Foreign Exchange Management (Current Account Transactions) (FEM(CAT)) Rules, 2000 excluded resident Indian's overseas use of credit cards during foreign travel** from the $250,000 cap.
  - **Debit card transactions** abroad are **already accounted for in LRS**.
- **Demographic Affected**: The regulation will impact **spending by High Net-worth Individuals (HNIs)** during foreign visits by reporting the details of such overseas spending to the authorities.

Applicability of Tax Collected at Source (TCS)

- TCS is a type of **tax collected by the seller of selected goods and services from the buyer**, and in the context of foreign remittance transactions, this tax is **collected when individuals send money abroad**.
- Union Budget 2023-24 proposed maintaining **5% TCS for foreign remittances** exceeding Rs 7 lakh towards **education and medical treatment**.
- Similarly, it proposed **no change in the 0.5% TCS** on foreign remittances **exceeding Rs 7 lakh towards education** through loans from financial institutions.
- However, for foreign remittances for **other purposes under LRS and purchase of an overseas tour programme**, it proposed **hiking** the TCS from **5% to 20%** and that, too, **removing the threshold of Rs 7 lakh**.

- **FEM(CAT) Rules**: They have been brought out under the **Foreign Exchange Management Act, 1999, (FEMA)**.
  - Under FEMA, **all resident Indians** are free to **buy or sell foreign exchange for any current account transaction** except for those transactions for which withdrawal of foreign exchange has been prohibited by the Central Government.
- **Backgroung of LRS:** The LRS scheme was **introduced in 2004**. The primary objective of the LRS is to **liberalize the existing foreign exchange regulations** and **facilitate the smooth transfer of funds abroad** by Indian residents.
  - Under LRS, all resident individuals are allowed **to freely remit up to $2,50,000 per financial year** for any permissible **current or capital account transaction** or a combination of both.
    - ✓ Individuals require the **RBI's prior permission** to make any remittance above this threshold.
  - The Scheme is **not available to corporates, partnership firms, HUF, Trusts etc**.
  - The remittances can be made in **any freely convertible foreign currency**.



3.4. INSURANCE SECTOR

Why in news?

Recently, Insurance Regulatory and Development Authority of India (IRDAI) chief said they are working to introduce a plan worked out with general and life insurance firms that he termed "Bima Trinity".

More on the news

- **Bima Trinity** will include following three components-

Draft guidelines for Bima Vahaks

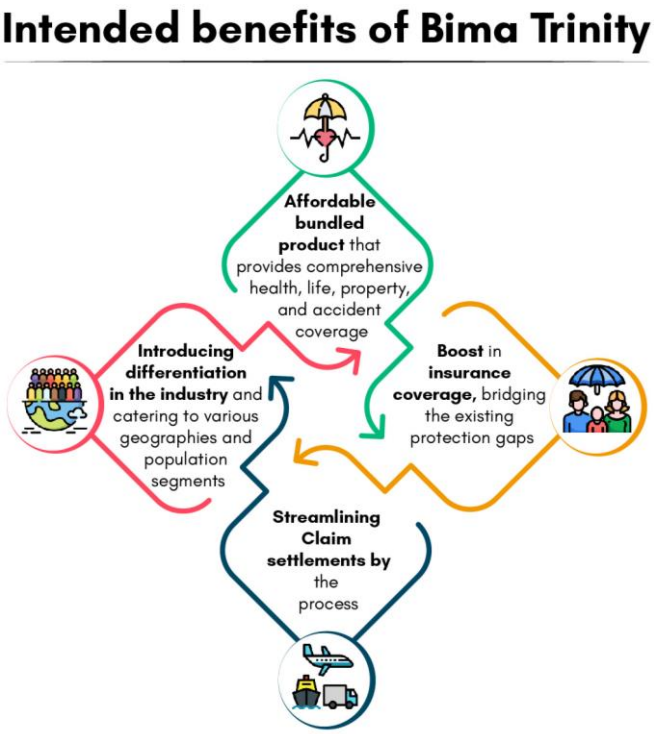
- IRDAI has issued **draft guidelines for Bima Vahaks.**
- Primary objectives of the Bima Vahak guidelines are to establish a **dedicated distribution channel focused on enhancing insurance inclusion** and creating awareness in every Gram Panchayat.
- This aims to improve **accessibility and availability** of insurance in **every nook and corner of the country.**
- Guidelines define **two types of Bima Vahaks:**
  - **Corporate Bima Vahaks**: Legal entities registered under Indian laws and engaged by insurers.
  - **Individual Bima Vahaks**: Appointed by an insurer or appointed by a Corporate Bima Vahak.
- **Scope of activities assigned to Bima Vahaks** includes: collecting proposal information, KYC compliance, coordination and support in policy, claims-related servicing, and facilitating premium payment processes etc.

Bima Sugam	• Platform to **integrate insurers and distributors on to one platform.** • Acts as **one-stop shop** for customers, who at a later stage can pursue service requests and settlement of claims through the same portal.
Bima Vistar	• A **bundled risk cover for life, health, property and casualties or accidents**, • Will have **defined benefits for each risk** that can be paid out faster than usual without the need for surveyors.
Bima Vahaks (carriers)	• **Women-centric workforce** in each Gram Sabha that will meet the women heads of each household to convince them about benefits of composite insurance product.

- **Other measures proposed**
  - **State-Level Committees & Value-Added Services**: IRDAI is considering the formation of state-level insurance committees. Collaborating with state governments, these committees will devise district-level plans to offer localised insurance solutions that cater to the diverse needs of the population.
  - **New value-added services**: IRDAI is proposing **amendments to insurance laws** that would enable insurers to offer value-added services such as gym or yoga memberships and nursing services.

Current Status of Insurance sector in India

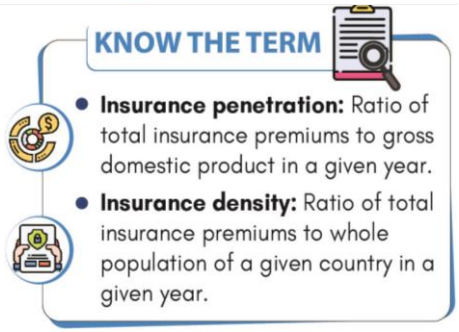
- **Total Premium**: In terms of total premium volumes, it is **10th largest market globally**, with an estimated market share of 1.9%. India is poised to emerge as one of the fastest-growing insurance markets in the coming decade.
- **Insurance Density:** In India, it has increased from $ 11.1 in 2001 to $ 91 in 2021 (Life insurance- $ 69, Non-life insurance – $ 22).
- **Insurance Penetration: In** India, it has been steadily increasing (from 2.7% in 2000 to 4.2% in 2021).
    - Insurance penetration in the **life insurance sector** was 3.2% in 2021 -twice more than emerging markets and slightly above the global average.



Growth drivers of Insurance sector in India

India is the 10th largest insurance market in the world, and it's poised to be 6th largest insurance market in the world by 2032. The key growth drivers are:

- **Favourable Demographics**: 55% of India's population is in the age group of 20-59 (working population) in the year 2020 and is estimated to reach 56% of the total population by 2025. These point towards a **young insurable population in India.**
- **Wide middle-class expansion**: By 2030, India will add 140 Mn middle-income and 21 Mn high-income households which will drive the demand and growth of Indian insurance sector.
- **Digital behaviour patterns:** Agents' ease along with citizens ease in digital tools has grown, with more than 50% amenable to virtual renewals.
- **Pandemic-related shift in demand patterns**: COVID has expedited digital adoption and pandemic increased the insurance penetration rate and triggered awareness on insurance.



- **Government Initiatives**: Under Ayushman Bharat PM-Jan Arogya Yojana, 230+ Mn beneficiaries have been provided Ayushman cards. Other initiatives include Pradhan Mantri Suraksha Bima Yojana, Pradhan Mantri Jeevan Jyoti Bima Yojana, Pradhan Mantri Fasal Bima Yojana etc.
- **Investment opportunities**: With entry of private players, between 2013-14 and 2021-22, the share of state-owned companies has dropped in both life and non-life segment.
    - Government **also raised the level of foreign direct investment (FDI) in domestic insurers to 74% from 49%.**

Conclusion

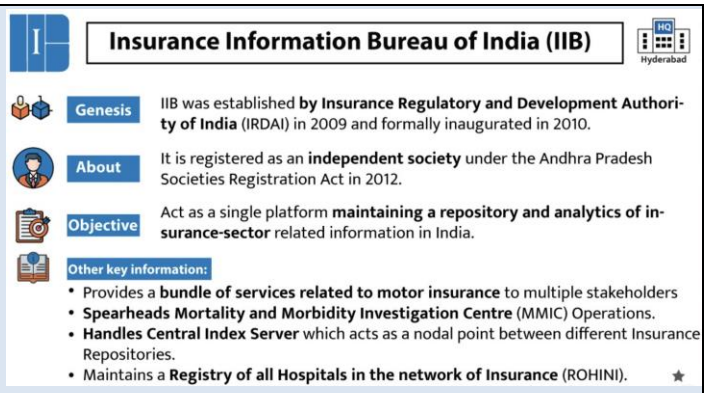
IRDAI aims to create a **transformative "UPI-like moment**" in the insurance industry through their Bima Trinity plan, involving collaboration with general and life insurance firms.

With the implementation of the all-in-one policy plan and the proposed amendments to insurance laws, the IRDAI anticipates a significant boost in insurance coverage, bridging the existing protection gaps in India. This will help achieve IRDAI goal of '**Insurance for All' by 2047**.

Related News:

Surety Bonds

- Insurance Regulatory and Development Authority of India (IRDAI) has relaxed **norms** for '**surety bonds**' to **expand surety insurance market** by increasing availability of such products.
- Surety bonds is a **type of insurance policy protecting parties involved in a transaction or contract** from potential financial losses due to a breach of contract or other types of non-performance.
- It serves as a **risk mitigation tool for maintaining integrity, quality, and adherence to contractual terms,** ultimately contributing to smooth functioning of projects especially in infrastructure sector and fostering a healthy business environment.



Insurance Information Bureau of India (IIB)

- **Russian hackers encrypted IIB's data** through a ransomware attack.

3.5. DEMOGRAPHIC DIVIDEND

Why in news?

Unemployment rate highlighted in recent Periodic Labour Force Survey (PLFS) Quarterly Bulletins (for the quarter January – March 2023) has raised concerns about the ability of the country to **reap the demographic dividend**.

More about news

- The **unemployment rate among the youth in urban India fell** during the fourth quarter of 2022-23, but it remained **elevated at 17.3 per cent** against 18.6 per cent in the third quarter.
- States such as Rajasthan, Himachal Pradesh and the union territory of Jammu and Kashmir had **over 30 per cent unemployment rate** in the fourth quarter of 2022-23.

Demographic dividend

- **Demographic dividend** refers to the economic growth potential that can arise from a favorable demographic structure within a population.
    - It occurs when a country experiences a significant proportion of its population in the working-age group, typically between 15 and 64 years, relative to dependents (14 and younger, 65 and older).
- Facts to highlight that India is in the **middle of a demographic transition**
    - **Falling fertility** (currently ~2.0)
    - **Rising median age** (from 24 years in 2011, 29 years now and expected to be 36 years by 2036)
    - A **falling dependency ratio** (Expected to decrease from 65% to 54% in the coming decade taking 15-59 years as the working age population).

Mechanisms for growth in the demographic dividend

- **Labour Supply:** There is an increase in labour supply. However, the magnitude of this benefit appears to be dependent on the ability of the economy to absorb and productively employ the extra workers.
- **Increase in savings**: As the number of dependents decreases individuals can save more. This increase in national savings rates increases the stock of capital in developing countries already facing shortages of capital and leads to higher productivity as the accumulated capital is invested.
- **Human Capital**: Decrease in fertility rates results in healthier women and fewer economic pressures at home. This also allows parents to invest more resources per child, leading to better health and educational outcomes.
- **Increase in Demand**: It is brought about by the increasing GDP per capita and the decreasing dependency ratio.

Measures to reap demographic dividend

- **Health and education spending:** Evidence suggests that better health facilitates **improved economic production**. Hence, it is important to draft policies to **promote health during the demographic dividend phase**.
  - Further, investment in education is crucial for ensuring that working-age people are **prepared for the demands of the economy.**
- **Increase female workforce participation**: If all women engaged in domestic duties in India who are willing to work had a job, female work force participation **would increase by about 20%. India can learn from South Korea where** female workforce participation rate of 50% has been built on:
  - Legally compulsory **gender budgeting** to analyse gender disaggregated data and its impact on policies,
  - Increasing **childcare benefits**, and
  - Boosting **tax incentives** for part-time work.
- **Governance reforms:** To ensure effective policy coordination among states regarding aspects such as migration, aging, skill development, urbanization and more, a new federal approach must be implemented to harness the demographic dividend.
  - **Inter-ministerial coordination** for strategic **planning, investment, monitoring and course correction** should be an important feature of this governance arrangement.
- **Bridge skill gap**: Importance must be given to **vocational skills, internships, and embedded apprenticeship** degree programmes, to ensure that students receive **hands-on learning experiences** in real-life scenarios.
  - Further, there needs to be a **collaborative understanding between the industry and academia** to ensure that the education system is aligned according to the needs of the current job market.
- **Encourage foreign capital inflows:** India should have a **Gross Fixed Capital Formation (GFCF) of 33% of GDP** in order to meet its growth and job creation goals. This translates to a **cumulative capital requirement of around US$120 trillion** over the next 25 years.

Second Demographic dividend

- The first dividend occurs during the **demographic transition** process, when the **working-age population increases** as a share of the total population, and the percentage of **dependents decreases**.
- The second demographic dividend results from an **increase in adult longevity**, which causes individuals to **save more in preparation for old age**. This increase in savings can thus contribute to **capital accumulation and economic growth**.
  - Whether the additional assets of older workers are invested domestically or abroad, **national income will rise**.
- In short, the first dividend yields a **transitory bonus**, and the second transforms that b**onus into greater assets and sustainable development**.
- Thus, if the right policies are in place, population aging can yield a **second dividend**, one that can be **long-lasting and larger** than the first dividend (can last **five decades or longer**).

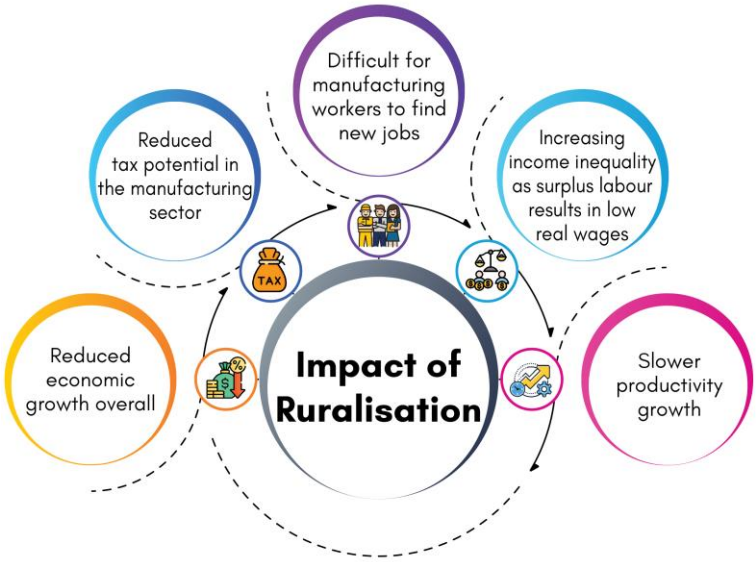
- Given that domestic savings will fall short of investment requirements, India needs to augment foreign capital inflows by creating more pockets of opportunities that generate higher returns.
- Steps like flexible **labour market policies, appropriate macroeconomic and financial reforms** are needed to encourage efficient allocation of capital.

- **Transition from the agriculture sector**: India also needs to reduce its share of population that is dependent on agriculture.
  - India needs to facilitate the absorption of labour into **productive employment** and promote **relevant programmes and policies.**
- **Other measures:**
  - Implement the **next generation of economic reforms** to deliver **efficient public services**, particularly focused on long-neglected **social needs** related to **nutrition,** quality enhancement of tertiary education, **water supply and sanitation,** and urban development.
  - Governments that ensure **respect for property rights, the sanctity of contracts and the rule of law** are more likely to be able to create an economic environment that will **facilitate realization of the demographic dividend.**

3.6. RURALISATION IN INDIA

Why in news?

There have been some claims that rise in urban unemployment is forcing a structural shift towards "ruralisation" in India.



More on News

- **In general,** Ruralisation refers to opening of rural areas to renew rural generations, jobs and farms.
- However, **in a developing country like India, such trend is considered akin to de-industrialisation**. It **refers to a situation where the productive capacity of the economy is distorted.**
  - **Workforce shift to rural India and low industrial growth point to rising poverty levels.**
- It is **opposite to the virtuous cycle of growth** (refer Infographics).

Indications of ruralisation

- **Chronic lack of private investments:** Share of **private fixed capital formation** has continued to decline from 10.8 per cent in FY19 to estimated 8.4 per cent in FY22.
  - During the same period share of public capital formation has risen to 9.5 per cent of GDP in FY22 from 6.5 per cent in FY19.
- **Persistence of unemployment problem:** RBI's survey of urban households (4QFY23) indicates that both **employment and income situations have improved since the Covid lows**, but they remain weaker than pre-pandemic and 10 years back resulting in a worsening of per capita income, amid the rising cost of living.

- **Workforce shift towards agriculture**: India's workforce dependence on agriculture has risen from 42.5 per cent (2018-19) to 45.5 per cent in 2021-22 (PLFS).
    - And, the real agriculture GVA has grown at 3.8 per cent on a 3-year CAGR basis (FY23), higher than the 3.2 per cent real GDP growth.
- **Demand for cereals rising again:** India's monthly per capita consumption of cereals contracted by 1.7 per cent annually from 12.9 kg in 1993-94 to 10.4 kg in 2011-12 (NSSO). But that trend has reversed as reflected in the GDP expenditure series on cereals and bread.
- **Fall in industrial production**: Industrial production (IP) growth in the US has improved but India's industrial growth fell to a 10-year average of 2.1 per cent, compared to 7.7 per cent during 2000-12.

Certain Initiatives taken that can avert the trend

- **Production-Linked Incentive (PLI) Scheme**- across 14 key sectors.
- **PM SVANidhi**- to provide working capital loans to Street Vendors, vending in urban areas.
- **PM Gati Shakti**- transformative approach for economic growth and sustainable development.
- **Deendayal Antyodaya Yojana - National Urban Livelihoods Mission**- To reduce poverty and vulnerability of the urban poor households.
- **Credit Guarantee Trust Fund for Micro & Small Enterprises (CGTMSE)** - to provide collateral free loans up to INR 1 cr.
- **Pradhan Mantri Mudra Yojana** - collateral free loans to MSMEs.

Conclusion

Despite these trends, India remains the fastest-growing major economy. India's gross domestic product (GDP) grew 7.2 per cent during the fiscal year 2022-2023 (FY23). Also, economic survey points that India's economic growth in FY23 has been principally led by private consumption and capital formation and they have helped generate employment.

Moreover, growth is expected to be brisk in FY24. The government steps like PM GatiShakti, the National Logistics Policy, and the Production-Linked Incentive schemes will boost manufacturing output, enhance productivity, and generate employment.

3.7. FOOD STORAGE IN INDIA

Why in news?

The Union Cabinet approved the constitution and empowerment of an Inter-Ministerial Committee (IMC) for the facilitation of the **"World's Largest Grain Storage Plan in the Cooperative Sector"**.

What are Primary Agricultural Credit Societies (PACS)?

- **PACS are village-level cooperative credit societies** that serve as the last link in a three-tier cooperative credit structure headed by the State Cooperative Banks (SCB) at the state level.
- PACS are **involved in short-term lending** — or what is known as crop loans.

To know more about PACS, kindly refer to Article 3.7 PACS of March 2023 Monthly Current Affairs Magazine

More about news

- **Aim:** The plan focuses on strengthening food security, reducing wastage, and empowering farmers by creating **godowns and agricultural infrastructure at the Primary Agricultural Credit Societies (PACS) level.**
- **Implementation:** An Inter-Ministerial Committee (IMC) will be constituted under the Chairmanship of the Minister of Cooperation.

Schemes identified for Convergence

Ministry of Agriculture and Farmer Welfare	• Agriculture Infrastructure Fund (AIF) • Agricultural Marketing Infrastructure Scheme (AMI) • Mission for Integrated Development of Horticulture (MIDH) • Sub Mission on Agricultural Mechanization (SMAM)
Ministry of Food Processing Industries	• Pradhan Mantri Formalization of Micro Food Processing Enterprises Scheme (PMFME) • Pradhan Mantri Kisan Sampada Yojana (PMKSY)
Ministry of Consumer Affairs, food, and public Distribution	• Allocation of food grains under the National Food Security Act, 2013 • Procurement operations at Minimum Support Price

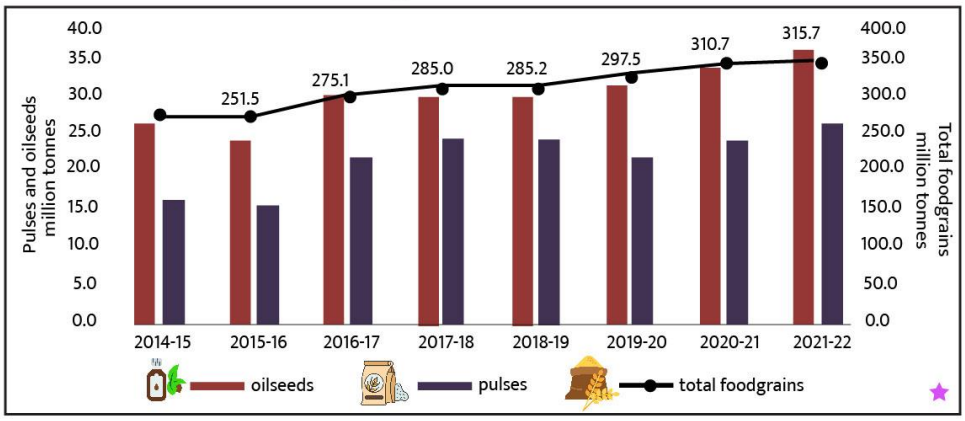
- To ensure timely and uniform implementation of the plan in a professional manner, the Ministry of Cooperation would implement a pilot project in at least 10 selected districts of different States.

- **Convergence of Scheme:** Following schemes have been identified for convergence under the plan (refer image).

Food grain management in India

- **Total production:** India produces about 3,100 lakh tonnes of food grains a year.
- **Food grain procurement mechanism**
  - **Centralized Procurement System:** The procurement of foodgrains in the Central Pool is undertaken either by the Food Corporation of India (FCI) directly or by State Government agencies procuring the food grains which hand over the stocks to FCI.
  - **Decentralized Procurement Scheme:** Introduced in 1997-98, food grains are procured and distributed by the State Governments themselves.

Sustained increase in Foodgrains Production in India (Million Tonnes)



- **Distribution of foodgrains**
  - The **Central Government**, through FCI, has assumed the responsibility for procurement, storage, transportation, and bulk allocation of food grains to the State Governments.
  - **The operational responsibilities including** allocation within the State, identification of eligible families, issue of Ration Cards, and supervision of the functioning of Fair Price Shops, etc., rest with the **State Governments.**

Need for an effective food grain storage system

- **Developing backward and forward linkages:** An effective storage system aids farmers as well as forward linkage systems such as the food processing sector.
- **Lack of local storage systems:** The household sector retains about 70% of the total production and substantial quantities of foodgrains are wasted due to improper storage at the farm level.
- **Improper storage management:** Often the stock stored in the warehouses remains in storage for more than its shelf life and such long storage, makes grains prone to rodents, moisture, birds, and pests.

Government initiatives for augmentation of grain storage capacity

National Policy on Handling and Storage of Food Grains 2000: To reduce storage and transit losses at farm and commercial levels, and to modernize the handling, storage, and transportation system of food grains in India.

Gramin Bhandaran Yojana: Subsidy is provided for the construction/ renovation of rural godowns to create scientific storage capacity.

The Warehousing (Development and Regulation) Act, 2007: It made the Warehousing Receipt a negotiable.

Private Entrepreneurs Guarantee (PEG) Scheme: To augment the storage capacity of FCI in PPP mode.

PM Kisan Sampada Yojana: For Development of cold storage facilities, specialised packaging units, warehousing facilities, etc

- **Unscientific storage:** About 80% of handling and warehousing facilities are not mechanized and traditional manual methods for loading, unloading, and handling food grains and other commodities are used.
- **Gaps in the number of storage facilities:** The FCI has insufficient grain silos and covered godowns with adequate storage capacities. The country's current godown facilities can store only up to 47 percent of the produce.
- **Issues with cold storage:** India's cold storage capacity is unorganized and dominated by traditional cold storage facilities.
  - The distribution of cold storage is highly uneven with the majority of the cold storage is limited to Uttar Pradesh, Gujarat, Punjab, and Maharashtra.

Way forward

- **Reducing loss at farmgate:** Building aggregation units (i.e. modern pack-houses and pooling points) at the village level with transport links should be promoted.

- **Decentralisation:** More responsibility can be shared with States which are performing well such as Haryana, Punjab, Andhra Pradesh, Chhattisgarh, Madhya Pradesh etc.
- **Drying, aeration, and temperature control:** Moisture and temperature determine how long the grain can remain in storage without losing its quality. Therefore, altering storage methodologies and management in accordance with these indicators.
- **Strengthening traditional methods:** Traditional means of storage should be strengthened with modern inputs like Bamboo structures and Mud and earthen structures.
- **Removing Covered and Plinth (CAP) storage:** CAP should be gradually phased out with no grain stocks remaining in CAP for more than 3 months. Silo bag technology and conventional storage should be used instead.
- **Promoting private participation:** Government can also provide credit facilities for Farmer's Producer Organizations (FPOS) to invest in storage warehouses, cold chain storage, etc.
- **Using emerging technology in food storage:** Adoption of technologies like Internet of Things, Blockchain, and Artificial Intelligence can aid foodgrain management.
    - **Sensors-based data can be used to assess the quality of grains** in real-time and maintain the temperature and moisture control variables accordingly.

3.8. CITIIES 2.0

Why in news?

The government approved the second phase of the City Investments to Innovate, Integrate, and Sustain (CITIIS) project.

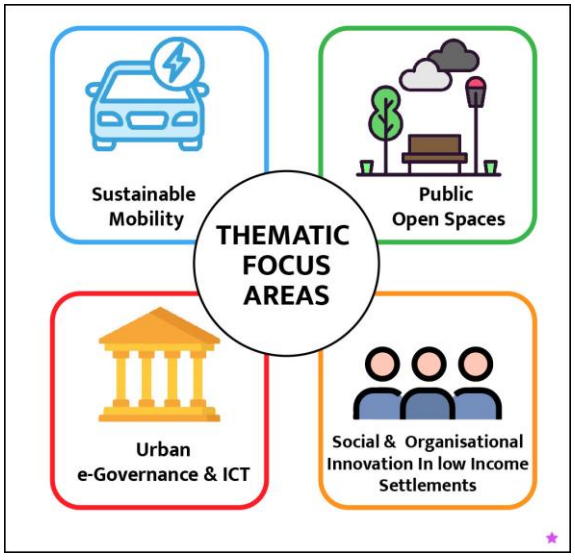
Smart Cities Mission

- It is an **urban renewal and retrofitting program launched in 2015.**
- **Aim:** to develop smart cities and make them citizen friendly and sustainable.
- **Implementation:** The Union Ministry of Urban Development is responsible for implementing the mission in collaboration with state governments.

To know more on Smart Cities Mission, please refer to Article 3.4 Smart Cities Mission in March 2023 Current affairs Monthly magazine.

About CITIIS

- **Part of Smart City Mission:** CITIIS, or the City Investments to Innovate, Integrate and Sustain, is a sub-component of the Government of India's Smart Cities Mission.
- **Launched** in **2018 (CITIIS 1.0).**
- **Components of CITIIS 1.0:**
    - 12 city-level projects
    - Capacity-development activities in the State of Odisha.
    - Promoting integrated urban management at the national level



Agencies Involved

- **CITIIS is a joint program of the Ministry of Housing and Urban Affairs**, Agence Francaise de Development (AFD), Kreditanstalt fur Wiederaufbau (KfW) (Germany) the European Union (EU), and the National Institute of Urban Affairs (NIUA).
- **The program is being coordinated and managed** by the Program Management Unit **(PMU) at NIUA** in New Delhi.

Aim of the program

- **Selection of Cities:** The program assists selected cities **to develop and implement innovative and sustainable urban infrastructure projects.**
- **Holistic Approach: The selected projects will improve** sustainable mobility, increase the amount of public open spaces, implement ICT measures to improve e-governance, and introduce social and organizational innovation in low-income settlements.
- **Support Diversity:** The selected cities receive **financial support, technical expertise, and capacity building to implement their projects successfully.**

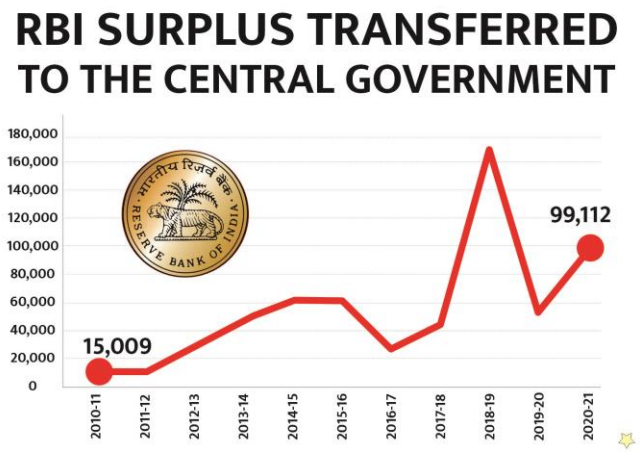
Phase 2 of CITIIS (CITIIS 2.0)

- **Additional objective:** The program envisages supporting competitively selected projects promoting a circular economy with a focus on-
  - integrated waste management at the city level,
  - climate-oriented reform actions at the State level, and
  - institutional strengthening and knowledge dissemination at the National level.
- **Number of cities:** It will be implemented in 18 cities (selected based on competition).
- **Funding:** A loan of Rs 1760 crore from AFD and Kreditanstalt fur Wiederaufbau (KfW), and a technical assistance grant of Rs 106 crore from the European Union.
- **Three major components:**
  - **Financial and Technical support** for cities to develop projects on climate resilience, with a focus on integrated waste management.
  - All States and UTs will be eligible for **support on-demand basis**.
  - **Interventions at all three levels**: Centre, State, and City to further climate governance in urban India.

3.9. NEWS IN SHORTS

3.9.1. SURPLUS TRANSFER BY RBI

- **RBI to transfer ₹87,416 crore as surplus** to the Union government for 2022-23
- This is a **188% jump from 2021-22 surplus transfer** of Rs 30,307 crore.
  - **Reason for rise in surplus this year** includes **higher earnings on sale of forex**, **better returns on forex** investments in US treasuries, **revaluation of forex assets**, **adjustments in reserves** as per **Jalan Committee recommendations** etc.
- As **RBI is not required to pay income tax**, it **transfers surplus amount to government in accordance with** Section 47 (Allocation of surplus profits) **of RBI Act, 1934**.
  - **RBI's total expenditure is significantly lower** than its total net interest income, **thereby generating surplus**.
- Earlier, **RBI used to keep a major chunk of this surplus** for its Contingency Fund (CF) and Asset Development Fund (ADF).
  - However, **after Malegam Committee** (2013) recommendations and later **under revised Economic Capital Framework (2014-15) by Bimal Jalan committee**, its transfer of **surplus to government increased**.
- **Benefits of transferring surplus:** Maintaining fiscal deficit targets, keeping interest rates low, help government to counter shortfall in revenue and tax collection etc.
- **Concerns raised against transferring surplus:** Need for adequate contingency fund with RBI to tackle potential threats from financial shocks, maintaining autonomy of RBI etc.



3.9.2. RS 2,000 NOTES WITHDRAWN FROM CIRCULATION

- RBI has decided to withdraw Rs 2000 denomination banknotes from circulation. But **existing notes will continue to be legal tender.**
  - **Existing Rs 2,000 notes** can be **deposited or exchanged up to a limit of ₹ 20,000 at a time at any bank until 30th September 2023. Non-account holder can also exchange** at any bank branch.
  - Deposit into bank accounts can be made **without restrictions subject to compliance with existing Know Your Customer (KYC) norms** and other applicable statutory and/or regulatory requirements.
- **Reasons for withdrawal**
  - Rs 2000 note was **introduced in 2016 under Section 24(1) of RBI Act, 1934** to meet **currency requirement** of economy expeditiously after demonetisation of Rs 500 and Rs 1000 notes.

- ✓ Once notes of other denominations were available in adequate quantities, **printing of Rs 2000 notes was stopped in 2018-19.**
  - This denomination is **no longer commonly used for transactions.**
  - **Withdrawal is part of RBI's "Clean Note Policy",** currency management operations of RBI.
- Clean Note Policy, introduced in 1999, seeks to **provide public good-quality currency notes and coins with better security features**, while soiled notes are withdrawn out of circulation.
- **Legal Tender (LT)**
  - It refers to a specific **subset of currency** that holds **legal recognition as a legitimate payment method.**
  - It can be **limited or unlimited in character.** In India, **coins function as limited LT whereas Currency notes are unlimited LT.**

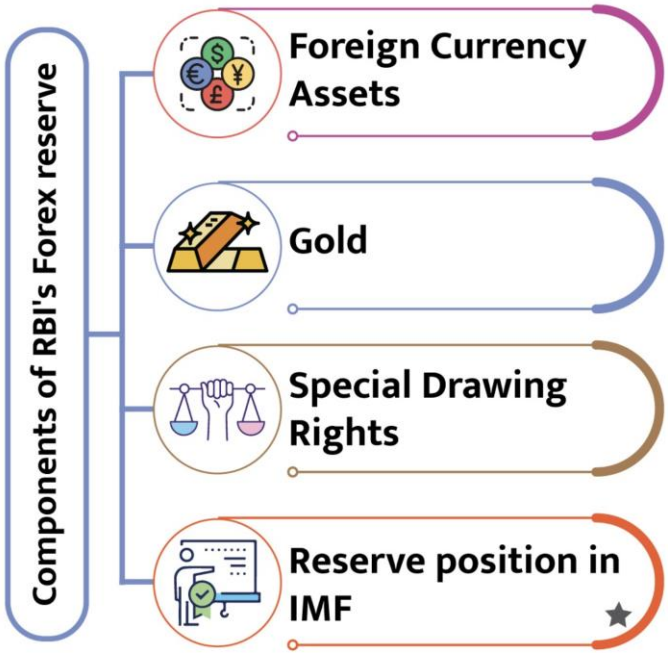
3.9.3. REPORT ON CURRENCY AND FINANCE (RCF) FOR 2022-23

- **RBI released the RCF** for 2022-23.
- Report **examines macro-financial implications of climate change for India**.
- **Key highlights**

Macroeconomic Impact of Climate Change in India	• Could lose anywhere **around 3 to 10% of its GDP annually by 2100** due to climate change. • Could account for **34 million of the projected 80 million global job losses** from heat stress associated productivity decline by 2030. • Up to **4.5% of GDP could be at risk by 2030** owing to lost labour hours from extreme heat and humidity conditions.
Climate Change and RBI	• **Loans for generation of renewable energy** and public utilities run on non-conventional energy under **priority sector lending** (PSL). • **Joined Network for Greening the Financial System** (NGFS) that aims to strengthen global response **for meeting Paris Agreement goals.** • **Issued sovereign green bonds** (SGBs) for green infrastructural investments. • Released **framework for mobilising green deposits** by regulated entities.
Climate Change and Financial Sector	• **Public Sector Banks are more prone to climate risks** than their private sector counterparts and may face capital shortfalls. • **Annual green financing requirement could be about 2.5% of GDP** to address infrastructure gap caused by climate events.
Policy Options to Mitigate Climate Risks	• **Fiscal Policy Initiatives:** Carbon pricing using carbon taxes, Emission Trading System; green taxonomy to identify sustainable green assets and activities etc. • **Technology adoption:** targeted R&D investments by Governments; addressing variability in wind and solar power supply, developing an indigenous renewables supply chain etc. • **Monetary Policy:** Higher use of Central Bank Digital Currency (CBDCs) can help lower carbon footprint, Lower margin requirements for SGBs when used as collateral etc.

3.9.4. INCREASE IN GOLD HOLDINGS

- **RBI and other central banks** are **ramping up gold holdings.**
- **Since 2010**, central banks have been **net buyers of gold on an annual basis**.
  - **India is among 10 largest official buyers** of gold **from 1999 to end of 2021**.
  - **RBI's gold reserves touched 794.64 metric tonnes in fiscal 2023**, an increase of nearly 5% over fiscal 2022.
- **Reasons for increase in holding:**
  - **To Balance Foreign Exchange reserves:** Gold is used to manage risk from currency holdings and to promote stability during economic turmoil.
  - **Hedging against fiat currencies:** Gold offers a hedge against the eroding value of currencies due to inflation.
  - **Diversifying Portfolios:** It protects Central banks from volatility as Gold's price has an inverse correlation with U.S. dollar.
- This increase in holding trend is **different from the 1990s and early 2000s, when central banks were net sellers** of gold because of reasons like **good macroeconomic conditions and a downward trend in gold prices**.
  - Due to strong economic growth, **gold's safe-haven properties were less valuable, and low returns made it unattractive** as an investment.
- **Central bank attitudes toward gold** started **changing following 1997 Asian financial crisis** and **2007–08 financial crisis.**



Related News
RBI's Gold Reserves

- **Reserve Bank of India's total gold reserves** has reached a **new high to around 800 tonnes.**
- RBI has **consistently increased its gold holdings for past five fiscal years** through February 2023.
  - This was done to **bolster and diversify its reserves** amid **rising global economic uncertainty and geopolitical tensions**, which threaten to **diminish the value of world's reserve currency, the dollar**.
- Global forex reserves held by Central Banks comprise **currencies** like **dollar, euro, pound**, other currencies, **gold** and **IMF's currency quotas called Special Drawing Rights (SDR).**

3.9.5. EXPECTED CREDIT LOSS (ECL)

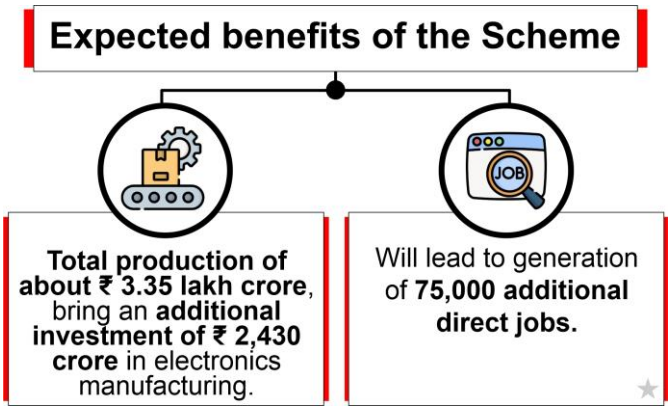
- Banks have sought a **one-year extension** from RBI for implementation of **Expected Credit Loss (ECL)-based loan loss provisioning** framework.
  - In January 2023, RBI came out with **draft guidelines proposing adoption of ECL approach** for credit impairment.
  - As per draft guidelines, banks will be given **one year period** after release of final guidelines **to implement ECL approach for loss provisioning**.
- Currently, banks are required to make **loan loss provisions based on an Incurred Loss approach.** Under this, banks need to provide for **losses that have occurred / incurred.**
- ECL is a **method to assess and estimate losses** on credit given by a bank before an asset turns banks.
- Under ECL norms, banks will be required to **classify financial assets into one of the following three categories**
  - **Stage 1:** Financial assets that have not had a significant increase in credit risk or with low credit risk at reporting date.
  - **Stage 2:** Financial instruments that have had a significant increase in credit risk but that don't have objective evidence of impairment.
  - **Stage 3:** Financial assets that have objective evidence of impairment at reporting date.

3.9.6. ANGEL TAX

- **Ministry of Finance proposed changes** in angel taxation and also **notified foreign entities which will be exempted** from the tax provisions.
- **Angel tax**, introduced in 2012, refers to **tax levied on capital raised by unlisted companies.**
  - Objective was **to deter generation and use of unaccounted money** through subscription of shares of a closely held company, at a value which is higher than fair market value.
- **Prior to 2023 Budget proposal**, angel tax provisions were **applicable only for investments received from resident investors**.
  - However, **Finance Bill 2023** has now **extended its applicability** to **non-resident investors as well.**

3.9.7. PLI 2.0 FOR IT HARDWARE SCHEME

- Ministry of Electronics and Information Technology **(MeitY) notified PLI 2.0 for IT Hardware scheme**
- **Production-Linked Incentive (PLI) Scheme 2.0 for IT Hardware** was approved by cabinet for Enhancing India's **Manufacturing Capabilities and Enhancing Export**.
  - **PLI 1.0** for IT hardware **was launched in 2021.**
- **India's share in global electronics manufacturing** has grown **from 1.2% in 2014 to 3.75% in FY 2021-22**.
- **Key Features of the Scheme**
  - **Objective**: Proposes a **financial incentive** to boost domestic manufacturing and attract large investments in the value chain.
  - **Target segment**: Laptops, Tablets, All in-One PCs, Servers and Ultra Small Form Factor (USFF).
  - **Tenure:** Support shall be provided for a **period of six year.**
  - **Budgetary outlay**: Rs 17,000 crore.
  - **Incentive Per Company:** Shall be applicable on **net incremental sales** of manufactured goods over base year (FY 2022-23) subject to ceiling of
    - ✓ ₹ 4,500 Crore for **Global companies,**
    - ✓ ₹ 2,250 Crore for **Hybrid (Global/Domestic) companies** and
    - ✓ ₹ 500 Crore for **Domestic companies**.



3.9.8. VIVAD SE VISHWAS I SCHEME

- **Ministry of Finance** has launched scheme **Vivad se Vishwas** for providing **relief to Micro, Small and Medium Enterprises (MSMEs)** for COVID-19 period.
- Scheme was announced in **Union Budget 2023-24.**
  - It was launched by **Department of Expenditure, Ministry of Finance**.
  - Under it, Ministries will refund **performance security**, **bid security** and **liquidated damages** forfeited/ deducted during COVID-19 pandemic.

3.9.9. ASSISTANCE TO MEDICAL DEVICE CLUSTERS FOR COMMON FACILITIES SCHEME

- Scheme was launched with an aim **to strengthen Medical Device clusters** by providing financial assistance and **to strengthen and establish more Testing Laboratories** for Medical Devices.
  - **Indian industry is currently 4th largest Asian medical devices market** after Japan, China and South Korea.
  - However, it has **significant presence of several multi-national companies** with about **75-80% of the sales generated from imported Medical Devices.**
- **Scheme is under Department of Pharmaceuticals**, Ministry of Chemicals & Fertilizers.
- **Tenure of the Scheme**: 2023-24 to 2026-27.
- **Scheme has two Components:**

Components	Objective	Incentives
Assistance for Common Facilities	To **strengthen medical device clusters'** capacity for their sustained growth by **creating Common Infrastructure Facilities**.	• Limit of **support will be 70% of the approved project cost or Rs. 20 cr.**, whichever is less. • **For Himalayan and North East Region States**, grant-in-aid would be **Rs. 20 Crore per Cluster or 90% of the project cost**, whichever is less.
Assistance for Testing Facilities	**To strengthen availability of more Medical Device Testing Laboratories** in order to boost manufacturing of quality medical devices.	• Limit of **support will be 70% of the approved Testing Facilities project cost or Rs. 5 cr.**, whichever is less. • **For Himalayan and North East Region States**, grant-in-aid would be **Rs. 5 Crore per Cluster or 90% of the project cost**, whichever is less.

3.9.10. E-APPEALS SCHEME

- **Central Board of Direct Taxes (CBDT)** has notified an **e-Appeals Scheme**, **2023** to reduce pendency of appeals at the level of income tax commissioners.
- **About e-Appeals Scheme:**
  - **Aggrieved assesse can appeal certain orders before Joint Commissioner** (Appeals) passed by an assessing officer below the rank of Joint Commissioner (Appeals).
  - A person **shall not be required to appear either personally** or through authorised representative in connection with any proceedings under this scheme.
  - **Appellant can, however, request a personal hearing**, which would be done through video conferencing or video telephony.

3.9.11. INTER-STATE TRANSMISSION SYSTEM (ISTS) CHARGES

- **Ministry of Power waives Inter-State Transmission System (ISTS) charges** on offshore wind, green hydrogen, ammonia projects for 25 years.
- **Key decisions**
  - **Complete waiver** of ISTS charges has been given for **Off-shore Wind Power (OWP) projects** commissioned **on or before 31st December, 2032** (**for 25 years from date of commissioning**).
    - ✓ However, **projects commissioned from 1st January 2033** would be **given graded ISTS charges**.
  - **Complete waiver** for **Green Hydrogen/Green Ammonia** production units, using **Renewable Energy (RE)**, **Pumped or Battery Storage System or any hybrid combination.**
    - ✓ Projects commissioned **on or before 31st December, 2030** will be eligible for this waiver. **Projects after December 31, 2030, will attract graded transmission charges** thereafter.

- Earlier, government had ordered waiver of ISTS charges on transmission of electricity generated from new hydro-power projects.
- **Significance to waive ISTS charges**
  - **Facilitate wider execution** of offshore wind energy initiatives.
  - **Promote expansion** of green hydrogen and green ammonia projects.
  - **Encourage off-take of RE** from energy storage system projects.
- **OWP** is the **use of wind farms constructed in bodies of water,** usually in ocean on continental shelf**, to harvest wind energy to generate electricity.**
- **Green Hydrogen** is **hydrogen produced from water using RE sources**.
- **Green ammonia** is a **derivative of green hydrogen** and is **used as energy in transport and storage vectors**, shipping fuel, and as a fertilizer.

3.9.12. EASE OF DOING BUSINESS (EODB) IN TELECOM AND BROADCASTING SECTOR

- **Telecom Regulatory Authority of India (TRAI) released recommendations** on EoDB in Telecom and Broadcasting Sector.
- **India** is the **world's second largest telecommunications market** with 117 crore subscribers and 70 crore active Internet users.
- Ease of Doing Business (EoDB) refers to the **level of simplicity, efficiency, and transparency of regulations and procedures** in a country that affect businesses' ability to operate, start, and grow.
  - It seeks to **streamline existing regulations by simplifying the life cycle of a business** and create an investor friendly ecosystem by replacing redundant regulations/procedures with simple and transparent rules.
- **Major recommendations**
  - **All the concerned Ministries/ Departments should adopt** a user-friendly, transparent, and responsive **digital single-window system.**
  - **Each Ministry should establish a standing EoDB Committee** to regularly review all activities.
  - **Infrastructure status should be granted** to Broadcasting and Cable Service Sector.
  - **Permissions of laying, operations and maintenance of submarine cables** network should be made online as a **part of SaralSanchar portal**.
  - Need to define the term **domestic and international traffic,** under TRAI Act, 1997, which has not been defined in Unified License.
- TRAI is a **statutory body established under TRAI Act, 1997**, to regulate telecom services in India.

3.9.13. ONE STATION ONE PRODUCT (OSOP) SCHEME

- Ministry of Railways has launched **OSOP scheme over Indian Railways** to promote **'Vocal for Local' vision** and create **additional income opportunities for marginalised section.**
- Under the scheme, **OSOP outlets at railway stations are allotted** for showcasing, selling and giving high **visibility to indigenous /local products.**
  - These **OSOP stalls** are designed by the National **Design Institute for uniformity**.
  - OSOP are **specific to that place and include artefacts made by indigenous** tribes, handlooms by local weavers, etc.

3.9.14. CENTRE FOR PROCESSING ACCELERATED CORPORATE EXIT (C-PACE)

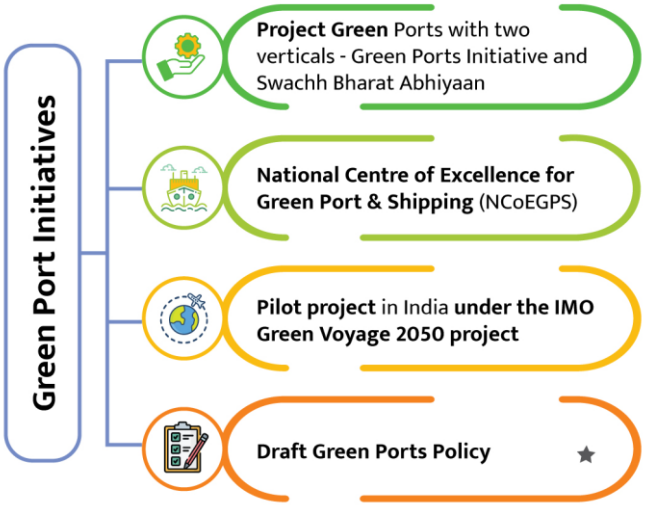
- C-PACE, by the **Ministry of Corporate Affairs** (MCA), is established **for providing hassle-free filing, timely and process-bound striking off companies** from MCA Register.
- C-PACE will help **to reduce the stress on the Registry** along with keeping the registry clean besides **availability of more meaningful data to the stakeholders**.
- Centre is **situated at the Indian Institute of Corporate Affairs** (IICA) in Manesar, Haryana

3.9.15. HARIT SAGAR THE GREEN PORT GUIDELINES 2023

- **Ministry of Ports, Shipping & Waterways (MoPSW) launched** 'Harit Sagar' the Green Port Guidelines 2023
- Harit Sagar Guidelines - 2023 **envisages ecosystem dynamics in port development, operation and maintenance** while aligning with 'Working with Nature' concept and minimizing impact on biotic components of harbor ecosystem.
  - It lays emphasis on use of **Clean/Green energy in Port operation, developing Port capabilities for storage, handling** and bunkering Greener Fuels viz. Green Hydrogen, Green Ammonia, Green Methanol / Ethanol etc.

  Highlights of the guidelines
  - Ports must meet at least **60% of electricity needs via renewables by 2030 and 90% by 2047.**
  - Ports Must have at least one **LNG bunkering station by 2030.**
  - Setting up **electric vehicle charging stations** in and **around port areas by 2025.**
  - Provisions for **adopting global Green Reporting Initiative (GRI) standard**.

- Aspects of the **National Green Hydrogen Mission pertaining to ports**,
- **Significance of guidelines:**
  - To achieve **Zero Carbon Emission Goal**
  - **Minimizing impact on biotic components** of harbor ecosystem
  - Achieve **Sustainable Development Goals (SDGs)**
  - Promoting **environmental friendly practices** across all ports



3.9.16. JAWAHARLAL NEHRU PORT (JNP)

- According to World Bank's Logistics Performance Index, 2023, **Jawaharlal Nehru Port Authority has a turnaround time (TAT) of just 22 hours**, putting India amongst the top performers.
  - TAT of a ship refers to the **time vessel reports at the anchorage of a port to the time it sails out** from the berth.
- JNP at Navi Mumbai **accounts for around 50% of the total containerized cargo volume, across the major ports** of India.
- In 2022, **JNP has become the first major port** of the country **to become 100% Landlord port** having all berths **being operated on PPP model.**

3.9.17. NYMEX WTI CRUDE OIL AND NATURAL GAS FUTURES CONTRACTS

- **National Stock Exchange (NSE),** launched the **rupee denominated NYMEX WTI Crude Oil and Natural Gas futures contracts** in its commodity derivatives segment.
  - It expanded NSE product offering in the **energy basket** and overall commodity segment.
- **Futures contract** is a **legal agreement** to buy or sell a particular commodity asset, or security at a predetermined price at a specified time in the future.
- **Commodity derivatives** are investment vehicles allowing investors to reap profits by investing in commodities **without owning** them.
- **Benefits**:
  - It will **enhance trading in the commodity and energy markets**.
  - Competition in the market is **set to rise which will ultimately benefit retail traders and investors**
  - It will also be suitable for **FPIs (Foreign Portfolio Investors)** to get benefit of margin collateral from their **cash holdings** in NSE to trade in these commodity derivative contracts.
    - ✓ **FPI** refers to the purchase and holding of a wide array of foreign financial assets by investors seeking to invest in a country outside their own.
- **National Stock Exchange of India Limited (NSE), i**ncorporated in **1992** and is India's largest financial market and the fourth largest market by trading volume.
- **West Texas Intermediate (WTI)** is a light, sweet crude oil extracted from wells in USA that serves as one of the main global oil benchmarks.
  - **Other two benchmarks are:** Brent Crude, Dubai/Oman.

3.9.18. FUTURE OF JOBS REPORT 2023

- **World Economic Forum (WEF) released** Future of Jobs Report 2023
- **Fourth edition** (first edition in 2016) of this **bi-annual series** explores **how jobs and skills will evolve over next five years (2023-2027).**
  - It tracks **labour-market impact of Fourth Industrial Revolution**, **green and energy transitions, supply-chain shifts** etc.
- **Key findings**
  - **Key drivers of business transformation** include **technology adoption**, followed by rising cost of living, slow economic growth, and green transition.
  - **44% of workers' skills** will be disrupted in next five years.
  - **61% of Indian companies think broader applications of ESG standards will drive job growth**, followed by increased adoption of new technologies and broadening digital access.
  - **23% of jobs** in next five years are expected to change.
  - Strongest **net job-creation effect** is driven by **green transition, broader application of ESG standards, and localization of supply chains.**
  - Key drivers of **expected net job destruction** are **slower economic growth, supply shortages** and

rising cost of inputs, and **rising cost of living** for consumers.

- **Barriers to business transformation 2023- 27: Skill gaps** in local labour market; **Inability to attract talent;** Outdated/ **inflexible regulatory framework;** Shortage of investment capital etc.
- **Workforce strategies 2023-27: Invest in learning and training** on job; **Accelerate automation** of processes; Expand use of contract work; **Hire significantly** more permanent staff etc.

QUIZ

SMART QUIZ

You can scan this QR code to practice the Smart Quiz of Economics at our open test online platform for testing your understanding and recalling of the concepts.

4. SECURITY

4.1. INTERNATIONAL TERRORISM

Why in news?

India's defence minister has **called on the Shanghai Cooperation Organisation (SCO) to eliminate terrorism** and hold those who aid it accountable.

More about news

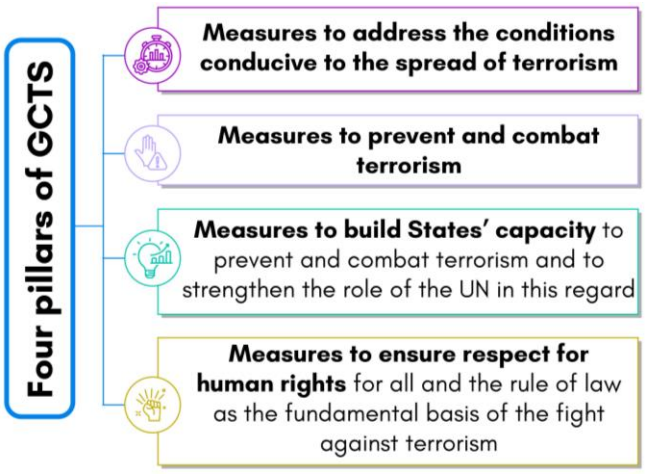
- India has a **national commitment** to fight the evil of terrorism, in **all its forms and manifestations**. However, terrorism is **by its very nature and application** a transnational criminal act.
- Therefore, India **uses global platforms** to emphasise that **zero tolerance to all acts of terror** should be the guiding approach in shaping the **global counter terror** architecture.

Terrorism

Terrorism is a **forceful and unlawful method to achieve the desired goal** and affects almost every sphere of human life, be it economic, political, or social. In broad sense, terrorism is the antithesis of independence, rendering it meaningless.

Factors that Cause Terrorism

- **Ideological Causes:** Radical ideologies, often driven by religious or political beliefs, can motivate individuals to engage in terrorism.
  - Three of the most visible extreme main ideologies are left-wing communism; right-wing-capitalism; and religious ideologies.
- **Ethnonationalism and separatism**: Ethnic or nationalist aspirations for self-determination can sometimes lead to terrorism.
  - Separatist movements seeking independence or autonomy for a particular ethnic or national group may resort to violence as a strategy to achieve their goals.
- **Globalization:** Globalization facilitates terrorism through increased mobility, communication, and the availability of widespread targets and audiences due to societal changes brought about by modernization.
- **Terrorism as Foreign Policy**: Terrorism has come to be an alternative to war amongst adversarial states because the modern war has become too expensive due to its vast destructive nature and unpredictable outcome.
  - For e.g. Pakistan benefited from Taliban- Al Qaida Osama Bin relationship as Laden's camps trained fighters for 'Pakistan's on goring struggle with India over Kashmir.
- **Poor societies with weak state structures**: These are more exposed to civil wars than wealthier countries, and therefore the risk of terrorism increases.
- **International Injustice**: When individuals or groups perceive injustice on a global scale, such as economic inequality, political repression, or the dominance of certain powers, it can fuel feelings of a desire for revenge.
  - An example of international injustice and its link to terrorism on a global scale is the rise of extremist groups like ISIS (Islamic State of Iraq and Syria).



Global Initiatives to Counter terrorism

- **United Nations Global Counter-Terrorism Strategy (GCTS):** Adopted in the form of a General Assembly resolution **in 2006**, it is a unique global instrument that aims to **enhance national, regional and international efforts** to counter terrorism. It consists of **four pillars** (refer infographic).
- **UNSC Counter-Terrorism Committee (CTC):** It is tasked with **monitoring implementation of resolution 1373** (2001). The

resolution requested countries to implement measures to enhance ability to counter terrorist activities at **home, in their regions and around the world.**

- **Global Counterterrorism Forum (GCTF):** GCTF (**India is a member**) is an **informal, apolitical, multilateral** platform that facilitates **open discussions among stakeholders**, bringing together experts and practitioners from across the world's regions.
- **United Nations Countering Terrorist Travel Programme**: It is a **flagship global initiative** of the United Nations Office of Counterterrorism (UNOCT) that assists Member States in building their **capabilities to detect and counter-terrorists**. This is achieved by **using international databases**, like INTERPOL databases.
- **Financial Action Task Force (FATF):** It is the **international standard-setter** for Anti-Money Laundering and **Countering the Financing of Terrorism** to **build and implement international standards** in this regard.
- **SCO Regional Anti-Terrorist Structure (RATS):** It develops and strengthens **cooperation with international and regional organizations** to consolidate efforts towards **counter terrorism, separatism and extremism.**
- **Global Terrorism index (GTI):** Produced by the **Institute for Economics & Peace (IEP),** it is a comprehensive study analysing the impact of terrorism to better understand and guide **required policy responses**.
- **Comprehensive Convention on International Terrorism (CCIT):** It intends to **criminalise all forms of international terrorism**, denial of safe havens, access to funds, and arms to **terrorists and the financiers of terrorism.**
    - It is **proposed by India on 17 December 1996** in the United Nations General Assembly (UNGA).

Challenges to counter international terrorism

- **Ambiguity around definition of 'terrorism'**: There is no internationally agreed **definition** of the term "terrorism".
    - This results in **overly broad and vague definitions** of terrorism in national legislation **around the globe**.
- **Lack of comprehensive legal framework**: The **international legal framework related to terrorism is not consolidated** in a comprehensive UN treaty.
    - It is instead found in various sources such as treaties, Security Council and General Assembly resolutions, and jurisprudence.
- **Inadequate domestic capacity**: Terrorist crimes fall in the **category of national criminal law**. Without adequate domestic capacity to discharge that duty, counterterrorism efforts **remain ineffective.**
- **Restriction of civic freedoms: 2019 Human Rights Council report** has shown how counter terrorism measures **adversely impacts** civic space, violating the **rights of civil society actors and human rights defenders**.
- **Terrorism financing: Effectively countering the financing of terrorism** presents numerous new and persistent challenges for States.

Domestic policy initiatives by India towards counter terrorism

- **Unlawful Activities (Prevention) Act, 1967**, provides for the more effective prevention of certain unlawful activities of **individuals and associations.**
- Establishment of **National Investigation Agency (NIA)** which is functioning as Central **Counter Terrorism Law Enforcement Agency** in country.
- **National Intelligence Grid or NATGRID** that aims to provide a "cutting-edge technology to enhance India's **counter-terror capabilities**.
- Creation **of two new divisions (Counterterrorism and Counter-Radicalisation Division and Cyber and Security division**) in Ministry of Home affairs to give **focused attention** to the issues relating to **terrorism, counter radicalization, cyber security etc.**

Way Forward

Enhance state Capacity to Prevent and Combat Terrorism	• Strengthen the capacity of **existing institutions**; • **Identify gaps** in state capacity to prevent and combat terrorism; • Enhance **multidisciplinary cooperation** between law enforcement agencies; • Reform and modernization of **border management systems**.
Focus on role of Regional and International Organizations in Addressing State Capacity	• Share best practices and address gaps in **providing technical assistance** to states; • Support to **improve compliance with international norms and obligations** and facilitate the implementation of international conventions and protocols; • Provide training activities on **organized crime, money laundering and drug trafficking;** • Improve the **coherence and efficiency** of technical assistance delivery. • Enhance **coordination within the United Nations system** in promoting international cooperation in countering terrorism.

Integrate gender into counter-terrorism	• Actively promote the integration of the agendas on **Women, Peace and Security (WPS), counter-terrorism and countering violent extremism**;
	• Including a gender perspective in countering terrorism requires a focus on
	  ○ Women and girls as **victims of terrorism**;
	  ○ Women as **perpetrators, facilitators, and supporters** of terrorism;
	  ○ **Women as agents** in preventing and countering terrorism and
	  ○ **Differential impact** of counter-terrorism strategies on women and women's rights.

Ensure protection of human rights	• **Protect human rights and fundamental freedoms** in the context of counter-terrorism measures. • Promote idea that respecting human rights while countering terrorism is critical to the **ultimate success of any counter-terrorism strategy**.
Public Awareness and Cooperation	• **Raising public awareness** about the threat of terrorism and about universal counterterrorism instruments. • Establishment of **public-private partnerships** between state authorities, the private sector (business community, industry), civil society and the media, where appropriate. • The UN Security Council should expressly clarify that **humanitarian protection and assistance** must never be conceptualized as **support to terrorism.** • **Civil society must be engaged** while developing resolutions on counter-terrorism.

4.2. DRUG MENACE IN INDIA

Operation Samudragupt

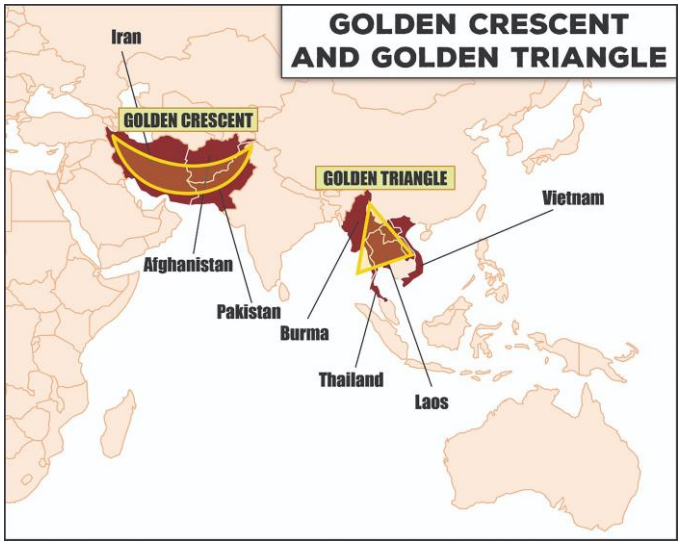
- Operation Samudragupt was **launched by the NCB in January 2022,** to intercept contraband that is brought into India through the marine channel.
- It is part of the Union government's plan to **make India drug-free by 2047.**

Why in news?

Recently, at least 2,500 kg drugs, suspected to be methamphetamine was seized near the Kerala coast in a joint operation by the Narcotics Control Bureau (NCB) and Indian Navy.

More on news

- NCB termed it the largest seizure of methamphetamine in the country.
- The seizure was done as part of **Operation Samduragupt.**



Reasons for drug menace in India

- **Geographical location of India:** Traditionally India has been seen as **sandwiched between the Golden Crescent and Golden Triangle**. Nearly 90 per cent of the world's demand for these drugs is being met from these two regions.
- **Sea routes being used:** Drug trafficking through the Arabian Sea and the Bay of Bengal, estimated to account for around 70% of the total illegal drugs smuggled into India, poses a major challenge for law enforcement agencies.
- **Use of couriers, postal services,** to smuggle drugs has gone up significantly in recent years – 300% in 2020 and 200% in 2021 compared to 2019.
- **Narco-terror angle**: Terror organizations in Pakistan along with ISI are actively pushing drugs through the **land and sea border**.
  - **Also** organised gangs, which primarily used to carry out extortion activities in their local areas, are being used for drug trafficking and gun running.
- **Porous borders**: Major trafficking of heroin in India takes place through Indo-Pakistan border. Trafficking of ganja in substantial quantities takes place across India-Nepal border.
- **Use of technology**: The use of **drones to supply drugs and weapons** across the border in Punjab has emerged as new phenomenon.
  - **Darknet** is being used for illicit drug trafficking. Darknet markets are disrupting traditional drug markets because of their anonymity and low risks.

- **Cryptocurrency payments** and doorstep deliveries, through courier services, have made darknet transactions attractive.

- **Demand due to contrasting economic factors**: Unemployment on the one hand, and the availability of easy money on the other — have led to the devastating rise of substance abuse and drug addiction in northwestern States.
- **Challenges faced by Investigation agencies**: Lack of intelligence sharing with between central and state agencies, more focus on apprehending drug distributers, etc.

Steps taken to tackle drug menace

- Ministry of Home Affairs has adopted a **three-pronged approach** to crackdown on narcotics.
  - Strengthening institutional structures,
  - Empowerment of all agencies related to control of narcotics and strengthening the coordination among them
  - Launching an awareness campaign.
- **Narcotic Drugs and Psychotropic Substances Act, 1985**: It is the principal legislation to regulate the operations of narcotic drugs and psychotropic substances.
  - It provides a stringent framework for **punishing offences related illicit traffic** in narcotic drugs and psychotropic substances through imprisonments and forfeiture of property.
  - Section 27A of the Act prescribes the punishment for **financing illicit traffic and harbouring offenders**.
- **Joint coordination**: A narco coordination centre (NCORD) has been set up by the Ministry of Home Affairs for effective co-ordination among various law enforcement agencies.
  - The **Multi-Agency Maritime Security Group** (MAMSG) set up under the aegis of National Security Council Secretariat, also monitors smuggling of drugs through sea routes.
  - MAMSG provides seamless coordination between agencies responsible for protecting maritime interests.

Other initiatives to tackle drug menace

- **National Action Plan for Drug Demand Reduction (NAPDDR) for 2018-2025**: It aims at reduction of adverse consequences of drug abuse through a multi-pronged strategy.
- **Nasha Mukt Bharat Campaign**: Launched in 2020, in 272 identified districts.
  - It is a **three-pronged attack** combining the supply curb by NCB, Outreach and Awareness and Demand Reduction effort by Department of Social Justice and Empowerment and treatment through Health Department.
- **Map Drugs,** a mobile app and web portal, to help in identifying and destruction of illegal farming in the country.
- India is a **signatory to following UN treaties and conventions** to fight drug menace:
  - UN Single Convention on Narcotics Drugs 1961,
  - Convention on Psychotropic Substances, 1971 and
  - Convention on Illicit Traffic in Narcotic Drugs and Psychotropic Substances, 1988

- **Cooperation with other countries**: The Indian Coast Guard (ICG) has developed a **good synergy** not only with the security agencies but also with the **coast guards of Sri Lanka, Maldives and Bangladesh**.
- **Increasing NCB capacity**: NCB earlier had three regional offices in Delhi, Mumbai and Kolkata. Now, it is being expanded with setting up of new regional offices like in Amritsar, Chennai (for stopping smuggling of drugs into India via marine channels).
- **Launch of NIDAAN (National Integrated Database on Arrested Narco-offenders) portal**: First-of-its kind database of arrested narcotics offenders has been made operational for use by various central and state prosecution agencies tasked to enforce anti-drugs laws in the country.

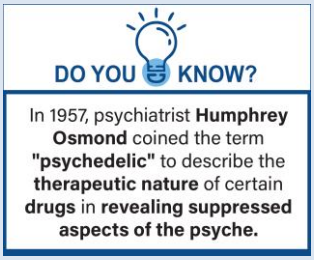
Way forward

- **Sharing of intelligence**: Many state and central agencies work in isolation. The state police generally catch distributors and peddlers, whereas central agencies focus on apprehending big time smugglers.

- **Enhancing technological capabilities:** States should work together with the National Forensic Science University to use modern technologies like block chain analysis, map intelligence and digital forensics to curb the use of dark net and cryptocurrency.
- **Focus on source of supply**: Generally, investigation officers obtain information and catch peddlers and distributors of illegal and narcotic drugs. Many a times they fail to locate the source of supply.
- **Creating awareness among citizens**: Awareness can be created by lectures, films and through providing literature about harmful effects of drug abuse. Also, more de-addiction centres and camps shall be established.
- **Enhancement of punishment**: Punishments under NDPS and other laws should be commensurate with the quantity of contraband recovered.

Related information

Psychedelic Substances



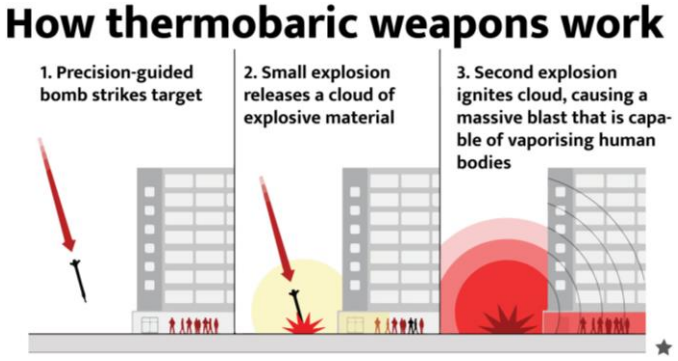
- Psychedelics (also known as hallucinogens) are a **class of psychoactive substances that produce changes in perception, mood and cognitive processes.**
  - **Psychedelics affect all the senses**, altering a person's thinking, sense of time and emotions.
  - **They can also cause a person to hallucinate**—seeing or hearing things that do not exist or are distorted.
  - Psychedelics are **non-addictive and non-toxic**.
- There are **many kinds of psychedelics. Some occur naturally,** in trees, vines, seeds, fungi and leaves.
  - **Psilocybin or magic mushrooms** are naturally occurring and are consumed for their hallucinogenic effects.
    - ✓ **Mushrooms containing psilocybin are small and usually brown or tan**.
    - ✓ In the wild, people often mistake mushrooms containing psilocybin for any number of other mushrooms that are poisonous.
  - Some of the other naturally occurring psychedelics include **Mescaline** derived from the North American peyote cactus (Lophophora williamsii), and **N, N-dimethyltryptamine**, which is the primary constituent of the ceremonial sacrament ayahuasca from South America.

- Researchers have also developed **synthetic psychedelics**.
- In India, the **Narcotic Drugs and Psychotropic Substances Act 1985, prohibits the use of psychedelic substances**.
  - Ketamine, a dissociative anesthetic with psychedelic properties, is used under strict medical supervision, for anesthesia and to treat treatment-resistant depression.

4.3. NEWS IN SHORTS

4.3.1. THERMOBARIC BOMB

- Human rights group accused **Myanmar's military of using thermobaric bomb** (also called a **vacuum or aerosol bomb** - or fuel air explosive).
- A thermobaric bomb **consists of a fuel container with two separate explosive charges**.
  - When it hits its target, **first explosive charge opens the container and widely scatters fuel** mixture **as a cloud.**
  - **A second charge then detonates the cloud**, **resulting in** a huge fireball, a massive blast wave and **a vacuum which sucks up all surrounding oxygen.**
- There are **no international laws specifically banning** their use.



4.3.2. KHORRAMSHAHR-4 BALLISTIC MISSILE

- Iran launched the fourth generation of its **liquid-fuelled of Khorramshahr ballistic missile, named Kheibar.**
  - The **Khorramshahr is named after an Iranian city** that was the scene of heavy fighting during the Iran-Iraq War in the 1980s.

- **Kheibar, after a Jewish fortress** (in present-day Saudi Arabia) **conquered by the Muslims** in the 7th century.

- **Khorramshahr-4 has** a **2,000-kilometre range** with a **1,500-kilogram warhead.**
- It is modeled after **North Korea's Musudan ballistic missile**.
- Ballistic missiles **uses projectile motion to deliver** nuclear or conventional **warheads on a target. They** are powered initially by a rocket.

4.3.3. INDIAN NAVAL SAILING VESSEL (INSV) TARINI

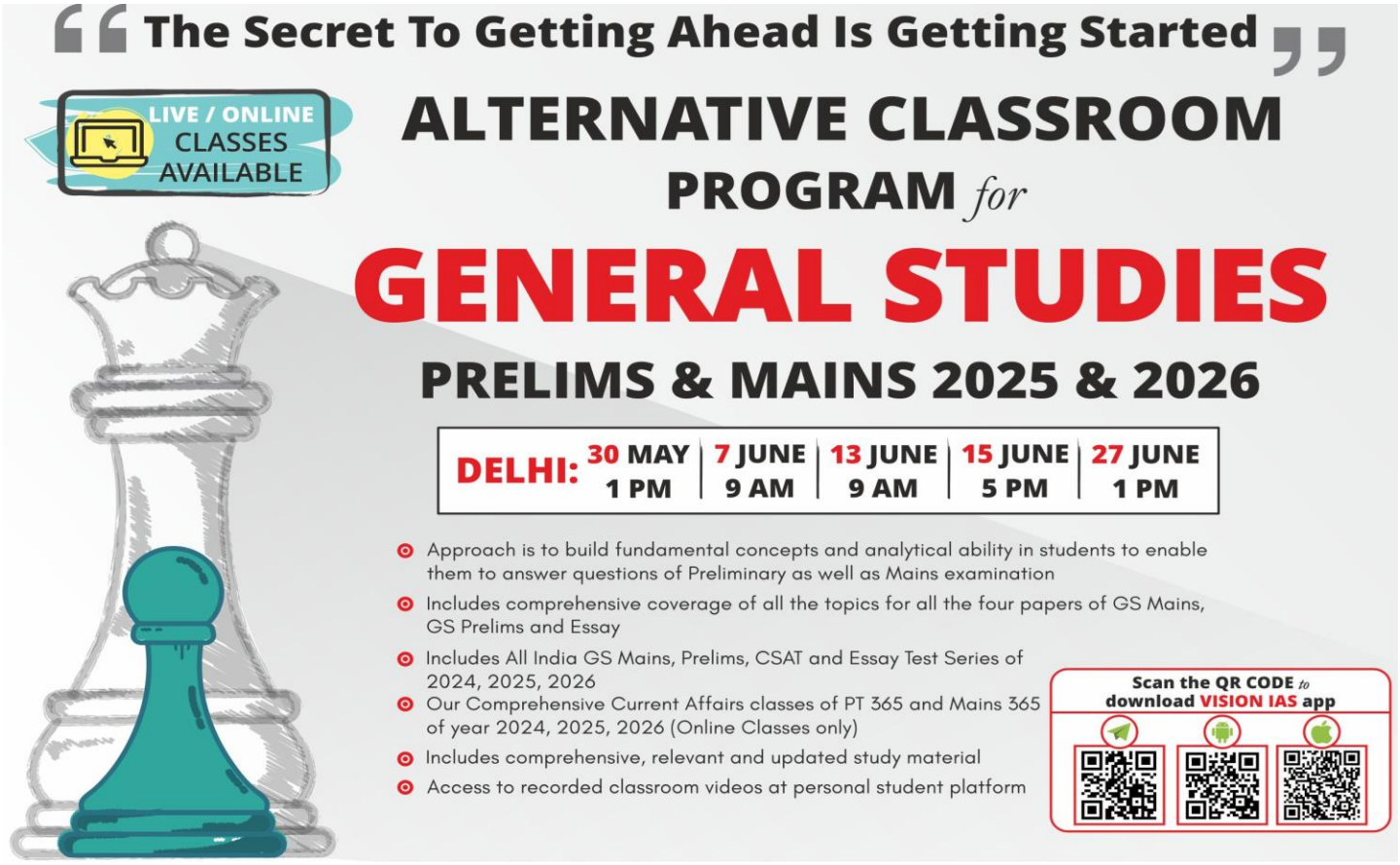
- **INSV Tarini returned to India** after completing a **trans-ocean inter-continental voyage**.
  - 188-day voyage was from **Goa to Rio de Janeiro via Cape Town** and back.
- It is part of **run up towards** the Navy's next big **project to send a woman to circumnavigate the globe** – Solo.
- INSV Tarini is **known for 2017 expedition 'Navika Sagar Parikrama'**, first-ever Indian circumnavigation of the globe by **an all-women crew.**

4.3.4. EXERCISES IN NEWS

- **Samudra Shakti-23:** It is an **India-Indonesia Bilateral exercise**
- **Jal Rahat:** It is **flood relief exercise** that was jointly conducted by Indian Army, **Sashastra Seema Bal, National and State Disaster Response Force (NDRF), District Disaster Management Authority (DDMA) and police** representatives at **Hagrama Bridge on Manas River in Assam.**
- **Sudarshan Shakti 2023:** It was conducted by **Sapta Shakti Command** of the **Indian Army** along the **western borders** in Rajasthan and Punjab.
- **Maritime Exercise Al Mohed Al Hindi 23:** The bilateral exercise 'Al Mohed Al Hindi 23' is **between Indian Navy and Royal Saudi Naval Force (RSNF).**

4.3.5. ASEAN INDIA MARITIME EXERCISE (AIME-2023)

- Recently, **inaugural** ASEAN India maritime exercise was held.
- **Where**: Harbour Phase of the exercise was held at **Changi Naval Base** (naval base of the Singapore Navy) and the Sea Phase was conducted in **South China Sea.**
- **Participants from India**:
  - **INS Delhi**, India's first indigenously-built guided missile destroyer.
  - **INS Satpura**, an indigenously-built guided missile stealth frigate.
  - **P8I Maritime Patrol aircraft** participated in the Inaugural ASEAN India Maritime Exercise.
- **Aim**: Promoting maritime cooperation and enhancing trust, friendship and confidence amongst ASEAN and Indian Navies.



5. ENVIRONMENT

5.1. DECARBONISATION OF INDIAN ECONOMY

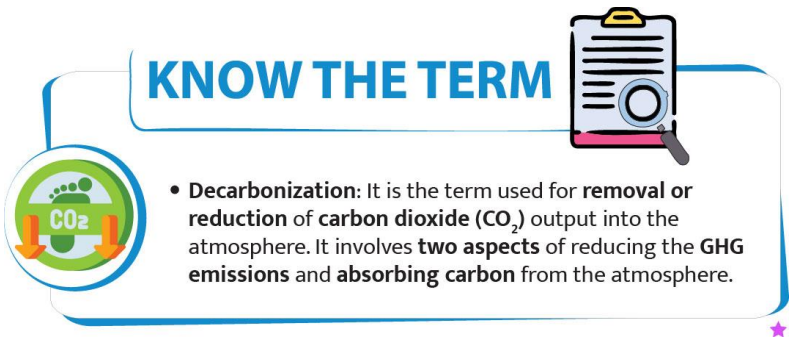
Why in News?

The **Energy Transition Advisory Committee (ETAC)**, formed under the direction of the Ministry of Petroleum & Natural Gas (MoP&NG), has compiled a report **'The Green Shift: The Low Carbon Transition of India's Oil & Gas Sector'**.

More on News

- ETAC was formed to draw an **energy transition pathway for Oil & Gas Public Sector Undertakings** (PSUs) in the country.
- The report focuses on **increasing adoption of clean energy solutions** such as hydrogen, biofuel, nuclear, geothermal, tidal in the energy mix of the country.
- This **energy transition pathway** will pave the way towards **decarbonization of the Indian Economy**, thus enabling the idea of Sustainable Development.

Need for Decarbonisation



- **Global Warming:** Based on the current policy pathway defined by countries worldwide, the earth is expected to be **2.7-3.5°C warmer** than pre-industrial temperature levels by the end of this century.
  - To successfully meet the Paris Agreement target for limiting global warming, it is crucial to **reduce GHG emissions in the next 8 years by around 50%**.
- **Climate Change risk:** India ranked **7th in the world's most affected countries** by climate change in 2019.
  - More than **75% of India's districts** are categorized as **hotspots for extreme climate events**.
  - Over the last 15 years, **droughts and floods have become increasingly frequent** across India, with 13 fold increase in the annual average number of drought-affected districts and a fourfold rise in flood events.
- **Achieving Net Zero amidst an increase in energy demand:** India made the historic announcement of **reaching Net Zero by the year 2070** but there is a need for more energy intake as the Indian economy clocks high growth rates over coming decades.

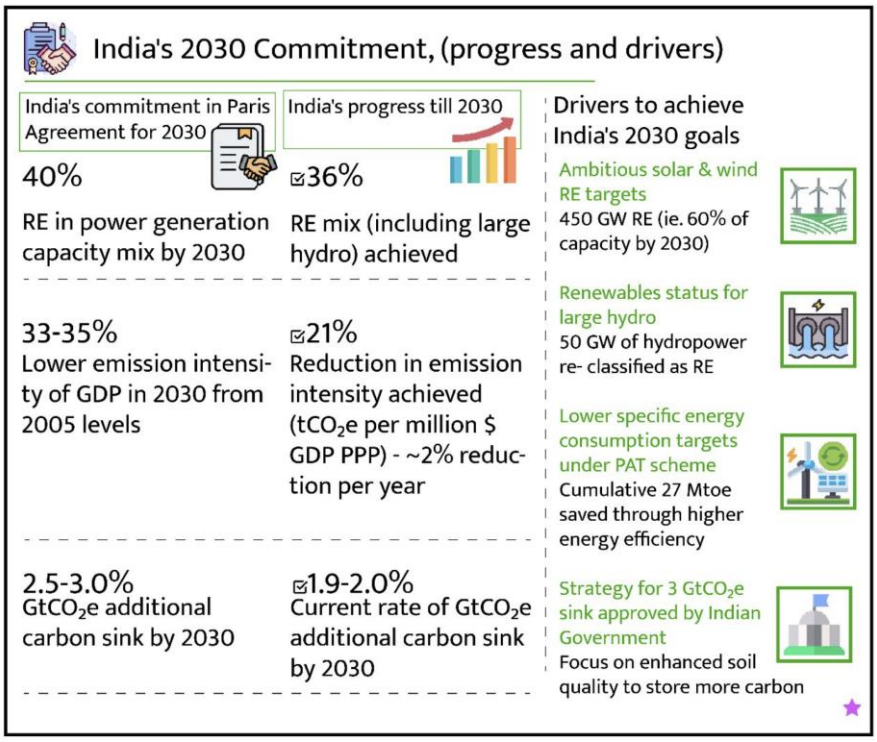
India's Carbon Emissions Profile

- **Global standing:** India is the **third largest aggregate emitter** in the world. Emissions are expected to grow by 5x if emissions continue to grow at the historical rate of 5%.
  - India is home to 1/6th of the world's population but historically has accounted for **only 3.3% of cumulative global emissions**.
- **Major sectors: Industrial and power sectors** account for most of India's emissions of 2.7 GtCO2e.
  - Around one-third of emissions come from **steel and cement sectors**, followed by one-third from the **power sector**, and the rest from **transportation** and other sectors.
  - **Agriculture and allied activities** is another important sector contributing almost 17% of emissions.

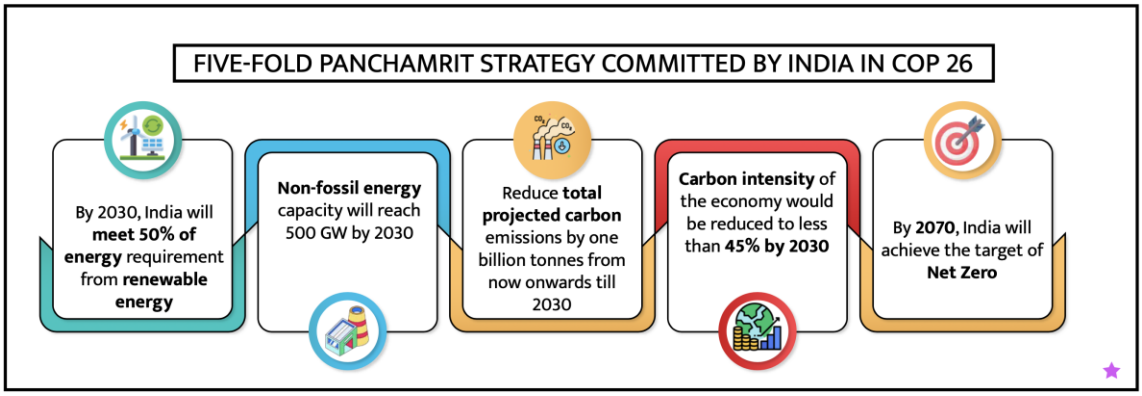
Wheels of Decarbonisation for India's Energy Transition

- **Renewable Energy:** India has to **move towards cleaner energy sources** progressively and cannot afford high pollution levels.
  - India has set a **target of 500 GWs of non-fossil fuel installed capacity** by 2030.
  - India has **huge potential for solar energy**, and the cost of solar power has come down.
- **Resource Exploration:** India **cannot** continue to **depend on large-scale energy imports** and must develop its own resources.
- **Energy Efficiency and Energy Affordability:** The **increase in energy efficiency** and its **affordability** will always remain an important issue.

- There is a requirement for an updated **national-level building rating system** that should include renewable energy usage.



- **Technology and Innovation:**
  - Through well-targeted Production-Linked Incentives (PLI) schemes, the **domestic capacity in technology and related equipment & hardware** has increased.
  - India must also look for **technologies to use coal without causing much environmental damage** in the medium term.
- **Industry Transition:** Industry, a large energy consumer, is shifting slowly to electricity or natural gas. However, **some hard-to-abate sectors** like Steel and Cement still use a large quantity of coal due to their peculiar requirement.
- **Electric Transportation**: Globally as well as for India, the rate of transition in fossil fuel consumption primarily depends on **the shift in the auto sector to Electric Vehicles (EVs)**.
- **National Carbon Market:** Developing and scaling voluntary carbon markets in near term and compliance markets in the longer term could play a role in financing the transition.
- **Alternative Fuels and Waste-to-Fuel Economy:** Having achieved the target of 10% EBP (Ethanol Blending Program) in 2022, India has **preponed target of achieving 20% ethanol blending** and **5% biodiesel blendin**g, by the year 2025 and 2030, respectively.



Institutional setup and changes needed for Indian Economy's decarbonization

Potential Institutional Setup

- **Ministry level setup:** The Administrative Setup may be created around **energy-providing Ministries** consisting of MoPNG, Ministry of New and Renewable Energy (MNRE), and Ministry of Power and Coal Ministry at the core. The process may be coordinated by MNRE.
- **Providing accurate data:** The Bureau of Energy Efficiency (BEE) may be tasked **with validating and consolidating all data related to the energy transition**.
- **Modelling and Projections:** NITI Aayog may continue to provide modelling expertise and make projections for the future, which are **essential for planning, monitoring, course correction** etc.
- **Expert Group on Energy Transition:** An expert group comprising industry representatives from different sectors, both energy demand and supply, may be created **to provide inputs** to this setup.
- **Tie-up/ Liaison with international organizations:** Constantly scan and note the relevant developments taking place globally to get a quick idea of what might work and what needs to be avoided.

Social & Economic Changes India for Effective Decabonization

Catalyzing effective capital reallocation and new financing structures

Managing demand shifts and near-team unit cost increases

Establishing compensating mechanisms to address **socio-economics** impact

Capital Reallocation

Scaling up climate finance:
- $3.5 trillion increase in spending on low-emissions assets vs today

Develop new financial instruments:
- SPVs for setting up low emission assets
- Long-term purchase agreements

Pricing externalities to rebalance incentives:
- **Policies** to encourage capital spending in emission reduction projects
- Funding the repurposing or **decommissioning** of **reduntant assets**

Demand shift Management

Building transparency around climate risks and opportunities:
- **Climate stress** test for factoring risks in investment

Identifying measures to manage cost increases
- Distribute the impact of cost increase **across value chain**

Incentives for making low emission tech cost competitive:
- **Lift demand** for loss emission tech to achieve economies of scale

Compensation Mechanism

Supporting economic development and diversification:
- Expediting the timeline for **$100 Bn climate support fund**

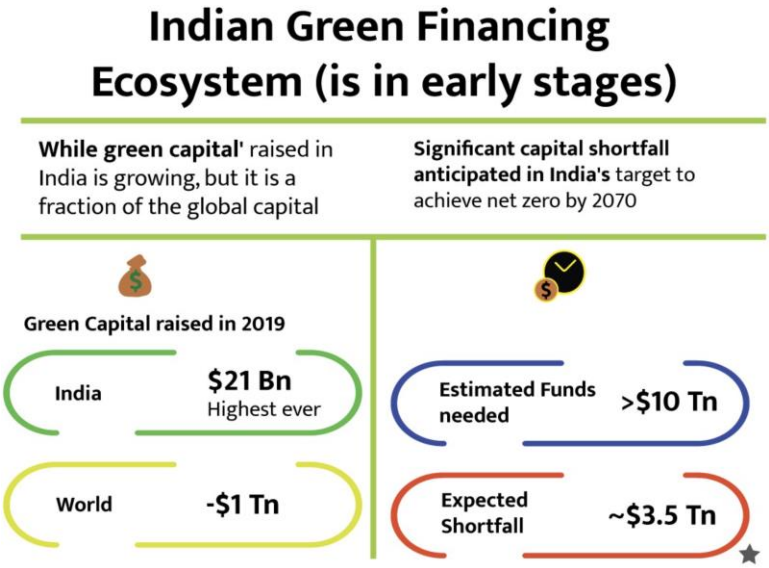
Reskilling and redeployment of workers:
- **Retaining workers** for right skills needed in a low-carbon economy

Instituting support for displaced workers:
- Options for aiding displaced workers eg, **income-support measures** and subsidies

Specific aspects of Decarbonization such as Finance, Technology Adoption etc. will be dealt with in the subsequent articles.

5.1.1. CLIMATE FINANCE FOR DECARBONIZATION

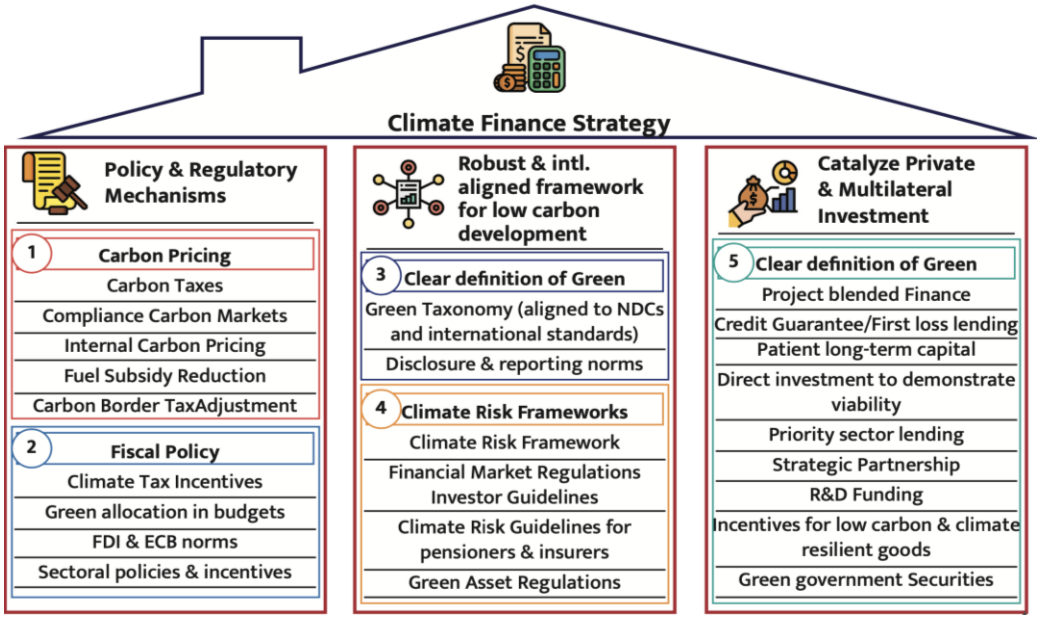
Climate Finance Landscape in India



- **Major role of domestic sources: 85% of climate finance** was from domestic sources like commercial banks, government budgets and public sector grants.
  - There is a **limited foreign capital inflow** despite public commitments from developed countries to provide US$100B of climate finance annually to developing countries.
- **High reliance on debt and grants:** More than 60% of finance flows were in the form of **loans** from commercial banks and multilateral organizations. Government funding was primarily offered via **grants**.
- **Concentrated in the power sector:** Climate funding is **majorly towards renewables**, with the **power generation sector remaining the primary recipient** with ~80% of funds.
  - **Other low-carbon pathways**, such as biofuels & last-mile technology like Carbon capture, Utilisation and Storage (CCUS) and green hydrogen, have yet to receive enough funding.
  - **Adaptation funding was critically underserved**, with less than 10% of overall funds.
- **Opposing Realities Affecting India's green financing:**
  - **Reality – 1:** India needs **9 times more climate finance** annually
  - **Reality – 2: Lack of a bankable pipeline of projects** in India for Investors

- **Other challenges** in getting funding includes:
  - **Lack of a standard definition of "green"** in India resulting in limited visibility on fund flows and increasing fears of greenwashing.
  - **Limited incorporation of climate risk** in credit rating/ risk frameworks resulting in higher perceived risks of green investments.
  - Long term institutional investors such as pension funds are **not factoring climate risks in investment portfolio**.

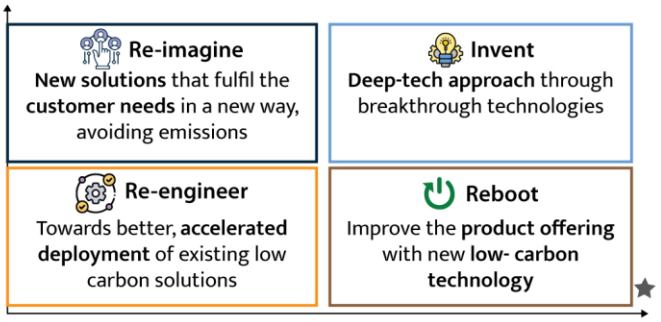
Recommendations for mobilizing climate finance in India



5.1.2. TECHNOLOGY ADOPTION FOR DECARBONISATION

It is estimated that existing technologies can eliminate about 25% of current emissions, and technologies in early adoption can address another 40%. This still leaves approximately **35% of current annual emissions, for which new technologies are needed** if we are to achieve net zero.

Approaches to Expand & Re-invent Business Model



- **Deploy advanced digital tools for emission tracking and mitigation**: Digital technologies like-
  - Emission-linked DSS (Decision Support System),
  - Advanced Energy Scenario Modelling, etc.
- **Partner ecosystem enablement:** Cross-industry / sector data partnerships enable **joint reduction initiatives** across the ecosystem.
- **Develop & promote emerging green technologies:** Establish internal process innovation as a priority to develop **green technologies by adopting the framework – Re-engineer, Re-imagine, Reboot, or Invent**.
- **Energy Efficiency Improvements:** Along with re-imagination and invention, **re-engineering through energy enhancement programs** within the refineries must be explored.
- **Establish coordination framework knowledge sharing and joint accountability: Sectoral bodies** can be set up to reap the collective benefits of efforts being made by individual entities.
- **Mobilize investor interest with public sector backing:** Increase public funding via co-investment and matching mechanisms to lower investor risk.
  - The public sector will have to absorb increased levels of investment risks currently associated with emission reduction technologies (early adoption stages).
- **Use of Production Linked Incentive (PLI) schemes** for building domestic capacities and helping create global competitive ability.

5.1.3. CARBON MARKET TO AID DECARBONIZATION

The Bureau of Energy Efficiency along with the Ministry of Environment, Forest & Climate Change aims to develop the Carbon Credit Trading Scheme for decarbonization.

KNOW THE TERM

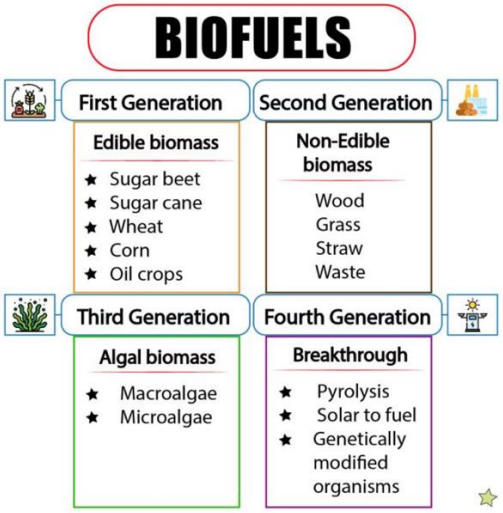
- **Carbon Trading:** It is the process of **buying** and **selling permits** and **credits** that allow the permit holder to emit carbon dioxide.

- **Aim:** To decarbonize the Indian economy by pricing the Green House Gas (GHG) emissions through the trading of **carbon credit certificates**.
- **Need:** India has an **energy savings-based market mechanism (Performance, Achieve, and Trade**) and the new scheme will enhance the energy transition efforts with an increased scope that will **cover the potential energy sectors.**
- **Functioning:** The GHG emissions intensity benchmark and targets will be developed, which will be aligned with India's emissions trajectory as per climate goals.
    - The **trading of carbon credits** will take place based on the **performance against these sectoral trajectories.**
    - Further, it is envisaged that there will be a development of a voluntary mechanism concurrently, to encourage GHG reduction from non-obligated sectors.

To read more about Carbon Trading, kindly refer to Article 5.5. Draft Carbon Credits Trading Scheme (CCTS) of March 2023 Monthly Current Affairs Magazine.

5.1.4. BIOFUEL OPPORTUNITY IN DECARBONIZATION

Biofuels involve the **direct conversion of biomass into liquid fuels**, which can be blended with existing automotive fuels. **Ethanol and biodiesel** are the two main transport biofuels. These fuels can be produced from a variety of biomass.



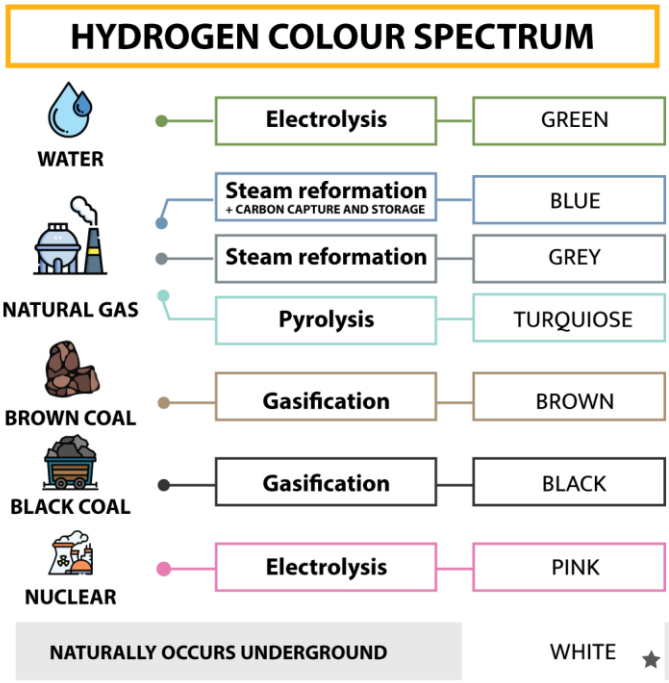
- **First-generation (1G) biofuels** are usually made from **edible feedstock** like sugarcane, beets, food grains etc.
- **Second Generation (2G) fuels** are produced from **lignocellulosic biomass** obtained from **energy crops or waste biomass**, such as agricultural and forest residue.
- **Third Generation (3G) biofuels are produced from algal biomass**. Algae can be used for the production of all types of biofuels, such as biodiesel, gasoline, butanol, propanol, and ethanol, with a high yield, approximately 10 times higher than 2G biofuel.
- **Fourth-generation biofuels (4G)** are the **amalgamation of genomically prepared microorganisms and genetically engineered feedstock**. These feedstocks can be grown in nonarable land.

Biofuels	Indian Market	Key Challenges	Key Policy Interventions
Bioethanol (produced by distilling carbohydrates from sugarcane and beet or distilling starch from food grains**)**	India achieved the targeted **10% ethanol blending** in 2022, and has gone on to **prepone the timeline by 5 years** to 2025 for an ambitious **blending target of 20%.**	• **Low yield for sugarcane and maize** will require **land use change.** • **Unsustainable water use and fertilisers** due to subsidies in feedstock production. • **Promoting 1G biofuels may lead to technology lock-ins** and **delay switching to 2G** feedstocks.	• Promote technology for production of **ethanol from non-food feedstock (Advanced Biofuels**). • Encourage the production of **crops with a lower environmental burden** such as maize, sorghum etc. • Establish a **feedstock pricing mechanism** linked to bioethanol prices. • **Institutionalize certification systems** for GHG savings. • Expedite establishment of a **National Biofuel Fund.**
Biodiesel (produced by **converting vegetable oils into** compounds called **fatty acid methyl esters)**	In the **National Biofuels Policy 2018**, India set a target of **5% biodiesel blending in diesel by 2030.**	• **Lack of a dedicated supply chain** for raw materials • **High prices in international markets** and increased exports resulting in a supply deficit within the country. • **Lack of incentives for vehicle manufacturers** to make biodiesel-compatible engines.	• Promote res**earch on new feedstocks like algae oil** to ensure a steady supply • Encourage **direct sale without blending** • Establish a mandate for the **use of Used Cooking Oil (UCO) for biodiesel production**

Compressed Biogas (CBG) (Biogas through the process of anaerobic decomposition)	**'SATAT' (Sustainable Alternative Towards Affordable Transportation)** initiative on CBG envisages **production of 15 MMT CBG & 50 MMT of manure** from 5,000 plants.	• **Higher equipment costs** due to lack of economies of scale and difficulties in financing • **Lack of long term sustainable supply** of feedstocks • **Technical and infrastructure barriers** due to poor collection and unorganized transportation of wastes	• Creation of a biomass supply chain through **subsidies, promotion activities, notification of biomass clusters and incentives.** • **Waste should be directed** to biogas production. • CBG market development by mandating **CBG blending, promoting CBG and CNG vehicles.** • **Financial assistance** for CBG plants and PLI scheme.

5.1.5. GREEN HYDROGEN OPPORTUNITY FOR DECARBONIZATION

99% of pure hydrogen demand in India comes from **primarily two sectors, i.e., refinery (petroleum refining) & fertilizers (ammonia production).** However, hydrogen has the potential to be used in other sectors as an energy carrier.



Different colour codes have been assigned to distinguish between hydrogen generated from various sources (refer infographic).

Challenges in Scaling up Green Hydrogen Market

- **High Cost:** Cost of green hydrogen including production, transportation, conversion, and storage, is still high.
- **Low level of technology readiness:** Technologies required for decarbonization in hydrogen value chain need to be proven at scale.
- **Efficiency issues:** Hydrogen production and conversion involve significant energy losses at each stage of the value chain.
- **Renewable electricity availability:** As more end-use sectors are electrified, a lack of sufficient renewable electricity may become a bottleneck for production of green hydrogen.
- **Policy / Regulatory Uncertainty:** Stable, long-term policy frameworks are needed to support development and deployment at scale.
- **Standards & Certification:** Countries lack institutionalized mechanisms to track the production and consumption of any shade of hydrogen and identify its characteristics.

Key Policy Interventions needed

- Facilitate **access to low-cost renewable electricity**.
- Allow **hydrogen mixed with natural gas** to be used in existing natural gas infrastructure
- Develop appropriate mechanisms to **price the emissions of GHGs**, which would encourage decarbonization of the economy
- **PLI schemes** for different components in green hydrogen or ammonia value chain
- Partial **exemptions of grid charges, taxes, and levies** for electrolysers.

5.2. GAS-BASED ECONOMY

Why in news?

India's **natural gas consumption which fell 6%** in FY23 compared to a year ago, posing a challenge to India's vision of a **gas-based economy**.

Natural Gas (LNG)

About Natural gas

- Natural gas is **an odorless**, gaseous mixture of **light hydrocarbons** including methane, ethane, propane, butanes, and pentanes.
- Other compounds found in natural gas include **CO_2, helium, hydrogen sulfide, and nitrogen**.
- It is **neither corrosive nor toxic**, its ignition temperature is high, and it has a n**arrow flammability range**.

Types of Natural gas

- **Conventional natural gas**: In places where natural gas moved **into large cracks and spaces** between layers of overlying rock.
- **Unconventional natural gas***:* Occurs in the tiny pores (spaces) within some formations of **shale, sandstone, and other types of sedimentary rock**. (Also called shale gas).
- **Associated natural gas:** Occurs with **deposits of crude oil**.
- **Coalbed methane**: Found in **coal deposits**.

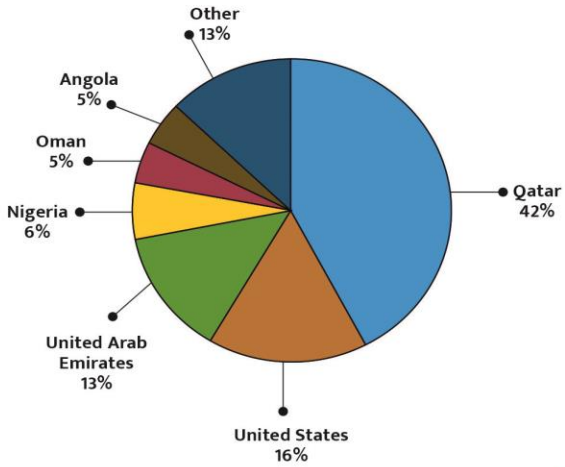
LNG terminals in India

LNG Terminal	Company
Dahej (Gujarat)	Petronet LNG
Hazira (Gujarat)	Shell Energy India
Dabhol (Maharashtra)	Ratnagiri Gas & Power

LNG terminals in the pipeline

LNG Terminal	Company
Dhamra (Odisha)	Indian Oil Corp
Jaigarh (Maharashtra)	H-Energy Gateway
Jafrabad (Gujarat)	Swan Energy

India's LNG imports by source, (2021)



About Gas-based economy

A gas-based economy implies the **dominance of natural gas** in India's primary energy mix. India's goal is to increase the share of gas in the energy mix from **the current 6 per cent to 15 per cent in 2030**.

Significance of a gas based economy

- **Cleaner Energy Source:** Though, natural gas is a fossil fuel, CO2 emissions (per unit of energy produced) from gas are **around 40% lower than coal** and around **20% lower than oil.**
  - It also has considerable advantages in terms of **emissions of the main air pollutants**, including fine particulate matter (PM2.5), sulfur oxides, mainly sulfur dioxide (SO2), and nitrogen oxides (NOX).
- **Energy Efficiency:** Natural gas-fired power plants have higher energy efficiency compared to coal-fired plants.
  - Natural gas production is much less expensive than other fossil fuels such as oil or coal.
- **Rapid and Efficient Transport:** When it is cooled to −161.5 °C, natural gas becomes a liquid (LNG), filling only 1/600th of its original volume. This makes natural gas easier to store and transport long distances.
- **Versatile Energy Source:** As a gas or as LNG, it can power electrical grids, heating systems, home cooking appliances, and some vehicles.
- **Backup power companions to renewables:** The intermittent nature of solar/ wind power sources raises concerns about **instability in the power grid**. Natural gas fired generators can be the **ideal backup power companions** as they provide **clean source of power and have a very short start-up time**.

- **Help in vision of reliable power:** Gas has a role to play in helping the Government deliver on its commitment to **provide 24/7 reliable power**. In urban centres, piped natural gas can effectively cater to the **cooking, heating, and cooling needs** of both commercial and residential entities.

Challenges related to gas based economy

- **Variation in estimations**: Over the past two decades, there have been variations in estimations regarding the share of natural gas in India's energy mix. Goals have shifted from 20% by 2025 to 11% by 2032 and then to 15% by 2030.
  - Without clear justifications for these changes, monitoring and analysis of progress become challenging.
- **Concerns about energy security**: A**round 50 percent of our current demand** is met through the **import of Liquefied Natural Gas (LNG)** from other countries. Thus, energy security through gas is linked to **higher import bills and geopolitical dependence**.
- **Lack of competitive parity:** For e.g. coal is subject to Goods and Services Tax (GST) and therefore **taxed at 5%,** while natural gas is outside the purview of the GST and **typically taxed at a higher rate**.
- **Not conducive with decarbonisation**: Natural gas increased share in the primary energy mix may not be **conducive to India's long-term deep decarbonisation strategy**. Thus, related infrastructure may end-up being **stranded assets and investment.**
- **Infrastructure Constraints:** India currently lacks adequate infrastructure for natural gas distribution, including pipelines and storage facilities.
- **Environmental concern:** While natural gas is considered a cleaner fossil fuel, its extraction, production, and combustion still generate greenhouse gas emissions.

Initiatives taken towards gas based economy

- **Revised domestic natural gas pricing guidelines:** Based on recommendations of a panel headed by **Kirit Parikh**, Government has approved the **revised domestic natural gas pricing guidelines.**
  - Key changes include **benchmarking the price of APM (Administered Price Mechanism) gas** to the price of imported crude and monthly, rather than biannual revisions in prices.
- **Hydrocarbon Exploration and Licensing Policy (HELP):** It aims to **boost domestic gas production** through initiatives like **expediting development** of existing discoveries, developing **marginal or small fields**, and establishing **marketing freedom for gas** produced from deepwater and ultra-deepwater areas, and from small fields.
- **Launch of India Gas Exchange**: India has now its **own gas exchange**, acting as a **nationwide, automated trading platform** to enable competitive indigenous benchmark gas prices.
- **Unified tariff for natural gas pipelines**: PNGRB has amended the **PNGRB (Determination of Natural Gas Pipeline Tariff) Regulations** to incorporate the regulations pertaining to **unified tariff for natural gas pipelines**. It is an attempt towards ambitious aim of **One Nation, One Grid and One Tariff.**
- **Creating necessary Gas infrastructure**: This is being done through **LNG terminals (**like Dahej and Hazira in Gujarat, Dabhol in Maharashtra, Kochi in Kerala etc)**, National Gas Grid and City gas Distribution (CGD) network.**
  - Also, eastern and north-eastern parts are connected with gas grid by developing **Pradhan Mantri Urja Ganga project** and **North East Gas Grid project**.

Road Ahead

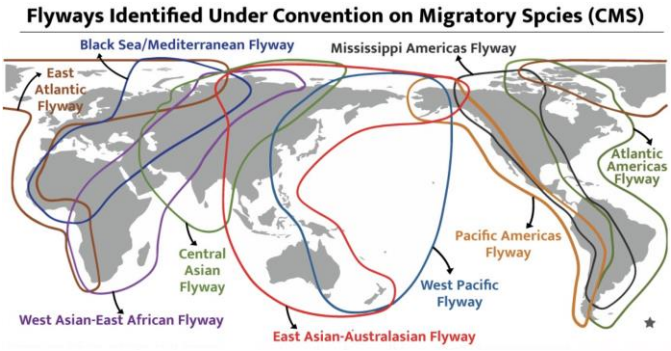
- **Consider other recommendations of Kirit Parekh Panel**: Other recommendations include completely **free and market-determined pricing** for natural gas extracted from **legacy fields** and include **natural gas in GST** regime.
- **Demand Stimulation**: Promote the use of natural gas across various sectors, including power generation, industry, transportation, and residential sectors.
  - This can be achieved through policy incentives, such as **tax benefits, subsidies, and targeted schemes.**
- **Increase the utilisation of current assets**: **The centre, state, and private sector** must collaborate to increase **utilization of gas-based plants**.
  - The Parliament Standing Committee on Energy's report has identified 14.3 GW of stranded gas-based plants with an **investment of over ₹650 billion**, most of it lent by banks.
- **Diversify import sources**: India should attempt to **diversify import sources of natural gas** while **strengthening existing bilateral energy partnerships**.
- **Domestic Production**: Encourage and incentivize domestic gas exploration and production to reduce dependence on imports.

- **Research and Development:** Invest in research and development to advance technologies related to natural gas extraction, production, and utilization.
- **One Nation, One Gas Grid**: Natural gas-based energy can be **produced and distributed** throughout the entire country on a **single gas system**.

5.3. NEWS IN SHORTS

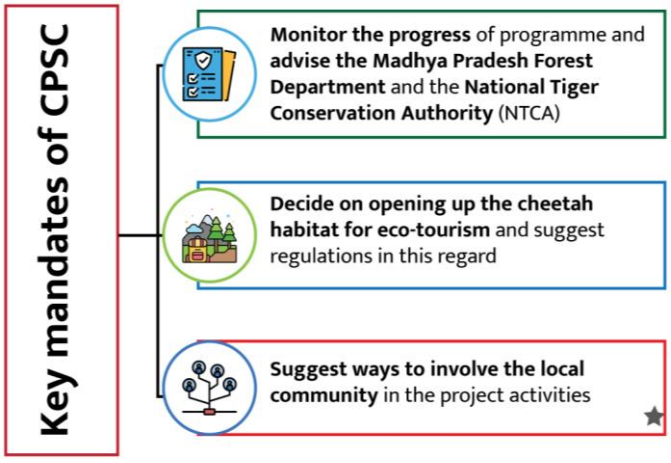
5.3.1. CENTRAL ASIAN FLYWAY (CAF)

- **Meeting of Range Countries to strengthen conservation efforts** for migratory birds and their habitats in CAF held.
- **Ministry of Environment, Forest and Climate Change** in collaboration with United Nations Environment Programme, **organized the meeting.**
- **CAF is one among the nine flyways** (refer image) identified **under Convention on Migratory Species (CMS),** also known as **Bonn Convention.**
    - Flyways are **areas used by groups of birds during their annual cycle** which includes breeding areas, stop-over areas and wintering areas.
- CAF encompasses overlapping **migration routes over 30 countries for different waterbirds linking** their northern most **breeding grounds in Russia** (Siberia) **to southernmost non-breeding** (wintering) **grounds** in West and South Asia, Maldives and British Indian Ocean Territory.
    - India provides **critical stopover sites to over 90% of the bird species known to use this migratory route.**
        - ✓ Also, India developed a **National Action Plan for Conservation of Migratory Birds and their Habitat** (2018 - 2023).
- **Importance of Migratory Birds:** Act as **pest control agents, in dispersal of seeds**, increase in **species richness**, **support local communities** by boosting eco-tourism, important **indicator for flagging state of environment**.



5.3.2. CHEETAH PROJECT

- **National Tiger Conservation Authority formed Cheetah Project Steering Committee** (CPSC) to keep watch on cheetah project
- The 11 member CPSC, comprising national and international experts constituted **to oversee the implementation of Project Cheetah** will be in **force for two years.**
    - **'Project Cheetah'** is the world's **first inter-continental large wild carnivore translocation** project.
    - **Since Cheetah is a keystone species** the project was expected to restore open forest and grassland ecosystems, conserve biodiversity, etc.
- **Committee is formed in the wake of the recent death of cubs born to a translocated Namibian cheetah** at the Kuno National Park (KNP) in Madhya Pradesh.
- **Challenges in sustainability of 'Project Cheetah'**
    - **Cheetahs have a tendency to range over wide distances**, whereas KNP has very small area available.
    - **Animal behaviour issues related to** inability to learn dispersal and movement, foraging, territorial aggression.
    - **Lack of similar prey base** from their native ecosystem at the place of translocation.
    - **Difficulty with the post-release monitoring** due to topography and remoteness, availability of skilled personnel.
    - Forests across India suffer from a **large population of stray dogs** who carry pathogens like **Parvovirus which are fatal to cheetahs".**



5.3.3. TIGER TRANSLOCATION

- India's first **inter-state** tiger translocation project had failed.

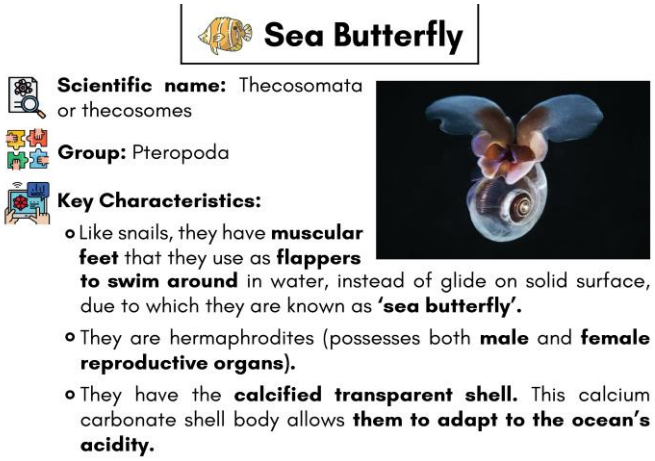
- **Tiger relocation project** was initiated in **2018 by National Tiger Conservation Authority**(NTCA), wherein two big cats to be trans-located
  - A male (**Mahavir**) from **Kanha Tiger Reserve** and a female (**Sundari**) from **Bandhavgarh** from Madhya Pradesh were relocated to **Satkosia Tiger Reserve** in Odisha.
  - **To serve two purposes-** reducing tiger population in areas with excess tigers to majorly reduce territorial disputes
    - ✓ To reintroduce tigers in areas where the population has considerably reduced due to various reasons.
- **Failure of Project**: poor prey augmentation; lack of capacity building of staff; enhancement of protection couldn't be achieved; funds provided under Project Tiger were diverted; Tiger-Human conflict.
- **Satkosia Tiger Reserve** comprises two wildlife divisions —Mahanadi and Satkosia. It is the 2nd biggest tiger reserve in the Odisha after **Similipal**.
  - Currently, Satkosia has **no big cats.**
- **Kanha National Park** is nestled in the **Maikal range** of Satpuras in Madhya Pradesh.
  - Kanha National Park was declared a reserve forest in **1879** and revalued as a wildlife sanctuary in **1933**. Its position was further upgraded to a national park in **1955**.
- **Bandhavgarh National Park** is spread over the **Vindhya hills** in Madhya Pradesh.
  - The **density** of the tiger population at Bandhavgarh is the highest known in India as well as in the world.
- **National Tiger Conservation Authority (NTCA)** is a **statutory** body under the Ministry of Environment, Forests and Climate Change constituted under enabling provisions of the **Wildlife (Protection) Act, 1972,** established in **2005.**

5.3.4. WILD LIFE PROTECTION (WLP) ACT, 1972

- Ministry of Environment, Forest and Climate Change issued the notification to amend WLP Act, 1972.
- Now, all persons **engaged in breeding in captivity or artificially propagating any scheduled specimen listed in Appendix I of Schedule IV** of the Act are requested to **make an application for a license.**
  - **Appendix 1 of Schedule IV** is endangered exotic animals (**Red Panda, various species of dogs, wolves, cats, apes, chimpanzees, gibbons)** and plants, and import rules are stricter for them.
  - **Earlier, Captive breeding of exotic species protected** under CITES was not regulated.

5.3.5. SEA BUTTERFLY

- British Antarctic Survey studied the **impact of climate change on sea butterflies**, a suborder of free-swimming sea snails and a gastropod mollusk of the class Gastropoda.
  - Due to rising **ocean acidification** their survival is at threat.
- **Sea Butterflies and Ocean acidification**
  - World's oceans absorb approximately a quarter of all carbon dioxide (CO_2) emissions.
  - During absorption, CO_2 reacts with seawater and oceanic pH levels fall. This is known as **ocean acidification** and **results in lower carbon ion concentrations**.
  - Therefore, it reduces availability of **carbon ion for sea butterfly.**
  - Ocean is the most **acidic in winter** because **cooler water absorbs more CO_2**. This means, the winter months are the **most dangerous** for the shelled sea butterflies.
  - As **emissions rise**, **acidification of oceans will intensify and extends to spring when the species spawn and they're in the larval stage**.
  - This can diminish the population that would otherwise develop into healthy adults.
    - ✓ Their reduced population **also impacts larger pteropods and other oceanic creatures that feed on them.**
    - ✓ The entire **underwater food chain of the seas surrounding Antarctica may suffer as a ripple effect.**



5.3.6. GEKKO MIZORAMENSIS

- Researchers from the Mizoram University and the Max Planck Institute for Biology, Germany, found a **new species of flying gecko** (also called parachute or gliding geckos) **in Mizoram** along the Indo-Myanmar border.
  - Geckos are **small, mostly carnivorous lizards** found in warm climates throughout the world.

- There are 13 species of **flying gecko**. Of them only one species, Ptychozoon lionotum was found in Mizoram.

- It has been named **Gekko Mizoramensis** after the state of Mizoram.
- **Characteristics**:
  - It is around 20 cm in length, is an **arboreal** that lives on trees. It can **glide** from one tree to another and is **nocturnal**.
  - It is most similar to **Gekko popaensis** from which it differs **genetically** in having **discrete differences** in **morphology** and **colour pattern**.

5.3.7. BAOBABS

- **Bhil tribe** of Central India is **opposing the forest department's decision** to give permission for uprooting baobab trees for commercial use.
- Baobabs belongs to the **genus Adansonia** are native to **mainland Africa**, **Madagascar**, and **Australia**.
- They have **unusual barrel-like trunks** and are known for their **extraordinary longevity** (live up to 2,000 years) and **ethnobotanical importance**.
- The tree's unique **pendulous flowers** are pollinated by **bats** and bush babies.
- IUCN Status: **endangered**
- Madhya Pradesh government has applied for a **Geographical Indication (GI)** tag.

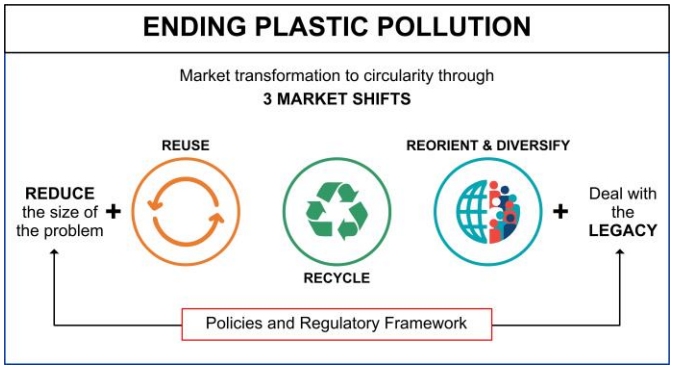
5.3.8. GLOBAL FINANCIAL INNOVATION NETWORK (GFIN)

- Reserve Bank of India (RBI) to **join Global Financial Innovation Network (GFIN)'s** Greenwashing TechSprint
- RBI has opened the application window for all India based firms and innovators to participate in GFIN's first ever Greenwashing TechSprint.
  - TechSprint will **bring together 13 international regulators** (including RBI) alongside firms and innovators to **address GFIN's priority on Environmental, Social And Governance (ESG)** and **mitigate risks of greenwashing in financial services.**
- **Greenwashing** is **marketing that portrays an organisation's products, activities or policies as producing positive environmental or social outcomes**, or avoiding environmental or social harm, **when this is not the case**.
- **ESG framework** helps stakeholders understand how an organization is **managing risks and opportunities** related to ESG criteria.
  - India is gradually moving towards ESG regulations with introduction of **Business Responsibility and Sustainability Reporting (BRSR)** framework by SEBI.
    - ✓ BRSR aims to establish links between financial results of a business with its ESG performance.
    - ✓ BRSR was made **mandatory for top 1,000 listed entities** (by market capitalisation) **from 2022–23**.

5.3.9. UNEP REPORT ON PLASTIC POLLUTION

- **Go circular to end plastic pollution** stated a United Nations Environment Programme (UNEP) report.
- Report titled '**Turning off the Tap How the world can end plastic pollution and create a circular economy' addresses various issues associated with solution for circular plastics economy** while **also safeguarding livelihoods.**
  - Circular economy is an **economic system where means of production are organized around reusing and recycling inputs** to facilitate a sustainable and environment friendly mode of production.
- **Key highlights of report**
  - Global plastic pollution **can reduce by 80 percent by 2040** if market shifts to a circular economy (refer image).
  - Currently, world produces **430 million metric tons of plastics each year** of which **over two-thirds are short-lived products**.
  - Plastic **could emit 19% of global greenhouse gas emissions** allowed under a 1.5°C scenario by 2040 and production is **set to triple by 2060 if 'business-as-usual' continues.**
- **Plastic pollution** occurs when plastic has gathered in an area and has begun to negatively impact natural environment and create problems for plants, wildlife, and even the human population.
- **Benefits from transformed plastics economy: Opportunities** for jobs, income and innovation**; Reduction in damage** to human health and environment**; and Reduction in liabilities, risks and**

litigation associated with damage from plastic pollution etc.



Related News

Greenpeace published "Forever Toxic: The science on health threats from plastic recycling" Report

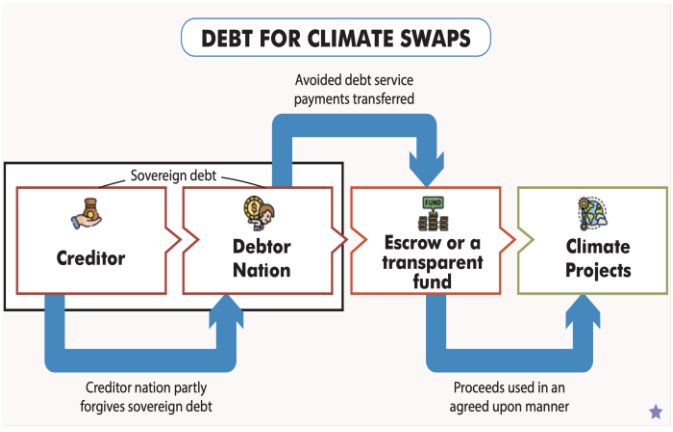
- Report has been published ahead of **second session of Intergovernmental Negotiating Committee to develop a Global Plastics Treaty (GPT).**
  - In 2022, at UN Environment Assembly in Nairobi, 175 countries have agreed to **legally binding global treaty called GPT to end plastic pollution by 2024.**
- **Key highlights of report**
  - **Three poisonous pathways for recycled plastic material to accumulate toxic chemicals**
    - ✓ **Direct contamination** from toxic chemicals in virgin plastic.
    - ✓ **Substances like plastic containers for pesticides**, cleaning solvents and others that **enter recycling chain** and can contaminate plastic.
    - ✓ **Recycling process**, when plastics are heated.
  - Plastic production is **forecast to triple by 2060**.
- **Threats from plastic recycling**
  - Recycled plastics **contain higher levels of chemicals that can poison people** and **contaminate ecosystems.**
  - Plastic recycling releases persistent **carcinogenic compounds** (dioxins and furans).
  - **Increasing risk of large fires at plastic recycling facilities**, especially in those that hold e-waste plastics with used batteries.
- **Key Recommendations**
  - **Institute "polluter pays" principle** (those who produce pollution **should bear costs of managing** it to prevent damage to human health/environment) for plastic waste management.
  - **Promote non-combustion technologies** for plastic stockpiles and waste disposal.

5.3.10. ONE-STOP CENTRES FOR ZERO WASTE

- Government will **launch one-stop centres called Reduce, Recycle and Reuse** which will **serve as one-stop solution for citizens, commercial enterprises,** etc. to deposit unused or used plastic items, clothes, shoes, footwear, books, and toys.
  - Items will then be given to different stakeholders to be refurbished for reuse or would be made into new products **contributing to a circular economy**,
  - These 'RRR' centres would be **set up as part of a nationwide campaign 'Meri LiFE, Mera Swachh Shehar' ('My Life, My Clean City')** under aegis of Swacch Bharat Mission – Urban 2.0 (SBM-U 2.0).

5.3.11. DEBT FOR CLIMATE SWAPS

- Debt for Climate (DFC) swaps are a type of debt swap in which the **debtor nation, instead of continuing to make external debt payments in a foreign currency, makes payments in local currency** to finance climate projects domestically on agreed upon terms.
  - It was introduced as a **debt restructuring device** that **aims to combat climate change by ensuring that debt-ridden countries do not incur additional debt while addressing climate change locally**.
  - **It was** first **used in the 1980s in Latin America**.
  - **It has grown relatively popular among low and middle-income countries** as a debt-relief measure.
- DFC swaps would be used to generate the following outcomes:
  - **Enhanced climate spending**
  - **Boosting economy recovery**: Given suppressed economic demand, the investments can stimulate private investment and assist in economic recovery, while incorporating climate resilience and protecting biodiversity.
  - **Reduced external sovereign debt**
  - **Fulfill global commitment of developed nation**: DFC swaps serve as a means for the signatories of the Paris Agreement and the Glasgow Financial Alliance for Net Zero (GFANZ) to fulfill their global commitment of providing financial assistance to developing countries in their efforts to construct clean and climate-resilient futures.



5.3.12. CLIMATE CHANGE AND INFLATION

- According to a **report published by European Central Bank, Climate Change will increase global inflation by as much as one percentage point every year as food will get costly**.
  - Report anticipate that increasing temperatures will lead to a rise in annual inflation, **ranging from 0.32 to 1.18 percentage points higher by 2035.**
  - This will pose **challenges for both consumers and policymakers, who strive to maintain low levels of inflation.**
- The similar analysis has been presented by IMF in its recent report **'Eye of the storm: The impact of Climate shocks on inflation and growth'.**
  - Climate-induced natural disaster has **differential and opposing effects on inflation and growth through multiple channels.**
    - ✓ Dampening economic activity and **lowering labor productivity**
    - ✓ **Reducing wealth and income** and thereby consumption and investment
    - ✓ **Affecting transportation infrastructure** and distribution costs
  - Impact of weather-related shocks on core and food inflation **shows significant variation in magnitude and pattern across country groups**.
  - The differing patterns of inflation and growth response to climate shocks will **lead to greater heterogeneity in the level of inflation and income growth** experienced by different segments of the society within a country.

5.3.13. 1.5°C TARGET

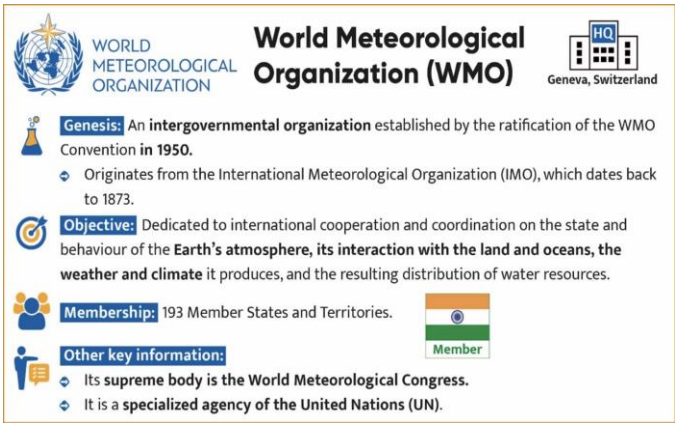
- According to the "Global Annual to Decadal Climate Update 2023-2027" and "State of Global Climate 2022" by WMO the **global average temperature may rise to 1.5°C by 2027.**
- Under the 2015 **Paris Agreement** parties have pledged to **limit the average temperature rise to below 2°C,** while **actively aiming for 1.5°C above** pre-industrial levels **by 2100.**
  - This was endorsed as a global target by the **Intergovernmental Panel on Climate Change (IPCC) in 2018.**
    - ✓ The **2°C target was unacceptable to small island countrie**s as it implied that their survival was compromised.
  - The 1.5°C target is expected to **prevent the planet from slipping into further climate crises** like frequent and intense heat waves, droughts, heavy precipitation, rise in sea level, etc.
- **Key reasons for inability to meet target**
  - **Developed countries** like the US, Japan, Russia and Canada who are historically responsible for a major chunk of greenhouse gas emissions have **made little progress in meeting their pledges.**
  - **Build-back measures** undertaken to undo the impact of Covis-19 pandemic **are not sustainable.**

CONSEQUENCES OF CROSSING CRITICAL TARGETS

CLIMATE IMPACTS	Rise of 1.5°C	Rise of 2°C
Arctic: Sea ice-free summer	Once per century	Once per decade
Sea level rise: Exposure to flooding in 2100	31-69 million people worldwide	32-80 million people worldwide
Extreme heat: Exposure at least once every five years	About 14% of global population	About 37% of global population
Severe drought: Increase in urban population	+350 million people worldwide	+411 million people worldwide
Status of coral reefs	70-90% lost	99% lost
Plants and animals: Species losing more than half of their range	6% of insects, 8% of plants, 4% of vertebrates	18% of insects, 16% of plants, 8% of vertebrates

5.3.14. ARCTIC AMPLIFICATION

- Recently, a World Metrological Organisation (WMO) study highlighted that **Arctic warming is disproportionately high.**
- The Arctic region has warmed at least twice as much as the world average.
  - The warming differential between **the poles and the tropics is known as Arctic (or polar) amplification.**
- **Why Arctic is warming faster than other parts of the world?**
  - The ice cover in the Arctic is melting, because of which **more land/water is getting exposed to the Sun and leading to more absorption of sunlight**.
  - **Heat transfers from the tropics to the poles** through prevailing systems of air circulation.
  - **Polar amplification is much stronger in the Arctic than in Antarctica.** This difference is because the Arctic is an ocean covered by sea ice, while Antarctica is an elevated continent covered in more permanent ice and snow.



5.3.15. RIVER-CITIES ALLIANCE (RCA)

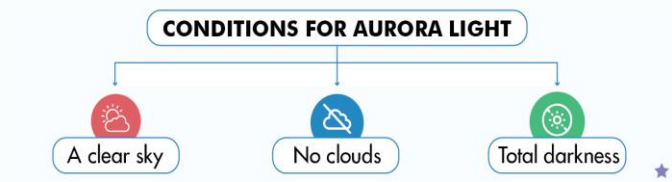
- **National Mission For Clean Ganga (NMCG) organized RCA** Global Seminar.
- RCA is a **dedicated platform for river cities to ideate, discuss and exchange information** for sustainable management of urban rivers.
  - It has **expanded to 109 river cities across India** and **one international member city from Denmark.**
  - Alliance is **open to all river cities of India**.
- It is a joint initiative of **Ministry of Jal Shakti & Ministry of Housing and Urban Affairs**.

5.3.16. CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION (CORSIA)

- Ministry of Civil Aviation (MoCA) has announced that India will start participating in **International Civil Aviation Organisation's (ICAO) Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) and Long-Term Aspirational Goals (LTAG)** from 2027.
  - In order to **mitigate carbon emissions from aviation**, ICAO has adopted goals of **2% annual fuel efficiency improvement through 2050, carbon neutral growth and net zero by 2050.**
- CORSIA offers a **harmonised way to reduce emissions from international aviation**, **minimising market distortion**, while respecting special circumstances and respective capabilities of ICAO Member States.
  - CORSIA is implemented in **three phases -** a **pilot** phase (2021-2023), a **first** phase (2024-2026), and a **second** phase (2027-2035). **Participation is voluntary for first two phases.**
  - CORSIA is **applicable only to** flights originating from one country to another i.e**., international flights**.
  - CORSIA will **mitigate around 2.5 billion tonnes of CO2 between 2021 and 2035,** which is an annual average of 164 million tonnes of CO2.
- **41st ICAO Assembly adopted LTAG** for international aviation of **net-zero carbon emissions by 2050** in support of UNFCCC Paris Agreement.
  - LTAG does **not attribute specific obligations or commitments** in form of emissions reduction goals to individual States but **each state will contribute within its own national timeframe and circumstances.**
- ICAO (**HQ: Montreal, Canada**) was **established in 1947** under Convention on International Civil Aviation (**Chicago Convention**), which was drafted in 1944 by 54 nations.
  - **Membership:** 193 members including **India**. ICAO is **not an international aviation regulator.** It is a **specialized agency** of United Nations.
  - Its vision is to achieve **sustainable growth of global civil aviation system.**

5.3.17. AURORA

- The Indian Astronomical Observatory (IAO) in Ladakh successfully documented the **occurrence of a rare Aurora phenomenon for the very first time.**
  - IAO is situated above Mount Saraswati in the **Hanle Valley of Changthang, Ladakh**, at nearly 14,800 feet above sea level.
- Auroras are **geomagnetic storm** which are seen due to an **intense interaction of the sun's plasma waves and the earth's magnetic field**.
  - During a **coronal mass ejection**, billions of charged particles move into space at ultra-high speeds, **some reaching up to 3 million kilometers per hour**. When they arrive in the direction of Earth, they cause a **disturbance in the Earth's magnetic field and enable us to see the aurora lights**.
- The **shape of Earth's magnetic field creates two auroral ovals above the North and South Magnetic Poles**.
  - It is called an **aurora borealis or northern light near the North pole and aurora australis or the southern lights near the South pole.**
- They are **more frequent at higher latitudes** and places like Alaska, Canada, and Antarctica, closer to the Earth's poles.
  - However, Due to a geo-effective coronal mass ejection (CME), the **Northern Lights were observed at unprecedented mid-to-low latitudes across the United States, brightly lit European cities, and even over China and India**.
  - According to reports, this remarkable plunge in auroral activity has not been witnessed since 2015.
- They **occur at any time of the day**, but it **can't be seen with the naked eye unless it's dark**.
- Colors and patterns are from the types of ions or atoms being energized as they collide with the atmosphere and are affected by lines of magnetic force.
  - **Altitude affects the colors**. Blue violet/reds occur below 100 km, with bright green strongest between 100-240 km. Ruby reds appear above 240 km.



5.3.18. SUN HALO

- The phenomenon of the Sun halo was witnessed in North India.

About Sun Halo:

- It is a **multi-colored ring** that appears like a rainbow **circling the star in our solar system**.
  - It is also referred to as **22-degree halo** because the radius of the **circle is always approximately 22 degrees.**

Formation of Halo:

- Halos are a sign of **high, thin cirrus clouds drifting** 20,000 feet (6 km) or more above our heads**.**
- These clouds contain **millions of tiny unique hexagonal ice crystals**.
  - These icy crystals are found in cirrus clouds, which are thin and wispy clouds.
- When sunlight enters these ice crystals, it is **refracted**, or **bent**, by the crystal's surfaces.
- This bending of light causes the **sun's rays to separate into their component colors (because of dispersion)**, creating a **spectrum of colors** that are visible as the halo.
- The crystals must be **oriented** and **positioned** with respect to one's eye, for the halo to appear. This is why sun halos are relatively rare.
- Light undergoes **two refractions** as it passes through the ice crystals and the bending that occurs depends on the ice crystal's diameter. In a 22-degree halo, **light enters** from one side of the ice crystal and **exits** through another, being refracted on both entry and exit.
- Like rainbows, halos around the **sun or moon are considered personal**. Everyone sees their **own unique halo**, made by the ice crystals from their point of view (on the basis of the orientation).
- Lunar halos are **mostly colorless** because moonlight isn't very bright.
- Atmospheric optical phenomena like halos were used as part of **weather lore** (**traditional knowledge)**, which was an empirical means of weather forecasting before meteorology was developed.
  - They **often do indicate that rain will fall within the next 24 hours**, since the cirrostratus clouds that cause them can signify an approaching frontal system.

5.3.19. WORLD'S 2ND DEEPEST BLUE HOLE IN MEXICO

- Scientists have uncovered a massive sinkhole off the coast of the **Yucatan Peninsula** in Mexico.
- The Mexico blue hole has been named '**Taam Ja'**, which means '**deep water'** in **Mayan**
- **Blue hole** is actually a massive **underwater sinkhole**, which is hundreds of metres long and spans across areas that are bigger than cities and stands at a height of several skyscrapers.
  - Blue holes get their names from their **indigo centres** and **light blue perimeters.**
  - It is believed to have been formed in the **Ice Age**, when the sea level was as low as 100–120 m lower than current levels.
  - Considered hotspots of **microbial biodiversity.**
- **Dragon Hole or Longdong** is the deepest blue hole on earth and situated in the **South China Sea**. It's more than 980 ft deep.
- **Yucatan Peninsula** is a peninsula in Central America, separating the Gulf of Mexico and the Caribbean Sea. Peninsula includes parts of **Mexico, Guatemala and Belize**.

5.3.20. PALGHAT GAP

- Often called as **a significant discontinuity in Western Ghats**, It is **a geological shear zone** (weak regions in earth's crust) **that runs from east to west.**
  - It is a corridor that **connects Coimbatore with Palakkad**.
  - **Bharathappuzha river flows** through it.
- **Origin of Palghat Gap** also stems from **drift of continental shelves** after **Australia and Africa broke off from Gondwana landmass**.

- **Western Ghats** in **north of Palghat Gap receive more rain annually**, but **south gets rain more evenly** throughout the year.
    - **Vegetation in Palghat Gap** is classified as **dry evergreen forest**. It also marks a **divide in flora and fauna of region.**
    - **Species richness and phylogenetic diversity** are abundant in **Western Ghats south of Palghat Gap.**

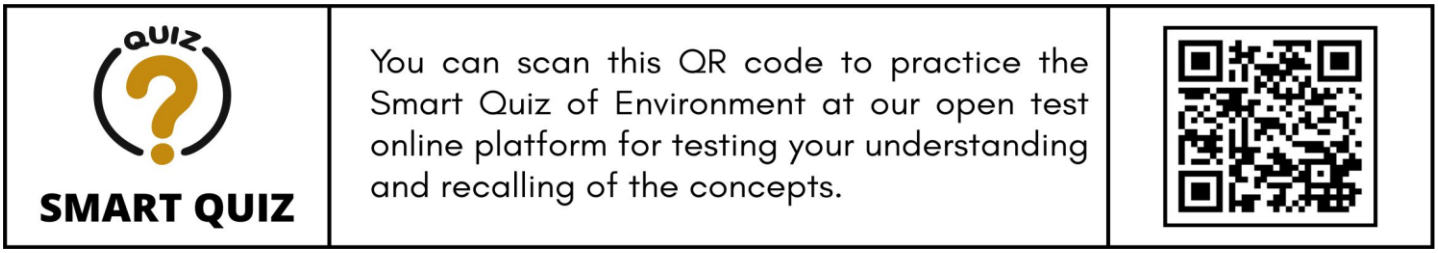
5.3.21. AMRIT AND MOONGA BLOCKS IN ARABIAN SEA

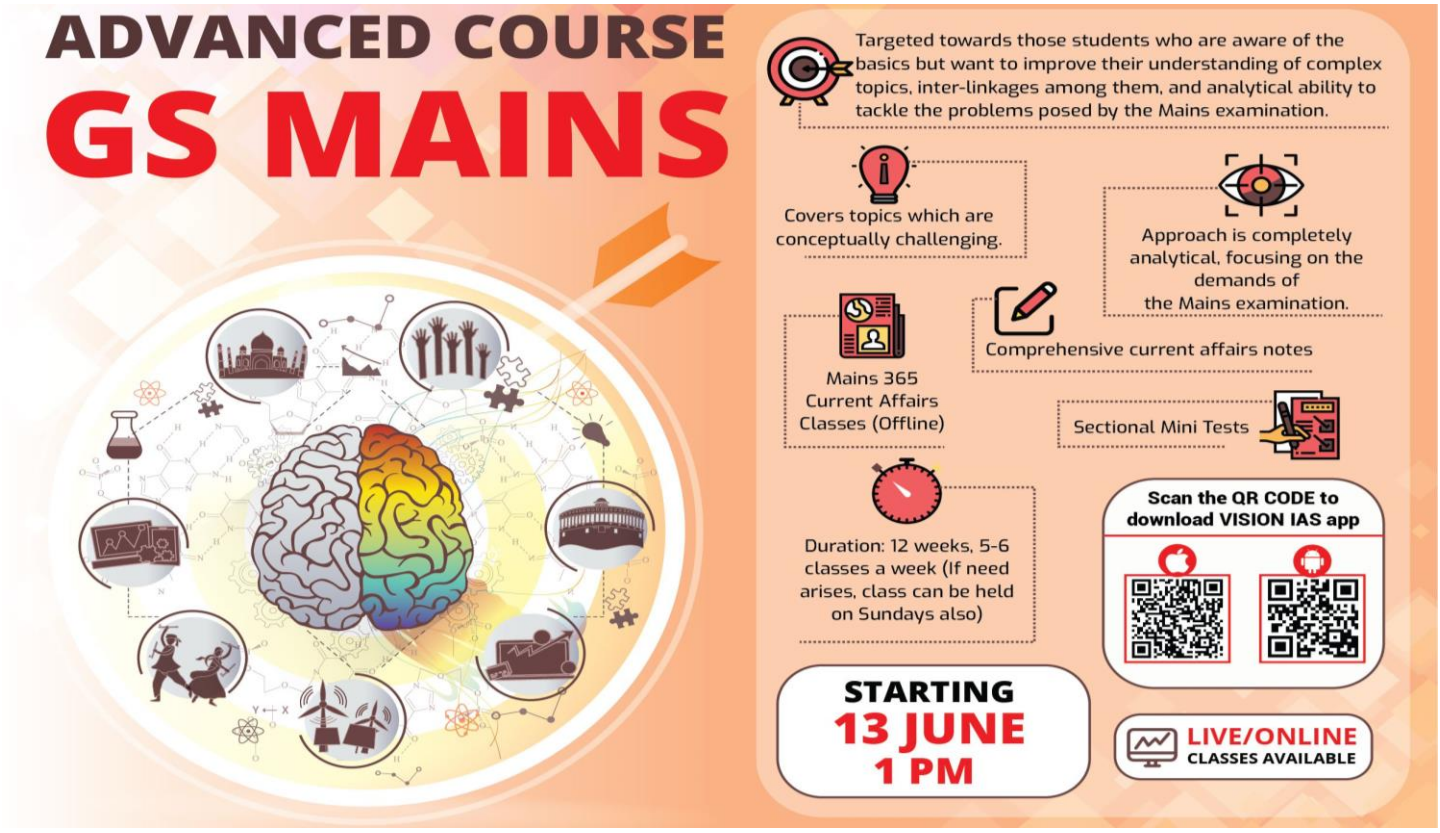
- ONGC has discovered crude oil and natural gas in two blocks named as Amrit and Moonga Blocks (Open Acreage Licensing Policy (OLAP) blocks) in Mumbai offshore on the **Arabian Sea**.
- OALP **under Hydrocarbon Exploration and Licensing Policy (HELP),** gives an option to a company looking for exploring hydrocarbons to select the exploration blocks on its own, without waiting for the formal bid round from the Government.
    - Under OALP, a **bidder intending to explore hydrocarbons like oil and gas, coal bed methane, gas hydrate etc**., may apply to the Government seeking exploration of any new block (not already covered by exploration).
    - HELP is an exploration and production policy launched by **Ministry of Petroleum and Natural Gas** in **2016** that replaced the New Exploration Licensing Policy (NELP) to improve exploration and production in India.
    - Government of India intends to increase India's exploration acreage to **0.5 million** sq. km. by **2025** and **1.0 million** sq. km. by **2030.**

Data Bank

As per **Ministry of Petroleum and Natural**, India is the world's-

- **3rd** largest consumer of energy,
- **3rd** largest consumer of crude oil
- **4th** largest Refiner
- **6th** largest importer of petroleum products
- **7th** largest exporter of petroleum products.



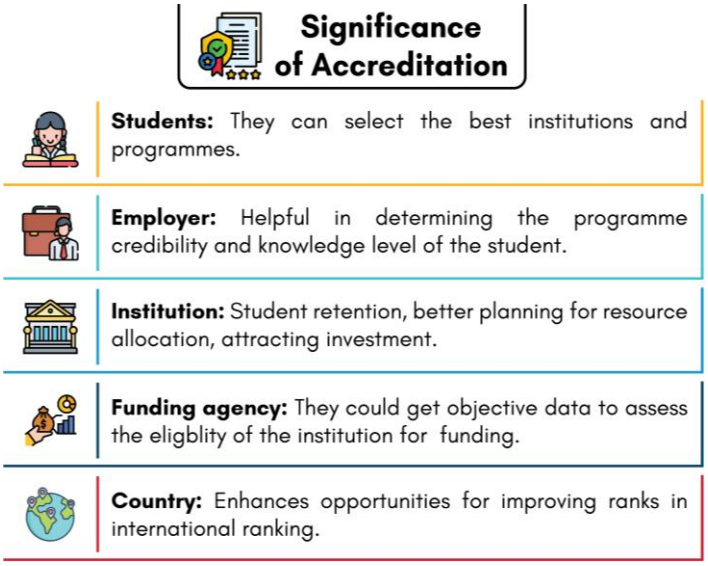


6. SOCIAL ISSUES

6.1. ACCREDITATION OF HIGHER EDUCATION INSTITUTIONS

Why in news

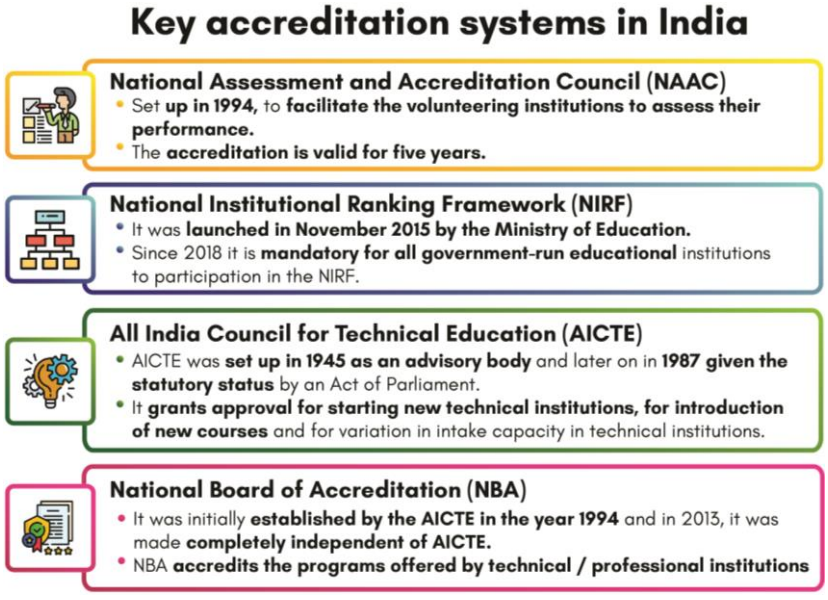
The Radhakrishnan Committee's report on reforms in accreditation system of India's Higher Education Institutions (HEIs) has been put in public domain.



More on news

- This overarching Committee headed by former ISRO chief Dr K Radhakrishnan was **set up by the Ministry of Education (MoE) in 2022.**
- The **mandate** of the committee includes:
  - **strengthening** the **assessment and accreditation** processes and
  - preparing a **road map for the National Accreditation Council (NAC)** envisioned in the National Education Policy, 2020
- The proposed reforms are **consistent with the Vision of NEP 2020** and adopt, right away, a simple, trust-based, credible, objective, and rationalized system for approval, accreditation and ranking of HEIs.
- Also, the committee has suggested that the educational system should **make transition to the proposed accreditation regime by December 2023** even if the **National Accreditation Council (**NAC) is set up later.
  - NAC is **one of the four verticals of Higher Education Commission of India (HECI).**
  - It has been envisaged as the **'meta-accrediting body',** with responsibility for overseeing and supervising an independent ecosystem of accrediting institutions.

About India's accreditation of HEIs



- Accreditation is **assessment of the quality of education.**
- **University Grants Commission (UGC)** accords recognition to the HEIs under the provisions of **the 'UGC Act 1956'**
- **Multiple agencies** within the ambit of the Union Government (and even some States, lately) have been mandated **for periodic approvals, assessment, accreditation and ranking** of HEIs.

Challenges in India's accreditation system

- **Centralized system:** Regulation and accreditation in India are centralized with **poor outreach in the federal states.**
  - Also, these systems have **not kept pace with the growing number of HEIs in India**.
- **Low participation:** The low level of willingness of HEIs to volunteer for this process continues to be a cause of concern.
  - **For example,** there are 1,113 universities across the country out of which only 418 universities are accredited by NAAC.
    - ✓ To **enhance the participation** of HEIs in accreditation, UGC launched the **Paramarsh Scheme**.
    - ✓ Under the scheme, **some of the best-performing institutes** were identified to **serve as mentors** to at least five institutes aspiring to get accredited**.**

- **Duplication and overlapping:** Presently, **multiple agencies** within the ambit of the Union Government (and some States, lately) have been **mandated for periodic approvals, assessment, accreditation and ranking of HEIs.**
  - Each of these agencies collects **information from the responder HEIs that may be the same or similar.**
- **Challenging procedure:** Process for collection of the information sought by the accrediting agencies (that too at different periodicity) are cumbersome and tiresome.
- **Manual/hybrid systems:** This brings a higher degree of subjectivity and inconsistencies between assessment by different agencies.
- **Alleged corruption**: For example, recently the possibility of vested interests, malpractices under the NAAC accreditation system have been highlighted.

Key recommendations for improving India's accreditation system of HEIs

- **Composite Assessment System (CAS):** Include **all HEIs and every programme** in the newly proposed assessment and accreditation system.
  - **Amalgamate Programme-Accreditation and Institution Accreditation,** considering their inter-dependency and evolve a **CAS.**
- **Binary Accreditation System:** The Committee proposed a transition from the present 8-point grading system of NAAC to an Binary Accreditation System viz. **Accredited and Not Accredited.**
  - **Committee proposed, two sub- divisions in the Non-accredited category i.e. Awaiting Accreditation** (for those who are close to the threshold level) and **Not Accredited** (for those who are far below the standards for accreditation).
  - It further **proposed to mentor the Institutions** falling 'far below the standards for accreditation'.
- **Technology-driven systems:** To ensure transparency and credibility:
  - Upgrade the **'One Nation One Data Platform'** to provide adequate access control and security features, ingestion of harmonised data, etc.
- **Other proposals:**
  - **Enable Choice-based Ranking System for diverse Users** (students, funding agencies, industries etc.).
  - **Initiate a robust outreach mechanism** in tandem with effective methods of handholding the potential entrants.
  - Rather than a one-size-fits-all model in vogue currently, **categorise the HEIs based on their orientation/vision and heritage/legacy.**
  - **Simplify the Accreditation process**, especially for the first cycle, and **bring down periodicity for Re-accreditation to three years.**

Accreditation of school

- In India, there is **no mandate from the government on regular school evaluations.**
- The **NEP 2020** visualizes an effective **quality self-regulation or accreditation system for all stages of education** including pre-school education.
  - It also recommends a **separate School Quality Assessment and Accreditation Framework** be developed by State Council of Educational Research and Training (SCERTs).
- **National Accreditation Board for Education and Training (NABET)** is offering an accreditation programme called **'Accreditation standard for Quality School Governance'.**
  - NABET is the **constituent Board of the Quality Council of India (QCI).**
  - **The standard has three basic sections:**
    - ✓ School Governance
    - ✓ Educational and Support Processes
    - ✓ Performance Measurement & Improvement

Scan the QR code to know more about **Higher Education.**

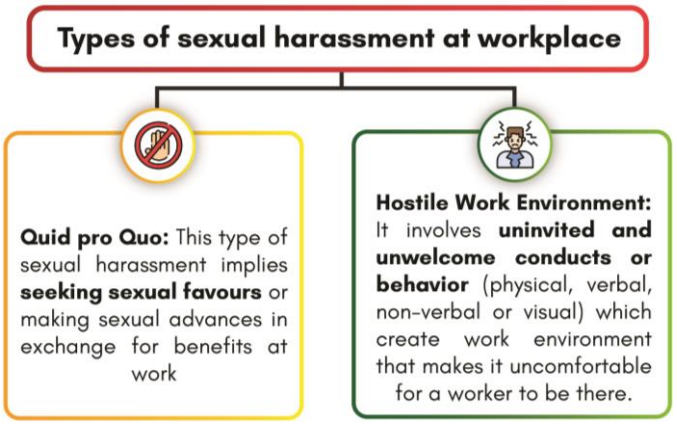
Weekly Focus #57: Higher Education in India: The Cornerstone of our Future

6.2. SEXUAL HARASSMENT AT WORKPLACE

Why in news?

Recently, the Supreme Court took the cognizance of "serious lapses" and "uncertainty" in the implementation of the Protection of Women from Sexual Harassment (PoSH) Act, 2013.

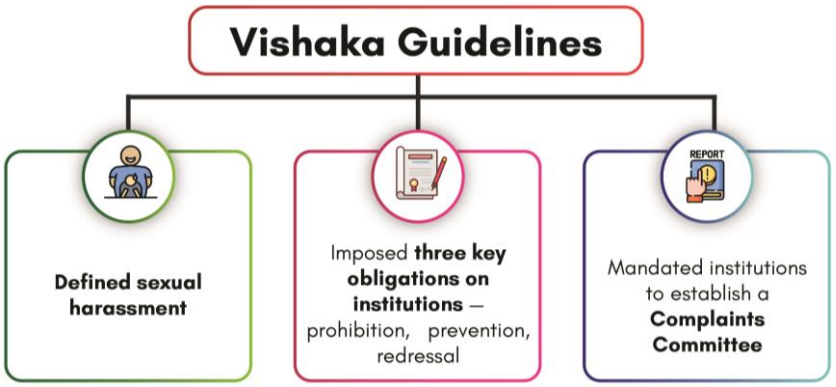
More on the news



- The cognizance came in the backdrop of a newspaper survey revealing only **16 out of 30 national sports federations in the country had constituted Internal Complaints Committees (ICC)** mandated under the 2013 Act.
- **The National Human Rights Commission (NHRC) also issued notices** to the erring sports bodies, Sports Authority of India (SAI) and the Board of Control for Cricket in India (BCCI) along with the Ministry of Youth Affairs and Sports.

About Sexual harassment at workplace

- Sexual harassment in the workplace is classified under **two main types** (refer to the infographics).
- **Cost of Sexual harassment at workplace**
  - **Individuals:** Psychological suffering; behavioral change like isolation; Stress-related physical and mental illness; and Professional losses like foregoing career opportunities.
  - **Employers/Enterprises:** Low productivity, Hindered progress and innovation, Poor image of company, etc.
  - **Society**: Women's undermined access to high-status; Legal and criminal justice expenses; Long term rehabilitation costs; etc.



- To **make workplaces safer** for women by preventing, prohibiting, and redressing acts of sexual harassment against them in the workplace '**Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act or POSH, 2013'** was enacted.
  - The Act **broadened and gave legislative backing** to what are known as the **Vishaka Guidelines** laid down by the Supreme Court in a judgment passed in **1997.**

Key Provisions of POSH Act 2013

- **Definition of Sexual harassment:** Sexual harassment includes anyone or more of the following **unwelcome acts or behaviour** (whether directly or by implication), namely:
  - Physical contact or advances;
  - A demand or request for sexual favours;
  - Making sexually coloured remarks;
  - Showing pornography;
  - Any other unwelcome physical, verbal, or non-verbal conduct of a sexual nature
- **Definition of workplace: Any place** visited by the employee arising out of or during the course of employment, **including transportation** provided by the employer for undertaking such a journey."
  - A workplace **covers both the organised and un-organised sectors.**
- **Aggrieved woman:** Covers **all women**, irrespective of their age or employment status and whether in **organized or unorganized sectors, public or private.**
  - It also covers **clients, customers and domestic workers** as well.
- **Grievance redressal mechanism**

Complaints Committee	• **Internal Complaints Committee (ICC) is mandatory in every private or public organisation that has** 10 or more employees. ○ **The ICC needs to have a** minimum of four members and at least half of them women **of whom one shall be an external member.** ○ **The ICC has powers similar to those of a civil court**.

	• **District Officer to constitute Local Committee** to receive complaints from organisations with less than 10 workers or if complaint is against the employer itself.
Procedure of filing complaint	• **Any aggrieved victim or her legal heir may file a complaint** for the ICC to take action. • The complaint must be made **"within three months from the date of the incident".** ○ However, **the ICC can extend the time limit.**
Conciliation	• The **ICC may, before inquiry, and at the request of the aggrieved woman,** take steps to settle the matter between her and the respondent through conciliation. ○ However, **"no monetary settlement"** shall be made as a basis of conciliation.
Inquiry	• The ICC may **either forward** the victim's complaint **to the police, or it can start an inquiry** that has to be **completed within 90 days.** ○ When the inquiry is completed, **the ICC must provide a report of its findings to the employer within 10 days.**
Action against the perpetrator	• If the allegations of sexual harassment are proved, the ICC will recommend to the employer to take action **"in accordance with the provisions of the service rules" of the company.**
Appeal	• If either the aggrieved woman or the respondent is not satisfied, they **may appeal in court within 90 days.**
False complaint	• The ICC "may recommend" to the employer that it take action against the woman, or the person who has made the complaint, in **"accordance with the provisions of the service rules".**
Ensuring privacy	• The identity of the **woman, respondent, witness**, any information on the inquiry, recommendation and action taken, should not be made public

Challenges in preventing sexual harassment at workplace

- **Subjectivity of the term sexual harassment:** There is no single definition which can define prohibited sexual behaviour.
  - Also, since sexual harassment involves a range of behaviors, even the victims find it difficult to explain what they experienced.
- **Dismissive attitude of organisations:** Organizations often lack comprehensive and well-communicated policies and procedures to address sexual harassment.
  - In the **absence of formal structures, women often hold back** from sharing incidents about sexual harassment.
- **Reporting barrier:** Often victim hesitate to report complaints against offenders due to concerns about potential repercussions such as job loss, social stigma, damage to family reputation, and so on.
- **Challenges of Cross-Cultural and Global Contexts**: Organizations operating in diverse cultural contexts face the challenge of addressing differing attitudes, beliefs, and legal frameworks surrounding sexual harassment.
  - Cultural norms, language barriers, and variations in legal definitions can complicate prevention efforts.
- **Shortcoming in the POSH Act:**
  - The law **protects only women,** even though victim of sexual harassment could be from any gender.
  - The law is **silent on the incidents of sexual harassment perpetrated by the same sex.**
  - Action against the perpetrator is taken by the employer based on the provisions of the **service rules of the company.** These **may vary from company to company.**

Way ahead

- **Establish ICC:** Ensure that all organizations, regardless of size or sector, establish ICCs as mandated by law.
- **Implement Effective Grievance Redressal:** Provide adequate resources to handle complaints promptly, ensuring fair investigations and appropriate actions against perpetrators.
  - **Zero tolerance policy** should be adopted within code of conduct for employees to show companies' firmness against such sexual harassment.
- **Enhancing understanding of sexual harassment:** Conduct **regular training for all staff and management** to enhance **understanding of specific behaviors** that may amount to sexual harassment.
- **Encourage Reporting:** Create a supportive environment that encourages victims to come forward without fear of retaliation.
- **Increase Public Awareness:** There must be greater involvement of public in awareness programmes to ensure victims come forward with their problems and complaints.

- **Amending the POSH Act, 2013:**
  - **A gender-neutral law** to prevent sexual harassment would have to prioritize equality, safety, and justice for all including those of **non-normative gender identities.**
  - The law must address the incidents of sexual harassment **cases involving same sex.**
  - **Action against the perpetrator** should be **defined objectively.**

6.3. NEWS IN SHORTS

6.3.1. POSHAN BHI, PADHAI BHI (PBPB) SCHEME

- Union **Ministry of Women and Child Development (WCD) launched** PBPB Scheme.
- PBPB will focus on **Early Childhood Care and Education (ECCE)** (first six years of children) at anganwadis across the country.
- **Key Highlights of the Scheme**:
  - It envisages training of anganwadi workers through the **National Institute of Public Cooperation and Child Development (NIPCCD)**.
  - It targets **children's development in every domain** mentioned in the **National Curriculum Framework**, like physical and motor development, cognitive development etc.
  - It will focus on **promoting holistic and quality early stimulation and pre-primary education** for children.
- **ECCE** refers to providing care including **health** and **nutrition** as well as early learning opportunities to all young children.
  - A **protective** and **stimulating** environment consisting of play-based and developmentally appropriate activities are vital for children's physical-motor, cognitive, socio-emotional and language development.
  - **EECE** is a crucial component of **Mission Saksham Anganwadi** and **Poshan 2.0 (Mission Poshan 2.0)** and it was foreseen under the **National Education Policy (NEP), 2020**.
- **Anganwadi centers in India**:
  - They are established under **Integrated Child Development Scheme (1975).**
  - **1.39 million operational Anganwadi centers** across the country are providing supplementary nutrition and early care and education to around 80 million children under the age of 6 years.

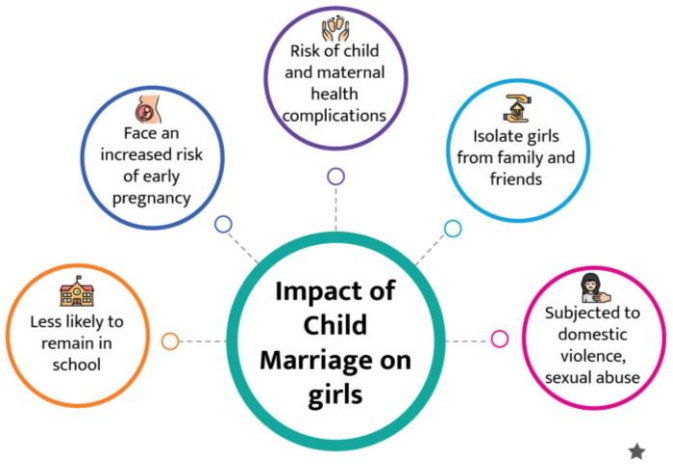
6.3.2. CHILD MALNUTRITION

- **Levels and Trends in Child Malnutrition**: Joint Child Malnutrition Estimates 2023 **released.**
- Report was jointly published by **UNICEF, World Health Organisation (WHO) and World Bank Group**.
  - It reveals **insufficient progress to reach 2025 World Health Assembly (WHA) global nutrition targets** and 2030 **Sustainable Development Goal (SDG) 2.2** (end all forms of malnutrition) **targets**.
- **Key findings**
  - In 2022, **22.3 percent** of **children under age five** worldwide were affected by **stunting (too short for his/her age)**.
    - ✓ **India had a stunting rate of 31.7 percent in 2022** (down from 41.6 per cent in 2012).
  - In 2022, an **estimated 45 million** children (6.8 percent) **under five** were affected by **wasting (too thin for his/her height).**
    - ✓ In 2020, **18.7 percent of Indian children** were **affected by wasting**, caused **by poor nutrient intake** and/or **recurrent illnesses**.
  - **37 million children (5.6 percent) under five** are **overweight** (**too heavy for his/her height**) globally.
    - ✓ **India had an overweight percentage of 2.8 percent in 2022** (2.2 percent in 2012).
- Malnutrition refers to **deficiencies or excesses in nutrient intake, imbalance of essential nutrients** or impaired nutrient utilization.
- **Indian Initiatives to tackle malnutrition:** Integrated Child Development Schemes (ICDS); Nutritional Rehabilitation Centre; Poshan Abhiyan (National Nutrition Mission) etc.

6.3.3. ISSUE OF CHILD MARRIAGE

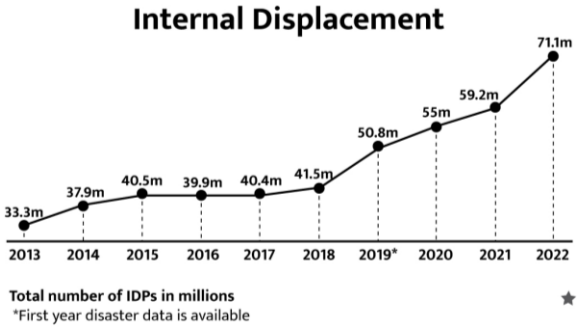
- **UNICEF has said that the Global polycrisis slow the progress to end child marriage**.
- As per the new analysis by UNICEF, **multiple crises** including **conflict, climate shocks, and the ongoing fallout from COVID-19** are threatening to **reverse hard-earned decline in child marriage** in the last decade.
- **Key highlights**
  - **Approx. 640 million girls and women** alive today **were married in childhood** or **12 million girls per year.**
  - **Global child marriage rates decreased slightly to 19%,** but progress is **insufficient to meet SDG target** of **ending child marriage by 2030.**
  - While **India has recorded significant progress** in recent decades, it **still accounts for one-third of world's child brides.**
- **Reasons for Child Marriages:** Gender inequality, social norms, poverty, lack of education, safety concerns about girl children, control over sexuality etc.

- **Initiatives taken**
  - **Prohibition of Child Marriage Act of 2006** that provides legal age for marriage.
  - **Beti Bachao Beti Padhao (BBBP) scheme** and similar schemes by state governments to improve the factors linked to child marriage.
  - **A parliamentary standing committee** is weighing the **pros and cons of raising the age of marriage for women to 21.**



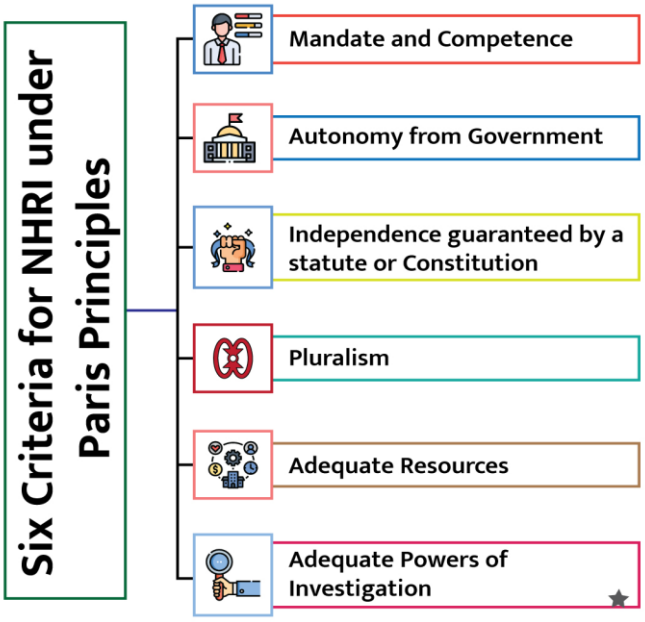
6.3.4. INTERNAL DISPLACEMENT

- **Internal Displacement Monitoring Centre (IDMC) released** its 2023 **Global Report on Internal Displacement** (GRID).
- IDMC's GRID is **world's leading source of data and analysis on Internal Displacement (ID)**. The 2023 edition includes a special focus on complex relationships between disasters, conflict and violence, food security and ID.
  - IDMC was established in **1998 as part of Norwegian Refugee Council**.
- ID refers to **number of forced movements of people within borders of their country**. Internally Displaced Persons (IDPs) are individuals/groups forced to leave their places of habitual residence to avoid conflict.
- **Key findings**
  - Total number of **IDPs reached its highest ever** with **71.1 million IDPs** across 110 countries and territories at end of 2022, a **20% increase in a year (refer image).**
    - ✓ Total IDPs in **India** include **6.31 lakh from conflict and violence while 32 thousand due to disasters.**
  - **75% of countries assessed** with **food security crises have IDPs**.
- **Recommendations**
  - **Unconditional cash assistance** for supporting immediate needs of IDPs.
  - **Developing IDPs' livelihoods and skills** to facilitate durable solutions by increasing their food security countries' self-reliance.
  - **Investments are needed in anticipatory action and risk reduction measures** that strengthen displaced communities' resilience.



6.3.5. NATIONAL HUMAN RIGHTS COMMISSION (NHRC) ACCREDITATION

- **Global Alliance for National Human Rights Institutions (GANHRI) defer** NHRC accreditation.
- **For the second time** in a row, **GANHRI deferred accreditation of NHRC** citing objections like **political interference in appointments**, **involving police in probes** into human rights violations, **poor cooperation with civil society** etc.
  - **Without the accreditation**, NHRC will be **unable to represent India at UN Human Rights Council** (UNHRC).
- GANHRI is **responsible for reviewing and accrediting** National Human Rights Institutions (NHRI) **in compliance with Paris Principles** every five years.
  - Paris Principles, **adopted in 1993** by U.N. General Assembly, helps in **development of standards for NHRI** across the world.



- In 2016 too, **NHRC's accreditation was deferred** by a year and later in **its recommendations in 2017 GANHRI asked the NHRC to address its lack of diversity** (regarding women representatives from other marginalised social groups).
    - An **amendment to Protection of Human Rights Act** in 2019 **sought to address these concerns**.
        - ✓ It **increased members of NHRC** and **made chairpersons** of National Commission for Backward Classes and National Commission for Protection of Child Rights, and Chief Commissioner for Persons with Disabilities **deemed members of NHRC**.

About Global Alliance of National Human Rights Institutions (GANHRI)

- It was **established in 1993 as International Coordinating Committee** of National Institutions for promotion and protection of human rights (ICC).
- **General Assembly** is GANHRI's **supreme deliberative body**.
- **Bureau is the GANHRI executive committee**. It is comprised of 16 members, 4 from each of GANHRI regional networks of Africa, Americas, Asia-Pacific, and Europe.
- **HQ:** Geneva, Switzerland.

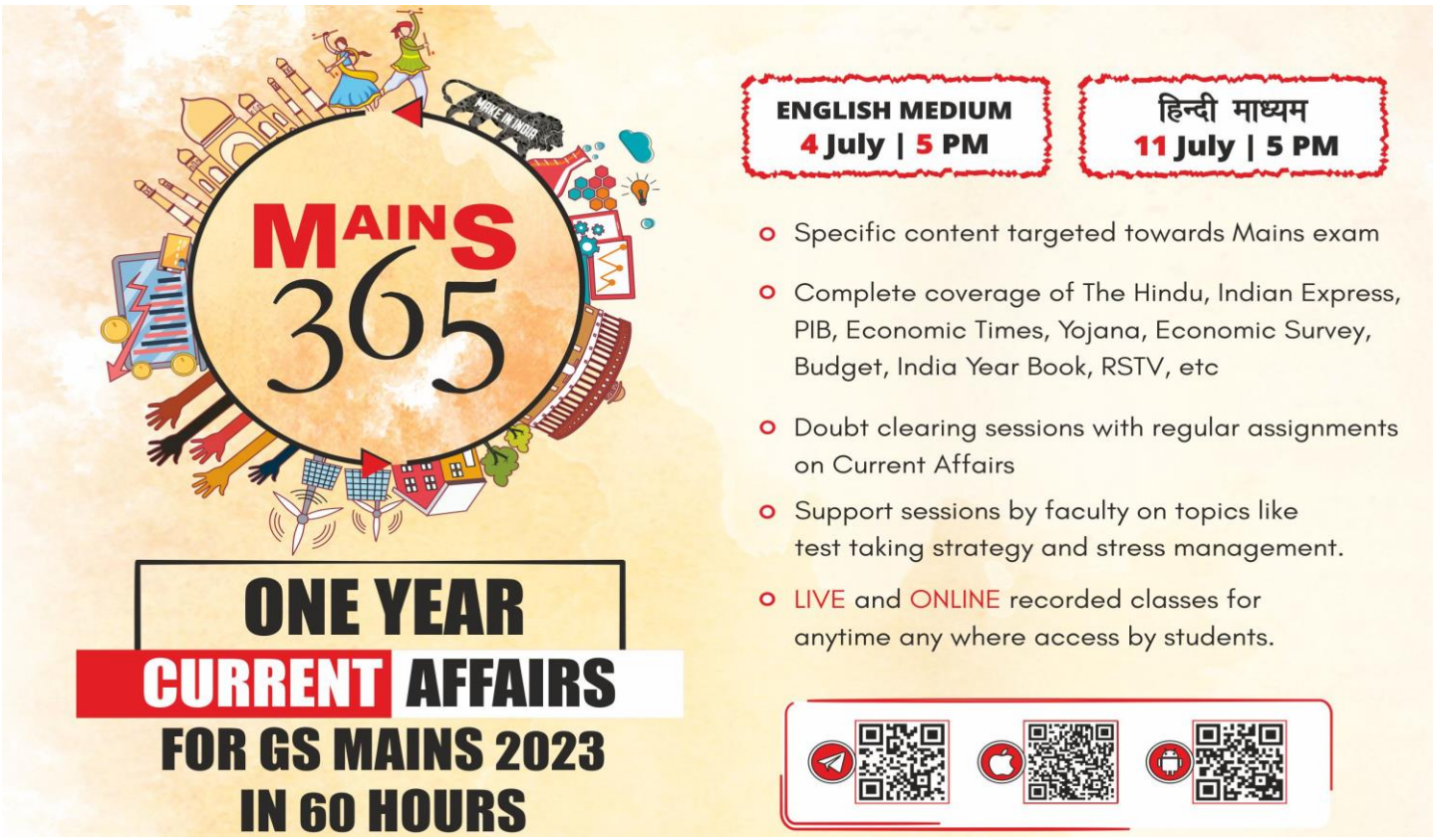
6.3.6. SAKSHAM LEARNING MANAGEMENT INFORMATION SYSTEM (LMIS)

- **Ministry of Health and Family Welfare** has launched the SAKSHAM (Stimulating Advanced Knowledge for Sustainable Health Management) LMIS.
    - It has been developed by the **National Institute of Health & Family Welfare (NIHFW)**, New Delhi.
- SAKSHAM is a **dedicated and unified platform** for providing **online training and medical education** to all health professionals in the country.
    - It will ensure **inclusive capacity building of health professionals** from primary health centres located in rural and remote areas all the way up to tertiary care and corporate hospitals in metropolitan cities.

QUIZ

SMART QUIZ

You can scan this QR code to practice the Smart Quiz of Environment at our open test online platform for testing your understanding and recalling of the concepts.



7. SCIENCE AND TECHNOLOGY

7.1. THREE PARENT BABY

Why in news?

Recently, a baby has been born using three people's DNA in the UK with help of **Mitochondrial Donation Treatment (MDT) procedure.**

About Mitochondrial Donation Treatment (MDT)

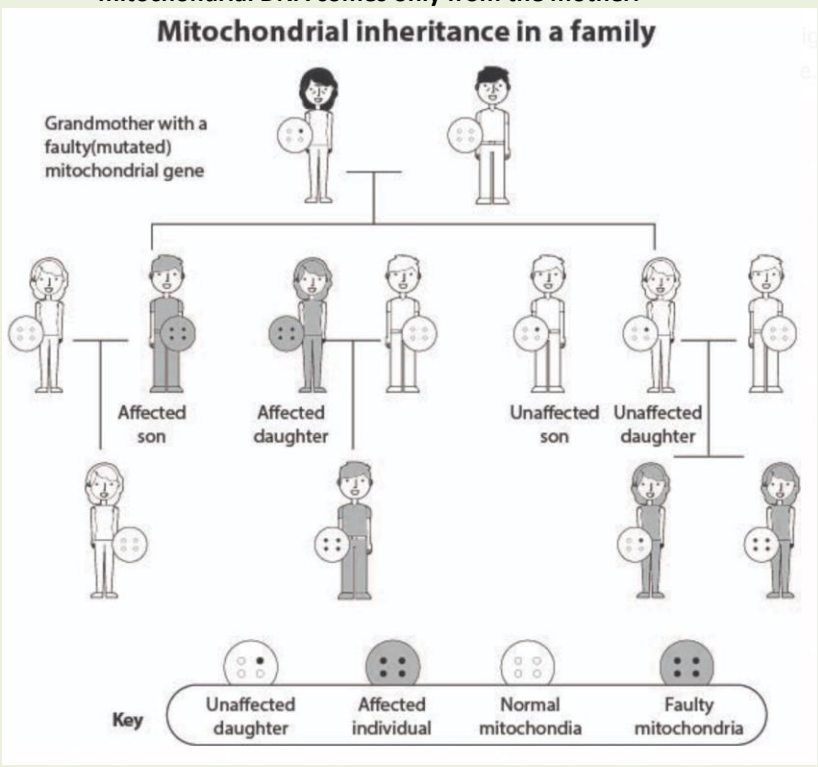
- MDT is a technique in which a **child is conceived from IVF (in vitro fertilization)** using the **genetic material of the parents** and the **mitochondrial material of a donor**.
- It works on the **principle** in which the **diseased mitochondria are replaced by healthy mitochondria in order to avoid transfer of mitochondrial diseases** from the **mother to the offspring.**
    - **Passing on mitochondrial diseases** from parent to child can be **prevented by MDT either before or after IVF of the egg.**
- It is also known as **Mitochondrial Replacement Therapy (MRT)** and **Three-parent babies Process** (due to involvement of three persons).
- **Mechanism:**
    - **Embryos** combine sperm and egg from the **biological parents** with tiny battery-like structures called **mitochondria** from the donor's egg.
    - Resulting baby has **DNA** from the **mother** and **father** as usual, plus a **small amount of genetic material (about 37 genes) from the donor.**

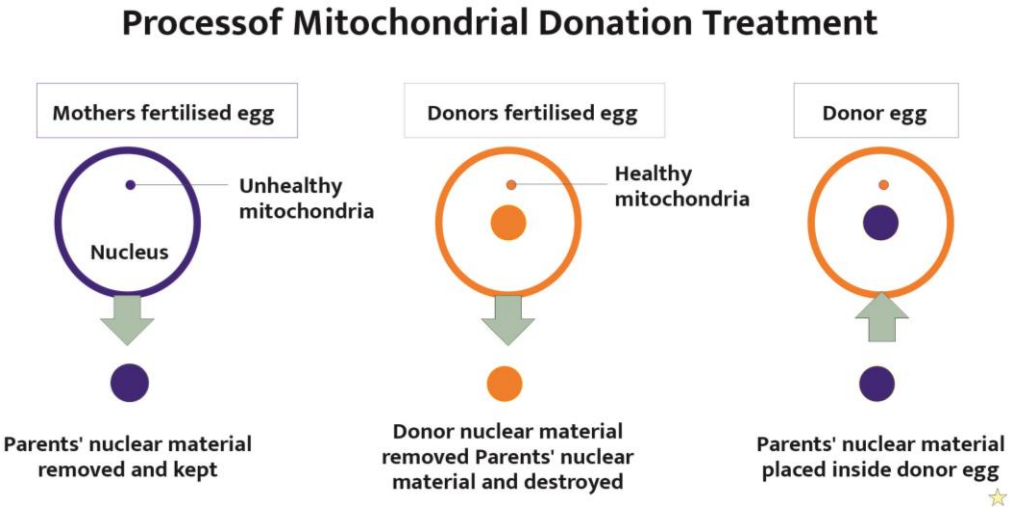
Most common techniques in the mitochondrial donation

- There are two common techniques i.e**., MST and PNT.**
    - In both techniques, **eggs or embryos are created using nuclear genetic material** and **healthy donated mitochondria**.

Mitochondria and Mitochondrial Diseases

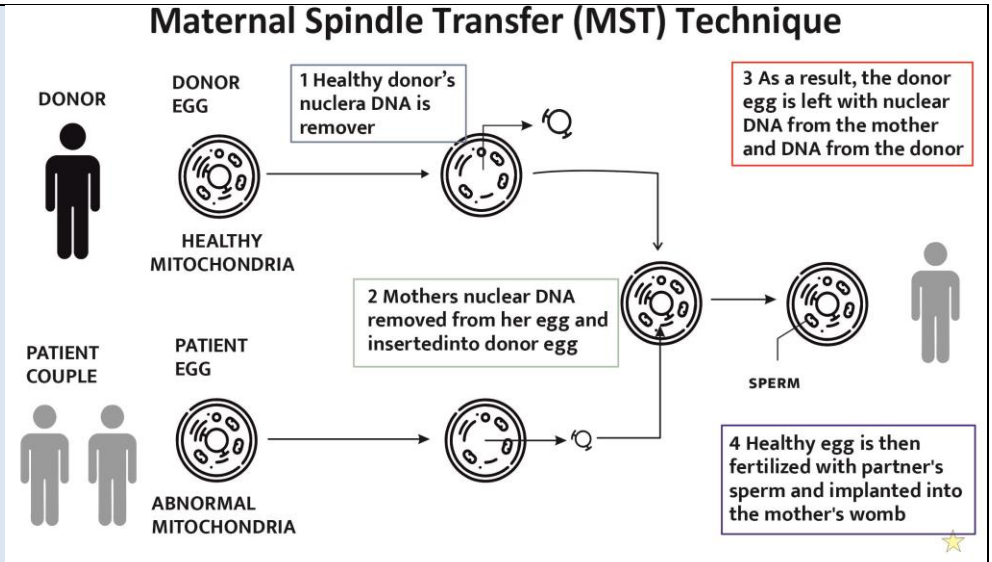
- **Mitochondria** are basically the **powerhouses of the cells**. They **generate the energy**, and thus are also **responsible for cell function in the human body**.
- **Certain defects might occur** impacting on the way the mitochondria produce energy for the cells and thereby impacting cell function.
    - The **diseases that arise out of such mitochondrial mutations are called mitochondrial diseases**.
    - **When the mitochondria are impaired** and do not produce sufficient energy, that affects how the organs function, leading to a broad assortment of symptoms across the body, including **brain damage, organ failure and muscle wastage**.
    - Unlike nuclear DNA, which comes from both parents, **mitochondrial DNA comes only from the mother.**

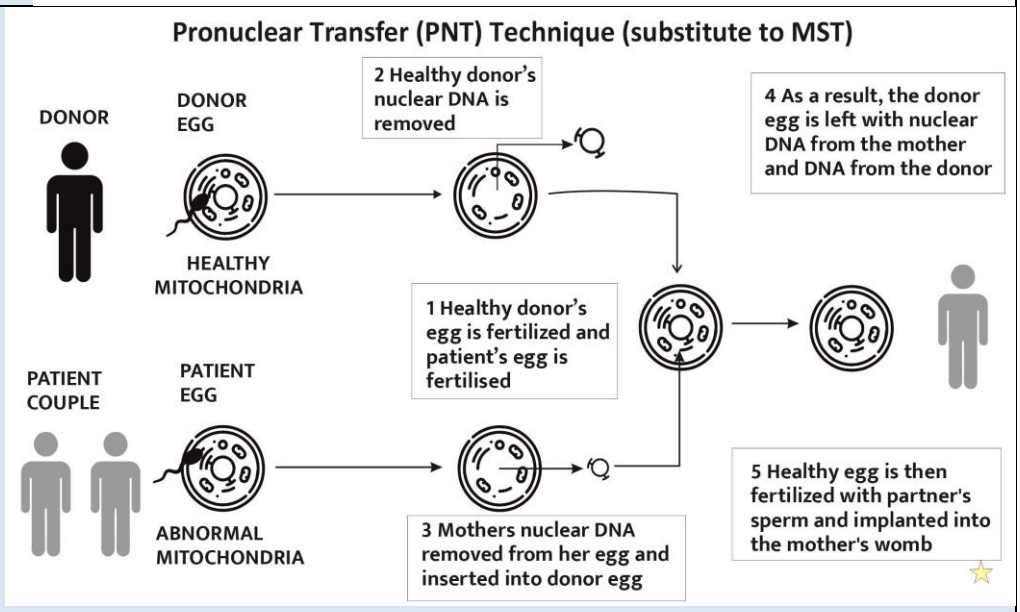




- In both MST and PNT, the resulting embryos would contain parent's genetic material. Both techniques work equally well.

Maternal Spindle Transfer (MST) Technique	Nuclear genetic material is removed from eggs and transferred into donated eggs which have had their nuclear genetic material removed. The eggs are then fertilised with sperm to create embryos.
Pronuclear Transfer (PNT) technique (substitute to MST)	Eggs are fertilised with sperm in a lab to create embryos. The nuclear genetic material within each embryo is then transferred into embryos created using donated eggs and sperm from the sperm provider. Again, the nuclear genetic material will have been removed from the donated eggs.





Benefits of Mitochondrial Donation Treatment (MDT)

- **Disease Prevention:** As there are no effective treatments for mitochondrial diseases that can cause severe health issues, MDT offers a chance for a healthier life for a baby.
  - About **one in 6,000 babies are affected** by mitochondrial disorder.
- **Genetic Connection:** MRT can assist older women with poor quality eggs to have a biologically related child by retaining the woman's nuclear DNA while using mitochondria from a younger donor.

Ethical concerns associated with MDTs

- **Potential for 'Designer Babies'**: As MDTs involve genetic modification, they could potentially open the door to the creation of "designer babies" - embryos genetically engineered for preferred characteristics.
  - This brings up a **multitude of ethical concerns related to eugenics and potential misuse of the technology.**
  - **Eugenics** refers to **the selection of desired heritable characteristics** in order to improve future generations, typically in reference to humans.
- **Issue of Mitochondrial Donor's role in child's life:** The donor play's a significant role in child's healthy conception, but their contribution is limited to the initial stage.
  - This creates ambiguity vis-à-vis donor's biological claim on the child or involvement in their life.

- **Reproductive Freedom:** MRT can benefit same-sex female couples seeking a child genetically related to both, with one woman providing nuclear DNA and the other providing mitochondrial DNA.

Issues with Mitochondrial Donation Treatment:

- **Effectiveness Concerns:** The dynamic nature of mitochondria and potential residual damaged mitochondria after transfer could compromise MRT's effectiveness and long-term benefits.
- **Incompatibility Risks:** Potential incompatibility between donor's mitochondria and receiver's nuclear genome could pose challenges.
- **Lack of Data:** MRT is in its experimental stages with inadequate data on potential adverse effects, making careful application critical.
- **Impact on Child:** There are concerns that MRT could influence a child's personality, including potential neurological changes, and pose risks such as developmental disability and increased cancer risk.
- **Cost Barriers:** MRT is a costly procedure, making it inaccessible to many sections of society.

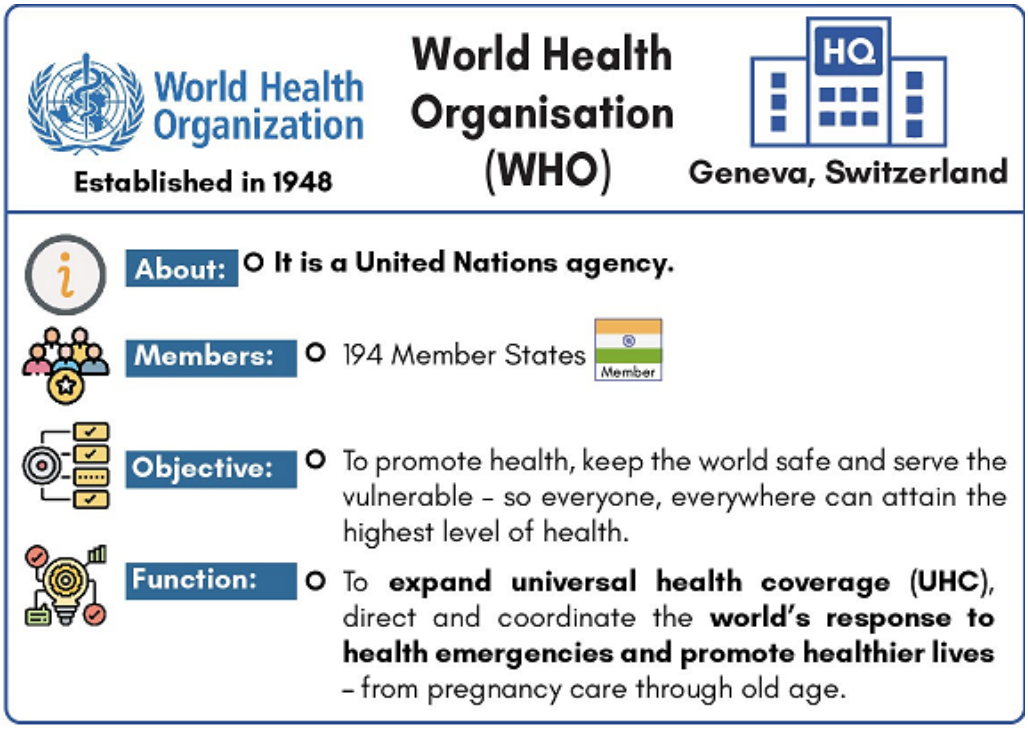
Conclusion

If MDT technique is to be implemented in the country, there should be a regulatory body that **governs its usage to avoid any unethical practises**. Proper clinical trials are the need of the hour **for data to be collected on the safety and efficacy** of the technique being used.

7.2. ANTIMICROBIAL RESISTANCE (AMR)

Why in News?

Recently, **WHO** in partnership with the **Global AMR R&D Hub**, has released **'Incentivizing the development of New Antibacterial Treatments 2023'** Report.



More about News

- Report is for the **G7 countries monitoring and handling of AMR.**
- **About Global AMR R&D Hub**
  - It is a partnership of **countries**, **non-governmental** donor organizations and **intergovernmental organizations.**
  - It was launched in **2018**, to address challenges and improve coordination and collaboration in global AMR R&D using a One Health approach.

About Antimicrobial Resistance (AMR)

- **According to WHO**, AMR occurs when **bacteria, viruses, fungi and parasites** change over time and no longer respond to medicines making infections harder to treat and increasing the risk of disease spread, severe illness and death.
- As a result, the **medicines become ineffective and infections persist in the body**, increasing the risk of spread to others.

Facts about AMR

24 million
people may be pushed into extreme poverty

Top 10 threats
for global health (as per WHO)

- **Example**- Klebsiella pneumoniae which is resistant to both Carbapenem and third-generation Cephalosporin.

Drivers of AMR

- Misuse and overuse of antimicrobials
- Lack of access to clean water, sanitation and hygiene (WASH) for both humans and animals;
- Poor infection and disease prevention and control in health-care facilities and farms;
- Poor access to quality, affordable medicines, vaccines and diagnostics;
- Lack of awareness and knowledge
- Lack of enforcement of legislation.

Antimicrobials: a simple overview

Antibiotics (also known as antibacterials)
Prevent or treat infections caused by **Bacteria** such as cellulitis, Urinary Tract Infection, tuberculosis (TB), Sexually Transmitted Infections (STIs) like gonorrhoea

Antivirals
Prevent or treat infections caused by **Viruses** such as colds, flu, chickenpox/shingles, COVID-19 or HIV

Antimicrobials
are medicines used to prevent and treat infections caused by microorganisms in humans, animals and plants

Antifungals
Prevent or treat infections caused by **Fungi** such as thrush, ring worm and athlete's foot

Antiparasitics
Prevent or treat infections caused by **Parasites** such as malaria, threadworm and headlice

An antimicrobial drug works against **only one** type oforganism

AMR in India

- **India tops the list of countries** with the **highest antibiotic consumption**, and **highest AMR**
- The Lancet paper detailed **five pathogens** that were defeating some of the most effective antibiotics in the country
  - **Staphylococcus aureus, Mycobacterium tuberculosis, Escherichia coli, Acinetobacter baumannii, Klebsiella pneumonia.**
- As per **5th detailed report on antimicrobial resistance (AMR)** by the ICMR, resistance level is increasing to **5 to 10% every year** for **broad-spectrum antimicrobials** which are highly misused.

Consequences of AMR

- **Higher medical costs** because of higher costs of second-line drugs.
- **Prolonged** hospital stays as available drugs take to more time to cure the disease.
- **Increased mortality,** As per Lancet report AMR is a leading cause of death worldwide and is killing about 3,500 people every day.
- **Rise of Superbugs** (refers to a germ that has formed resistance to multiple drugs) for Example-**Methicillin-resistant Staphylococcus aureus (MRSA).**
- **Economic Cost**, in the next decade, AMR could result in a GDP shortfall of at least **USD 3.4 trillion** annually

Key highlights of Report

- **Among the top 10 global public health threats facing humanity:** AMR is associated with the deaths of **4.95 million people in 2019** which is more than HIV or malaria.
- **Threat to the global economy impacting**: International trade, health care costs, etc. and could cost the world's economy **USD 100 trillion** by **2050**.
- **Insufficient R&D:** R&D pipeline for new antibacterials is "**insufficient**" to tackle the challenge of increasing emergence and spread of antibiotic resistance.
- **Poor return for developing new antibiotic:** There is no viable market for novel antibiotics, that's why **new 'reserve' antibiotics fails to cover the costs** of their development, manufacturing and distribution.

Other factors leading to AMR

- **Triple planetary crises:** It refers to the three main interlinked issues that humanity currently faces: climate change, pollution and biodiversity loss.
  - **Climate change and AMR:** A warmer global climate may also lead to more widespread resistance, as higher temperatures can **encourage the rate at which genes are transferred** from microbe to microbe.
    - ✓ In addition, the **extreme weather**, due to climate change**, can trigger the failure of the barriers**, such as sewers, between humans and virulent microorganisms.
  - **Biodiversity loss and AMR:** The loss of biodiversity, even at the microbial level, can as well develop AMR among microbes.
  - **Pollution and AMR:** Effluent from the pharmaceutical industry, hospitals, human waste and agriculture exposes germs to the drugs, giving them more chances to evolve resistance to them.
    - ✓ The pollutants such as heavy metals like zinc can also prime the development of resistance to important antimicrobials.
- **Covid 19 Pandemic**: Pandemic has accelerated AMR because of the widespread consumption of antibiotics during the various waves.
- **Anti-Biotic use in Animals reared for Human Use:** Eating animal meat is similar to ingestion of tablets which ultimately leads to AMR.

Global Steps to handle AMR

- **Global Action Plan on Antimicrobial Resistance (GAPAR) by WHO**: It aims to ensure continuity of successful treatment and prevention of infectious diseases with effective and safe medicines
- **AWaRe (Access, Watch, Reserve) Tool:** It was developed by the WHO Essential Medicines List to contain rising resistance and make antibiotic use safer and more effective.
- **Global Antimicrobial Resistance and Use Surveillance System (GLASS) by WHO**: Launched in 2015 to foster AMR surveillance and inform strategies to contain AMR.

Steps Taken by India

- **National Action Plan on containment of Antimicrobial Resistance (NAP-AMR) was launched on 2017:** It focuses on an integrated One Health approach and involves coordination among various sectors at the state, national and international level.
- **Delhi Declaration on AMR:** It is an inter-ministerial consensus, was signed by the ministers of the concerned ministries pledging their whole-hearted support in AMR containment.
- **AMR Research & International Collaboration:** ICMR has taken initiatives to develop new drugs /medicines through international collaborations in order to strengthen medical research in AMR.
- **Initiatives to increase awareness about antibiotics misuse:**
  - Banned 40 **fixed dose combinations (FDCs)** which were found inappropriate.
  - **Antibiotic Stewardship program (AMSP)** to control misuse and overuse of antibiotics in hospital wards and ICUs.

Suggestions to handle AMR

- **Enhance environmental governance, planning and regulatory frameworks:** Specific actions should include developing legislation, codes of good practice and policy guidance to support action to reduce and minimize environmental releases of AMR relevant pollutants.
  - Example- **Sweden** appointed world's first AMR ambassador.
- **Transparency and Accountable system:** To have systems that allows consumers to hold producers accountable for prudent antimicrobial use.
- **Identify and target priority AMR relevant pollutants:** Reduce releases of chemical and biological pollutants affecting AMR in the environment and address their origins.

- **Improve reporting, surveillance and monitoring:** As part of plans to mitigate discharges of antimicrobials into the environment, it is essential to measure the impact of antimicrobial pollution on biodiversity and integrate environmental monitoring data.
- **Prioritize financing, innovation and capacity development:** Need to introduce innovative and sustainable financing to address AMR. Such as elimination of distorting subsidies in agriculture.
- **Multi-sectoral One Health response:** A One Health response to AMR will not only help reduce the risk and burden of AMR on societies but will also help address the triple planetary crisis.

Related News

Fungal diseases in plants

- According to a study published in the journal Nature, global crop growers have experienced a 10-23% loss in crops due to fungal diseases.
  - The **five most important crops** (**rice, wheat, maize, soyabeans and potato**) are vulnerable to fungal diseases such as **rice blast fungus, wheat stem rust, corn smut, soybean rust and potato late blight**.
- **About Fungal disease in plants:**
  - Fungi can be **single celled or multicellular** organisms.
  - Fungi cause the great majority, estimated at two-thirds of infectious plant diseases.
  - They include all **white and true rusts, smuts, needle casts, leaf curls, mildew, sooty moulds and anthracnose.**
  - **Sources**:
    - ✓ Sources of fungal infections are **infected seed, soil, crop debris, nearby crops and weeds**.
    - ✓ Fungi are spread by **wind and water splash**, and through the movement of **contaminated soil, animals, workers, machinery, tools, seedlings, and other plant material**.
    - ✓ They enter plants **through natural openings** such as stomata and **through wounds** caused by pruning, harvesting, hail, insects, other diseases, and mechanical damage.
- **Concerns associated with Fungal infections**
  - The devastating impact of fungal diseases will **worsen due to climate change**.
    - ✓ The rising temperatures are causing fungal infections to **move steadily towards the poles**, about seven kilometres a year.
    - ✓ For ex, **wheat stem rust infections**, usually reported in tropical countries, have been found in **England and Ireland**.
  - Higher temperatures encourage the **development of new fungal pathogen variants**.
  - **Practising monoculture** has enabled the fungus to **quickly evolve and develop resistance** to the fungicides.
  - The **spike in the use of antifungals** in agriculture, is leading to more fungicide-resistant pathogens.
  - Fungal diseases in crops **threaten food security.**

7.3. NON-COMMUNICABLE DISEASES (NCDS)

Why in News?

Ministry of Health and Family Welfare (MoHFW) released **Strategic Operational Guidelines for National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD) 2023-203** for the management of non-communicable diseases in India.

Other Initiatives launched during event

- **75/25 initiative launched:** 75 million people with hypertension and diabetes to be put on Standard Care by 2025, through the PHCs.
  - It is the largest cover of NCDs in the world for primary healthcare.
- **Shashakt Portal** was launched for training of 40,000 Primary Health Care Medical Officers on Standard Treatment Workflow for NCDs initiated to realize health care services closer to the community.

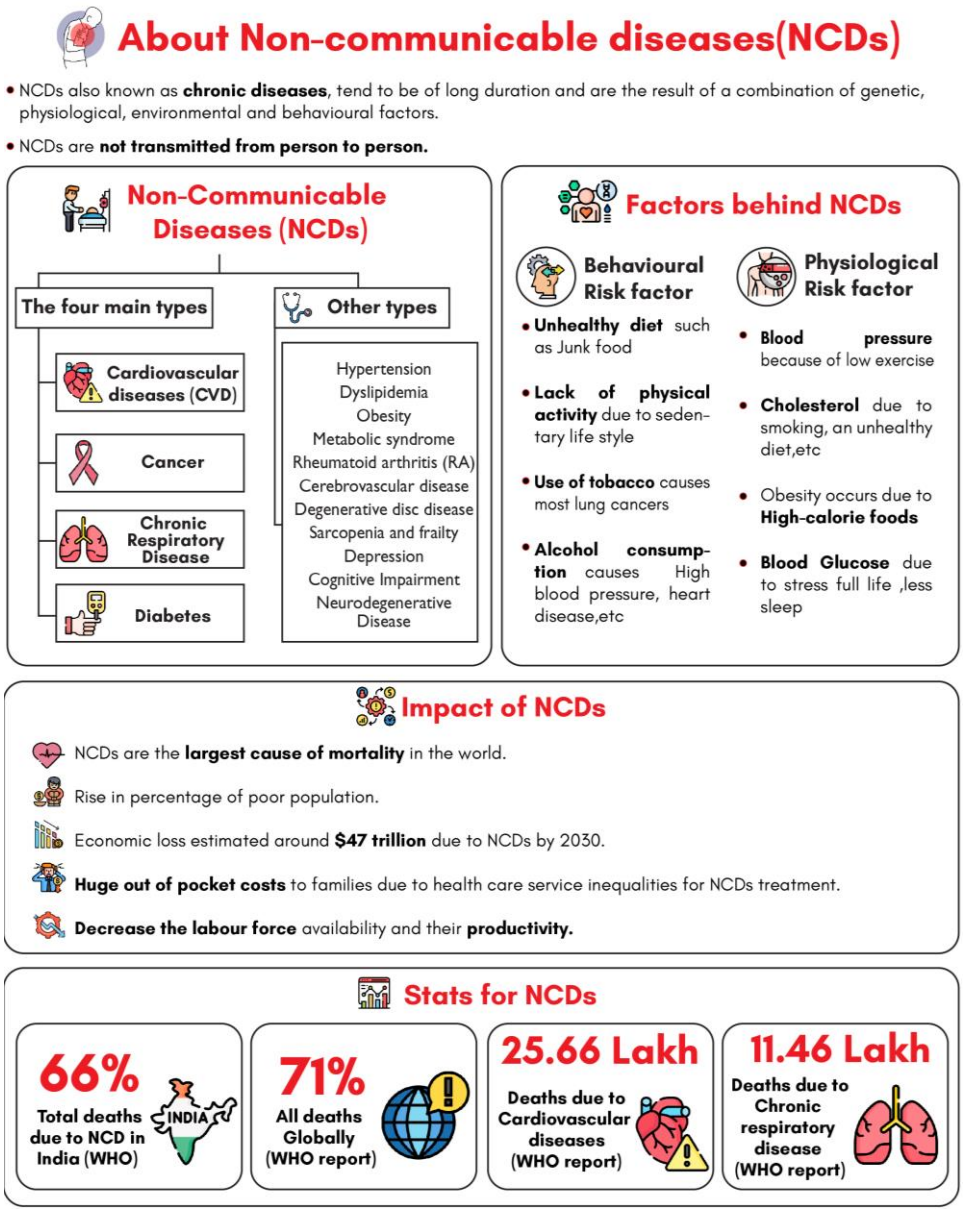
About the Guidelines

- Guidelines were released on the occasion of **World Hypertension Day** and as a part of a **G20 co-branded** event**.**
- **Key Highlights of the Guidelines**
  - **Focus** on **primary and secondary prevention clinical** support for NCDs.
  - The existing **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke** (**NPCDCS**) programme has been renamed **National Programme for Prevention & Control of Non-Communicable Diseases (NP-NCD).**
    - ✓ **Also, widening the ambit of the programme** by including Chronic Obstructive Pulmonary Disease (COPD) and Asthma, Non-Alcoholic Fatty Liver Disease (NAFLD), Pradhan Mantri National Dialysis Programme (PMNDP) etc.

- **Comprehensive Primary Healthcare Non-Communicable Disease (CPHC NCD IT)** portal renamed as **National NCD Portal.**
  - ✓ Portal enables population enumeration, risk assessment, and screening for five common NCDs.

Challenges in handling NCDs in India

- **Lack of trained human resources**: As per the Ministry of Health and Family Welfare country had only one doctor for every 1,457 people, although WHO recommends a doctor patient ratio of 1:1000.
- **Low budget allocation and utilisation:** For example, Union Budget 2023-24, budget has cut funding for non-communicable disease control programmes to Rs 289 crore from last year's outlay of Rs 500 crore.
- **Poor implementation plans:** Such as lack of comprehensive information pool and management information system to efficiently monitor the reach and implementation progress of the national NCD programme.
- **Poor adherence to medications:** For example -one in two patients do not take their treatments as directed, and one-third of patients who take medicines stop their treatments earlier than directed.
- **Changing Lifestyle:** Due to sedentary lifestyle in urban areas and it is driven by unchallenged aggressive marketing strategies of unhealthy foods and beverages and alcohol industry.



Differences between Communicable and Non- communicable diseases

	Communicable Diseases	Non-communicable diseases
Causes	**Highly infectious pathogens** and carriers spread these diseases	Causes include **allergies, malnutrition**, illness brought on by internal factors, **changes in lifestyle** and surroundings, abnormal cell growth, etc.
Transmitting Agent	Viruses, bacteria etc.	Nil
Role of Inheritance	**Cannot be passed** down from one generation to another	**Can be inherited** through generations
Disease Type	**Develop immediately** and is acute	**Develops over a period of time** and lasts longer, it is fatal
Treatment	**Traditional methods** may work	Surgically or **specialized treatments**
Examples	Tuberculosis, Malaria etc,	Alzheimer's disease,Hypertension,Asthma etc.

Initiatives taken by India to curb NCDs

- **National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke** (**NPCDCS) Programme**: It was launched in 2010 by Ministry of Health and Family Welfare was launched under the **National Health Mission (NHM).**
  - Programme is being implemented to address **common NCDs** like Cardiovascular Diseases, hypertension, etc.
- **National Action Plan**: By Ministry of Health and Family Welfare launched in response to the "**WHO Global Action Plan for the Prevention and Control of NCDs 2013-2020**".
  - Aimed at reducing the number of global premature deaths from NCDs by **25% by 2025.**

Global Initiatives for NCDs

- **Global Coordination Mechanism on Non-communicable Diseases:** By **WHO**, which plays an important role in promoting action between governments, civil society organizations and other players working to improve health by preventing and controlling.
- **Non-communicable Disease (NCD) Data Portal:** Aims to raise awareness on progress in tackling NCDs and their risk factors and strengthen accountability for action by countries.

- **Preventive Steps:** This aspect of NCDs is strengthened under **Comprehensive Primary Health Care** through **Ayushman Bharat Health Wellness Centre** scheme, by promotion of wellness activities and targeted communication at the community level.
- **Healthy Diet:** Healthy eating is also promoted through **Food Safety and Standards Authority of India (FSSAI)** through **Eat Right India movement**, which will help to develop healthy dietary plan and hence reduces chance of NCDs.
- **Physical Activity: Fit India movement** is implemented by Ministry of Youth Affairs and Sports for improving physical activity.
- **Union Budget 2023-2024 Outcome based Budgeting:** Government has for the first time **i**ntroduced hypertension and diabetes treatment as output indicators reflecting government's commitment to scale-up hypertension and diabetes coverage services.

Suggestions moving forward for NCDs

- **Multi stakeholder approach:** For Example, Civil society can help increase awareness and educate the public on healthy lifestyles.
- **Improving access to healthcare:** Improving access to quality healthcare, including affordable medications and essential medical services, can help manage and treat NCDs effectively.
- **Engaging communities:** Engaging communities in the prevention and management of NCDs can be effective in raising awareness and promoting healthy behaviors.
- **Implementing policies and regulations:** Policies and regulations that limit exposure to risk factors for NCDs, including tobacco and alcohol use, can be effective in preventing these diseases. For example- increasing taxes on tobacco and alcohol products etc.
- **Private sector participation:** Collaboration of public and private sectors to address the growing burden of NCDs. The private sector can also play a remarkable role in promoting healthy products and services
- **Regional collaboration:** Countries in the Southeast Asia region need to create a new and effective regional roadmap to accelerate NCD control.
- **Focus should be on prevention:** Greater effort should be put into prevention which includes lifestyle changes through eating good food, exercising and other wellness practices.

7.4. GENERIC DRUGS

Why in News?

Recently, **Ministry of Health and Family Welfare** issued an alert to all the doctors in the Central Government Hospitals/ Central Government Health Scheme (CGHS) Wellness Centres / Polyclinics to prescribe generic medicines only.

About Generic Medicine

- A generic Medicine/drug is **a medication created to be the same as an already marketed brand-name drug** in dosage form, safety, strength, route of administration, quality, performance characteristics, and intended use.
- It works in the **same way and provides the same clinical benefit as the brand-name medicine.**

- Presently, there is **no definition of generic or branded medicines under the Drugs & Cosmetics Act, 1940 and Rules, 1945**.
- **Regulation of Generic Medicines in India**
    - **Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations, 2002 by Medical Council of India:** It prescribes that every physician should prescribe drugs with generic names legibly and preferably in capital letters and he/she shall ensure that there is a rational prescription and use of drug.
    - **National Medical Commission Act, 2019 by Ministry of Health and Family Welfare:** Empowers the appropriate **State Medical Councils** or **Ethics and Medical Registration Board (EMRB**) of the Commission, to take disciplinary action against a doctor for violation of the provision of the aforesaid Regulations.
    - **Drugs and Cosmetics Rules, 1945 amendment by Ministry of Health and Family Welfare:** For making it mandatory to grant license for a drug formulation containing single active ingredient in proper name only.
    - **Drugs Technical Advisory Board of India (DTAB)**: It allows pharmacies to sell generic medicines to patients even if the prescriptions specify the branded versions.
        - ✓ DTAB is the **highest decision-making body** under the **Ministry of Health and Family Welfare** on technical matters related to drugs.

Differences between Branded Drugs and Generic Drugs

Features	Branded Drugs	Generic Drugs
Patents	Patent protected	Off Patent
Clinical study	Essential to perform	Not required to perform as they contain same active ingredient
Price	Costly	Cheaper than branded drugs
Appearance (color, Shape, Size)	Unique look as design during product development	Need to have different appearance than branded drugs
Manufactured by	Manufactured and developed by innovator company	By Several pharmaceutical industries
Examples	Crocin	Paracetamol

Status of Pharmaceutical in India

- The Pharmaceutical industry in India is the **3rd largest** in the world in terms of volume **and 14th largest** in terms of value.
- India is the **largest provider** of generic medicines globally, occupying a 20% share in global supply by volume.
- **Economic Survey 2022-23 estimated India's domestic pharmaceutical market to touch $130 billion by 2030.**

Initiatives to promote Generic Medicines

- **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP**) **in 2008 by Ministry of Chemicals and Fertilizers**: Under which PMBJP Kendras across the country will make quality generic drugs and implants accessible at affordable prices.
- **National Health Mission (NHM) in 2008 by Ministry of Health & Family Welfare:** Support is provided for provision of essential generic drugs free of cost in public health facilities.
- **Production Linked Incentive (PLI) Scheme by Ministry of Chemicals and Fertilizers:** PLI Scheme for Promotion of Domestic Manufacturing of critical Key Starting Materials (KSMs)/ Drug Intermediates and Active Pharmaceutical Ingredients (APIs).

Reasons for promoting Generic Medicines

- **Improve medicine affordability:** Generic medicines cost less than brand-name medicines and have the same **therapeutic effect**.
    - **As per Economic Survey 2022-23, about 48.2% (2018-19) of total health expenditure** in India is financed by household out-of-pocket expenditure.
    - Medicines constitute **20% to 60%** of total healthcare expenditure.
- **Creates competition:** Multiple generic drugs are often approved for the same single product; this creates competition in the marketplace, typically create more options.
- **Expanding geriatric population and rising comorbidities:** It helps in improving the accessibility and availability of critical medicines.
- **Developing pharmaceuticals sector:** Under Make in India initiatives government promoting pharmaceuticals sector and generic medicine provide the opportunity for the same.
- **Expanding Generic medicine export market:** Currently, India supplies over **50% of Africa's** requirement for generics, **~40% of** generic demand in the **US** and **~25%** of all medicine in the **UK**.

Challenges in promoting Generic Medicines

- **Illegitimate drugs:** In 2018, the Central Drug Standard Control Organization (CDSCO) identified nearly **4.5%** of all generic drugs circulated in the **domestic market to be substandard.**
- **Lack of quality testing facilities:** Drug control procedures in India suffer from the lack of fund, resources, and manpower.
- **Counterfeit medicines sellers:** They operate at the retail level and procure the substandard medicines from **dubious suppliers**.
- **Perception of Patient:** There is negative perception in the patient that the quality of the medicine directly depends on the cost of it.
- **Ever-greening of Patents:** Big pharmacy companies maintain their monopoly on drug and revenue by doing minor reformulations or other iterations of the drug, **without necessarily increasing the therapeutic efficacy.**
  - In India (under **Indian Patent Act, 1970),** patents are granted for a maximum term of **20 years only.**
- **Import dependency for Key Starting Materials (KSMs)/Active pharmaceutical ingredients (API):** India is heavily dependent on other countries for active pharmaceutical ingredients (API) and other intermediates. Example-around 70-80% of the APIs are imported from China.
  - **KSMs-**A raw material, intermediate or an API that is used in the production of an API and that is incorporated as a significant structural fragment into the structure of the API.
  - **API-**Any substance or mixture of substance intended to be used in the manufacturing of a drug(medicinal) product and that, when used in the production of a drug, become an active ingredient of the drug product.

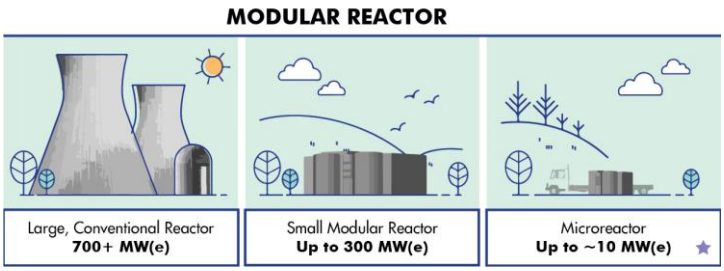
Way Forward

- **All Stakeholder approach:** Drugs Controller General of India (DCGI) should work in close association with the pharmaceutical companies and local drug control authorities to control illegitimate drugs from market.
- **Clear categorization:** DCGI must state clearly whether the drug is of poor quality or is it a counterfeit drug. This can help to great extent address the issue of fake drugs.
- **Use of New Technology:** Anti-counterfeiting technology can assist with product authentication, tamper-resistant packaging and track and trace technology.
- **Awareness about Generic drugs:** Use Information and Communication Technology for awareness generation among the patient about the drugs and **Pradhan Mantri Bhartiya Janaushadhi Pariyojana (PMBJP**) Kendras.
- **Strong Regulatory Framework:** India needs a strong regulatory framework that not only ensures people in the country have access to quality generic drugs but also promises the inflow of innovative drugs and medicines from across the world.
- **Providing Compulsory licensing:** Right to access of generic drugs is a human right and not granting compulsory licensing to such drugs would lead to restricting their production and access.
  - **Compulsory licensing** is when a government allows someone else to produce a patented product or process without the consent of the patent owner or plans to use the patent-protected invention itself.
  - It is one of the flexibilities in the field of patent protection included in the WTO's agreement on intellectual property — the **TRIPS (Trade-Related Aspects of Intellectual Property Rights) Agreement.**
- **Realigning Production Linked Incentives (PLI) for pharmaceuticals in 2021:** As the products covered under this scheme, the import dependence is already quite low.
  - Also, the **cost of domestic production** of these APIs becomes many times more than that of the cost of imports.

7.5. SMALL MODULAR REACTORS (SMRS)

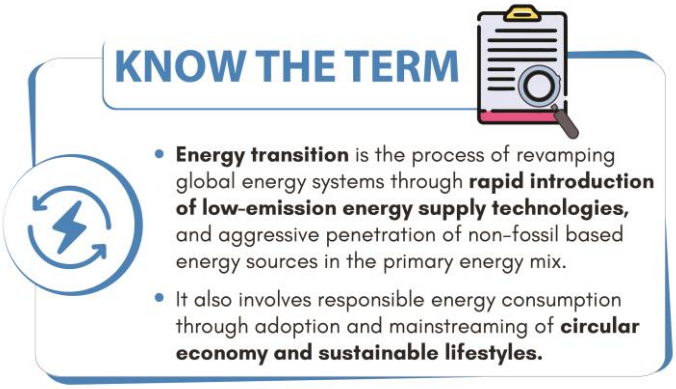
Why in news?

A report on the 'Role of Small Modular Reactors in the energy transition' was recently released by the NITI Aayog.



About SMRs

- As per the International Atomic Energy Agency (IAEA), the **SMRs are advanced nuclear reactors with a power generation capacity ranging from less than 30 MWe to 300+ MWe.**
    - Roots of SMRs can be traced back to **1940s-1950s when small capacity nuclear reactors** of various designs were **used for military purposes.**
- **SMRs:**
    - **Small**- physically a fraction of the size of a conventional nuclear power reactor.
    - **Modular**- making it possible for systems and components to be **factory-assembled** and transported as a unit to a location for installation.
    - **Reactors**- harnessing nuclear fission to generate heat to produce energy.
        - ✓ Fission occurs when a **neutron slams into a larger atom,** forcing it to e**xcite and split into two smaller atoms**—also known as fission products.
        - ✓ **Additional neutrons** are also released that can initiate a **chain reaction.**



Current status

As of now, two SMR projects have reached at operational stage globally:

- **Akademik Lomonosov floating power unit in the Russian Federation**.
- **HTR-PM demonstration SMR in China**.

Advantages of SMRs

Specification	Description
Adaptable and scalable	• SMRs **can be scaled up or down to supply more or less power.**
Longer refuelling interval	• SMR-based power plants might only need to refuel **every three to seven years,** as opposed to every one to two years for traditional plants.
Compact design	• **Land implications in the case of SMRs are less** as compared to land requirements for large reactors and renewable energy sources.
Passive safety features	• Its reliance on the **laws of physics to shut down and cool the reactor** under abnormal circumstances, provide inherent safety. ○ In **most cases**, these technologies **don't need a power supply** and can handle accidents without the **assistance of a person or a computer**. ○ **A molten salt reactor with a freeze stopper** is an example of a passive safety mechanism.
Economical	• Low capital outlay and/ or a phased capital expenditure is needed. ○ Also they have the adaptability to allow **co-generation, supply heat for desalination and manufacturing etc.** ○ When coupled with variable energy sources SMRs **can mitigate fluctuations on a daily and seasonal basis.**

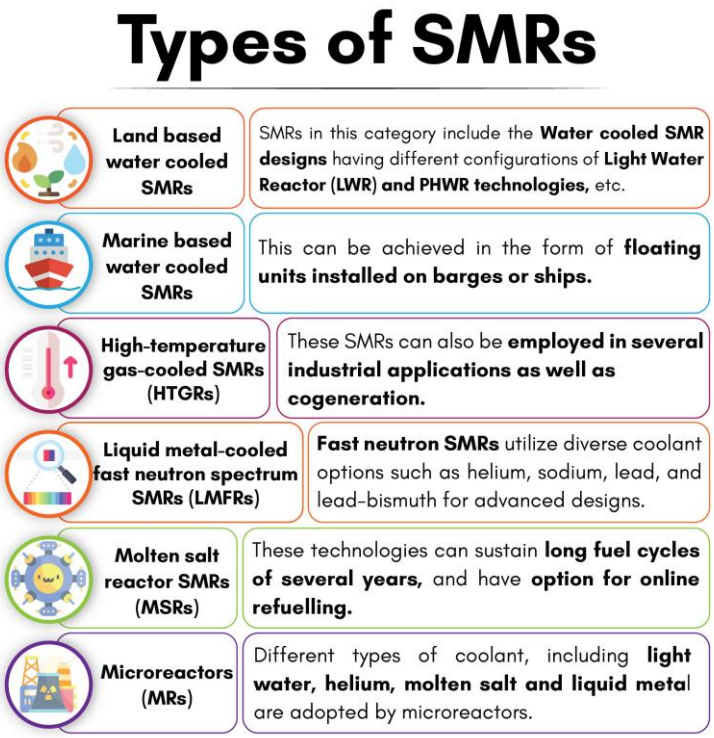
Challenges of SMRs

- **Technology choice issue:** More than **80 SMR designs** are at different stages of development and licensing. Their simultaneous deployment could **create regulatory challenges** and may also **take away some degree of cost optimization.**
- **Financing:** According to the IEA, annual global investment required for nuclear power expansion is around **USD 100 billion by 2030**.
    - Also, private capital only marginally gets invested in the SMR industry and not to the level of the needed requirement.
- **Licensing challenges**: Newly developed SMR technologies may find it difficult to accommodate in the existing licensing process.
- **Supply chain issues:** Supply chains for the SMR industry **may need consolidation** in order to capitalise on economies of scale, as witnessed in the aviation industry.
- **Safeguards challenges**: In most countries, novel SMR technologies will require the application of international safeguards typically in collaboration with the relevant governments and industry.

- **Storage and Disposal:** Even SMRs produce **radioactive waste from spent fuel** and require spent fuel storage & disposal facilities.

Way ahead for adoption of SMRs

- **Updating regulatory frameworks:** The nuclear regulatory framework should be comprehensive to allow various kinds of SMR technologies and designs.
- **Updated safety assessment methodology:** Define emergency planning zone for SMRs, follow Standard Operating Procedures (SOPs) for safe handling of spent-fuel and reprocessing.
- **Collaborative Framework:** Stakeholders need to share, best practices and regulatory insights at an early stage of technology development.
- **Standardisation of design**: It will open the possibility of **repetitive manufacturing** in a better quality-controlled environment of a factory including Industry 4.0 paradigm.
- **Catalyse private investment:** This could be done through inclusion in green taxonomy and utilization of innovative financing instruments such as blended finance, green bonds, etc.
- **Human resource**: Ensure availability of required skilled personnel across the value chain of engineering, design, testing, inspection, construction, etc.



Conclusion

SMR may complement large-size reactors in many countries to increase the nuclear share in their energy mix and achieve Net Zero Emissions goals. The respective governments and local authorities have to play a major role in consensus building towards nuclear energy by engaging relevant stakeholders**.**

International Nuclear Liability Conventions

- **Vienna Convention on Civil Liability for Nuclear Damage, 1963**
- **Convention on Supplementary Compensation** for Nuclear Damage, 1997
- **Paris Convention** on Third Party Liability in the Field of Nuclear Energy, 1960
- **Joint Protocol** Relating to the Application of the Vienna Convention and the Paris Convention, 1988 **Brussels Supplementary Convention** to the Paris Convention, 1963.

7.6. FACIAL RECOGNITION TECHNOLOGY

Why in news?

Recently, **Department of Telecommunications (DoT), Ministry of Communications** has developed an **artificial-intelligence (AI)-based facial recognition tool** — called **Artificial Intelligence and Facial Recognition powered Solution for Telecom SIM Subscriber Verification (ASTR)**.

About Sanchar Saathi Portal

- Sanchar Saathi helps citizens to **know the mobile connections issued in their name;** report fraudulent or unrequired connections; **block mobile phones** which are stolen/lost and **check IMEI genuineness before buying** a mobile phone.
- It contains various modules like
  - **CEIR (Central Equipment Identity Register):** For blocking stolen/lost mobiles.
  - **Telecom Analytics for Fraud Management and Consumer Protection (TAFCOP):** It facilitates a user to check the number of mobile connections taken in her/him name using paper-based documents.
  - **ASTR:** To identify fraudulent subscribers.
  - **Know your mobile connections**: To know mobile connections registered in your name.

More on news

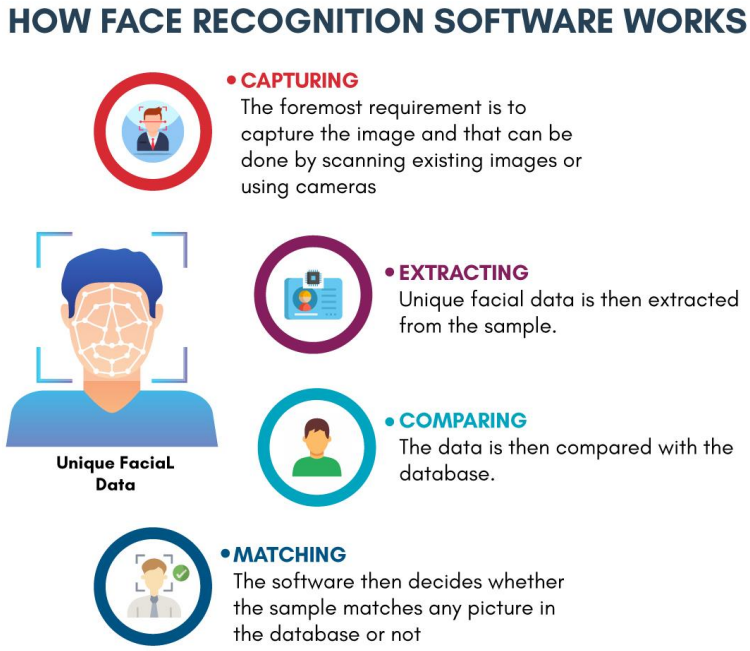
- ASTR, launched **under Sanchar Saathi Initiative**, is an **AI powered tool** to **identify SIMs issued using fraudulent/forged documents.**
  - ASTR has capability of **running checks on subscriber databases of telecom operators** to deduce whether it contains multiple connections associated with the same person.

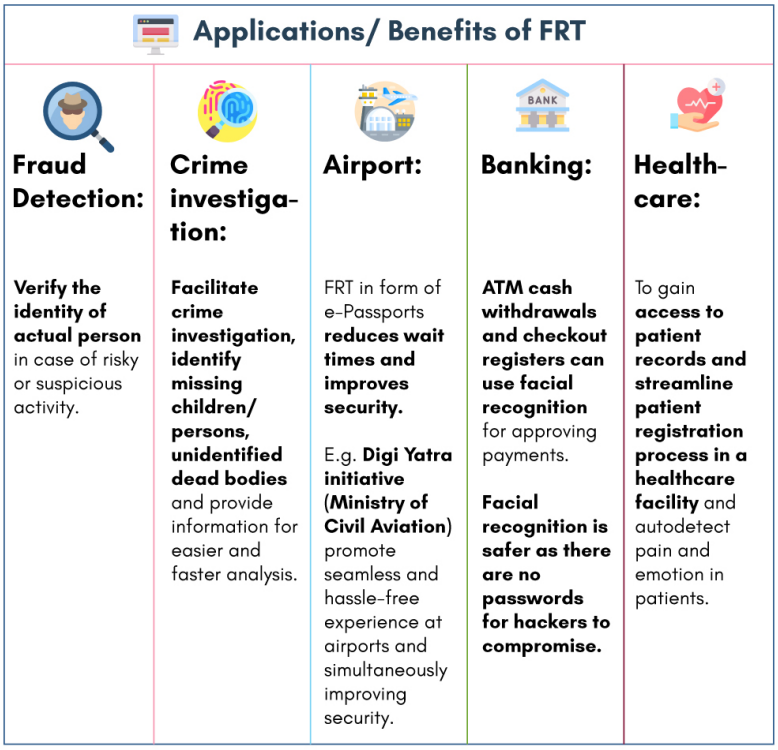
- ASTR **identifies if more than eight SIM connections have been obtained in one person's name**, which is not allowed as per DoT rules.

- In 2012, **DoT had issued an order to all telecom operators to share their subscriber database** including pictures of users with the department.
  - **ASTR analyses this database subscriber images** provided by telecom operators and **put them into groups of similar-looking images using Facial Recognition Technology (FRT).**

About Facial Recognition Technology (FRT)

- FRT is a **way of identifying or confirming an individual's identity using their face.** It can be used to **identify people in photos, videos, or in real-time**.
  - **Computer algorithms map unique facial-landmarks** such as shape of cheekbones, contours of lips etc. **and convert these into a numerical code**— termed a faceprint.
    - ✓ It relies on many of the processes and techniques associated with AI.
  - For verification or identification, **system compares faceprint generated with a large existing database** of faceprints.





Concerns associated with the use of Facial Recognition Technology

- **Privacy and Consent**: **Lack of control** over storage, extent, and **informed consent** with respect to use of facial data by public and private players, **resulting in privacy invasion**.
- **Data protection law:** In India, there is **absence of FRT- specific regulatory set up** and **legal framework to govern data protection**, storage and use especially in context of personal biometric data.
  - Recently, the **government also withdrew Personal Data Protection Bill, 2019.**
- **In-accuracy**: Technical errors due to **occlusion (a partial or complete obstruction of the image), bad lighting, facial expression, ageing** etc. leading to inaccurate identification.
- **Under-representation**: Errors in FRT occur due to lack of data pertaining to certain groups of people.
  - Disparity has been observed in identification of Indian men and women and **accuracy rates fall starkly based on race, gender, skin colour** etc.
- **Technological challenges:** FRT is **prone to digital attacks or the use of physical or digital portraits, 3D-Models**, such as masks or deep-fakes etc. to bypass the system.

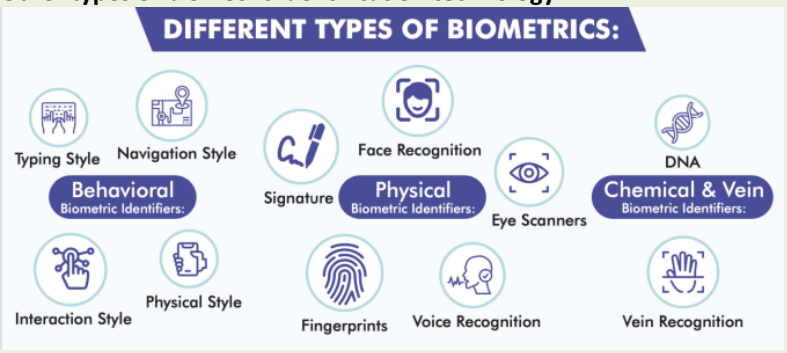
Way forward

- **Legal framework:** There is urgent need to **regulate the use of FRT systems and a data protection law** that would mandate necessary safeguards in the collection and storage of user data.

- There is **need for clear regulation of CCTVs by public and private actors** before a system like the Automated Facial Recognition System (AFRS) is implemented.

- **Accountability:** Clear **mechanisms and bodies for oversight and accountability need to be established** including requirements for audits and transparency reports.
- **Consent**: Structures for consent that take into consideration **passive data collection need to be defined** for the use of FRT in criminal and non-criminal cases.
- **Capacity building**: To ensure that end users of the technology are fully trained in both the technical and ethical dimensions of FRT, it is imperative that **comprehensive training is provided to end users**.
- **Eliminate biasness**: The FRT systems **datasets and software interface needs to be constantly updated to ensure equality and minimize potential biases** based on skin colour, geography, religion, caste, etc.

Other types of biometric identification technology



Biometric identification is the **process of identifying individuals based on unique, distinguishable traits**. Besides facial recognition, there are many other types of biometric identification:

- **Fingerprint verification**: Fingerprint recognition software verifies an individual's identity by comparing their fingerprint against one or more fingerprints in a database.
- **DNA matching**: It **identifies an individual by analysing segments from their DNA.** Technology sequences the DNA in a lab and compares it with samples in a database.
- **Eye recognition**: It **analyzes features in the iris or patterns of the veins in the retina** to determine a match and identify an individual.
- **Hand geometry recognition**: This **identifies individuals through the geometric features of their hands**, such as the length of the fingers and width of the hand. A camera captures a silhouette image of the hand and compares it against a database.
- **Voice recognition**: It **extracts the characteristics that distinguish an individual's speech from others**. It creates a voiceprint that is similar to a fingerprint or faceprint and matches it to samples in a database.
- **Signature recognition:** This use technology to analyze handwriting style or compare two scanned signatures using advanced algorithms.

7.7. SUPER COMPUTERS

Why in news?

India's AI supercomputer AIRAWAT has been ranked 75th in the Top 500 Global Supercomputing List, announced at the International Supercomputing Conference held in Germany.

AIRAWAT

- Installed at the **Centre for Development of Advanced Computing (C-DAC)** in Pune, Maharashtra
- AIRAWAT supercomputer is **India's largest and fastest AI supercomputing system**, with a remarkable speed of 13,170 teraflops.
- The AI system was installed as part of the government's **National Program on Artificial Intelligence** (AI).
- According to C-DAC, AIRAWAT works on the operating system Ubuntu 20.04.2 LTS and was installed earlier this year at the centre.

What is a supercomputer?

- A supercomputer is a **high-performance computing system** that delivers exceptional processing power and computational capacity compared to a general-purpose computer.
- Performance of a supercomputer is measured in **floating-point operations per second (FLOPS)** instead of million instructions per second (MIPS).
- Supercomputers contain tens of thousands of processors and can perform **billions and trillions of calculations or computations per second**.
- Since information moves quickly between processors in a supercomputer (compared to distributed computing systems) they are **ideal for real-time applications**.

India and Super computers

- **Indigenous development of supercomputers began in 1980**, with the involvement of organisations such as BARC, C-DAC etc.
- India's **first supercomputer**, **PARAM 8000,** was set up in 1991.
- **National Supercomputing Mission** accelerated efforts to setup Super computers in a big way.

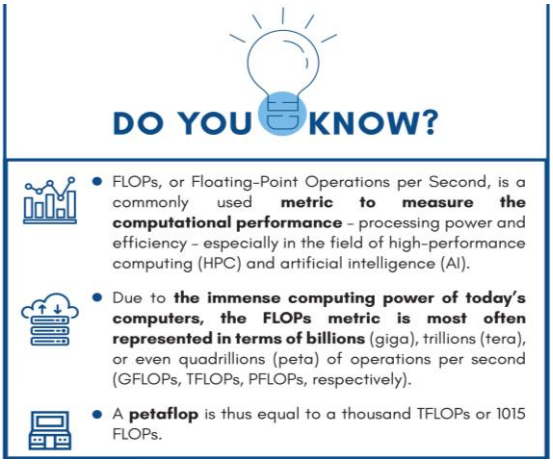
Other Indian supercomputers in the Top 500 list

- There are **three** other supercomputers in the Top 500 list. These include:
  - **PARAM Siddhi-AI supercomputer** ranked at No. 131. It is installed at C-DAC, Pune.
  - **Pratyush supercomputer** ranked at No. 169: It is installed at the Indian Institute of Tropical Meteorology.
  - **Mihir supercomputer** at No. 316. It is installed at the National Centre for Medium Range Weather Forecasting.
- **Top 5 supercomputers in the Top 500 list**

Super computer	Country
Frontier	USA
Supercomputer Fugaku	Japan
LUMI	Finland
Leonardo	Italy
Summit	USA

Applications of Supercomputers

- **Cutting edge research**: Supercomputers are used for **data-intensive and computation-heavy scientific and engineering purposes** such as quantum mechanics, weather forecasting, etc.
- **Aerospace and Engineering**: Supercomputer runs hugely detailed simulations in real time, processing complex algorithms and Big Data from sensors around the performance of aircraft and the environments they operate in.
- **AI**: ChatGPT was trained on a supercomputer built exclusively for OpenAI by Microsoft. It would take a laptop thousands of years to create AI like ChatGPT**.**
- **Weather forecasting**: For example, 'Pratyush' Supercomputer housed at Indian Institute of Tropical Meteorology (IITM), Pune helps in weather and climate forecasts.
- **Energy Exploration**: Supercomputers help to detect and accelerate deeper geological insights; hence improve the exploration and production processes. This yields more productive oil extraction.
- **Health and medicine**: To help find a drug that could work against the Covid-19, supercomputers were employed to look through databases of existing drug compounds.



National Supercomputing Mission (NSM)

- Launched by Government of India in 2015.
- **Goal**: to connect R&D institutions and academic institutions in the country using a supercomputing grid with more than 70 high performance computing facilities.
- **National Knowledge Network (NKN)**: These supercomputers will be networked on the National Supercomputing grid over the NKN.
- **Jointly steered by**: Department of Science and Technology (DST) and Department of Electronics and Information Technology (DeitY).
- **Implemented by**: Centre for Development of Advanced Computing (C-DAC); Indian Institute of Science (IISc), Bangalore.
  - C-DAC has been entrusted the responsibility to **design, development, deployment and commissioning** of the supercomputing systems under the Mission.
- **Objectives**
  - To make **India one of the world leaders in Supercomputing** and to enhance India's capability in solving grand challenge problems of national and global relevance.
  - To **minimize redundancies and duplication of efforts**, and optimize investments in supercomputing
- **3 phases.**

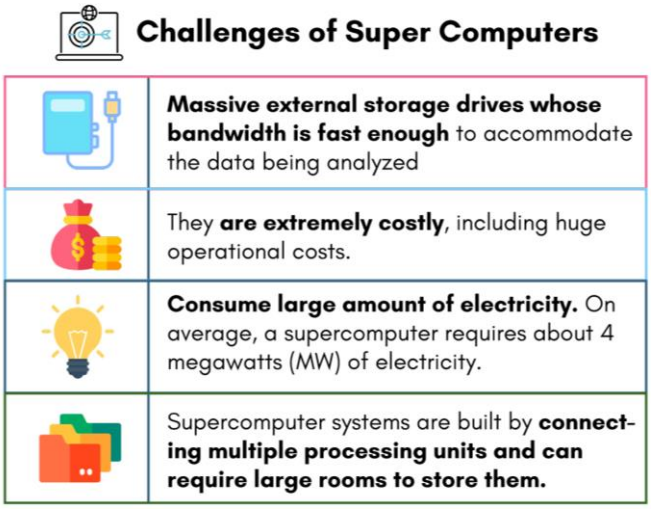
Phase 1	• Install 6 supercomputers with 30% value additions done in India. • Focus to **create an ecosystem for assembly** of system components within the country
Phase 2	• **Manufacturing supercomputers** in the country with an indigenous software stack.
Phase 3	• Focus on design and manufacturing in the country. • Expected to take computing speed to 45 PF.

- **Defence and military**: Supercomputers have applications related to national security, including nuclear weapons design and cryptograph. It help simulate complex weapons systems.

Conclusion

Supercomputers have already made huge contributions to the world in which we live. As we look to the future, applications of artificial intelligence running at any moderate degree of scale will depend on supercomputing to analyse huge datasets.

Thus, countries around the world, including India, have been ramping up supercomputing capabilities over the past few years. For India to become a knowledge-driven, multi-trillion-dollar economy, which is able to support cutting-edge science to benefit its economy, its society and the businesses, investment in supercomputing is a necessity.



7.8. CRYPTO MINING

Why in news?

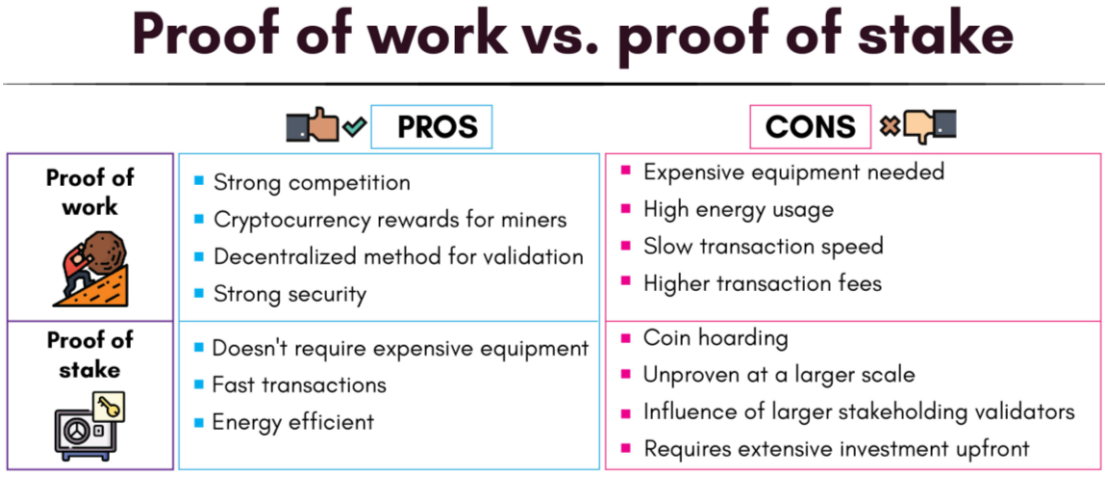
Recently, Bhutan and Singapore-based Bitdeer have announced plans to **raise $500 million to set up crypto mining operations in the Himalayas that is free of carbon**, thus tapping into Bhutan's abundant hydroelectric power.

More About News

- Presently, **huge amounts of electricity are needed to power the vast computer farms that mine for cryptocurrency**, leading to heavy criticism of their impact on the climate and a search for greener mining options.
- The initiative announced by the Bhutan government's investment arm Druk and Nasdaq-listed crypto-mining firm Bitdeer **includes the construction of data centres and investment in renewable energy such as hydropower and hydrogen.**
- The Partnership with Bitdeer to launch a **carbon-free digital asset mining data center represents an investment in a more connected and sustainable domestic economy.**
- **Bhutan is carbon-negative country** and its constitution mandates that 60% of the country remains forested.

About Cryptocurrency

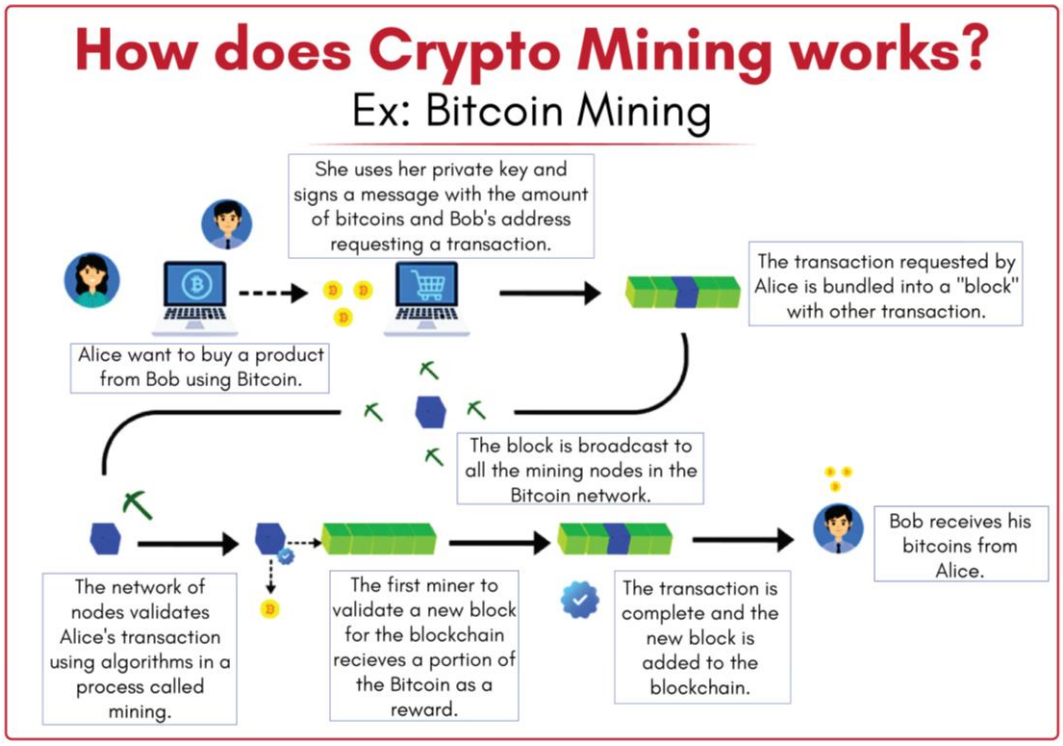
- A cryptocurrency is a **subset of virtual currencies, and is decentralised,** and protected by cryptography.
  - A virtual currency is a digital representation of value that can be digitally traded and functions as:
    - ✓ a medium of exchange, and/ or
    - ✓ a unit of account, and/or
    - ✓ a store of value.
- All cryptocurrency **transactions are maintained via a blockchain network and added to digital ledgers**.
- **Bitcoin** is the largest in the world according to market capitalisation, **followed by Ethereum**.



About Crypto Mining

- It is the process that several cryptocurrencies **use to generate new coins and verify & process new transactions**.

- It involves **vast, decentralized networks of computers** around the world that verify and secure blockchains – the virtual ledgers that document cryptocurrency transactions.
- Crypto mining is **fundamental to proof-of-work (PoW) cryptocurrency** networks like **Bitcoin (BTC)**.
  - Proof of work and proof of stake **use algorithms to validate cryptocurrency on a blockchain network**.
  - The main difference is **how they choose and qualify users to add transactions.**
  - **PoW and PoS** are protocols intended to validate transactions and keep the blockchain network decentralized and secure.
    - ✓ PoW is a mechanism bitcoin uses to regulate the creation of blocks and the integrity of the network through the process of mining.
    - ✓ PoS is an alternative consensus mechanism that delegates control of the network to the owners of a given token.
- **Different types of Crypto Mining**
  - **Central Processing Units (CPUs) mining**: CPU mining **uses processors to mine cryptocurrency**.
  - **Graphics Processing Units (GPUs) mining**: GPU mining **uses one or more graphics cards to mine crypto**. GPU mining of Bitcoin launched in 2010 was fairly short lived and got replaced by a new kind of hardware- ASIC.
  - **Application-Specific Integrated Circuits (ASICs) mining**: ASICs, explicitly designed for PoW computations, **perform far faster than general-purpose computing devices like GPUs or CPUs**.
  - **Other types** include Field-Programmable Gate Array (FPGA) mining, Cloud Mining etc.
- Crypto mining is **not always profitable due to intense competition**, expensive mining equipment and high electricity prices.
  - It requires **setting-up of Powerful Hardware Resources & software to solve the complex puzzles efficiently.**
  - The explosive growth in cryptocurrency mining **consumes high energy grids**, and **increases total carbon emissions and local air pollution, raises retail electricity rates etc**.



Scan the QR code to know more about **Cryptocurrency.**

Weekly Focus #43: Cryptocurrency: A Tool of Economic Empowerment or a Regulatory Nightmare?

7.9. NEWS IN SHORTS

7.9.1. NAVIC (NAVIGATION BY INDIAN CONSTELLATION)

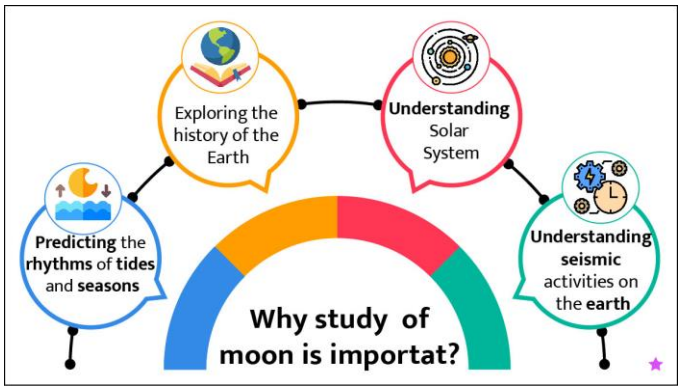
- Indian Space Research Organisation (ISRO) **launched next-generation navigational satellite NVS – 01.**
- NVS-01 is **first of the India's second-generation satellites envisaged for NavIC (Navigation by Indian Constellation) services**.
- **Key highlights of NVS-01**
  - NVS-01, **weighing 2,232 kg satellite** - heaviest in constellation, was launched using **Geosynchronous Satellite Launch Vehicle (GSLV) rocket**.
  - It'll have **indigenously developed Rubidium atomic clock** to provide accurate locations.
  - It has a **mission life of over 12 years**, which in itself is **longer than 10-year life of first-generation (existing) satellites**.
  - It'll send **signals in a third frequency**, **L1, which increases interoperability** with other satellite-based navigation systems.
  - It would **provide real-time positioning and timing services over India** and a region approximately **1,500 km around mainland.**
- NavIC, **earlier known as Indian Regional Navigation Satellite System (IRNSS),** is designed with **constellation of seven satellites**.
  - **Three satellites** are **placed in geostationary orbit** and **four satellites** are placed in **inclined geosynchronous orbit.**
  - **NavIC offers two services** - Standard Position Service (SPS) for civilian users and Restricted Service (RS) for strategic users. These two services are provided in **both L5 (1176.45 MHz) and S band (2498.028 MHz).**
- **Application of Regional Navigation Satellite System:** Terrestrial, Aerial and Marine Navigation; Disaster Management; Precise Timing; Scientific research; etc.
- **Navigation system around world**
  - There are **four global satellite-based navigation systems** — US's **Global Positioning System** (GPS); Russian **GLONASS (GLObalnaya NAvigatsionnaya Sputnikovaya Sistema),** European **Galileo**, and Chinese **Beidou**.
  - **Japan has a four-satellite system** that can augment GPS signals over country.

7.9.2. X-RAY POLARIMETER SATELLITE (XPOSAT) MISSION

- **Indian Space Research Organisation (ISRO) is collaborating with Raman Research Institute (RRI), Bengaluru** to **build the XPoSat** that will be launched later in 2023.
- XPoSat is **India's first dedicated Polarimetry mission** to study various **dynamics of bright astronomical X-ray sources in extreme conditions.**
  - It is **world's second polarimetry mission** (first was NASA's Imaging X-ray Polarimetry Explorer (IXPE)).
- XPoSat carries **two scientific payloads in a low earth orbit:**
  - Primary payload **POLIX (Polarimeter Instrument in X-rays)** will measure **polarimetry parameters** (degree and angle of polarisation) in **energy range of 8-30 keV (kiloelectron volt)**.
    - ✓ This is **first payload in medium X-ray energy band** dedicated for polarimetry measurements.
  - **XSPECT (X-ray Spectroscopy and Timing) payload** will give **spectroscopic information** (on how light is absorbed and emitted by objects) in **energy range of 0.8-15 keV.**
    - ✓ It observes several types of sources viz, **X-ray pulsars, Black-hole binaries, low-magnetic field neutron star** etc.
- Polarimetry is a technique to **measure the polarisation of light**.
  - It is a tool that allows astronomers to **infer information about celestial objects**, from passing **comets to distant galaxies.**
  - Polarisation is seen **across all wavelengths in electromagnetic spectrum.**
- **X rays have** much **higher energy and much shorter wavelengths than ultraviolet light**. **Wavelength is very small between 0.03 and 3 nanometers.**

7.9.3. JAPAN'S PRIVATE MOON LANDER

- Japan's Ispace said its attempt to make the first private moon landing had failed after losing contact with its Hakuto-R Mission 1 (M1).
- **About Hakuto-R Mission 1**
  - The Hakuto lander launched atop **a SpaceX rocket from Cape Canaveral, Florida**.
  - The lander also carried a rover developed in the United Arab Emirates.
    - ✓ The Rashid rover would have explored the **Atlas Crater on the northeast of the Moon.**
  - The craft was aiming for a landing site at the **edge of Mare Frigoris in the moon's northern hemisphere.**
- Till date, **only the US, the former Soviet Union, and China** have soft-landed spacecraft on the moon.



7.9.4. A SIGN IN SPACE PROJECT

- European Space Agency's **ExoMars Trace Gas Orbiter (TGO)** has flashed an **encoded message (**developed by a team led by **Daniela De Paulis**) **to Earth** from its orbit **around Mars.**
  - ExoMars TGO is **searching for methane and other trace gases** in the Martian atmosphere that could be evidence of **possible biological or geological activity**.
  - The orbiter is the **first in a series** of joint missions between the ESA and **Roscosmos, the Russian space agency**.
- The encoded message has been sent as part of **'A Sign in Space' project**, simulating a signal **an advanced extraterrestrial civilization could eventually** send to Earth.
  - The purpose of '**A Sign in Space' project** is to understand h**ow to decode and interpret an extraterrestrial message by engaging a worldwide community**, including professionals from different fields and the broader public.
  - By engaging professionals from various fields and encouraging global collaboration, the experiment **aimed to explore the process of decoding and interpreting an alien message.**

7.9.5. NEW BELTS OF ASTEROID

- **James Webb Space Telescope (JWST) spots** new belts of asteroid near star Fomalhaut
- Observations from JWST **revealed two additional dusty rings or belts nearer Fomalhaut** – a bright inner one and a narrow intermediate one.
  - **Dust around stars** contains elements such as **carbon and iron** which **can help form planetary systems.**
- Formalhaut is the **brightest star in southern constellation of Piscis Austrinus**. It is almost **twice the mass and size of sun** and **radiates over 16 times the sun's energy.**
  - **A single belt of debris** around Fomalhaut **was discovered in 1983.**
- Dusty belts are the **debris from collisions of larger bodies**, analogous to asteroids and comets, **and are frequently described as 'debris disks.'**
  - These disks are **similar to Solar System's Kuiper Belt** (a doughnut-shaped **ring of icy objects around the Sun**, extending just **beyond the orbit of Neptune**).
  - **Three belts of Fomalhaut are made up of planetesimals** (dust clamps, pebbles etc that are **building blocks of planets**).
- JWST, **NASA's s infrared flagship observatory**, is an international collaboration **between NASA, European Space Agency, and Canadian Space Agency.**
  - It is **placed in Sun-Earth Lagrange Point 2** (L2).
  - JWST is being considered as **successor of Hubble Space Telescope (HST).**

7.9.6. EXOPLANET

- **A new Jupiter size exoplanet**, called **TOI 4603b or HD 245134b**, with **highest density** (~14 g/cm3) known till this date, and **mass 13 times that of Jupiter** has been discovered.
  - It is **located 731 light years away** and **orbits a sub-giant F-type star TOI4603** (Initially discovered by MIT-Led NASA's Transiting Exoplanet Survey Satellite (TESS)).
- An **exoplanet is any planet beyond our solar system**.
  - **Most orbit other stars**, but free-floating exoplanets, called rogue planets, orbit galactic center and are untethered to any star.
  - **Compositions** of exoplanets **range from very rocky** (like Earth) **to very gas-rich** (like Jupiter and Saturn).
  - **Massive giant exoplanets** have **mass greater than four times that of Jupiter.**
- **TOI 4603b falls into transition mass range** of massive giant planets and low-mass brown dwarfs with masses ranging from **11 to 16 times the mass of Jupiter.**
  - Brown dwarfs are **objects which have a size between** that of a **giant planet like Jupiter and that of a small star.**
- **Discovery is made** using indigenously made **PRL Advanced Radial-velocity Abu-sky Search spectrograph** (PARAS), at Mt. Abu, by international team led by Indian scientist **from Physical Research Laboratory** (PRL), Ahmedabad.
  - **Other exoplanet discovery** made by India **K2-236b (2018) and TOI-1789b (2021).**

7.9.7. SATURN

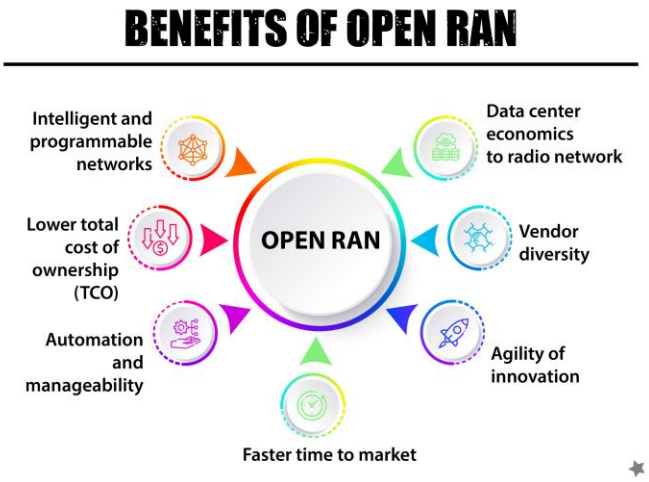
- As per reports, a **team of space scientists has discovered 62 new moons** around Saturn.
- With this discovery, **Saturn becomes the planet with the greatest number of Moons (145), overtaking Jupiter**.
- Saturn is the **sixth planet from the Sun** and the **second-largest planet** in our solar system.
    - Saturn is **made mostly of hydrogen and helium**.
    - It **has rings** – made of chunks of ice and rock.
- **Mission related to Saturn:** Pioneer 11, Voyagers 1 and 2, Cassini etc.

7.9.8. TELANGANA'S ROBOTICS POLICY FRAMEWORK

- Telangana has become the **first state in the country** to launch a **state robotics framework** with a vision to create a **sustainable robotics ecosystem**.
- It has been developed by the **Emerging Technologies Wing** in collaboration with the **All-India Robotics Association** and inputs from **academia, industry experts** and **stakeholders**.
- It focuses on **leveraging robotics technology** to drive growth and development across identified four key domains – agriculture, healthcare, industrial automation and consumer robotics.

7.9.9. QUAD'S OPEN RADIO ACCESS NETWORK (RAN) SECURITY

- **Quad leaders at their summit in Hiroshima** have made a significant announcement to **strengthen security architecture for Open RAN** beginning with Palau (country in western Pacific Ocean) in Pacific Region.
    - This initiative will **modernize Palau's national mobile network**, establish an **Open RAN deployment in partnership** with local stakeholders, and support its sustainable operation.
    - Also, **'Open RAN Security Report'** outlines cybersecurity considerations associated with using Open RAN as an approach to developing network architecture.
- RAN **provides the critical technology to connect users to mobile network** over radio waves. It also **acts as a bridge** to access all key applications on web.
    - Current RAN technology is provided as **an integrated platform of both hardware and software**. Therefore, it is **difficult to mix vendors for its different units**.
- Idea of **Open RAN is to enable operators to mix and match components** from different vendors.
    - Open RAN **will create a multi-supplier RAN solution** that allows for the separation between hardware and software with open interfaces.



7.9.10. HEALTH FOR ALL REPORT

- **WHO released** "Health for All: Transforming economies to deliver what matters" report.
- **Launched at the ongoing 76th World Health Assembly (WHA),** report provides roadmap for structuring economic activity to ensure Health for All.
    - It was **released by WHO Council on Economics of Health for All**, formed in 2020, in response to COVID-19 pandemic to reassess how health and well-being are valued, produced, and distributed across the economy.
- Report provides **recommendations for shifting economic** thinking to ensure Health for All **across four interrelated pillars.**

Pillars	Recommendations
Valuing Health for All	• **Treat health and wellbeing**, health workers and health systems as a **long-term investment**. • Enforce **health as a human right**. • **Restore and protect environment** through a **regenerative economy.**
Financing Health for All	• Adopt a **comprehensive, stable approach for long term funding**. • **Redraw the international financial architecture** to fund health equitably and proactively.
Innovating for Health for All	• Build **symbiotic public-private alliances** to maximize public value. • **Design knowledge governance**, including IP regimes, **to ensure global equitable access** to vital health innovations.
Strengthening Public Capacity for Health for All	• **Whole of Government approach** to recognize that **Health for All is not just for health ministries** but for **all government agencies.** • **Invest in the dynamic capabilities** of the state and public sector. • **Demonstrate transparency and meaningful public engagement** to hold governments accountable

About World Health Assembly

- It is the **decision-making body of WHO**. It is **held annually in Geneva**, Switzerland
- It is **attended by delegations from all WHO Member States** and focuses on a specific health agenda prepared by the Executive Board.
- **Main functions** are to **determine policies** of Organization, **appoint Director-General**, **supervise financial policies** etc.

7.9.11. END TO COVID-19 AS PHEIC

- **WHO declared end** to **COVID-19 as Public Health Emergency of International Concern (PHEIC).**
- Declaration was based on recommendation of **fifteenth meeting of International Health Regulations (IHR) 2005 Emergency Committee.**
- **Declaration of end COVID- 19 as PHEIC was made due to**
  - **Decreasing trend** in COVID-19 deaths; **Decline in COVID-19 related hospitalizations** and intensive care unit admissions; **High levels of population immunity** to **SARS-CoV-2**.
- PHEIC is defined in IHR 2005 as, "an **extraordinary event** which is determined to **constitute a public health risk to other States** through **international spread of disease** and to **potentially require a coordinated international response".**
  - IHR is an **instrument of international law** that is **legally binding on 196 countries**, including 194 WHO Member States.
- WHO also released the **2023-2025 COVID-19 Strategic Preparedness and Response Plan (SPRP)** which is designed to **guide countries in transitioning to long-term management of COVID-19**.
  - This plan **outlines important actions for countries** to consider for **5 areas under 10 pillars** (refer table).
  - Previous plan, released in 2022, aims to **reduce circulation of SARS-CoV-2**; and **diagnose and treat COVID-19 to reduce mortality, morbidity and long-term sequel.**

ALIGNMENT OF COVID-19 OPERATIONAL PILLARS WITH CORE COMPONENTS OF EFFECTIVE HEALTH EMERGENCY PREPAREDNESS, RESPONSE AND RESILIENCE (HEPR)

HEPR core component	COVID-19 operational pillar
Emergency coordination	**Pillar 1.** Coordination, planning, financing and monitoring
Collaborative surveillance	**Pillar 3.** Surveillance, epidemiological investigation, contact tracing and adjustment of public health and social measures **Pillar 5.** Laboratories and diagnostics
Community protection	**Pillar 2.** Risk communication, community engagement (RCCE) and infodemic management **Pillar 4.** Points of entry, international travel and transport, mass gatherings and population movement **Pillar 10.** Vaccines research, policy and strategy
Safe and scalable care	**Pillar 6.** Infection prevention and control and protection of the health workforce **Pillar 7.** Case management, clinical operations and therapeutics **Pillar 9.** Strengthening essential health services and systems
Access to countermeasures	**Pillar 8.** Operational support and logistics and supply chains **Pillar 10.** Vaccines research, policy and strategy

7.9.12. MPOX (MONKEY POX)

- The World Health Organization (WHO) **has ended the global health emergency for Mpox.**
- Mpox is a Viral disease **most commonly found in Africa** and has infected around 87,000 people in 2022.
- The **virus is a member of the Poxviridae family** which is genetically **similar to other poxviruses.**
- It **spreads through close contact with an infected individual** and can be transmitted from animals too.
- **Symptoms:** Fever, Rashes, Swollen lymph nodes, headaches
- Currently there is **no approved anti-viral treatment** for the disease.

7.9.13. RESPIRATORY SYNCYTIAL VIRUS (RSV)

- US Food and Drug Administration has approved **GSK's Arexvy, world's first RSV vaccine** for older adults.
- **Human RSV** is a globally prevalent cause of **lower respiratory tract infection in all age groups**.
  - **In infants and young children**, first infection may cause severe bronchiolitis that can **sometimes be fatal.**
  - RSV is increasingly being **recognized as an important pathogen in older adults.**
- RSV **belongs to the genus Orthopneumovirus** within the **family Pneumoviridae and order Mononegavirales.**
  - **Members of this genus** include **human RSV, bovine RSV and murine pneumonia virus**.

7.9.14. THALASSEMIA BAL SEWA YOJANA (TBSY)

- Union **Minister of State for Health and Family Welfare** launched **third phase of TBSY**.
- **Ministry of Health and Family Welfare** has been **implementing TBSY since 2017** under National Health Mission.
  - TBSY is a **Coal India CSR-funded Hematopoietic Stem Cell Transplant (HSCT) program** that provides a one-time **cure opportunity to underprivileged Thalassemia patients** who have a matched sibling donor.
- Thalassemia is an **inherited** (i.e., passed from parents to children through genes) **blood disorder caused when body doesn't make enough of a protein called haemoglobin** (enables red blood cells to carry oxygen).
  - **Thalassemia can cause anemia.**

7.9.15. INTERNATIONAL PATHOGEN SURVEILLANCE NETWORK (IPSN)

- IPSN, **launched by WHO**, is a **global network to help swiftly detect threat from infectious diseases**, like COVID-19, and share the information **to prevent their spread**.
- IPSN will provide a **platform for connecting countries and regions,** improving systems for collecting and analysing samples.
- IPSN **will rely on pathogen genomics** to analyse the genetic code of viruses, bacteria and other disease-causing organisms.

7.9.16. ACINETOBACTOR BAUMANNII

- **Scientists used AI to discover a new antibiotic** (abaucin) that can **kill a deadly superbug- Acinetobacter baumannii.**
  - Acinetobacter is a **group of bacteria commonly found in environment**, like in soil and water.
  - **Most common cause of infections is Acinetobacter baumannii**, which accounts for most Acinetobacter infections in humans.
  - **It can cause infections in blood, urinary tract, and lungs**, or in wounds.
- **WHO has classified it as a critical threat** among its "priority pathogens" – a group of bacteria families that pose greatest threat to human health.

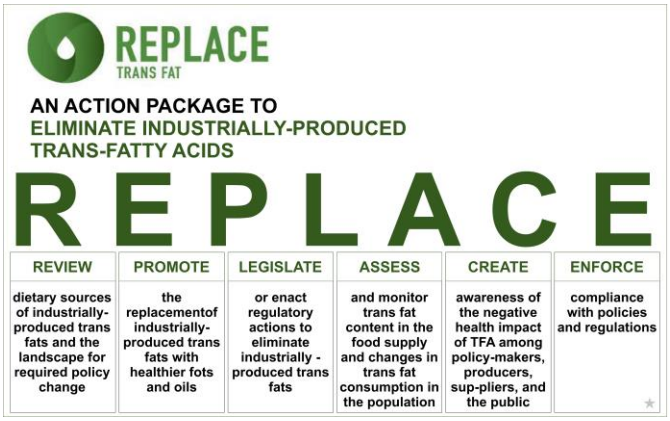
7.9.17. HUMAN ORGANS AND TISSUE TRANSPORT

- **Ministry of Housing and Urban Affairs notified** Metro Railways (Carriage and Ticket) Amendment Rules, 2023 **to allow transportation of human organs or tissues** or both for organ transplant through Metro rail.
- **Existing rule prohibited** carrying of **blood dried or coagulated or decomposed**, whether human or animal, **corpses, carcasses** of dead animals or of dead birds, **bones** (excluding bleached or cleaned bones), **human skeleton, parts of human body** etc.
- Also, **portable radio devices** which possess **risk to radio communication network** and **communication based traffic control signaling** network **are prohibited in metro rail service.**

7.9.18. TRANS-FAT

- World Health Organization's (WHO's) **trans- fat elimination validation programme open for country applications.**
- **WHO Validation Programme for Trans Fat Elimination will recognize Member States for having a normative framework** in place to eliminate industrially produced Trans Fatty Acid (TFA) from their national food supplies.
  - Countries can now apply to receive WHO validation certificate for trans-fat elimination.
  - According to WHO, **44 countries including India have best-practice policies** in effect for eliminating TFA and can receive official certificates.
- Trans fats are **unsaturated fats produced from vegetable oils** and are commonly used in preparation of margarine and commercially baked or fried foods.
  - **There are two forms of trans- fat** i.e.,
    - ✓ **Naturally-occurring trans- fats**, occurs naturally in some dairy and meat products.
    - ✓ **Industrially produced trans-fat** add hydrogen to liquid vegetable oils to make them more solid. It is **found in packaged foods, baked goods, cooking oils and spreads**.
- Trans fats are source of **non-communicable disease** and **associated with increased risk of heart attacks** and death from coronary heart disease.

- **Steps taken to regulate TFA**
  - **WHO's REPLACE Trans Fat-Free by 2023** strategy. (refer image)
  - FSSAI made mandatory for food manufacturers to **declare TFA content on nutrition label.**
  - **FSSAI's Eat Right India Movement** discouraged trans-fat food.



7.9.19. RICE FORTIFICATION

- According to United Nations report, **India's pilot project on rice fortification had led to a significant drop in prevalence of anaemia** among school- children.
  - **Four large-scale pilots in different parts of country were done** - three in school lunch and one in Integrated Child Development Scheme.
  - After witnessing success and feasibility of pilot project, in 2021 government announced that **all rice distributed through food-based social assistance programmes would be fortified by 2024.**
- **Fortification** is the practice of **deliberately increasing the content of one or more micronutrients** (i.e., vitamins and minerals) in **food** or **condiments** (supplemental food) to improve **nutritional quality** of **food supply.**
  - Food fortification is regulated under **Food Safety Standards (Fortification of Foods) Regulation, 2018**
  - Under Rice fortification, micronutrients such as **iron, Vitamin B12 and folic acid** are added for nutritional boost**.**
- **Benefits of Rice Fortification**
  - **Combating malnutrition and anaemia in a cost-effective manner** as Malnutrition costs India at least ₹77,000 crore annually in terms of lost productivity, illness and death.
  - **Prevent cretinism, goiter, thyrotoxicosis, brain damage and improves foetal and neonatal health.**

Rice Fortification in India

- Various technologies are available to add micronutrients to regular rice, **such as dusting, coating and extrusion.**
- In India, rice is fortified using **extrusion technology in which milled rice is pulverized and mixed with a premix containing vitamins and minerals.**

7.9.20. FISSION MOLYBDENUM-99

- Prime Minister dedicated the **Molybdenum-99 production facility** located in Trombay Campus of Bhabha Atomic Research Centre to the Nation.
- **About Molybdenum-99**
  - **Molybdenum-99 is the parent isotope of technetium-99m** (Tc-99m), a short-lived, gamma-emitting isotope.
  - **Tc-99m is used for** the detection of disease and for the study of organ structure and function.
  - **Tc-99m is especially useful for nuclear medicine procedures** because it can be chemically incorporated into small molecule ligands and proteins.
  - Tc-99m is currently produced through a multistep process that begins with the **neutron irradiation of fissile U-235** contained in highly enriched uranium.

7.9.21. RADIOMETRIC DATING

A recent study has shown that Calcium-41 can be used in radiometric dating as **Carbon-14 is used in carbon dating by using a technique** called **Atom-Trap Trace Analysis (ATTA).**

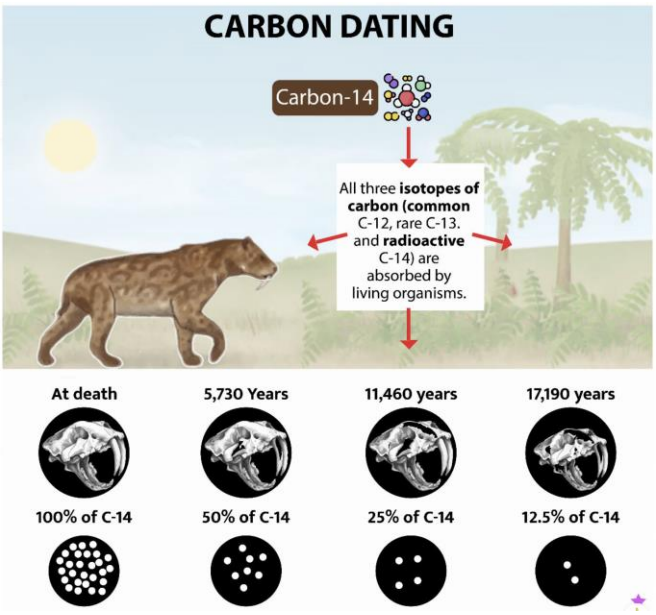
About Calcium-41

- **Half-life:** Calcium-41 is a rare long-lived radioisotope of calcium with a half-life of 99,400 years.
- **Availability**: It is produced through cosmic ray interactions in the soil and is found in the Earth's crust.
- **Occurrence:** Calcium-41 occurs less frequently than carbon-14.

What is radiometric dating?
Radiocarbon dating, or carbon-14 dating, is a scientific method **that can accurately determine the age of organic materials.**
Working (refer image)
- When an organic entity is alive, its **body keeps absorbing and losing carbon-14 atoms.**
- When it dies, this process stops, and the **extant carbon-14 starts to decay away.**
- Using the difference between the **relative abundance of these atoms in the body** and the number that should've been there, researchers can estimate when the entity died.

Limitations with Carbon 14

- It is an **unstable and weak radioactive isotope** of carbon.
- It has a half-life of 5,700 years
- It cannot determine the age of objects **older than approximately 50,000 years.**



SMART QUIZ

You can scan this QR code to practice the Smart Quiz of Science & Technology at our open test online platform for testing your understanding and recalling of the concepts.

MONTHLY
CURRENT AFFAIRS
REVISION 2025
GS PRELIMS
MAINS

ENGLISH MEDIUM
7 July | 5 PM

हिन्दी माध्यम
15 July | 5 PM

- Detailed topic-wise up-to-date contextual understanding of all current issues.
- Opportunities for discussion and debate through "Talk to expert" and during offline presentations in class.
- Assessment of your understanding through MCQs and Mains oriented questions after each topic.
- Two to three classes will be held every fortnight.
- The Course plan (60 classes) covers important current issues from standard sources like The Hindu, Indian Express, Business Standard, PIB, PRS, AIR, RS/LSTV, Yojana etc.

LIVE / ONLINE CLASSES AVAILABLE

Scan the QR CODE to download VISION IAS app

हिंदी माध्यम में भी उपलब्ध

8. CULTURE

8.1. INSCRIPTIONS AS SOURCES OF HISTORY

Why in news?

Recently, ancient Copper plates were decoded by Pune-based Bhandarkar Oriental Research Institute (BORI), shedding light on the ancient Sanskrit poetess Shilabhattarika.

More about news

- **About the Copper plates:** The copper plate charter had five copper plates said to be dating from the reign of the Badami Chalukyan ruler Vijayaditya (696-733 CE).
  - The plates were held together by a copper ring bearing a **Varaha (boar) seal.** The Varaha seal is the trademark of **the Badami Chalukyas**.
- **About Shilabhattarika:** She was a Chalukyan princess, possibly the daughter of Pulakeshin II.
  - According to findings, **she lived in the 7th century CE** rather than the current theory which has her as a wife of the 8th-century Rashtrakuta ruler, Dhruva.
- **Works of Shilabhattarika:**
  - They adhere to the **Panchali style** that calls for a balance of words with their meaning.
  - **The Sanskrit poet-critic Rajashekhara** (who lived in the 9th-10th century CE) and was the court poet of the Gurjara-Pratiharas, has praised Shilabhattarika for her elegant and beautiful compositions.

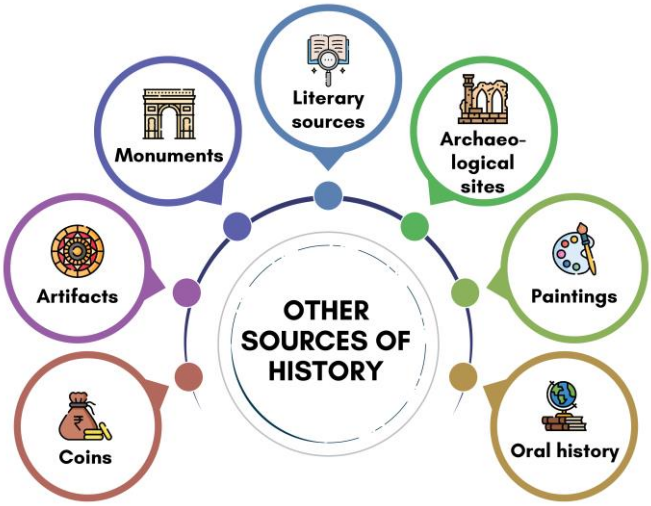
Other prominent ancient Indian Poetesses

- **Gargi (circa 8th century BCE):** She challenged the sage Yajnavalkya (writer of brihadaranyaka Upanishad) with perplexing questions on the issue of atman (soul).
  - She is also said to **have written many hymns in the Rigveda.**
- **Maitreyi (circa 8th century BCE):** She is mentioned in the Brihadaranyaka Upanishad as one of two wives of the Vedic sage Yajnavalkya
  - In the epic **Mahabharata and the Gṛhyasūtras,** however, Maitreyi is described as an Advaita philosopher who never married.
  - She was **the expounder** (a person who explains) **of the Vedas.**
  - She discussed the nature of Atman and Brahman and their unity with Yajnavalkya.
- **Key women among Nayanars (circa 7th and 8th century CE):** Karaikkal Ammaiyar, Mangaiyarkkarasi, and Isaignaniyar (also known as the mother of Sundarar.)
- **Andal (circa 10th century CE):** She was the only female in 12 Alvars. Andal composed two works (both in Tamil) - Tiruppavai and Nacciyar Tirumoli.
- **Akka Mahadevi (circa 12th BCE):** She wrote in the Kannada language and her poems are in the *vacana* form, a kind of prose poem that has a rhythmic structure in semantics and sentence patterns rather than sound.
- **Atukuri Molla (circa 1440 CE):** She was the daughter of a potter and writer of the first Telugu Ramayana.

Significance of Inscriptions

- **Proper dating of the events:** Inscriptions are extremely vital for the reconstruction of history as they give insights into the political happenings of the concerned period.
- **Information about social life:** Inscriptions also give glimpses of the social life of the ages as they shed light on caste and class structures apart from the social customs of the period.
  - For example, the Brahmadesham inscription refers to the Sati committed by a Queen.
- **Understanding economic history:** Inscriptions give us useful insights into the economic life of their concerned periods.
- **Better understanding of the language:** Inscriptions represent the earliest written form of Indian languages. By studying the vocabulary, syntax, and forms of the inscriptions linguists have been able to advance their understanding of how languages developed in the society.
- **Knowing about art forms:** The early inscriptions could be writings or drawings, giving detailed information on the happenings.
  - The earliest reference to a Dancer is found in Jogimara cave belonging to 3rd century B. C. And kudimmiyanmalai inscription of Tamil Nadu is one of the earliest inscriptions on music.

Challenges in understanding and preservation



- **Low staff in the epigraphy (study of inscriptions) branch**: Lack of experts poses a problem for research on understanding and deciphering Inscriptions.
  - **The epigraphy branch functions under the Archaeological Survey of India** and is a repository of more than 1 lakh estampages (the impression of an inscription made on inked paper) discovered and published ever since the epigraphy office was established in 1886.
- **Conservation holds low priority in urban planning:** Due to urbanization, many sites, along with their inscriptions, have been destroyed.
  - For instance, a historically relevant inscription near Anaji village in Davanagere district of Karnataka which referred to a battle between the Kadambas and the Pallavas has been lost.
- **Limitations of Inscriptions as Sources of History:**
  - Inscriptions are **not free from exaggerations and bias.**
  - While interpreting an inscription the interpreter must know the date at which the particular inscription was written. There is a possibility that the inscription may have been written after the period it refers to, thus making date estimation inaccurate.

Way forward

- **Digitalisation:** All the estampages should be digitalized for better preservation.
  - **The Union Budget proposed the Bharat Shared Repository of Inscriptions (BharatSHRI)** with the aim of digitization of 1 lakh inscriptions in the first stage.
- **Institutional reform:** Strengthening of the epigraphy branch with the creation of additional posts and financial support. Innovative measures to rope in private funds can be explored along the lines of Adopt a Heritage scheme.
- **Awareness and mainstreaming of archaeological conservation:** This would attract more talent into the archaeological sector and at the same time increase the importance of preservation vis-à-vis areas like urban planning, mining etc.
- **Cross-verifying with other sources of history:** In order to know the authenticity of any source and the information that they provide about any particular period they must be cross-checked with other sources of history.

8.2. JANTAR MANTAR

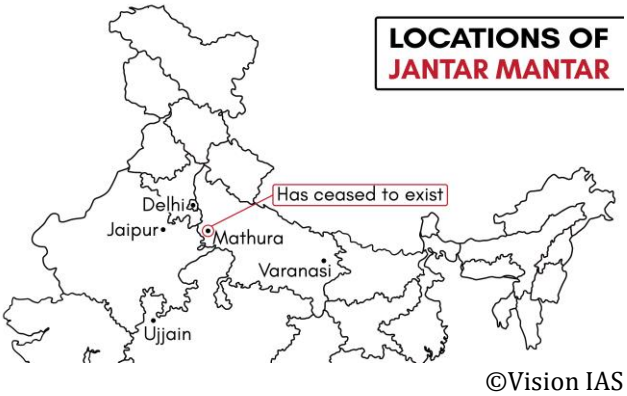
Why in news?

The Archaeological Survey of India (ASI) has constituted a fresh expert committee for the conservation, preservation, restoration, and proper functionality of the Delhi Jantar Mantar observatory.

Maharaja Sawai Jai Singh II (1686-1743)

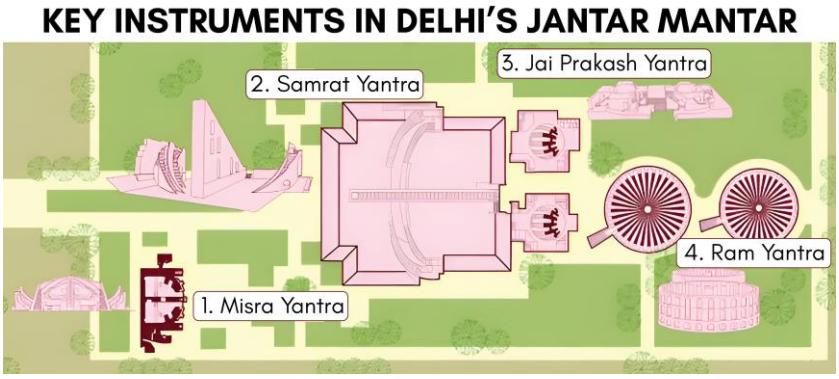
- He was the ruler of the Rajput State of **Amber in India.**
- A feudatory of the Mughals, he received the title of 'Sawai' (one and a quarter) **from Emperor Aurangzeb.**
- **He built the city of Jaipur.** The European travellers of the time, like the Frenchman Louis Rousselet, and the English bishop, Heber, were greatly impressed by Jai Singh's unparalleled excellence in city planning.

About Jantar Mantar



- **Genesis:** Maharaja Jai Singh II built 5 astronomical observatories across northern India.
  - He found the existing astronomical instruments too small to take correct measurements, so he built these larger and more accurate instruments.
- **Observations:** It was used to-
  - Study time and differences between planets

- Observe the Movement of Planets and Time at Different Places.



- **Reason to build observatories at different locations:** Observatories at large distances from one another were built to improve accuracy by comparing readings from different coordinates.
- **Timeline of construction:** The first to be built was the observatory at Delhi in 1724 and the last to be completed was the observatory at Jaipur, in 1738.
- **Present conditions:** Five observatories were built across northern India (refer to image). Among them, the Mathura observatory has ceased to exist.
  - **Jaipur Observatory houses the greatest number and variety of instruments**. They include a number of instruments that are not duplicated at the other sites, such as the Kappala Yantra, Rasivalaya Yantras, and Unnatamsha Yantra etc.

Major Yantras and their functions		
Yantra	**Structure**	**Function**
The Rama Yantra	It consists of a pair of cylindrical structures, each with a pillar at the centre.	Measuring the altitude of stars.
Samrat yantra	This is a large sundial.	Used for calculating and keeping track of time
Jaya Prakash	These are two concave hemispherical structures.	Used to find out the position of the Sun and other heavenly bodies.
Mishra Yantra	It is a mixed instrument.	This instrument is used to depict the time of noon in various cities across the globe vis-à-vis the local time.

8.3. NEWS IN SHORTS

8.3.1. TUNGNATH TEMPLE

- Archaeological Survey of India has sought approval from Centre to declare the **Tungnath temple as a monument of national importance.**
- Temple, **situated in Rudraprayag district**, is believed to be more than **1,000 years old** and founded by **Arjuna (**third of the Pandava brothers).
  - At an **latitude of over 12,000 feet,** it is the **highest Shiva temple in the world.**
  - It is also referred to as **'Tritiya Kedar',** since it is part of **the 'Panch Kedar'** cluster of Shiva temples (including Kedarnath, Madhmaheshwar, Tungnath, Rudranath, Kalpnath) spread across **the Garhwal Himalayas.**

8.3.2. JUNA KHATIYA SITE

- Since 2018, archaeologists have **discovered 500 graves at the site**.
- Juna Khatiya is an **Early Harappan burial site** located in Lakhpat Taluka of **Kachchh district in Gujarat.**
  - Site contains **biggest Early Harappan cemetery documented in India** so far.
  - **Other Harappan sites in Gujarat**: Lothal, Surkotada, Dholavira etc.
- **Major Findings**
  - **Burial structures** are made of **dressed sandstone** and majority of them are **rectangular in plan followed by oval or circular ones.**
  - **Painting on Reserved Slip Ware jar** is peculiar feature noticed.
  - Another distinctive feature includes **beakers and other smaller vessels, found within larger vessels.**

8.3.3. GONGADI SHAWLS

- **Telangana's woollen gongadi shawls are refashioned** into all-weather shoes for farmers by alumni of the National Institute of Design, Ahmedabad.
- **Gongad**i is the traditional **woolen blanket woven by the indigenous Kuruma and Kuruba pastoralist communities.**
  - Wool of the **indigenous Deccani sheep** (known locally as **Nalla gorrae**) is used.
- The coarse woolen blanket is **famous for its durability and versatility** and it does not fade but **grows darker in time.**

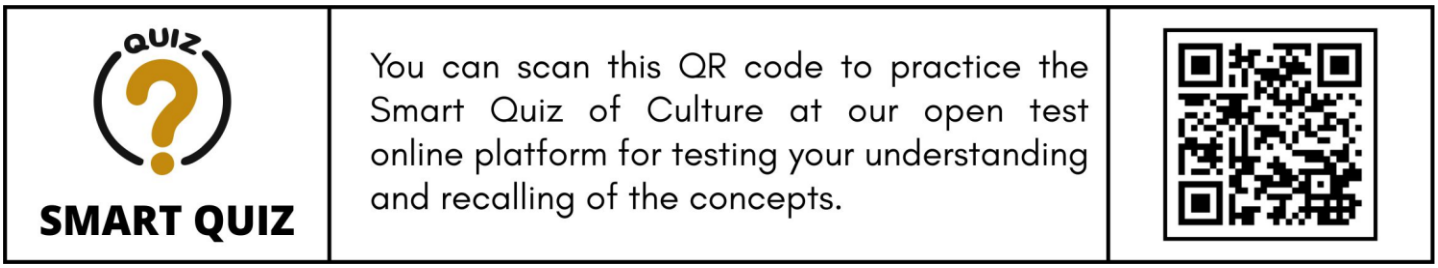
- It is **produced organically, without using any dyes either natural or synthetic.**

8.3.4. CHAM LAMA DANCE

- It is a **masked dance unique to Tibetian Buddhism**
- In this Buddhist monks with colourful costumes dance to the sounds of traditional instruments.
- The **dance in itself is seen as a form of meditation** and mostly practised during festivals like Losar in Buddhist monastries.
- **Padma Sambhava (Guru Rinpoche)** the founder of Nyingmapa is believed to **have started the Cham Dance tradition.**
- The dance **often depicts scenes of Padmasambhava's life and his 8 manifestations**

8.3.5. GOVIND SWARUP LIFETIME ACHIEVEMENT AWARD

- **Professor Jayant Vishnu Narlikar** gets first Astronomical Society of India (ASI) Govind Swarup Lifetime Achievement Award in Pune.
- Award was established in 2022, golden jubilee year of ASI, to **recognise eminent Indian astronomers.**
- **Professor Govind Swarup (1929-2020)** was **founder of Indian radio astronomy.**
  - He constructed **Ooty Radio Telescope (ORT) and Giant Metrewave Radio Telescope (GMRT).**
  - He was the founding director of **National Centre for Radio Astrophysics (NCRA),** Pune.
  - He was one of the **strongest early proponents of Square Kilometre Array (SKA).**



9. ETHICS

9.1. CLINICAL TRIALS

Introduction

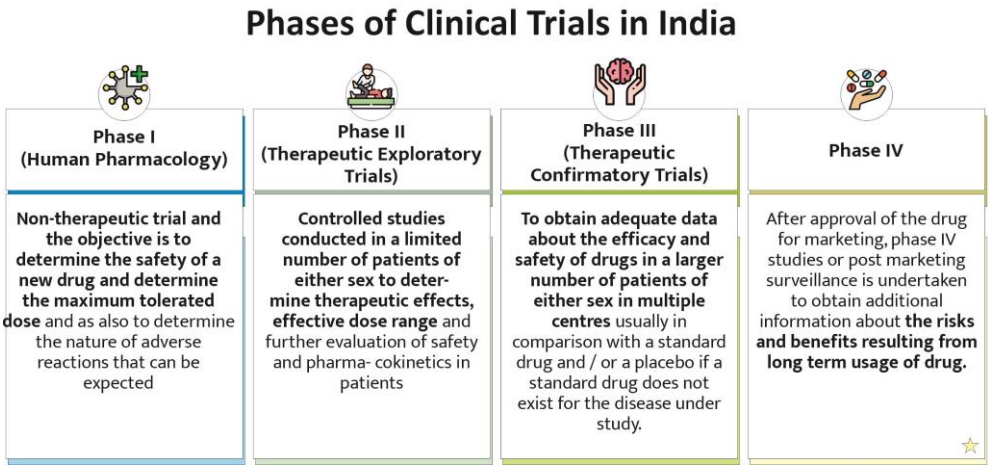
As per the joint report by the USA India Chamber of Commerce & PwC India titled, "Clinical Trial opportunities in India", **Clinical trial activity in India has been increasing steadily due to several key regulatory reforms** aimed towards global harmonisation, enabling open access to clinical trials in India. The **country's diverse population, combined with its rapidly advancing healthcare infrastructure**, provides a fertile ground for clinical trials to flourish.

About Clinical Trials

- **Clinical trial** can be defined as a **set of practice that helps certify a new drug molecule as safe and efficacious** before reaching the market.
- Clinical trial plays a **critical role in health care delivery**.
- It's through **clinical trials that scientists develop new treatments, cures and preventive measures** that help mediate the spread of disease.
- **There are various types of clinical research like Treatment research, Prevention research, Diagnostic research, Genetic studies, Epidemiological studies**, **Clinical studies** etc.
    - **Genetic studies** examine the link between genes and disease with the goal of improving disease prediction and estimating the chances of an individual contracting a specific disease.
    - **Epidemiological studies** are intended to spot patterns, causes and ways to control diseases in certain populations by identifying risk factors and protective factors for those diseases.
    - **Clinical studies** are also referred to as observational studies. Clinical studies observe people in normal settings to group volunteers by characteristic and note changes over time.

Regulation of Clinical Trials in India

- **Drugs and Cosmetics Act 1940**: In India, regulations pertaining to clinical trials are placed in **Schedule "Y"** of the Drugs and Cosmetics Act 1940, and the rules framed thereunder.
    - New chemical entities cannot be administered to human subjects in a clinical trial without permission from the Drugs Controller General of India
    - The Drugs Controller General of India (DCGI) is an official of the **Central Drugs Standard Control Organization (CDSCO)** who is the final regulatory authority for the approval of clinical trials in the country.
- **ICMR Ethical Guidelines:** It mandates setting up of Ethics Committees (EC's) at the institutional levels, for the purpose of scrutinizing and approving a clinical trial before it begins; and to conduct periodic reviews of the progress of the trial.



International Rules and Regulations regarding Clinical Trails

- **Belmont Report:** Three basic principles, among those generally accepted in our cultural tradition, are particularly relevant to the ethics of research involving human subjects: the principles of respect of persons, beneficence and justice.
- **Declaration of Helsinki:** It is an international agreement put forward by the World Medical Association and amended many times over the years to address new ethical concerns.
- **Nuremberg Code:** It was ratified following World War II, in response to the abusive and exploitative clinical trials undertaken by Nazi scientists. It provides an international standard for clinical research ethics.
- **Good Clinical Practice (GCP)**: It is an international ethical and scientific quality standard for designing, conducting, recording and reporting trials that involve the participation of human subjects.
- **International Ethical Guidelines for Health-related Research Involving Humans, 2016:** They are prepared by the Council for International Organizations of Medical Sciences (CIOMS) in collaboration with the World Health Organization (WHO).

- The process of conducting clinical trials is characterized not only by scientific rigor but also by a **strong commitment to ethical standards.**
    - **For instance, in the COVID-19 crisis,** clinical researchers understood the sense of urgency surrounding the need for treatments and vaccines. However, they were compelled to follow ethical protocols to ensure their data was accurate and transparent.

Various Ethical principles involved in Clinical Trials as per stakeholders

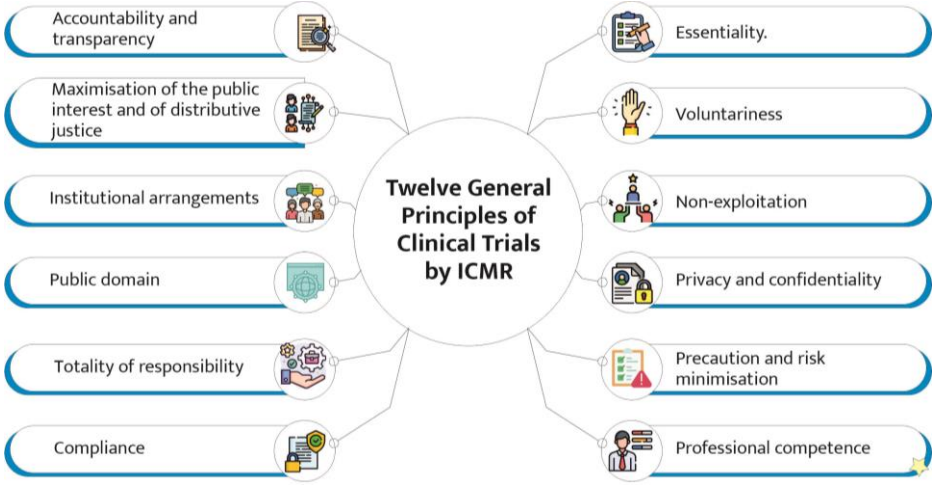
Clinical Trial Patients • **Informed Consent**: Patients have the right to receive comprehensive information about the research, ensuring they fully comprehend it and voluntarily participate. • **Beneficence**: Patients are entitled to ethical treatment that respects their decisions and protects them from harm, while also promoting their well-being. • **Compensation for Research-Related Harm**: Patients who suffer harm from participation are entitled to fair compensation after proper assessment. • **Privacy and Confidentiality:** Patients have the right to control their personal information, and this information should be safeguarded by the research team.	**Sponsors** • **Avoiding Conflict of Interest:** Sponsors should have robust policies and procedures in place to identify and mitigate potential conflicts of interest. • **Post-Research Access and Benefit Sharing:** Sponsors should ensure that the benefits from research are accessible to relevant individuals, communities, and populations. • **Distributive Justice:** Sponsors should strive for equitable distribution of research benefits and burdens among participants.	**Researchers** • **Principle of Essentiality**: Researchers should only involve human participants when it is essential for the proposed research, considering all alternatives and existing knowledge. • **Privacy and Confidentiality**: Researchers should safeguard the confidentiality of participant and community data. • **Environmental Protection**: Researchers are responsible for protecting the environment and resources at all stages of the research.
Regulatory Agencies • **Benefit-Risk Assessment**: Regulatory agencies should ensure that the social and scientific value of research justifies the potential risks. • **Transparency and Accountability**: Agencies should ensure research plans and outcomes are accessible to the public, while respecting participant privacy.	**Healthcare Providers** • **Beneficence**: Healthcare providers should ensure patients participating in trials are treated ethically, with their well-being a top priority. • **Informed Consent:** Providers should support the process of informed consent, helping patients understand the research and their voluntary participation.	**Society** • **Post-Research Access and Benefit Sharing:** The benefits from research should be accessible to relevant parts of society. • **Distributive Justice:** The selection of research participants should aim for an equitable distribution of research benefits and burdens. • **Transparency and Accountability:** The wider society should have access to research plans and outcomes, contributing to broader understanding and awareness.

Clinical Trials

- **Side Effects:** Medical research often entails minor pain, discomfort, or injury from invasive procedures, or potential harm from drug side effects.
- **Lack of Transparency:** Some researchers and sponsors may bypass the regulatory framework to expedite trials for increased profit.
    - There also exists a **significant challenge of nexus managing the intertwined relationships** among sponsors, researchers, regulators, and ethics committees.
- **Targeting Vulnerable Populations:** Those in desperate financial situations can become easy targets for unethical clinical trials.
- **Lack of Informed Consent:** Complex language in consent forms can make them difficult to understand, particularly for those with low literacy levels.
- **Compensation:** Participants sometimes fail to receive compensation when clinical trials do not succeed. This raises questions about the extent to which financial incentives could encourage research subjects to provide misleading or false information.

- **Stem Cell Research:** Despite the proven therapeutic value of human stem cells, ethical concerns remain around their harvesting, particularly from human embryos**.**
- **Drug Trials in Neonates:** Ethical challenges include the inherent vulnerability of this population, their higher risk of mortality and morbidity, and the difficulties in obtaining informed parental consent.

Way Forward



- **Regulatory Approval:** The approval process is slow due to new requirements for the submission and review of clinical trials which needs to be streamlined.
- **Patient Recruitment:** The recruitment of patients depends on the availability of investigator sites and patient willingness. Increasing the number of investigator sites could help.
- **Ensuring Quality and Compliance:** Institutional ethics committees (ECs) should devote time and effort to understanding ethical issues - human protection, independent decision-making, handling conflict of interest, reviewing safety reports and compensation, and overseeing clinical trial conduct.
- **Development of National Clinical Trial Infrastructure:** Researchers in low- to middle-income settings need support and training to conduct clinical trials independently or collaboratively.
- **Regulatory Approval:** Clear and unambiguous regulatory provisions applicable to diverse situations would enhance the efficiency of trial approval.
- **Education in Ethical Clinical Trials:** Different stakeholders, including CDSCO functionaries, IEC members, academicians, CROs, and industry professionals, should be educated on ethical clinical trial practices.
- **Compensation for Trial-Related Death or Injury:** Insurance coverage should include all costs associated with investigations and treatments arising from trial participation, the limit and period of insurance coverage, liability per claim, and the aggregate liability.

Scan the QR code to know more about **Medical Ethics.**

Weekly Focus #40: Medical Ethics: From science of medicine to art of medicine

9.2. CHILD ARTISTS AND ETHICS

Introduction

Child artists have come at the crossroads of with their needs and rights at one side and their ability to contribute on the other side. In this context, the **National Commission on Protection of Child Rights (NCPCR)** has issued **Guidelines for Child and Adolescent Participation in the Entertainment Industry or Any Commercial Entertainment Activity**.

Legal Framework for child artists

- **Child Labour (Prohibition and Regulation) Amendment Rules, 2017** provides for the mechanism and procedure that needs to be followed by the production houses for using children as an artist.
- Such children who are working in this industry when subjected to cruelty, exploitation and abuse are considered to be **children in need of care and protection** whereby which the rehabilitation of such children is governed by the provisions of **Juvenile Justice (Care and Protection of Children) (JJ) Act, 2015**.

Need for guidelines

- **Increase in child participation:** With the boom of technology and social media, **children are increasingly participating in content creation**.
- **Child exploitation:** Children have been exploited for their innocence, for lack of adequate regulations protecting them and their rights from the multiple stakeholders.

- **Work Environment:** It is necessary to ensure a healthy work environment for them with minimal physical and psychological stress.
- **Stressful exposure:** Participating in an adult-oriented industry, children are often exposed to unsuitable, anxiety inducing, and at times, dangerous operational hazards and situations.
- **Crimes against children:** The children are also susceptible to a plethora of other crimes against children such as sexual exploitation, child trafficking, bonded labour, etc. if working in an unregulated ecosystem.

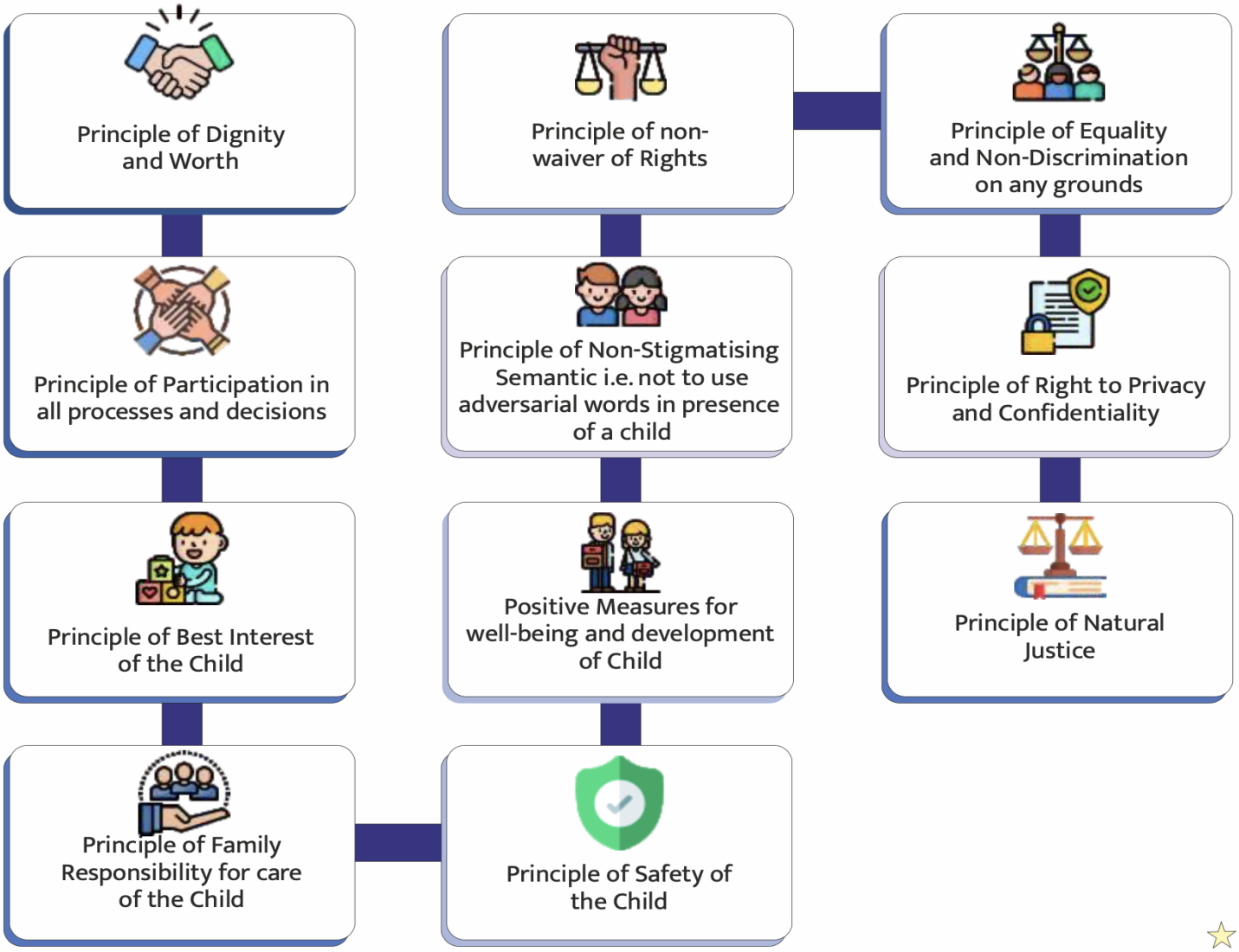
Key provisions of the Guidelines

- **Scope:** Cover television programmes including reality shows, TV serials, news and informative media, movies, OTT platforms, content on social media platforms, performing arts, advertising and any other commercial entertainment activity.
- **Registration of Child Artist with District Magistrate (DM):** Children could be involved in any audio-visual production only after obtaining the permission from the DM.
    - Producer should also furnish the **consent of parents or guardians**, and name of the **individual responsible for safety and security** of the child to the DM.
- **Inspection of workplace:** DMs have been empowered to **instruct the District Child Protection Unit (DCPU) to inspect** the workplace and accordingly issue a permit to the producer.
- **Content Restrictions:** No child/adolescent should be cast or made to participate in a role or situation or content:
    - That is **inappropriate** to the child or that may **distress** him or put him in **embarrassing situations**.
    - Which exposes child to a situation causing **unnecessary mental or physical suffering**.
    - Involving the **indecent or obscene representation** of a child or nudity or sexual act.
    - Which is **not advisable/ not certified to be viewed by them**.
- **Presence of one Parent/Guardian:** If child is below the age of 6 years, at least one parent or guardian must be present.
- **Working hours:** No child shall be allowed to **work for more than 5 hours** in a day.
- **Wages:** At least 20% of the income earned by the child/adolescent from the production to be directly **deposited in a fixed deposit account**.
- **Education:** The work of child should not affect his/her school education and **minimum number of working days and instructional hours in an academic year** should be maintained.
- **Children in news and media:** Media and production houses shall ensure that child victims of sexual offences, trafficking, drug/substance abuse, organized crimes, and children used in armed conflicts, children in conflict with law and child witnesses etc. are **automatically guaranteed anonymity for life**.

Stakeholders' Perspective and Ethical Concerns		
Stakeholders	**Ethical Concerns**	**Responsible Conduct**
Children	• **Lack of one's choice** in kinds of situation which children faces. • **Conflict with education** and cognitive development. • Can be detrimental to **physical and psychological health** due to different kinds of exposure. • **Erosion of privacy** due to public visibility.	• **Regular sessions** of children with social workers and counsellors to understand their choice/ problems. • **Compulsory attendance** criteria in schools with minimum exceptions. • Children to be **educated about their bodily autonomy, rights** and should have **access to help** in case of exploitation. • **Role being played** by child should **not be detrimental** to the child's health.
Parents/ Guardians	• **Attraction of fame and fortune creates enormous pressures** on children and their parents. • Parents face **difficulties in reinforcing a child's sense of self** and coming to terms with reality of the profession in which appearance matters the most.	• **Sensitization** of parents and children **on the difficulties and realities** of industry. • Parents should also be given full information about all aspects of child's employment for an **informed consent.**
Production Houses/ Industry Agents	• Showcases child actors as **models for ideal lifestyle or stardom**, which many would want to emulate. • **Extension of work shifts** to more than statutory limits.	• Enforcement of **statutory working hours**. • **Heavy fines and penalties** on illegitimate agenting practices and frauds.

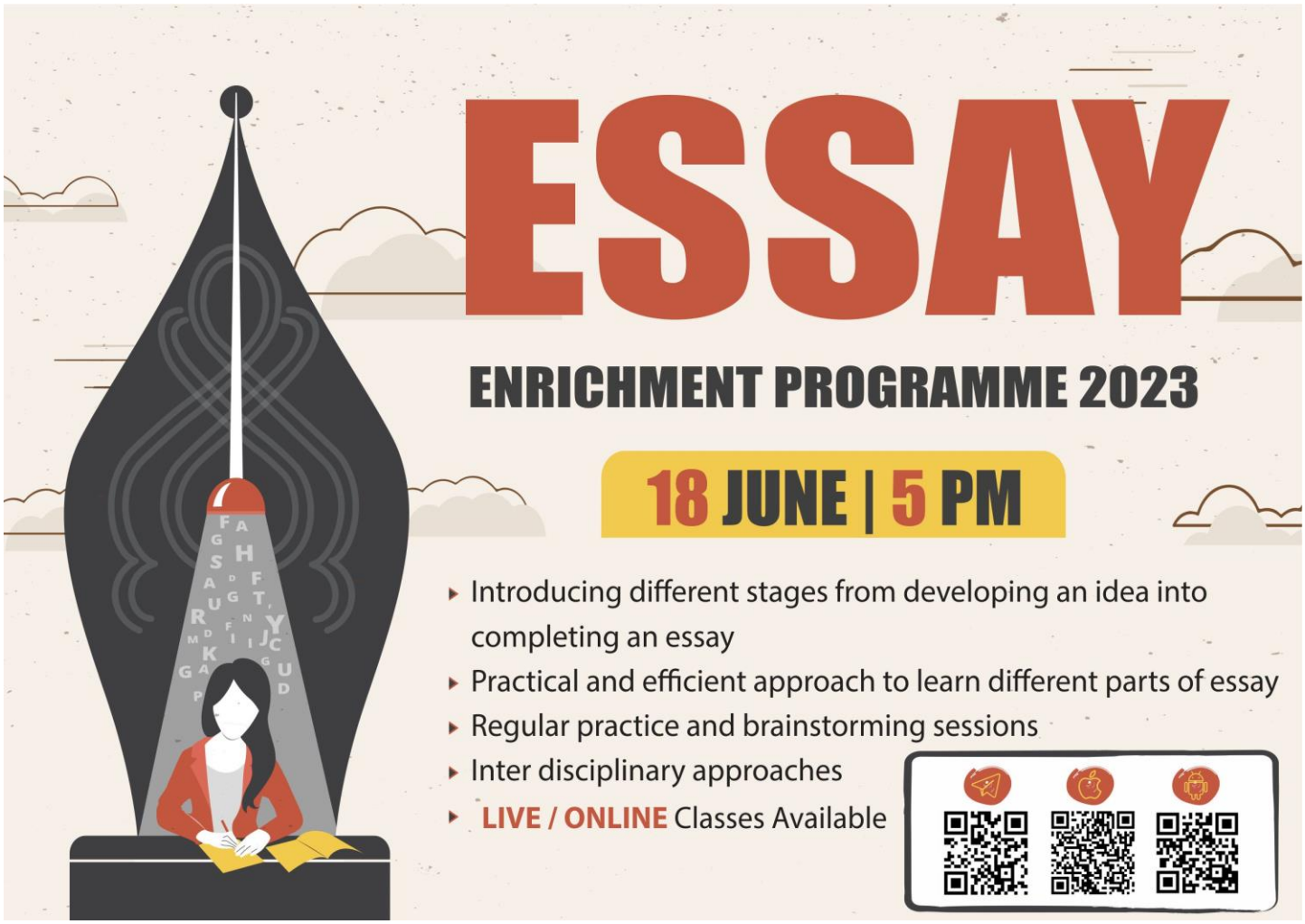
	• **Low wages to child actors**. • Various **unscrupulous agents** cash in on hopes of parents and children.	• A **model contract** laying out some basic responsibilities of production houses and enforcing basic child rights.
Viewers/ Audience	• Representation of **false ideals and maturity** that children find difficult to emulate and come under extreme stress. • **Negative impact from inappropriate display** of a child's character. • Much is left to the viewers' discretion to make sense of some visuals, which sometimes **influences viewers, especially children to their detriment**.	• The **film rating system** needs to incorporate different kinds of portrayals and **accordingly certify the films** for appropriate audiences. • **Inappropriate display** of a child's character should **not be a part of any production**. • **Statutory warnings** on such situations which might influence viewers in a negative manner.
Government	• **Lobbying** by industry groups to relax regulations. • **Difficulties in striking a balance** between child's rights, education, parental aspirations, industry's demands, viewers' discretion etc.	• Government organizations such as **National Human Rights Commission** should can be involved at **policy level.** • **Regulations and laws should factor in the best interests of the child** involved, in terms of his/her education, cognitive development and values incorporation.

General Principles to be followed for Child Artists



Conclusion

Ensuring ethical conduct in the employment of children in the entertainment industry is of paramount importance. Industry stakeholders, parents, child rights organizations, and government should collaborate to develop and adhere to a comprehensive code of ethics for the employment of children.



10. SCHEMES IN NEWS

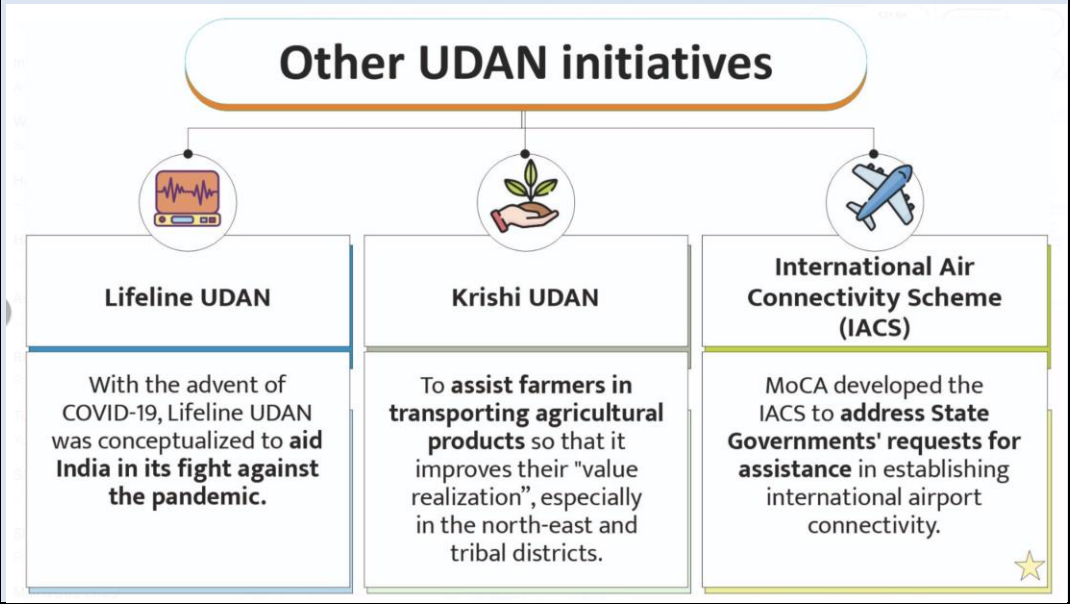
10.1. UDE DESH KA AAM NAGRIK (UDAN)

Why in news?

The Ministry of Civil Aviation has launched the 5.1 version of the Regional Connectivity Scheme (RCS) - Ude Desh Ka Aam Nagrik (UDAN) to enhance the connectivity to remote areas of the country and achieve last mile connectivity through helicopters.

Objectives	Salient Features

• **To facilitate / stimulate regional air connectivity** by making it affordable to the masses by supporting airline operation through
  ○ Concessions by Central Government, State Governments, and airport operators
  ○ Financial (Viability Gap Funding or VGF) support.
• **To provide connectivity to un-served and under-served regions** through revival of existing air strips and airports.
  ○ Under-served airports are those which do not have more than 7 flights a week (14 for priority areas), while unserved airports are those where there are no scheduled commercial flights.
• **To generate Employment** in the sectors like Airport Operation, Aircraft Maintenance, Air Traffic Control and Technical Staff.
• **To promote tourism**, along with the tourist spots, route in the north-east have also been connected.
	• It is a **flagship programme of the Regional Connectivity Scheme** for upgrading the under-serviced air routes.
	• The scheme was **initiated in 2016 to fulfill the aspirations of the common citizen by following the vision of 'UdeDeshkaAamNagrik'**, with an **enhanced aviation infrastructure and air connectivity in tier II and tier III cities**.
	• This Scheme shall be under the purview of the Ministry of Civil Aviation.
	• **Airports Authority of India (AAI)** is designated as implementing agency.
	• **Salient features of the RCS-UDAN**
	  ○ **Limited government support:** The Scheme aimed to achieve its objectives through monetary (VGF) and non-monetary benefits offered to airline operators, provided for a limited duration of 3 years.
	  ✓ Airlines were expected to establish routes and commence commercial operations within this support period.
	  ○ **Cooperative Federalism:** State-level coordination committees were constituted to extend various concessions and benefits to airline operators under the Scheme and to monitor airport infrastructure development.
	  ○ **Capped airfares:** Airfares on the seats on which VGF is provided are capped at affordable rates, as determined by the government.
	  ○ **Transparent, competitive bidding:** The Scheme uses a transparent, two- step bidding process to select the airline operators.
	  ✓ A market-based approach is used to establish the subsidy level within the pre-specified VGF caps.
	  ○ **Technology enabled processes:** A web-based mechanism has been adopted to efficiently implement the Scheme.
	  ○ **Sustainably funded Scheme**: UDAN was a first of-its-kind scheme, which funds regional connectivity through the levy of a small fee on the flights operated on certain categories of domestic routes.
	• The scheme has been **continuously amended to keep it in line with ever evolving priorities and objectives of the government.**
	• **Features of different versions of UDAN:**
	  ○ **UDAN 1.0 (December 2016):** Selected **unserved and underserved airports** across the country were connected through subsidized flights.
	  ○ **UDAN 2.0 (September 2017):** There was enhanced **focus on hilly areas, and Northeastern and island states** to enhance connectivity to these under connected regions.
	  ○ **UDAN 3.0 (October 2018): Inclusion of Tourism Routes** under UDAN 3 in coordination with the Ministry of Tourism
	  ✓ Inclusion of Seaplanes for connecting Water Aerodromes
	  ✓ International Air Connectivity Scheme was also introduced and incorporated within the broader framework of RCS-UDAN.
	  ○ **UDAN 4.0 (December 2019):** Focus on **awarding and operationalizing cancelled routes of past UDAN rounds** as well as routes specifically requested by State governments, Ministry of Tourism and Ministry of DONER.
	  ○ **UDAN 5.0 (April 2023)**: To further enhance the connectivity to remote and regional areas of the country and **achieve last mile connectivity**.

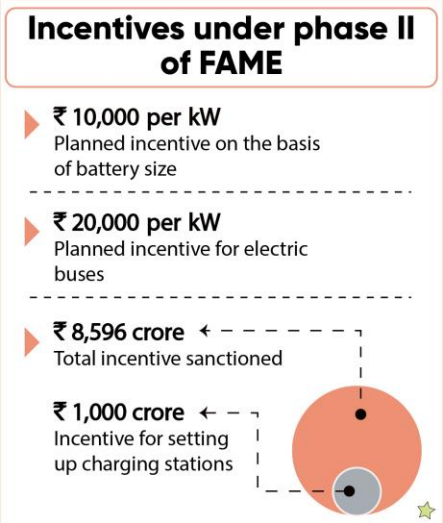
	✓ Focuses on Category 2(20-80) and Category 3(>80) seats. ✓ The earlier **stage length cap of 600 km is waived off** and there is no restriction on the distance between the origin and destination of the flight. ✓ **Viability gap funding (VGF)** to be **provided will be capped at 600 km stage length** for both Priority and Non-Priority areas which was earlier capped at 500 km. ✓ **Airlines would be required to commence operations within 4 months** of the award of the route. Earlier this deadline was 6 months. ✓ The **same route will not be awarded to a single airline more than once**, whether in different networks or in the same network. ✓ **Novation process** for routes from one operator to another is simplified and incentivized. 

10.2. FAME II

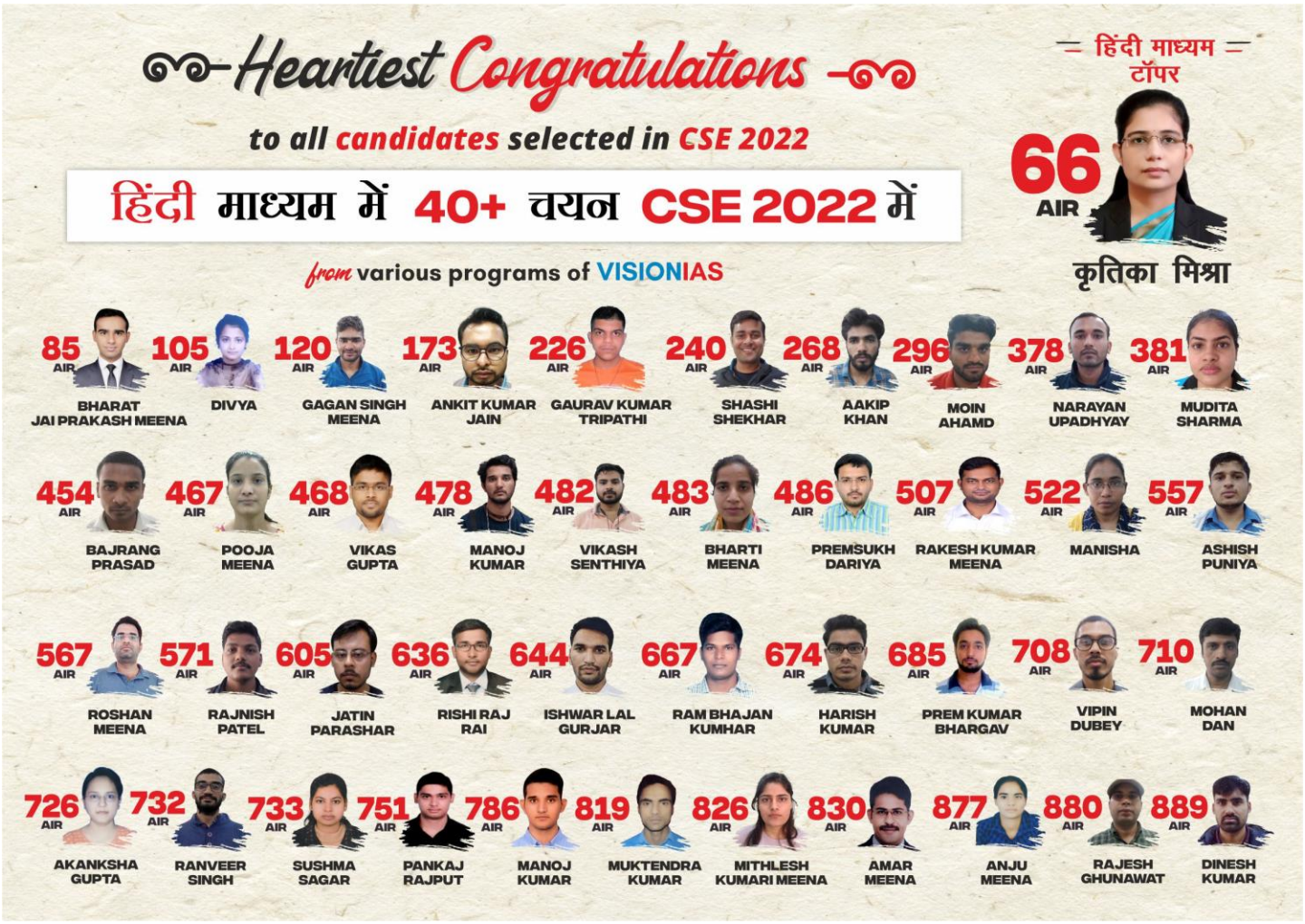
Why in news?

Recently, the Government has reduced subsidy on Electric vehicles under FAME II (Faster Adoption of Manufacturing of Electric Vehicles).

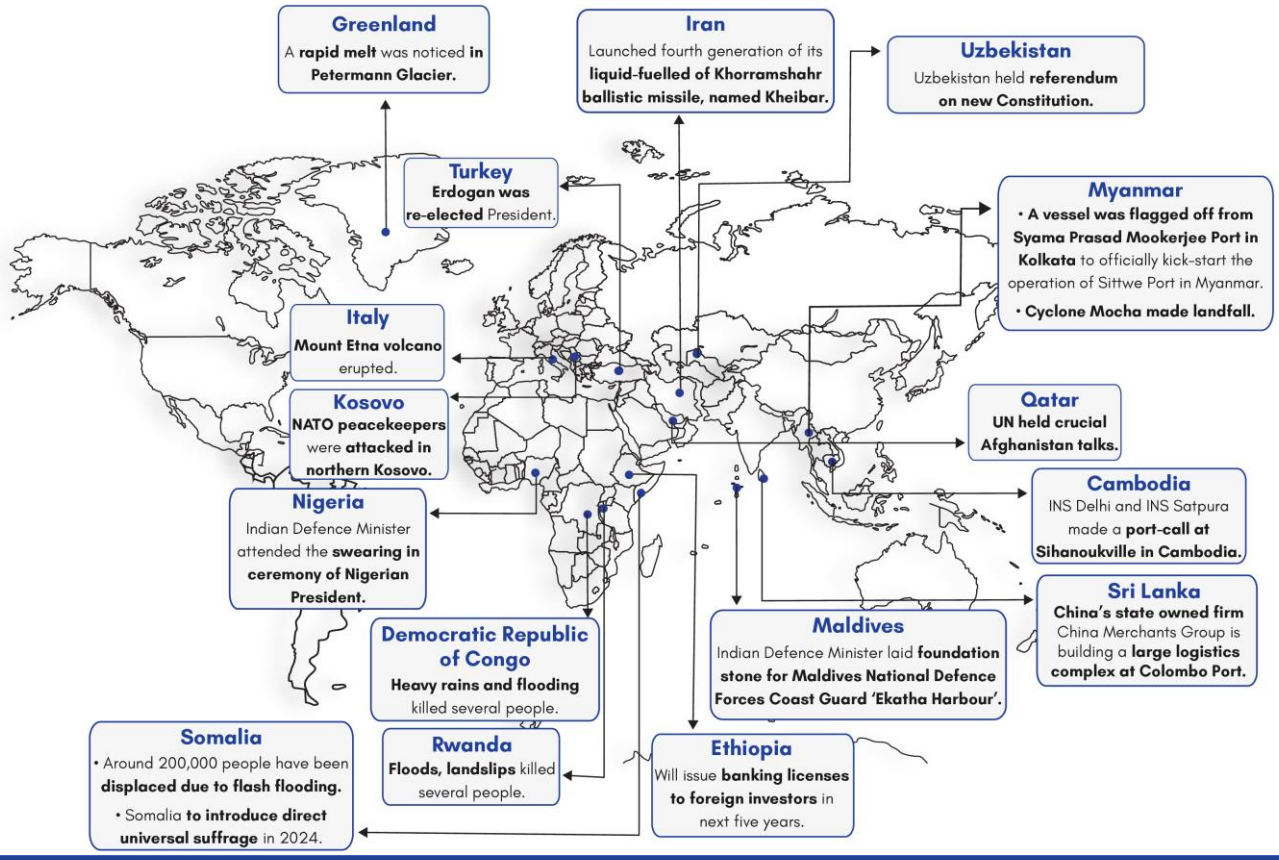
Objectives	Salient Features

• To **encourage faster adoption of electric and hybrid vehicle** by the way of market creation and indigenization.
• To **provide fiscal and monetary incentives for adoption and market creation** of both hybrid and electric technologies vehicles in the country.
• To **achieve the target of more**
	• Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles in India (FAME-India) Scheme is launched under **National Mission on Electric Mobility in 2011 under National Electric Mobility Mission Plan 2020.**
	  ○ Scheme is **implemented by the Ministry of Heavy Industries.**
	• FAME- Phase I was initially approved for a **period of 2 years,** commencing from 2015 with a **total outlay of Rs. 895 crores**.
	  ○ The Scheme has been extended from time to time, with the last extension allowed for a period up to 31st March 2019.
	• Government has approved Phase-II of FAME Scheme with an outlay of Rs**. 10,000 Crore** for a period of 3 years commencing from 1st April 2019.
	  ○ FAME India Phase II has been **extended till 2024.**
	• **Key features of FAME Phase II**
	  ○ **Focus on public transportation**: FAME II has greater focus on **demand-creation by pushing adoption of**
	 

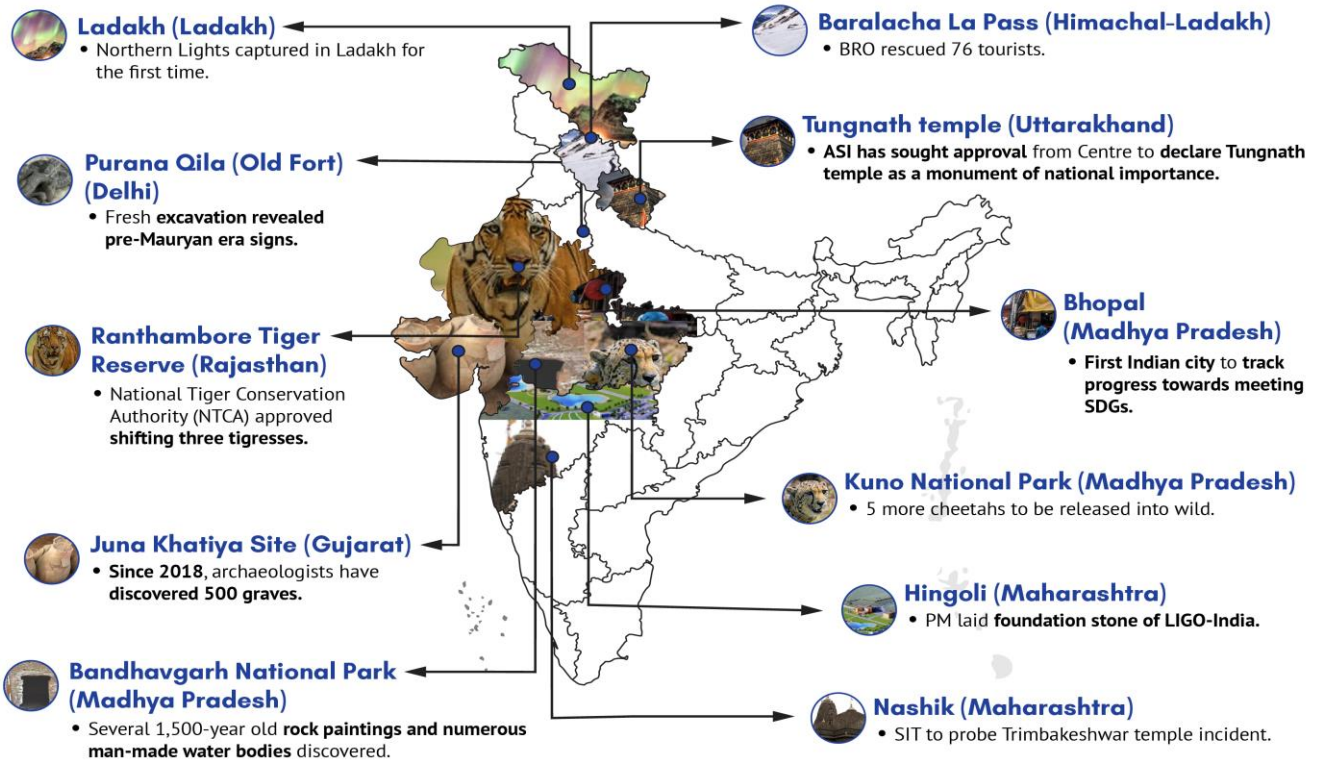
than 30% electric vehicles by 2030. • To **encourage the switch to electric mobility** to **reduce carbon emissions in line with the COP 21 agreement** and **save fuel**.	**EVs in public transport/commercial segment** (in comparison to consumer segment). ✓ It is planned to **support 10 Lakhs e-2W (electric – 2-Wheeler), 5 Lakhs e-3W, 55000 4Ws and 7000 Buses**. ✓ **Privately owned registered e-2Ws are also covered under the scheme as a mass segment.** ✓ Recently, the **Government has put a cap on incentives for electric two-wheelers** which will be **15 per cent of the ex-factory price of vehicles from 40 percent at present**. ○ **Applicability:** Vehicles, fitted with **only advanced chemistry battery**, meeting with minimum technical criteria and **registered as Motor Vehicle as per CMVR** shall be eligible for incentive under the scheme. ○ **Demand Incentives:** Out of total budgetary support, about 86 percent of fund has been allocated for Demand Incentive to create demand for EVs in the country. ○ **Local manufacturing: Special incentives** will be given for local manufacturing of critical components for electric vehicles, especially the lithium ion batteries. ✓ Only advanced battery and registered vehicles will be incentivized under the scheme. ○ **Establishment of charging infrastructure:** About 2700 charging stations will be **established in metros, million plus cities, smart cities, and cities of hilly states across the country**. ✓ The **guidelines propose to set up at least one charging station in a grid of 3km x 3km in the cities** and on both sides of highways connecting **major city clusters at every 25km**. ✓ **Existing retail outlets of oil marketing companies (OMCs)** will be given higher preference for setting up public charging stations.



Places in News: World



Places in News: India



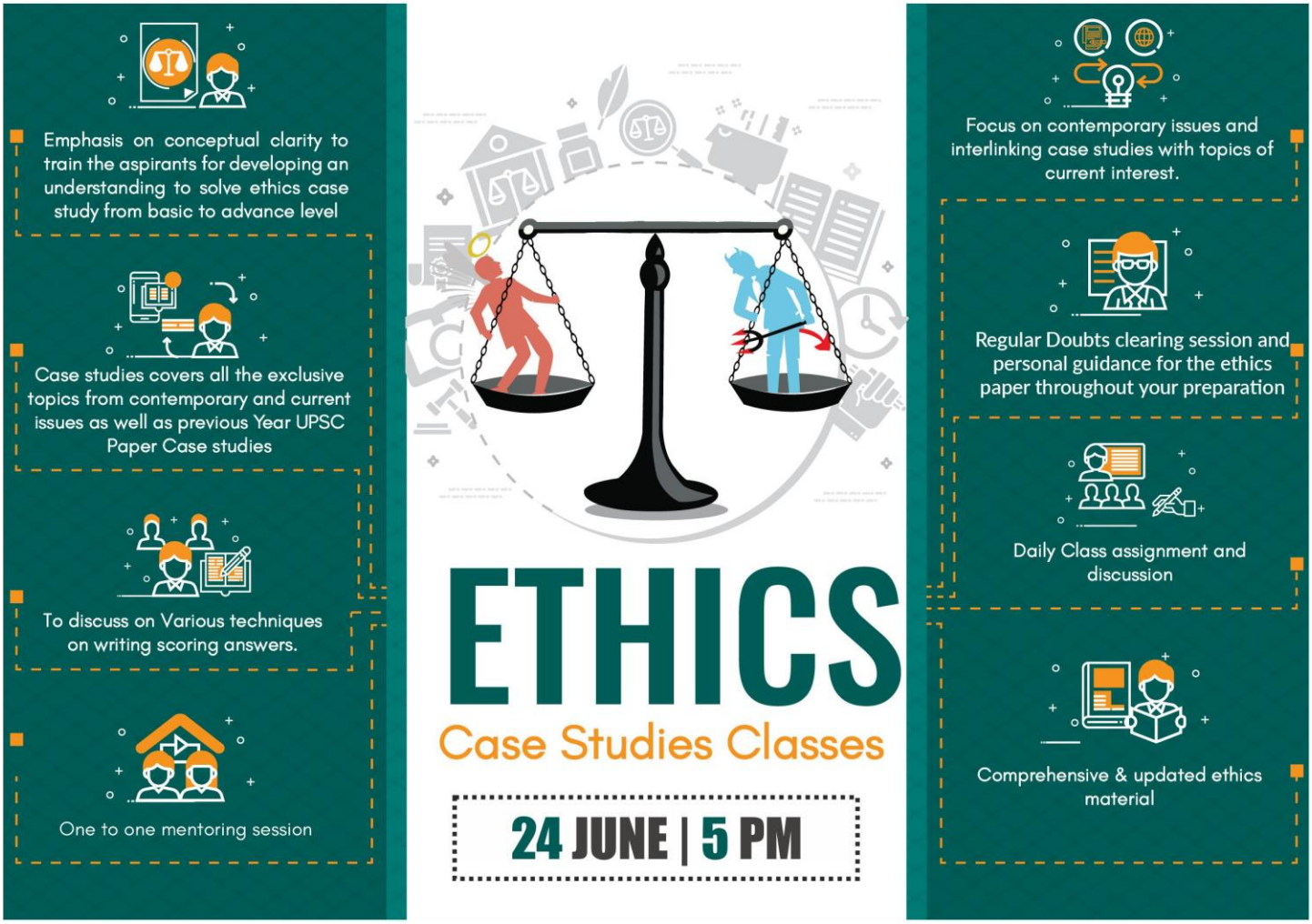
Personalities In News

Personality	About	Ethical Values Exhibited by the Personality
 Maharana Pratap	• Maharana Pratap was a **Rajput King who belonged to Sisodiya clan of Rajputs.** • He **was the ruler of Mewar,** a province in modern day Rajasthan. • He was the **eldest son of Uday Singh II,** founder of Udaipur. • His army **fought against Mughals in battle of Haldighati.** • **Chetak was the loyal horse** of Rana Pratap with **whom he shared a deep bond.**	**Fortitude and Respect for women** • He bravely resisted the military advances of much powerful adversary and fought without any compromises. • He never allowed mistreatment of women even in his captured people.
 Akkamma Cherian	• **She was born in** 1909 to **in Travancore in Kerala.** • In 1938, **inspired by Mahatma Gandhi, she gave up her teaching job to join the Travancore State Congress** and fight for India's independence. • **She led a protest march** in 1938, **against then King and Dewan of erstwhile Travancore** to pressure rulers **to release jailed leaders** and establish **a responsible government in Travancore.** • **Mahatma Gandhi** dubbed her **"Jhansi Ki Rani (Queen) of Travancore".** • She was given a task to **organize the 'Desa Sevika Sangha'** (women's volunteer corps). • After independence, **she was elected to the Travancore Legislative Assembly** in 1947. • **She wrote her own biography** named **Jeevitham: Oru Samaram** (Life: A Struggle).	**Dedication and Selflessness** • She showed immense dedication to the cause of India's independence. Inspired by Mahatma Gandhi, she was committed to the struggle and actively worked towards achieving the goal of freedom. • Her decision to join the Travancore State Congress and fight for independence was a selfless act. She prioritized the well-being of her nation over personal comfort and security.
 Allama Muhammad Iqbal	• **Mohammad Iqbal was born and settled in Sialkot.** • **He took education in Arabic, Persian, and Urdu.** • **He taught philosophy, practised law, got involved in politics, and also attended the second Round Table Conference.** • **He is considered the brain behind the idea of Pakistan.** • **King George V** decorated him with **knighthood**	**Human Equality** • He believed in the principle of human equality. He advocated for the rights of all individuals, regardless of their background or religion.

Govind Sankara Kurup
	• **Govind Sankara Kurup** was **born in 1901, in Nayattot (Kerala).**
	• He was a famous **Malayalam poet** and **thinker.**
	• Kurup published his first poem, called **Salutation to Nature** at the age of 17 in 1918.
	• **Influenced** by **Rabindranath Tagore** and **M. Gandhi** for humanism.
	• **Contribution:** Translated Gitanjali (a collection of poems by poet Rabindranath Tagore) and "Odakkuzhal," (Flute).
	• **Achievements/Awards:**
	  ▸ **'Kerala Sahitya Akademi Award' in 1961 for poetry collection and literature Viswanathanam.**
	  ▸ **Sahitya Akademi Award** in 1963 for **Vishwa Darshanam (Collection of Poems).**
	  ▸ **Jnanpith Award** in **1965** for the **first edition of "Odakkuzhal.**
	  ▸ He was nominated as a **Rajya Sabha member** in 1968.
		Humanism and Scientific Temperament
		• He embraced humanism in his works and philosophy. Influenced by Rabindranath Tagore and Mahatma Gandhi, he emphasized the value and dignity of human beings.
		• He approached his writing and thinking with a scientific mindset, exploring the depths of human emotions and experiences through observation and introspection.

 Nanak Bhill	• **Nanak Bhill** was born in **1809 in the Dhaneshwar village of Barar (Rajasthan).** • He was one of the **earliest revolutionary fighters** against the feudal class. • He **was influenced** by **Govind Guru** (Religious reformer in Rajasthan) and **Motilal Tejawat** (leader of the Eki Movement.) • He was a **follower of Pandit Nayanuram Sharma** a leader of the Bundi/Barad peasant movement of Rajasthan (1922-26).	**Courage and Patriotism** • He stood up against the oppressive systems and structures of his time, challenging the status quo and advocating for the rights and well-being of the marginalized sections of society. • His actions and involvement in the peasant movement **and his singing of Vande Mataram at public gatherings reflect his strong sense of patriotism.**

Upendranath Bandopadhaya
	• He was born in 1879 in Chandannagar, Hooghly (West Bengal).
	• **Contribution:** Editor of Yugantar and Aurobindo Ghosh's 'Vande Mataram journal.
	• **Activities:**
	  ▸ He was associated with the **Maniktala Garden House Group (a group of freedom revolutionary).**
	  ▸ He was also involved in **Alipore Conspiracy Case (an attempt to murder the district judge of Muzaffarpur).**
	• **Upendranath** was arrested by the British along with Barindra Ghosh and others **and** was sent to **Cellular jail (Kalapani).**
	• He wrote **his experience in the Cellular Jail** in Nirbasiter Atmakatha (Soliloquy of the Abandoned).
		Integrity and Patriotism
		• He fearlessly fought against British colonial rule and stood up for what he believed was right, even if it meant facing severe consequences.
		• He dedicated his life to the cause of independence and actively participating in revolutionary activities.



 Dinesh Chandra Mazumdar	• **Dinesh Chandra Mazumdar** was born in 1907, in Basirhat, 24 Parganas (West Bengal). • **Inspired by Pulinbehari Das,** and associated with revolutionaries like Bipin Bihari Ganguly. • He joined **Shimla Byayam Samiti** and the **anti-British group 'Jugantar'** • He **spearheaded the training of Chhatri Samgha units,** empowering girls through self-defense. • He threw a bomb at the **then-police commissioner** of Calcutta, **Charles Augustus, and attacked Alfred Watson, editor of the Statesmsner** • He was **hanged in 1934,** in the **Alipore Central Jail.**	**Revolutionary Spirit and Determination** • His actions were driven by a vision of a free and independent India, and he pursued his ideals with unwavering determination.
 Ganesii Damodar Savarkar	• **Ganesii Damodar Savarkar aka Babarao Savarkar** was born in 1879, in Bhagpur, (Maharashtra) • He was the **elder brother of revolutionary Vinayak Damodar Savarkar.** • **Contributions** ▸ co-founded the **Abhinav Bharat Society, in 1904.** ▸ Formed **'Mitra Mela'** ▸ Joined a revolutionary group called **Rashtra bhakta samooh.** ▸ Proponent of the **Swadeshi movement** • He was inspired by the **Italian revolutionary Mazzini and** associated with the **'Nasik Conspiracy Case'.** • He was **sentenced to rigorous punishment** for his **nationalistic activities** in Cellular Jail.	**Self-Reliance** • He was a proponent of the Swadeshi movement, which promoted indigenous production and self-sustainability as a means to strengthen the nation. His advocacy for self-reliance reflected his belief in empowering individuals and communities to take charge of their own destiny.

Copyright © by Vision IAS

All rights are reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, without prior permission of Vision IAS.

SPACE FOR NOTES

VISIONIAS
INSPIRING INNOVATION

Stay in touch with Your Preparation

FOLLOW US ON SOCIAL MEDIA

/c/VisionIASdelhi

/VisionIAS_UPSC

/vision_ias

/Vision_IAS

/visionias.upsc

39 IN TOP 50 SELECTIONS IN CSE 2022

from various programs of VisionIAS

1 AIR

ISHITA KISHORE

2 AIR

GARIMA LOHIA

3 AIR

UMA HARATHI N

YOU CAN BE NEXT

DELHI

- **HEAD OFFICE:** Apsara Arcade, 1st Floor, 1/8-B, Near Gate 7, Karol Bagh Metro Station, Delhi
  +91 8468022022 +91 9019066066
- **Mukherjee Nagar Center:** Plot No. 857, Ground Floor, Banda Bahadur Marg (Opp Punjab & Sindh Bank), Dr. Mukherjee Nagar- 110009

JAIPUR | PUNE | AHMEDABAD | BHOPAL | GUWAHATI | HYDERABAD | RANCHI | LUCKNOW | PRAYAGRAJ | CHANDIGARH

/c/VisionIASdelhi /vision_ias /visionias_upsc /VisionIAS_UPSC www.visionias.in