



Monthly

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FOUNDATION COURSE GENERAL STUDIES

PRELIMS CUM MAINS 2023

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

- Includes comprehensive coverage of all the topics for all the four papers of GS Mains, GS Prelims & Essay
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DELHI: 17 JULY, 5 PM | 7 JULY, 1 PM | 29 JUNE, 9 AM
22 JUNE, 1 PM | 15 JUNE, 9 AM | 8 JUNE, 9 AM

LUCKNOW: 25th June

CHANDIGARH: 21st June

JAIPUR: 22nd June

HYDERABAD: 13th June

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ADVANCED COURSE GS MAINS



Targeted towards those students who are aware of the basics but want to improve their understanding of complex topics, inter-linkages among them, and analytical ability to tackle the problems posed by the Mains examination.



Covers topics which are conceptually challenging.



Approach is completely analytical, focusing on the demands of the Mains examination.



Mains 365
Current Affairs
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Comprehensive current affairs notes



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arises, class can be held
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**16 JUNE
1 PM**

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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.

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1. POLITY AND GOVERNANCE

1.1. REFORM IN SEVENTH SCHEDULE

Why in news?

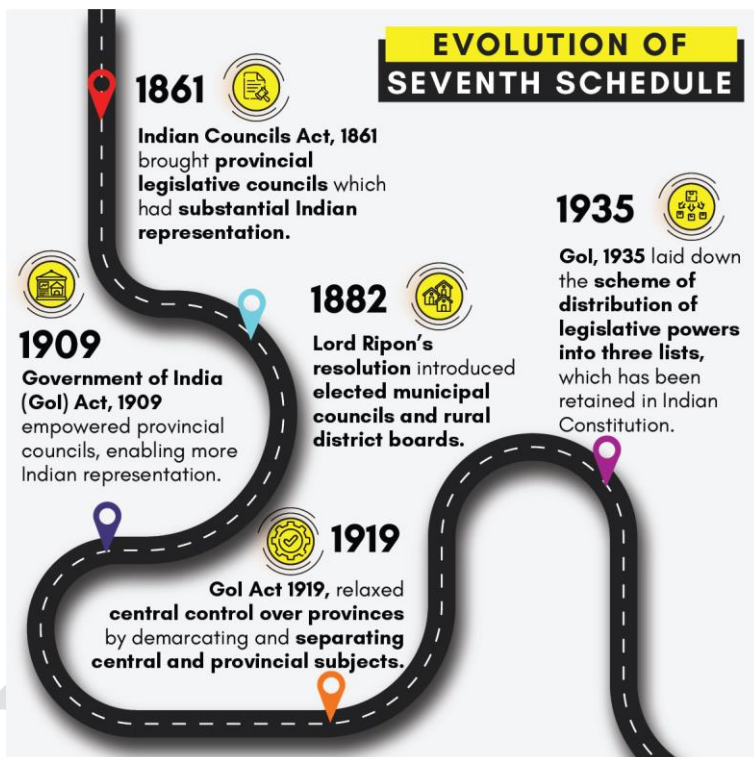
Recently, many experts advocated revisiting the seventh schedule of the Indian constitution.

About Seventh Schedule

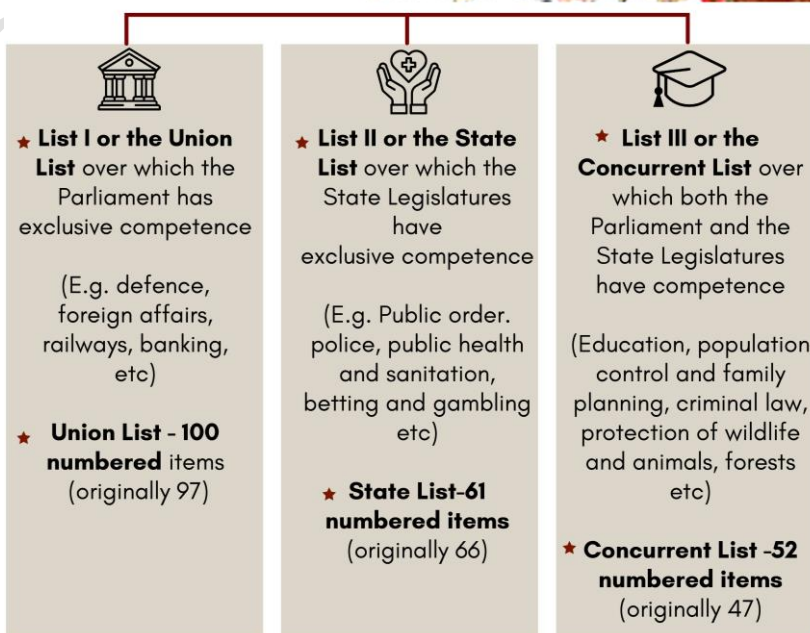
- Seventh Schedule under **Article 246** provides **distribution of powers and responsibilities between the state and central governments**.
 - It specifies the role and responsibilities into three lists namely, **Union List, State List and Concurrent List**.
- The Union list details the **subjects on which Parliament may make laws** while the state list details those under the **purview of state legislatures**.
 - The **concurrent list** has subjects in which **both Parliament and state legislatures have jurisdiction**.
 - However, the Constitution provides **federal supremacy to Parliament on concurrent list items** in case of a conflict.
- Article 248** confers residuary powers on the Parliament.
 - Residuary powers refer to the **power of jurisdiction upon subjects that are not mentioned in the state or concurrent list**.
- As per **Sarkaria Commission**, concurrent list subjects are neither exclusively of national concern nor of local concern and hence occupy a constitutional 'grey' area.

Rationale of keeping Seventh Schedule in the Constitution

- Ensuring Unity and Integrity of India:** Due to partition, there was an **emphasis on national integration** and only a strong central government could **manage the complex administrative problems**, protect the nation against external threats and invasions, and maintain international relations.
- Enabling responsive governance:** Local governments under the state list are seen as encouraging political participation, accommodation of various views, bolster rights of minorities and communitarian values.



7th SCHEDULE CONTAINS 3 LISTS



- It engages the public policy making, its implementation, monitoring and evaluation.
- **Achieving Balanced economic development:** Seventh Schedule favors the allocation of legislative power to the Union Government to **ensure economic development at the national level** in a coordinated manner and bring **parity in socio-economic development** across states.
- **Promoting Diversity:** Allocation of legislative powers to state can promote cultural autonomy, given the unique diversity in India with respect to its **geographical area, population and number of languages spoken**.
- **Others:** As per Joint Committee Report 1934, it was necessary to ensure that provinces remained truly autonomous to determine their jurisdiction independently in order to **bolster spirit of cooperation between union and states**.

Amending the Seventh schedule

- **Procedure for amending Seventh schedule**
 - It can be amended as **provided under Article 368 in Part XX** of Constitution.
 - It **requires special majority of the Parliament** (majority of the total membership of the House and by a majority of not less than two-thirds of the members of the House present and voting) and also the **consent of half of the state legislatures by a simple majority**.
- **Other provisions that can be amended in such manner are**
 - Election of President and its manner.
 - Extent of the executive power of the Union and the states.
 - Supreme Court and high courts.

Need to revisit Seventh Schedule

- **Archaic:** The present Seventh Schedule containing union, state and concurrent lists were **inherited from the Government of India Act, 1935** and needs to be updated with the changing time.
- **Service delivery:** Citizens increasingly demands efficient delivery of public goods. But without delegation of funds, functions, and functionaries, presently dominated by central government, local governments are unable to respond.
- **Centralization:** Items have moved from the state list to the concurrent list and from the concurrent list to the union list **highlighting centralization in an era of decentralization**.
 - For example, shifting of the subjects like **forest and education from the state to the Concurrent List by the 42nd Amendment**.
- **Dominant position of Centre:** In concurrent list, **central law prevails in case of conflict** between state and central law effectively giving Centre dominance in concurrent list as well.
- **Appropriate placement:** **Ensuring that existing entries or new entries that are sought to be added** are appropriately placed under the three lists highlighting the needs of governance in 21st Century.
- **Centre State Conflict:** Federal tensions in post-independence India such as **state demand for greater autonomy**, further highlight the need for reforming the Seventh Schedule.



Related information

- **Doctrine of pith and substance**
 - **Pith means 'true nature'** or 'essence of something' and **Substance means 'the most important or essential part of something'**.
 - It says that where the question arises of determining **whether a particular law relates to a particular subject** (mentioned in one List or another), the **court looks to the substance of the matter**.
 - ✓ Thus, if the substance falls within Union List, then the incidental encroachment by the law on the State List does not make it invalid.
 - **Supreme Court in various cases** like Calcutta Gas Company case (1962), India Cement Ltd Vs. State of Tamil Nadu (1990), Jilubhai Nanbhai Khachar case (1994) referred to the principle of Pith and Substance.
 - It is essential to **ascertain the true nature and character of a legislation** for the purpose of determining the List under which it falls.
- **Doctrine of Colourable Legislation**
 - It is based on the maxim that **what cannot be done directly cannot also be done indirectly**.
 - It depicts the notion that **legislation cannot be used under 'colour' or 'guise' of power** which was conferred for one purpose and use it for some other purpose which is otherwise not valid.
 - It is built upon the **founding stones of the Doctrine of Separation of Power**.
 - It is a tool devised and applied by the Supreme Court to interpret Constitutional provisions to **avoid any unjust or fraudulent use** of Indian laws.
 - ✓ In "**Balaji v. State of Mysore**" case, SC held that the order reserving 68% of the seats for students belonging to backward classes was violative of Article 14 in disguise of making a provision under Article 15(4).

Way forward

- **Constitute a High-Powered Commission:** It may consist of eminent lawyers and jurists with administrative experience to examine the entries of Lists I and III in the Seventh Schedule and suggest redistribution of the entries.
- **Institutional framework:** Consideration for a consultative forum for credible policy dialogue between the Centre and the states to give a **boost to cooperative federalism**.
- **Sarkaria Committee Recommendations (1998 Report):**
 - **Residuary Power:** Residuary powers be **transferred from the Union List to the Concurrent List**, except for the residuary power to impose taxes which should be retained in the Union List.
 - **Concurrent List:** States should be **consulted by the Centre** before exercising power over Concurrent List.
- **Periodic review:** Undertake a periodic review of the lists, focusing on removal of outdated entries, addition of new entries, and appropriate placement of existing entries.
- **Transfer of Entries:** As per **M.M. Punchhi Commission, 2010**, Centre should only transfer those subjects to Concurrent List which are necessary for ensuring uniformity in basic issues of national policy.

To know more about **Seventh Schedule**, please refer to our following **Weekly Focus Document**.

 <p>Seventh Schedule of the Indian Constitution - Does it need a relook?</p>	<p>The Seventh Schedule determines the level of government at which public intervention and public expenditure occur. This distribution of power orchestrates the federal nature of our polity. This nature does not remain constant but always in a flux, depending upon socio-economic and political circumstances. Does the current context warrants a relook on it?</p>	
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1.2. DEATH PENALTY (CAPITAL PUNISHMENT)

Why in News?

Recently, the Supreme Court had Suo moto opened a review of the process by which courts award the death penalty.

About Death Penalty

- Death penalty, also known as **capital punishment**, can be defined as ‘a practice sanctioned by law whereby a person is put to death by the state as a punishment for a crime after a proper legal trial’.
- Used as a **mode of punishment** since **time immemorial**, the moral acceptability of Death Penalty, i.e., state power to execute people and its circumstances is a matter of debate globally.

Death Penalty in India and its Framework

- India is among the few countries that retains capital punishment under different laws for serious offences- beyond the Law Commission recommendations (see **infographic**).
- By end of **2021, 488 prisoners** were on death row in India under serious offences with introduction/ proposal of more laws with Death Penalty such as:
 - **Punjab and Madhya Pradesh** introduced death penalty for causing deaths by spurious liquor.
- In 1980, in **Bachan Singh v State of Punjab**, the Supreme Court Judges upheld the **constitutional validity** of death penalty due to built-in **reasonable procedural safeguards** and its procedure which is **neither arbitrary nor gives excessive discretion** to judges.

- However, it gave a **framework** for future sentencing judges when deciding between **life imprisonment** and the **death sentence** (see **image**).
- Even after 40 years of the judgment, the framework remains **subjective**, and is often **misrepresented**.

Arguments Supporting Death Penalty

- **Deterrence:** Death penalty is justified by its proponents for the greater utility of the society as it has a brutalization effect, thus creating significant deterrence. E.g.
 - In Japan, approximately three prisoners are executed per year to reinforce the belief of bad things happening to those who do wrong.
- **Retributive Justice:** Capital punishment is a just form of retribution as people guilty of associated crimes deserve to be punished. As John Locke said, if someone violates another's right to life, they forfeit their own right to life.
 - Death Penalty brings a **sense of psychological closure** to the family and loved ones of the victims.
- **Principle of Proportionality:** Justice demands that the punishment amount merited should be proportional to the seriousness of the offence.
- **Will of the citizens:** It is supported by a vast majority of citizens. E.g., In 2012, a survey found that nearly 70% of Indians favored capital punishment continuance.
- **Incentive to help Police:** Fear of capital punishment incentivizes prisoners on death row to help police to get reduced sentence (i.e., plea-bargaining).

Ethical Issues with Death Penalty

- **No statistical proof of death penalty as biggest deterrent** or more effective deterrent than less severe punishment such as **life imprisonment**.
- **No constitutional value of retribution** in a civilized society as death penalty represents an eye for an eye, i.e., vengeance rather than retribution.
 - Also, lack of supporting evidence on the psychological closure as families often react differently to such situations.

DEATH PENALTY



DEATH SENTENCES AND EXECUTIONS-2020

108: Countries have **abolished Death Penalty**

08: Countries have **abolished Death Penalty for Ordinary Crimes**

28: Countries have **abolished Death Penalty in Practice** (No Execution for at least **10 years**)

55: Countries **retained Death Penalty**

Data source: Amnesty International

International Convention

Being of **irreversible nature**, Death Penalty is opposed by UN and its agencies such as:

- Second Optional Protocol to the **International Covenant on Civil and Political Rights (ICCPR)**,
- **Convention on the Rights of the Child (CRC)**,
- **Four UN General Assembly resolutions** since **2007** for **moratorium on the use of Death Penalty**

Death Penalty in India

Article 21: No person shall be deprived of his life or personal liberty except according to procedure established by law. Also, under the Seventh Schedule- Criminal law and Criminal Procedure are under Concurrent List leading to various laws dealing with Death Penalty such as:

- **INDIAN PENAL CODE, 1860;**
- **Narcotic Drugs and Psychotropic Substances (NDPS) Act, 1988**
- **ARMY ACT, 1950; AIR FORCE ACT, 1950 and NAVY ACT, 1956;**
- **COMMISSION OF SATI (Prevention) ACT, 1987**
- **SC/ST (Prevention of Atrocities) ACT, 1989**

Article 72/161: Mercy (Pardon) Power of President/Governor



LEGAL EVOLUTION OF DEATH PENALTY

Bachan Singh v. State of Punjab, 1980: Consider **aggravating and mitigating factors** of crime and the accused. Use Death Penalty only in '**rarest of rare cases**'.

Machhi Singh v. State of Punjab, 1983: Identify the manner in which the crime was committed, motive, the anti-social nature of the crime, the magnitude of the crime, and the personality of the victim.

Shatrughan Chauhan v. Union of India, 2014: Undue, inordinate and unreasonable delay in death penalty execution amounts to torture and a ground for commutation of sentence

- **Morality of Death Penalty** is questionable as it outcasts the guilty below the status of man and citizen. It is against **human dignity** and violative of the inalienable **right to life**, even of those who are on the other side of the law.
- **Supporting Death Penalty on grounds that it helps police is worrisome** as similar arguments can be used to **justify torture**, privacy violation and other unethical practices.
- The **restorative and rehabilitative aspects** of justice get sidelined when law and order is approached from the perspective of retributive justice. For instance, with increase in **education** and **socio-economic** conditions of people, even serious crimes **decline**.
 - Since **1992**, India has seen continuous decline in murder rate from **4.6 per lakh of population to 2.7 per lakh of population in 2013**.

OTHER ISSUES IN DEATH PENALTY



LACK OF OBJECTIVITY

due to **no concrete framework** on **aggravating** and **mitigating factors**.



LACK OF PROCEDURAL FAIRNESS

due to **discretionary interpretation** of the **rarest of rare cases**.



LACK OF INTEGRITY

as **media pressure** often dictates the **community's collective conscience**.



ADVERSE CRIMINAL JUSTICE SYSTEM

with **structural** and **systemic issues** such as lack of resources, ineffective prosecution etc.



LONG DELAYS

faced by death row prisoners in **trials, appeals** and thereafter in **executive clemency**.

Mercy Plea (Clemency Petition)

For a person convicted by courts, mercy plea is the **last constitutional resort**.

- Under **Article 72** of the Constitution, the President is empowered to grant pardons, etc., and to suspend, remit or commute sentences in certain cases.
 - It extends to cases of Court-martial, death sentence or matters to which executive powers of the Union extends. S/he is bound to act on the aid and advice of the Council of Ministers.
- Similarly, under **Article 161**, the Governor is empowered to grant pardons, etc., and to suspend, remit or commute sentences in certain cases.
 - It extends to persons convicted of any offence against any law relating to the matter to which the executive power of the State extends. S/he is bound to act on the aid and advice of the State Government.

Why do we need Mercy Petition?

- Mercy Petition adds a **human touch** to the judicial process as the punishment can be reviewed beyond the legal angle.
- It can help in **saving innocent persons** from punishment due to **miscarriage of Justice** or in cases of **doubtful conviction**.
 - Miscarriage of Justice/doubtful conviction can happen due to the **prevalent crisis in our Criminal Justice System** because of issues such as torture, fabrication of evidence, poor legal aid etc.



Issues with Mercy Petition

- **No fixed timeframe** to act on the mercy plea leading to long delays. The Law Commission has highlighted certain Presidents who put **brakes on the disposal of Mercy Petition**.
- **Lack of transparency** as there is no compulsion to share reasons for rejection or acceptance of mercy plea, but it is subjected to **Limited Judicial Review** (Eperu Sudhakar & Anr. v. Government of Andhra Pradesh case, 2006).

Way Forward: Principles to be adhered in Ethical Implementation of Death Penalty

Death Penalty is an extraordinary expression of state, demanding **trust** and **transparency** in its use. The recent **guidelines from SC** on proper consideration of **mitigating circumstances** of accused facing death penalty at the trial stage itself is a step to bring **procedural fairness and objectivity** while applying **Bachan Singh test**.

At the same time, the state must work on **progressive development of human rights** to ensure human dignity and to serve the **cause of fair justice** by-

- **Resolving the issues of laws, ailing criminal justice system** to avoid any miscarriage or failure of Justice System.
 - For instance, providing a **Competent Defendant** with resources, time and skill to avoid arbitrary and capricious imposition of death penalty.
- **Consistent Judicial Approach** with due consideration of the **Restorative and rehabilitative aspects of justice** to avoid any grave cost of imposition of death penalty.
- **Providing compelling justification** for death penalty to avoid excessive punishment and maintaining the utmost respect for the value of life.
- **Ensure that the mercy petition act as final bulwark** against miscarriage of justice with time bound disposal to avoid the agony of uncertainty.

1.3. SEDITION

Why in news?

Recently, Supreme Court has ordered that the **152-year-old sedition law under Section 124A of IPC should be effectively kept in abeyance** till the Union Government reconsiders the provision.

About Sedition

- **Indian Penal Code (IPC) defines sedition (Section 124A)** as an offence committed when **any person by words or otherwise brings or attempts to bring into hatred or contempt**, or excites or attempts to excite disaffection towards the government established by law in India by
 - words, either spoken or written
 - signs
 - visible representation, or otherwise
- **Three explanations added to the provision** prescribe that while **“disaffection” shall include disloyalty and all feelings of enmity**, comments without exciting or attempting to excite hatred, contempt or disaffection, will not constitute an offence.
- Sedition is a **cognisable, non-bailable and non-compoundable offence** under the law, entailing life imprisonment as maximum punishment, with or without a fine.
- A person charged under this law is **barred from a government job**. They have to **live without their passport** and must produce themselves in the court at all times as and when required.
- In 2018, **Law Commission of India (LCI)** published a consultation paper recommending that it is time to rethink or repeal the Section 124A of the IPC that deals with sedition.

Significance of Sedition law

- **Unity of India:** Section 124A of the IPC has its utility in **combating anti-national, secessionist and terrorist elements**.

Background of Sedition law

- 1837** British historian-politician **Thomas Macaulay drafted sedition law** as an offence punishable with life imprisonment.
- 1860** Sedition was **omitted when IPC enacted**.
- 1870** **Section 124A (Sedition) inserted in IPC** by an amendment introduced by Sir James Stephen when it felt the need for a specific section to deal with the offence.
- 1891** **First case registered**, when **Jogendra Chandra Bose**, editor of newspaper **"Bangobasi"** was booked for publishing an article criticizing **"Age of consent Bill"**.
- 1921** Bal Gangadhar Tilak, Annie Besant, Ali Brothers, Maulana Azad, MK Gandhi and very many others suffered imprisonment.
- 1948** Indian leaders agrees to **drop sedition from Indian constitution**.
- 1949** Sedition is **no longer part of Indian constitution**. However, Section 124(A) remains in IPC.
- 1951** Nehru Government brings in **first amendment under Article 19(1)(a) and puts in reasonable restrictions" on right to free speech**.
- 1962** In Kedar Nath Verdict, Constitution bench **uphold the validity of sedition law**.
- 1974** Indira Gandhi government made **Section 124A cognisable offence that authorises police to make arrests without a warrant**.

Supreme Court (SC) stand on Sedition law

- **Kedar Nath Vs State of Bihar, 1962:** SC held that "a citizen has a right to say or write whatever he likes about the government, or its measures, by way of criticism or comment, long as he **does not incite people to violence**"
- **P. Alavi vs State of Kerala, 1982:** SC held that sloganeering, criticising of Parliament or Judicial setup did not amount to sedition.

- **Stable Polity:** It protects the elected government from attempts to overthrow the government with violence and illegal means. The continued existence of the government established by law is an essential condition of the stability of the State.
 - Many districts in states face a Maoist insurgency and rebel groups openly advocating the overthrow of the state government by revolution.
- **Power of contempt:** It is in line with the power of contempt accorded to court to protect its dignity. Similarly, contempt of government should also attract punishment.
- **Public order:** To maintain public order and to deter practices like civil war, excite dissatisfaction to create public disturbance and to protect sovereignty of the country.

Issues associated with Sedition law

- **Violate Fundamental Rights:** The existence of Section 124A of the IPC, has acted as a constraint on the exercise of Freedom of speech and expression guaranteed under Article 19(1) and governments have used sedition to suppress and quell political dissent.
- **Ambiguity:** The terms “bring into hatred or contempt” or “attempt to excite disaffection” can be interpreted in many ways. Thus, empowering the police and government to harass innocent citizens.
- **Low conviction rate:** As per National Crime Records Bureau (NCRB) data, between 2016- 2019, number of sedition cases rose by 160% to 93. But in 2019, the conviction rate in such cases was a mere 3.3%, which means just two of the accused were convicted.
- **Misuse:** There have been many instances of misuse of section 124A, where the government has used the sedition law to suppress protesting voices to protect its interests.
 - For instance, the arrest of the journalist Vinod Dua for criticising the government’s response to COVID-19.
- **Violate International Agreements:** The International Covenant on Civil and Political Rights (ICCPR), which establishes internationally accepted norms for the protection of freedom of expression, was ratified by India, and the misuse of section 124A goes against this.

Way forward

- **Clear definition:** The terms “disaffection”, “bring into hatred” and what constitutes as sedition should be clearly defined to prevent misuse by authorities.
- **Procedural Safeguards:** Adding procedural safeguards in Section 124A of the Code of Criminal Procedure or through policy guidelines.
 - For instance, the offences should be made non-cognizable so that there is at least a judicial check.
- **Use sparingly:** As per LCI, Section 124A should be invoked only in cases where the intention behind any act is to disrupt public order or to overthrow the Government with violence and illegal means.
- **Scrutinizing complains:** Dissent and criticism are essential ingredients of a robust and vibrant democracy. Therefore, every restriction on free speech and expression must be carefully scrutinized to avoid unwarranted restrictions.

Sedition law in other countries

- Many democratic countries, including United Kingdom (UK), Ireland, Australia, Canada, Ghana, Nigeria and Uganda, have held sedition law as undemocratic, undesirable and unnecessary.
- **UK:** Sedition law became obsolete in the 1960s and was finally repealed in 2009. However, Sedition by an alien (resident but not a national of the country) is still an offence.
- **USA:** Some sedition laws have been repealed or made a dead letter. The courts provide a wide protection to free speech.
- **Australia:** Repealed its sedition law in 2010.

1.4. NEWS IN SHORTS

1.4.1. SUPREME COURT TO HAVE FULL STRENGTH OF 34 JUDGES

- Supreme Court of India will have all sanctioned seats filled i.e. 34 after more than two years.
 - At present, SC has strength of 32 judges as against a sanctioned strength of 34 judges.
 - As per Article 124(1) of the Constitution of India, Parliament by law prescribes the strength of the SC.

- **Appointment of Judges:**
 - Chief Justice of India (CJI) and Judges of SC are appointed by President under Article 124 (2) of the Constitution with the help of the collegium system.
- **The collegium system has evolved with the Three judges case**
 - **First Judges Case, 1981 or S P Gupta Case:** SC ruled that recommendation made by CJI to President

can be refused for “cogent reasons”, thereby giving greater say to executive.

- **Second Judges Case, 1993 (Supreme Court Advocates on Record Association (SCARA) vs Union of India):** CJ only need to consult **two senior-most judges** over judicial appointments and transfers.
- **Third Judges Case, 1998:** CJs should consult with **four senior-most SC judges** to form his opinion on judicial appointments and transfers.
- **Collegium** is a system where a **committee of CJI, four senior judges of SC and three members of a HC** (in case of appointments in HCs) take decisions related to **appointments and transfer of judges in SC and HCs.**

1.4.2. PRESIDENTIAL POLL 2022

- **Value of the vote of Member of Parliament (MP) is likely to go down to 700 from 708** in presidential polls due to the **absence of a legislative assembly in Jammu and Kashmir.**
 - Value of vote of an MP in a presidential election is based on the **number of elected members in legislative assemblies** of states and union territories, including **Delhi, Puducherry and Jammu and Kashmir.**
 - Value of vote of has been **fixed at 708 since the 1997 presidential election.**
- For first Presidential election in 1952, it was 494.
 - It increased marginally to 496 in 1957 presidential election, followed by 493 (1962), 576 (1967 and 1969).

1.4.3. INTER-STATE COUNCIL (ISC)

- Centre government has **reconstituted ISC.**
- President (under Article 263) can establish such a council and also authorized **to define the nature of duties to be performed** by such a council.
 - In pursuance of the **recommendations of Sarkaria Commission**, ISC was constituted in 1990.
 - ISC is a **recommendatory body** on issues relating to inter-state, Centre–state and Centre–union territories relations.
- **Compositions**
 - **Prime Minister** will be the **chairman** and **Chief Ministers (CM)** of all States and six Union ministers as members.
 - ✓ **CM of UTs having legislative assemblies and Administrators of UTs not having legislative assemblies** are also its members.
 - **Union Home Minister** will be the **chairman of standing committee.**

1.4.4. THIRUVANANTHAPURAM DECLARATION

- The **first National Women Legislators’ Conference** in Kerala concluded with the adoption of **Thiruvananthapuram Declaration.**
- The **Thiruvananthapuram Declaration** laments the long-pending Women’s Reservation Bill (since 1996) for **33% reservation for women in the Lok Sabha and State Legislatures.**
- The **low representation of women in Parliament**, i.e. lack of **political empowerment** is the main reason for India’s poor performance on **Global Gender Gap** published by **World Economic Forum.**
 - India was ranked at **140 out of 156 countries in 2021.**

1.4.5. JAMMU AND KASHMIR DELIMITATION EXERCISE CONCLUDES AS PANEL SIGNS FINAL ORDER

- The Delimitation Commission (DC) **was set up on March 6, 2020 to redraw the boundaries of assembly and parliamentary constituencies in Jammu and Kashmir.**
 - The panel, formed by the Centre in March 2020, is **headed by former Supreme Court judge Ranjana Prakash Desai.**
 - The commission has **proposed increasing the number of seats in the UT from 83 to 90.** Besides, there are 24 seats in Pakistan-occupied Kashmir (PoK) that continue to remain vacant.
- Delimitation is the **act of redrawing boundaries of Lok Sabha and Assembly seats** to represent changes in population.
 - Objective is to **provide equal representation for equal population segments, and fair division of geographical areas**, so that no political party has an advantage.
- **Under Article 82, Parliament enacts a Delimitation Act after every Census** which establishes a DC.
 - In India, such DCs have been constituted in **1952, 1963, 1973 and 2002.**
 - In 2002, **84th Constitutional Amendment** was used to **freeze the process of delimitation for Lok Sabha and State assemblies till at least 2026.**
- Under Article 170, States also get divided into territorial constituencies as per Delimitation Act after every Census.
 - **Article 170** deals with the Composition of the Legislative Assemblies.
- Delimitation Commission is **appointed by President of India and works in collaboration with Election Commission of India.**

- Its orders have the force of law and cannot be called in question before any court.

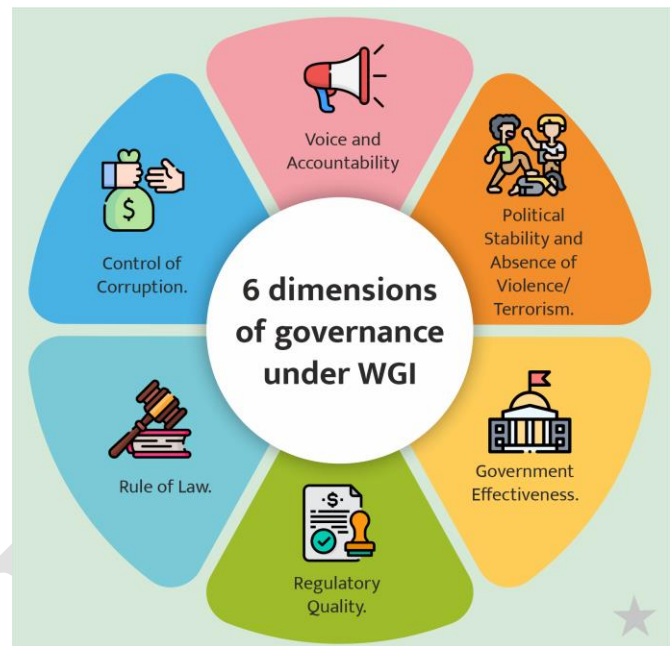
1.4.6. PLACES OF WORSHIP ACT, 1991

- It prohibits conversion of any place of worship and to provide for the maintenance of the religious character of any place of worship as it existed on the 15th day of August, 1947.
 - However, provisions of the act shall not apply to the Ram Janmabhoomi-Babri Masjid case.
- Act bars conversion of a place of worship of any religious denomination into a place of worship of a different religious denomination.
- It further provided that such cases already pending at the courts would stand abated.

1.4.7. GOVERNMENT FLAGGED LOW SCORE IN WORLD BANK'S WORLDWIDE GOVERNANCE INDICATORS (WGI)



- In an analysis of the World Bank's WGI, a key input for India's sovereign ratings, India's scores were "much below" its peers on all counts.
 - These data sources include the think tanks, survey agencies and international media such as Freedom House, Economist Intelligence Unit etc. which can lead to downgrading of sovereign rating.
- **About WGI**
 - WGI reports aggregate and individual governance indicators for over 200 countries and territories over the period 1996–2020.
 - It is based on 6 dimensions of governance combining views of a large number of enterprise, citizen and expert survey respondents in industrial and developing countries.
- Earlier, other reports were also flagged for such downgrading like WHO's a methodology to estimate Covid-19 mortalities, Economic Intelligence Unit showed India's rank fell from 27 in 2014 to 51 in 2019 and Global hunger Index 2021, which ranked India at the 101st position out of 116 countries.
 - Such methodologies have an issue like over weightage to a particular indicator, using

inappropriate statistical/mathematical models, comparison of the past performance of a country without incorporating significant inputs, use of a subjective approach to quantify other objective measures etc.



1.4.8. WORLD PRESS FREEDOM INDEX (WPFI), 2022

- **Released by:** Reporters Without Borders (RSF), non-profit organisation
- Index highlights degree of freedom that journalists, news organisations and netizens have in each country, and government's efforts to respect such freedom.
 - Rankings are based on score ranging from 0 to 100, with 100 being the best possible score (highest possible level of press freedom) and 0 the worst.
 - Evaluation criteria include 5 indicators: political context, legal framework, economic context, sociocultural context and safety.
- India recently slipped 8 places to 150 in 2022 WPFI from last year's 142nd rank out of 180 countries.

 <p>SMART QUIZ</p>	<p>You can scan this QR code to practice the Smart Quiz of Polity at our open test online platform for testing your understanding and recalling of the concepts.</p>	
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2. INTERNATIONAL RELATIONS

2.1. INDO-PACIFIC ECONOMIC FRAMEWORK FOR PROSPERITY (IPEF)

Why in News?

Recently, **India agreed to be a part of the Indo-Pacific Economic Framework for Prosperity (IPEF)**, a U.S.-led economic grouping comprising 14 countries.

About IPEF

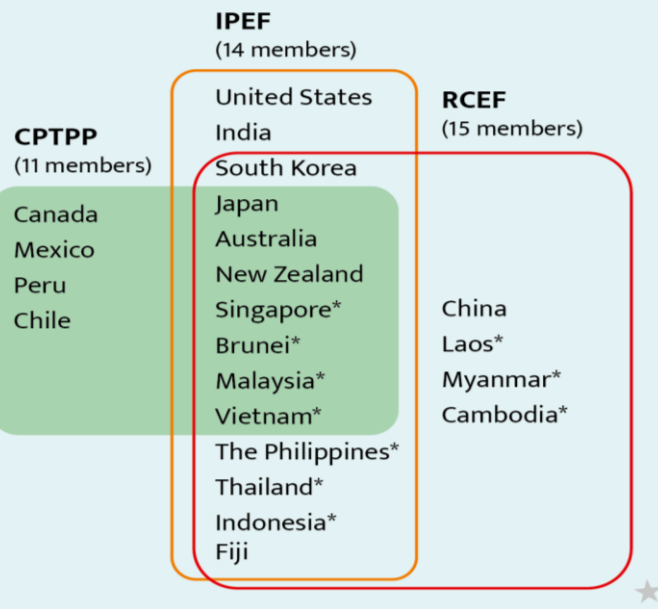
- IPEF is a U.S.-led framework for participating countries to **solidify their relationships and engage in crucial economic and trade matters that concern the region**, such as building resilient supply chains battered by the pandemic. **It is not a free trade agreement.**
- Member states:** US, Australia, Brunei, India, Indonesia, Japan, Republic of Korea, Malaysia, New Zealand, the Philippines, Singapore, Thailand, Fiji, and Vietnam.
 - Together, these **countries account for 40% of the global GDP.**
- Additionally, the framework would be open to other countries willing to join in the future.
- The economic framework broadly rests on four pillars** (See infographic).
- Countries are free to join (or not join) initiatives** under any of the stipulated pillars but are expected to adhere to all commitments once they enroll.
- IPEF is **more about standard setting and facilitating trade** and **will not involve more market access for its members.** Nor will it negotiate lower tariffs.

Significance of IPEF

- Better Economic Partnerships:** Establishing new rules of commerce to strengthen economic partnership among participating countries.
- Rule based Indo-Pacific:** Building a free and open Indo-Pacific that is connected and prosperous, secure as well as resilient, and has sustainable as well as inclusive economic growth.
- Making supply chains more resilient**, thereby protecting against costly disruptions that lead to higher prices for consumers.
- Countering China:** IPEF will help to counter the growing economic and strategic influence of China in the Indo-Pacific.

Economic blocks in the Indo-Pacific region

*means ASEAN members



Four pillars of Economic framework



Connected Economy

- High-standard rules in the digital economy, including standards on cross-border data flows and data localization.
- Strong labor and environment standards and corporate accountability provisions.



Resilient Economy

- Supply chain commitments to create a more resilient economy and guard against price spikes that increase costs.
- Establishing an early warning system, mapping critical mineral supply chains, improving traceability in key sectors, and coordinating on diversification efforts.



Clean Economy

- Commitments on clean energy, decarbonization, and infrastructure that promote good-paying jobs.
- Concrete, high-ambition targets that will accelerate efforts to tackle the climate crisis, including in the areas of renewable energy, carbon removal, energy efficiency standards, and new measures to combat methane emissions.



Fair Economy

- Enact and enforce effective tax, anti-money laundering, and anti-bribery regimes that are in line with existing multilateral obligations.
- Enforcing regimes that cut down on corruption and ensure fair taxation.

- **Strengthening partnership on key global issues:** by focusing on clean energy, decarbonization, tackling the climate crisis, enforce effective tax, anti-money laundering, and anti-bribery regimes etc.

Significance of IPEF for India

- **Participation in regional trade:** For India, which walked out of Regional Comprehensive Economic Partnership (RCEP), the IPEF membership keeps it in the room on Asian trading arrangements and is a way of blunting criticism that it is overtly protectionist.
- **Aligned to domestic requirements:** IPEF's non-specific and flexible nature also suits India, providing enough scope of negotiations on a range of issues like environmental restrictions on fossil fuels, data localization etc.
- **Better economic opportunities:** IPEF is providing India another opportunity to be part of a mega economic arrangement, but outside the influence of China.
- **Participation in resilient supply chains:** building resilient supply chains is one of the motives of the IPEF. India can consider members as alternative sources for its raw materials requirements.

Issues with IPEF

- **Lack of clarity:** Concerns are on the feasibility of a grouping which U.S. officials have made clear would neither constitute a 'free trade agreement,' nor a forum to discuss tariff reductions or increasing market access.
- **Short in countering China:** In its current format, the IPEF might not be able to counter China's economic dominance in the region owing to the lack of direct incentives offered in IPEF.
- **Fear of U.S. domination:** U.S. might try to dominate the rules and standards of digital technologies like artificial intelligence and 5G. However, these might not suit local jurisdictions of the member countries.
- **Advancing U.S. interests:** U.S. appears to be making the deal more about benefits to the U.S. economy than to the Indo-Pacific region as a whole.
- **Overlap with BDN and B3W:** The conceptual baggage of IPEF (setting "rules," "standards," and "principles") has already appeared and been tested in both the **Blue Dot Network (BDN)** launched in 2019 and the **Build Back Better World (B3W)** initiative launched in 2021. Both B3W and BDN were defined in terms of countering China and its Belt and Road Initiative (BRI). Neither has so far produced much tangible substance and momentum.
 - BDN was defined as "a mechanism to promote robust standards for quality infrastructure projects" and B3W as an initiative to promote "high standards and principles" in areas that overlap with IPEF's issue areas.
- **Possible violation of WTO rules:** IPEF is not proposed as an FTA. In the absence of an FTA, WTO rules will not permit granting of preferential treatment amongst IPEF members.
- **Absence of dispute settlement mechanism:** Another critical question is: what kind of dispute settlement mechanism would be incorporated in the IPEF to avoid unilateral actions by signatory countries?

Concerns for India

- Stated objectives of IPEF include **pursuing rules in digital economy**, such as standards on cross-border data flows and data localisation. This is **something India has been avoiding in all its free trade deals** as it does not want to lose sovereignty over its data.
- The IPEF also wants to **frame rules on labour standards, environment norms and decarbonization, which India has never been keen on**, including in its free trade pacts.
- **US could also use IPEF** to pressurise India on supporting a **permanent moratorium on customs duties on electronic transmissions** at the WTO.

Conclusion

3Ts—Trust, Transparency, and Timeliness—mentioned by the Indian Prime Minister during the launch ceremony are very important for the success of this initiative. Trust and transparency will be built only if members, particularly the US, accommodate each other's interests. If achieved, both will lead to timely delivery of the intended outcome. If the US is not accommodative and driven by its own interests, the IPEF may not be a success

Significance of IPEF for U.S.

- IPEF is **part of the U.S.'s more than a decade old "Pivot to Asia" programme**, re-imagining the Indo-Pacific as a geographic construct including America (QUAD is also part of the same pitch).
- **IPEF will help U.S. to reclaim economic leadership in East Asia and the ASEAN region**, after the Trump administration walked out of Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP, originally the TPP) in 2017.
 - Since then, there has been concern over the absence of a credible US economic and trade strategy to counter China's economic influence in the region.

- **IPEF is part of U.S. way of showing** that despite its current focus on the war in Europe, and hot pursuit of Russia through economic sanctions, **it has not lost sight that Asia**, and the challenge from China, is prominent in the U.S. agenda.

Why U.S. focuses on Indo-Pacific?

- With nearly half of the earth’s population, **one-third of global GDP, and some of the world’s most capable militaries**, region is critical to **advancing U.S. commercial, diplomatic, and strategic interests**.
- **Indo-Pacific supports more than three million American jobs** and is the source of **nearly \$900 billion in FDI in U.S.**
- **U.S. allies and partners in the region** view the U.S. military and diplomatic presence in the region as welcome but they also **expect US to be an active and reliable partner in regional economic affairs**.



Reasons for slow pace of engagement with Indo-Pacific

- **U.S. strategy fails to account for regional economic trends** – particularly the fact that in the last two decades the region has increasingly become economically integrated through a series of FTAs, several of which incorporate China but not U.S.
- It fails to account for **divergent interpretations of the geographic boundaries** of the Indo-Pacific

Events/Initiatives in recent past

- **George W. Bush Administration** understood Asia’s growing importance and **engaged closely with China, Japan, and India**.
- **Obama Administration** (Pivot to Asia strategy, Trans-Pacific Partnership (TPP)) significantly **accelerated American prioritization of Asia**, investing new diplomatic, economic, and military resources there.
- **Trump withdrew U.S. from TPP** agreement in early 2017.
- **Biden administration has presented IPEF** as the proposed vehicle for U.S. economic engagement in the region.

To know more about Indo-Pacific, please refer to our following Weekly Focus Document.

 <p>India and the Indo-Pacific</p>	<p>The emergence of the Indo-Pacific as a new geographic space represents the new strategic reality of the twenty-first century. The Indo-Pacific therefore is a new domain in India’s foreign policy engagements. The document examines issues relating to India’s unique geography, interests, and potential role in the Indo-Pacific region against the backdrop of a rapidly evolving geostrategic environment. It further discusses new opportunities in the region to secure India’s strategic interests and secure its profile as the responsible global power.</p>	
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2.2. SHANGHAI COOPERATION ORGANISATION (SCO)

Why in News?

India hosted meeting of Regional Anti-Terrorist Structure (RATS) as India assumed its role as Chairperson of the SCO-RATS mechanism recently.

About Shanghai Cooperation Organisation (SCO)

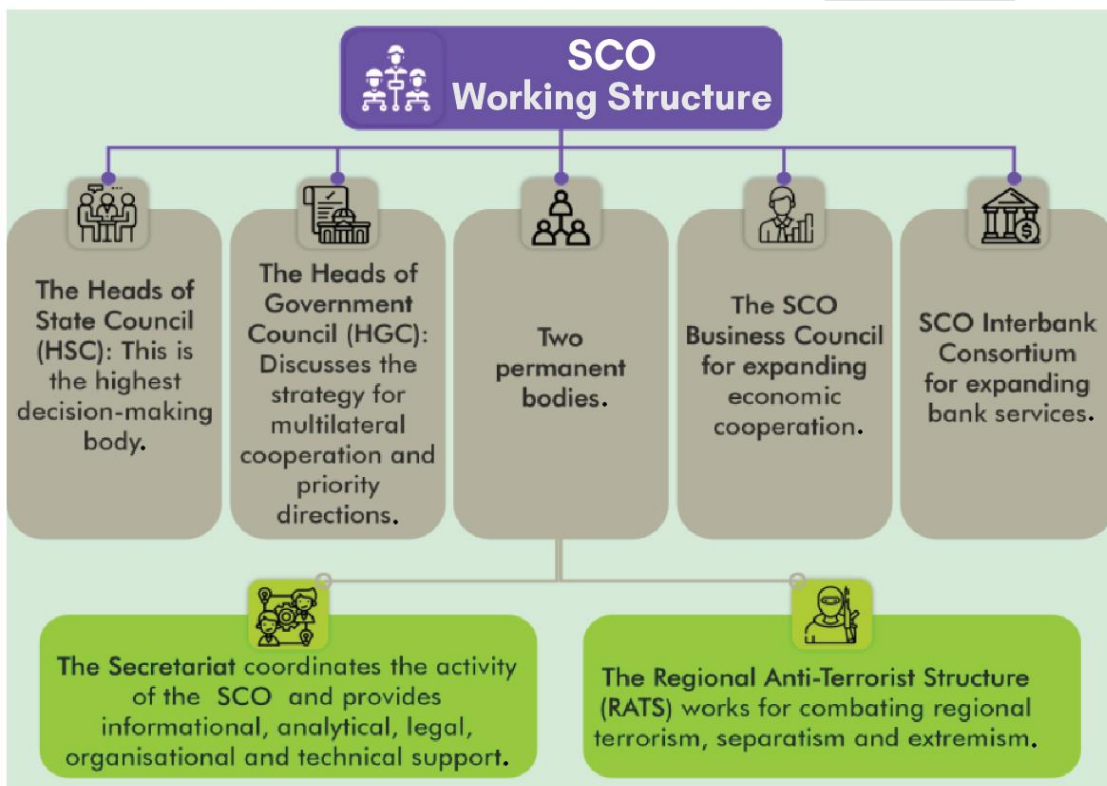
- It is a **permanent intergovernmental international organisation**, founded in 2001 in Shanghai (China) in 2001 by **Kazakhstan, China, Kyrgyz Republic, Russia, Tajikistan, and Uzbekistan**.



- In June 2017 in Astana, **India and Pakistan** were granted status of a full member of SCO.
- SCO counts four **observer states**, namely the **Islamic Republic of Afghanistan, the Republic of Belarus, the Islamic Republic of Iran, and Mongolia.**
- **SCO's main goals are:**
 - **Strengthening mutual trust** and neighborliness among the member states.
 - **Promoting their effective cooperation** in politics, trade, the economy, research, technology, and culture, as well as in education, energy, transport, tourism, environmental protection, and other areas.
 - Making joint efforts to maintain and **ensure peace, security, and stability in the region;** and
 - Moving towards the **establishment of a democratic, fair and rational new international political and economic order.**
- SCO has been an **observer in the UN General Assembly** since 2005.

Significance of SCO for India

- **Formulate an appropriate Eurasian strategy:** India's regional interests stem from its goals to partner the **Central Asian Republics (CARs) in sustainable nation-building** through development partnerships, maintaining their sovereignty, preventing the region from being a hub of terrorism and extremism, and retaining Central Asia's vector of being a bridge between Asia and Europe for building trade, transport, connectivity, and economic linkages.



- At the same time, it is also in India's interest that this **region does not evolve into a geopolitical chessboard of great game rivalries.**
- **Regional Security (Combating terrorism, separatism and extremism):** SCO will enable India, as an integral part of the Eurasian security grouping, to neutralise centrifugal forces arising from religious extremism and terrorism in the region.
 - In addition, it will help India in managing much more effectively the negative impact of a Talibanised Afghanistan.

About Regional Anti-Terrorist Structure (RATS)

- The Agreement on RATS as a permanent SCO body **was signed in 2002.**
- RATS has been a **coordinating center for combating terrorism, separatism and extremism** at the regional and global levels.
 - RATS platform provides a **mechanism for interaction for ensuring the security** of the SCO member states **from transnational crimes associated with terrorism**, such as illegal migration and trafficking of drugs, weapons, explosives, etc.
- Under RATS' working relationship, the **member countries coordinate with each other and other global organisations to gather information to tackle terrorism.**
 - **RATS also maintains a database of terrorists and terror organisations** from across its member countries.
- Within the RATS framework the **anti-terrorist capacity of the SCO member states is being developed** by holding the annual joint antiterrorist exercises.

- Participation in RATS may bring some new levels of intelligence sharing for India.
- **Economic cooperation:** cooperation in three critical areas— energy, building trade and transportation links, and dealing with traditional and non-traditional security threats— can be facilitated through SCO.
 - Central Asian Republics (CARs) are rich in iron-ore, coal, oil, gas, uranium etc. Frequent meetings of leaders and India-Central Asia Business Council under SCO will give a fillip to the economic cooperation.
- **Energy Cooperation:** India, one of the largest energy consuming countries in the world, is also likely to get greater access to major gas and oil exploration projects in Central Asia.
 - SCO can unblock India's access to Eurasia and provide a fillip to projects like TAPI.
- **Afghanistan issue for regional security:** SCO member States expressed their support for Afghanistan as an independent, neutral, united, democratic, and peaceful State, free of terrorism, war and drugs which will benefit India.
- **Dealing with Pakistan & China:** SCO will provide India with a forum where it can constructively engage both in a regional context and project India's security interests in the turbulent regional swathe— including West Asia
- **Tourism:** Given the salience of Buddhist connections, India can promote its rich cultural and historical tourist potential cities and regions for the SCO countries.

Challenges that India needs to navigate

- **To adapt to Eurasia's emerging geopolitical reality:** Shifting great power rivalries, inherent tides of dominance, undercurrents of both geostrategic and geo-economic cooperation and competition, and desire of Central Asian states for greater strategic manoeuvre highlight the Eurasian churning that India will need to navigate.
 - SCO is a vital instrument of China's and Russia's foreign policy to keep the U.S. influence and presence out of Central Asia.
- **India-Pakistan Rivalry:** SCO members have, in the past, expressed concern of the organisation being held hostage to India's and Pakistan's adversarial relationship, and their fears would likely have worsened in recent times.
- **China-Pakistan relation:** China is Pakistan's 'all weather friend' and it supports Pakistan against India in South Asia to maintain the balance of power in South Asia.
 - The recent lobbying of China in favour of Pakistan and linking it to India's bid for membership of NSG (Nuclear Supplier Group), is indicative of the hurdles India may face at the strategic level in furthering its interest in the SCO.
- **Difference over BRI:** India in November 2020, didn't join other members of SCO in backing China's Belt and Road Initiative (BRI), which India has consistently opposed as a key part of it passes through Pakistan-occupied Kashmir (PoK).
- **Lack of connectivity with Central Asia and beyond:** A major impediment in connectivity with Central Asia and Eurasia remains the strategic denial of direct land connectivity between India and Afghanistan and beyond by Pakistan.
- **Weak fight against terrorism:** So far, the SCO has not taken visible counterterrorism measures against the main threat facing its members, which emanates from terrorists and terrorist entities located in the Af-Pak region.

Way Forward

- **Improving connectivity:** India needs to prioritise support from SCO members for implementing major North-South connectivity proposals including:
 - International North-South Transport Corridor (INSTC) connecting the European Union through Russia and Iran to India and ASEAN.
 - Chabahar Port and railway connecting India through Iran to Afghanistan, Central Asia and Russia; and
 - Vladivostok-Chennai Sea lane of communication connecting India to Russia's Far East.
- **Improving relations with China and Pakistan:** It will promote economic cooperation, trade, energy and regional connectivity and it will unblock India's access to Eurasia and provide a fillip to projects like TAPI.
- **Strengthening Military Corporation:** In the context of increasing terrorism in the region, it is imperative for SCO countries to develop a 'cooperative and sustainable security' framework and make RATS more effective.
- **Constructive role in CAR:** Central Asian powers are sandwiched between China and Russia and find themselves increasingly drawn into China's economic thrall. They constantly seek new partners and India offers an alternative they can appreciate and work with.

- India retains the inherent potential to balance competing strategic interests. Its benign image, positive historical connections and expertise in developmental partnerships place India as a credible partner for CARs in their calculus to strengthen their strategic autonomy vis-à-vis Russia and China.
- **Maintaining strategic autonomy:** India should retain its independent voice against dominance of other members in the grouping.
- **Strengthen People-to-people connectivity:** India can step up non-governmental exchanges and speed up personnel exchanges; strengthen educational cooperation to deepen mutual understanding and trust with SCO members.

2.3. INDIA'S NORTHEAST NEIGHBOURS

Why in News?

External Affairs Minister recently indicated that **Bangladesh, Bhutan, Myanmar, and Nepal** were India's most trusted global partners along with **Japan** and members of the **ASEAN** (Association of Southeast Asian Nations).

Northeast Neighbors of India

- The northeast region shares international borders of 5,812 km with the neighboring countries of **China, Bangladesh, Nepal, Bhutan, and Myanmar**.

Significance of trusted relation with North-eastern neighbors for India

- **Development in Northeast region (NER):** Better trade with East Asia can also spur rapid growth of India's underdeveloped NER if linkages that enable movement of people and goods could be established quickly.
 - Historically, mainland India had close economic and cultural ties with the Southeast Asian nations, with Manipur and Assam as bridges.
 - Commercial relations between Indian and Southeast Asian traders have existed since the third century CE.
- **Security of North-eastern region:** Northeast is viewed as a strategically sensitive region that needs to be protected to safeguard India's national security vis-à-vis its neighbors.
 - With an aggressive China frequently displaying the intention to challenge India (**Doklam, Galwan Pangong standoff etc.**), it is pertinent that India engages with nations in its neighborhood to protect regional peace and stability.
- **Geopolitical:** Greater engagement with region provides India a stronger diplomatic and economic foothold in a part of the world where China's influence and presence are considerable.
- **To Connect with Southeast Asia:** India regards **Myanmar as a gateway to link up to the rest of Southeast Asia**, and thus has invested in ASEAN-wide infrastructural projects that are able to boost trade in the ASEAN-India Free Trade Area.
- **Integration with regional and global supply chains:** Region has emerged as a key player in global supply chains over the past few decades, with countries like Bangladesh, Vietnam, Thailand, and Malaysia becoming major manufacturing hubs. The region now is a key production zone for cars, computers, electronics, and garments, among other products.

About Northeastern Region (NER)

- It **comprises of eight States** viz. Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura.
- **Significance of N-E states**
 - **Geo-strategic location:** sharing borders with countries such as Bangladesh, Bhutan, China, Myanmar, and Nepal—that makes it conducive to international trade.
 - **Natural resources:** Region has immense natural resources, accounting for around 34% of the country's water resources and almost 40% of India's hydropower potential.
 - **Access to markets:** Strategically located with access to the traditional domestic market of eastern India and is also a vantage entry point for Southeast Asian markets.
 - Central pillar of India's **'Neighborhood first' and 'Act East policies**.

Major issues/areas of concern

- **India's Security Concerns:** Countries surrounding India have been active in exploiting the volatile situation presented by the turmoil in the northeast.

- Through political backing, economic assistance, logistic support, military training, or arms supplies these countries have varyingly contributed to the ongoing violence in this region.
- **Lack of enough resources, poor border infrastructure, and boundary disputes** with China leading to the 1962 war **compelled the Indian government to become more inward looking** and turn even its north-eastern borders into frontiers rather than bridges and trade corridors.

- **The Narcotics Industry Fueling Crimes against the State:** The sub-region joining **Thailand, Laos, and Myanmar** is called the **“Golden Triangle”** because it is a major source of illegal drugs. Drug trafficking is major source of income for insurgent groups and a means of cooperation with their partners outside India.
- **Refugee problems in northeast India:** Northeast India region has been considered as a heaven for settlement of both Indian nationals and foreigners.

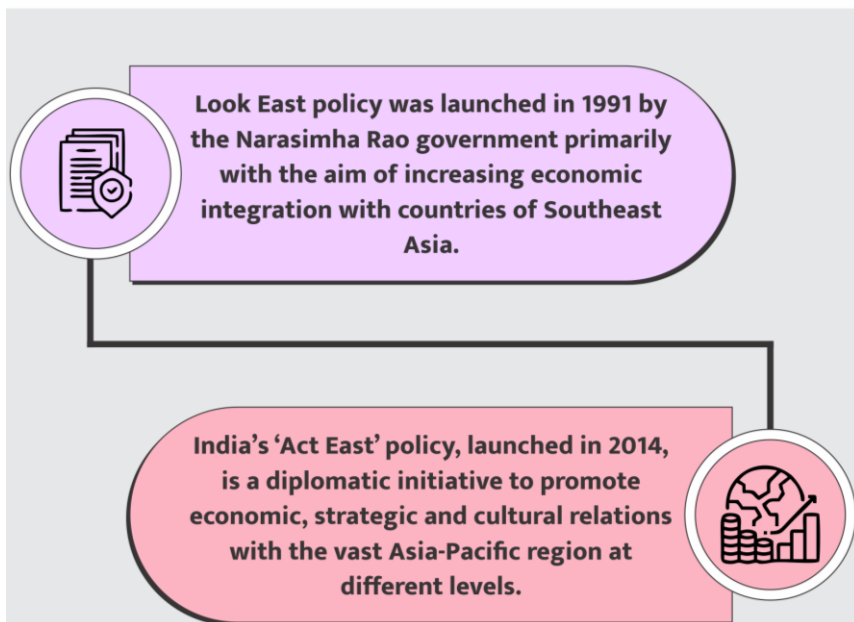
Lower level of population density compared to the national level, open international border with the Bangladesh, physical and cultural likeness with certain migrants are the reasons for which the Northeast region is always considered as the safest zone for taking shelter.

- **Long delay in completion of connectivity projects:** For instance, the trilateral India-Myanmar-Thailand (IMT) highway was expected to be finished in 2016 but still is not ready due to bureaucratic and procedural issues on the Indian side.
- **India’s economic under-performance:** Although many East Asian countries wanting India to balance China’s enhanced power. However, India’s economic slowdown and inward orientation, expressed through the decision to stay out of the Regional Comprehensive Economic Partnership (RCEP) agreement, disappointed regional business.
- **Limited capacity:** India’s capacity to provide development assistance, market access and security guarantees remains limited.

Way Forward

- **Improving connectivity:** Connectivity is an important area which will undergird the economic thrust. India needs to complete the Kaladan multi-modal project the Trilateral Highway to Myanmar and Thailand.
 - Improving air and maritime connectivity should also be high on the agenda.
- **Focusing new areas of cooperation:** like digital technologies where physical connectivity doesn’t really become prohibitive. India is fast emerging as a major player with significant comparative advantages in this realm.
- **Leveraging cultural linkages:** India’s cultural diplomacy through Indian Government’s **“Buddhist Circuit” initiative**, which seeks to connect ancient Buddhist heritage sites across different states in India, should resonate with East Asian nations.

Look East- Act East



Measures taken to improve relation with Northeastern Neighbors

- **Act East policy:** It strengthen India’s interaction with its southeastern neighbors in three important domains: commerce, culture, and connectivity.
- **Partnership with regional and Multilateral organisation:** India has joined several regional groupings in the East to develop better relationships with its neighbors in the area.
 - India enhances its efforts to forge closer partnership with concerned regional and Multilateral organisation such as ASEAN, ARF, EAS, BIMSTEC, ACD, MCG and IORA.
- **Connectivity projects:** Infrastructure projects are underway, such as the India-Myanmar-Thailand Trilateral Highway and Kaladan Multi-Modal Transit Transport (KMMTT), which aims to connect the eastern Indian seaport of Kolkata with the Sittwe deep-water port in Myanmar’s Rakhine state by sea.
 - A railway that links Akhaura in Bangladesh to Agartala is under construction and will be ready by 2022.

- **Strategic cooperation:** Particularly in the maritime domain, where China has demonstrated increasingly assertive behaviour over territorial disputes in the South China Sea.
- **Enhancing bilateral trade:** It can be enhanced through regular high-level consultations and meetings for greater market access for Indian commodities including, agriculture and food processing, IT/ITeS, healthcare, tourism, among others should be focused.

2.4. NEWS IN SHORTS

2.4.1. INDIA-UAE COMPREHENSIVE ECONOMIC PARTNERSHIP AGREEMENT (CEPA) ENTERS INTO FORCE

- The CEPA is likely to benefit about \$26 billion worth of **Indian products that are currently subjected to 5% import duty by the UAE.**
 - **UAE is India's third-biggest trading partner** behind the US and China.
- **Key Provisions**
 - Around **90% of products** exported from India to UAE will **attract zero duty.**
 - Provides for a **permanent safeguard mechanism** to deal with sudden surge in imports of any product.
 - **Automatic registration and marketing authorisation** of Indian generic medicines, once they are **approved in developed countries.**
 - It also **has stringent 'rules of origin'** reflecting requirements for substantial **processing of up to 40% value addition.**
 - ✓ Rules of origin (ROOs) are used to determine if **products are eligible for duty-free or reduced duties under trade agreements.**
- **Significance**
 - Expected to **increase the total value of bilateral trade** in goods to **over 100 billion US dollar** and trade in **services to over 15 billion US dollar** during next five years.
 - An **estimated 1 million new job opportunities** in India.
 - Will pave the way for **broader trade agreements with the Gulf Cooperation Council (GCC) Countries like Oman, Qatar, etc.**
- **About CEPA**
 - It is a bilateral agreement that covers **trade in goods and services, investment, competition, and intellectual property rights.**

2.4.2. INDIA, GERMANY SIGN \$10.5 BILLION GREEN DEAL TO BOOST CLEAN ENERGY USE

- **The 6th inter-government consultation's plenary session in Berlin** concluded with India-Germany signing a joint declaration of intent **establishing the Green and Sustainable Development Partnership (SDGs).**
 - It aims to **intensify bilateral, triangular, and multilateral cooperation** and accelerate actions towards climate protection.
 - The climate targets declared by **India and Germany during COP26 in Glasgow culminate in 2030, thus, the Joint Declaration would help both nations in achieving their respective objectives.**
 - **Various deliverables under the partnership include:**
 - ✓ **Develop an Indo-German Green Hydrogen Roadmap** based on the inputs by the Indo-German Green Hydrogen Task Force supported by Indo-German Energy Forum (IGEF).
 - ✓ **Establish an Indo-German Renewable Energy Partnership** with focus on **innovative solar energy and other renewables.**
 - ✓ **Establish a lighthouse cooperation on "Agroecology and Sustainable Management of Natural Resources".**
 - ✓ **Deepen cooperation in restoring forest landscapes under the Bonn Challenge.**
 - ✓ **Furthering Collaboration on Green Energy Corridors,** e.g. Leh-Haryana transmission line and project of carbon neutral Ladakh.
- **Other initiatives taken included:**
 - **Indo-German Partnership on Green Urban Mobility** to support the integration of sustainable modes of transport, such as metros, light metros etc.
 - **NITI Aayog-BMZ Dialogue** aimed at **strengthening SDG localization** at the city level.



2.4.3. 2ND INDIA-NORDIC SUMMIT

- India and Nordic countries 2nd India-Nordic Summit at **Copenhagen**, after the 1st summit of 2018 in Stockholm.
- Nordic countries represent the five countries of Nordic region, i.e., **Denmark, Norway, Sweden, Finland and Iceland**.
 - It also includes **Faroe Islands** and **Greenland** as part of the Kingdom of **Denmark**, and **Aland** which is part of **Finland**.
- The principal focus of discussion and partnership was on **Blue Economy**, Renewable energy- investment avenues, Health sector etc.
 - It also focuses on the **India-Nordic cooperation in the Arctic region**.

2.4.4. INDIA, DENMARK TO FURTHER STRENGTHEN GREEN STRATEGIC PARTNERSHIP (GSP)

- India and Denmark **confirmed the aspirations through the GSP to take global leadership in pushing for an ambitious green energy transition**.
 - Both sides also welcomed the work on a **comprehensive Energy Policy Dialogue in India and Denmark**.
- **GSP**, established in 2020, is a **5-year action plan for green growth and focuses** on green hydrogen, renewable energy, circular economy, water management etc.
 - It specifically focuses **on an ambitious implementation of the Paris Agreement and the UN SDGs**.

- **Other outcomes of the India-Denmark meeting**
 - Launched **“India Green Finance Initiative”** to finance green projects in India for accelerating green growth and job creation in India
 - India agreed to join the **International Centre for Anti-Microbial Resistance (ICARS)** as **mission partner**.
 - ✓ **ICARS** is a **One Health research partnership platform** to support the development and implementation of context-specific and cost-effective solutions to tackle Anti-Microbial Resistance in Low and Low Middle Income Countries.
 - Denmark confirmed its accession to the **Global Digital Health Partnership (GDHP)**.
 - ✓ **GDHP** is a collaboration of governments and territories, government agencies and the WHO, formed to support the effective implementation of digital health services.
 - ✓ **India is a part of GDHP**.

2.4.5. INTERNATIONAL MIGRATION REVIEW FORUM (IMRF)

- The **first IMRF is being held** (India also participating) under the auspices of General Assembly **at the United Nations**. **IMRF shall take place every four years** beginning in 2022.
- IMRF will serve as primary **intergovernmental global platform to discuss and share progress** on implementation of all **aspects pertaining to migration** and its intersection with Sustainable Development Goals.
 - It will result in **adoption of an inter-governmentally agreed Progress Declaration**.

2.4.6. INDIA STAYS OUT OF GLOBAL DECLARATION ON FUTURE ON INTERNET

- Aiming to keep the **Internet open, free, and neutral**, it is a **political commitment** among the partners to advance a **positive vision** for the Internet and digital technologies.
 - Around **60 countries have signed** the declaration include the US, European Union, United Kingdom, Canada and France. **India, China and Russia** are among the large nations that are **not part of this declaration**.
- **Key principles of Declaration**
 - Commitments to **protect human rights and fundamental freedoms** of all people,
 - Promote a global Internet that **advances the free flow of information**, advancing “inclusive and affordable” connectivity,

- Promote **trust in the global digital ecosystem**, including through protection of privacy,
- Protecting and strengthening the **multi-stakeholder approach** to governance.
- Earlier, a report titled, “**The return of digital authoritarianism: internet shutdowns**” highlighted that
 - Number of countries that **shut down the internet** in 2021 has **increased to 34 from 29 in 2020**.
- **India is the top country to impose internet shutdowns** in 2021 for the fourth consecutive year.
- India also **did not sign the Budapest Convention on Cybercrime, 2001**.
 - The **data sharing** provisions of Budapest Convention infringes on **national sovereignty**.
 - Presently, it is the **only legally binding multilateral convention** on cybercrime and electronic evidence.



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.



फाउंडेशन कोर्स

सामान्य अध्ययन

प्रारंभिक एवं मुख्य परीक्षा 2023

इनोवेटिव क्लासरूम प्रोग्राम

लाइव/ऑनलाइन कक्षाएं भी उपलब्ध

- प्रारंभिक परीक्षा, मुख्य परीक्षा और निबंध के लिए महत्वपूर्ण सभी टॉपिक को विस्तृत कवरेज
- मौलिक अवधारणाओं की समझ के विकास एवं विश्लेषणात्मक क्षमता निर्माण पर विशेष ध्यान
- एनीमेशन, पॉडकास्ट, वीडियो जैसी तकनीकी सुविधाओं का प्रयोग
- अंतर - विषयक समझ विकसित करने का प्रयास
- योजनाबद्ध तैयारी हेतु करंट ओरिएंटेड अप्रोच
- नियमित क्लास टेस्ट एवं व्यक्तिगत मूल्यांकन

- सीसेट कक्षाएं
- PT 365 कक्षाएं
- MAINS 365 कक्षाएं
- PT टेस्ट सीरीज
- मुख्य परीक्षा टेस्ट सीरीज
- निबंध टेस्ट सीरीज
- सीसेट टेस्ट सीरीज
- निबंध लेखन - शैली की कक्षाएं
- करंट अफेयर्स मैगजीन

DELHI: 24 JUNE, 1 PM | 5 APRIL, 9 AM

LUCKNOW: 7 JULY | 9 AM **JAIPUR: 22 JUNE | 4 PM**

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3. ECONOMY

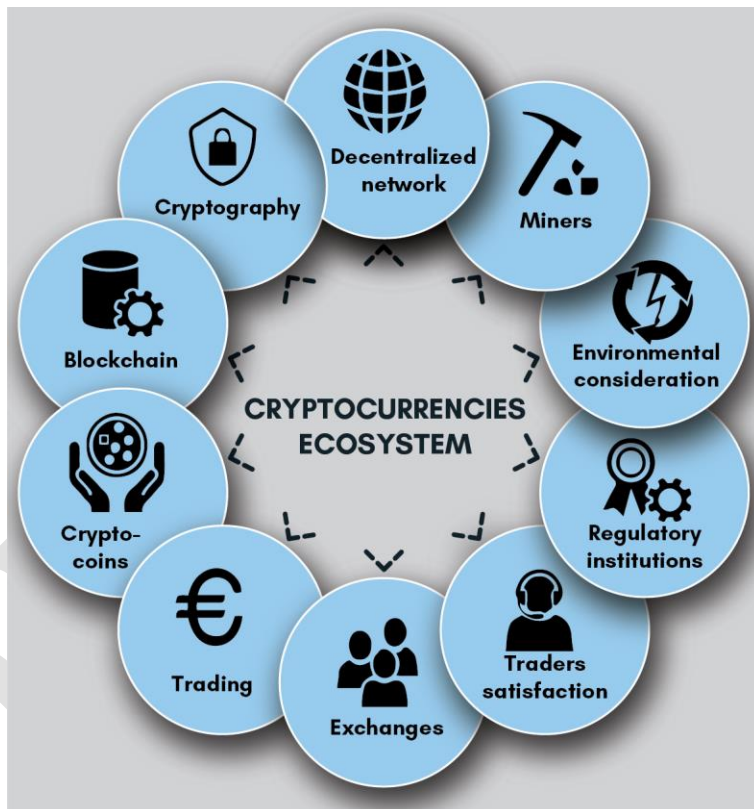
3.1. CRYPTOCURRENCY AND ECONOMIC SOVEREIGNTY

Why in News?

Recently, RBI officials told the **Parliamentary Standing Committee on Finance** that **cryptocurrencies** could lead to **dollarization of the economy** and would be **against India's sovereign interest**.

About Cryptocurrencies

- Cryptocurrencies, promoted as **decentralized international virtual currency**, are the digital currencies issued by a software protocol rather than central banks. E.g.
 - **Bitcoin**, launched in **2009** as a **peer-to-peer payment system**.
- In last few years, cryptocurrencies have gained potential to be a **medium of exchange** for domestic and cross border transactions leading to development of a cryptocurrency ecosystem. These are also facilitated by-
 - The growing **popularity of cryptocurrencies** across the world as investments,
 - **Multiple electronic exchanges** for exchange and conversion of cryptocurrencies into real currency.
- Some nations allow their use as **legal tender** or have made it their **official currency**. E.g. Bitcoin is the **official currency** of El Salvador and the Central African Republic.
 - Some nations have **classified them as illegal** as well, like China.



Cryptocurrencies in India

- In India, they are identified as **Virtual Digital Asset (VDA)**. Under **Section 2 (47A) of the Income Tax Act (1961)**, VDAs are defined as-
 - **any information or code or number or token** (not being Indian currency or foreign currency), **generated through cryptographic means** or otherwise, by whatever name called, providing a digital representation of value exchanged with or without consideration, **with the promise or representation of having inherent value**, or functions as a store of value or a unit of account including its use in any financial transaction or investment, but not limited to investment scheme; and can be transferred, stored or traded electronically;
 - a non-fungible token or any other token of similar nature, by whatever name called;
 - any other digital asset, as the Central Government may, by notification in the Official Gazette specify
- Though there is **no official data on size of Indian crypto market**, it is estimated that India has **15-20 million crypto investors**, with total crypto holdings of around **USD 5.34 billion**.

Economic Sovereignty: Threats from Cryptocurrencies

Traditionally, **State (Central Banks)** enjoy a **monopoly** over currency in a nation, as currency requires **trust among people** to be accepted as a **medium of exchange**, i.e., trust a person paying it; trust in the person issuing it and trust in the bank which is honoring it.

But in case of cryptocurrencies **nobody knows** who is **creating most of these currencies** and who is **guaranteeing the same**. Therefore, **trust and the absence of accountability** creates number of other concerns, such as:

- **Financial Instability:** Acceptance of any kind of international currency pose a threat to the stability of the financial system of the country as it may:
 - Have negative consequences on the economy due to their highly volatile nature, and
 - It can lend significant **economic control in the country to anonymous players**- who can be anyone like businessmen, foreign governments, or their proxies.
- **Dollarization of Economy:** With almost all cryptocurrencies in India being **dollar-denominated** and **issued by foreign private entities**, they can replace the rupee in financial transactions.
 - Dollarization means **use of the US Dollar** as a **medium of exchange** or **legal tender in addition to or instead** of the **domestic currency** of the country.
- **Monetary Policy Transmission:** Money Supply in the economy is regulated by RBI to control key economic parameters such as interest rate, inflation rate, exchange rate and economic growth. Use of cryptocurrencies will undermine the RBI's role and its capacity to **determine monetary policy** and **regulate the money supply**.
- **Anonymity:** Cryptocurrencies can be used anonymously to conduct transactions between account holders worldwide. This makes them liable to be misused for **terror financing, money laundering** and **drug trafficking**.
- **Negative Impact on the Banking System:** Banking System has an important function in a well-functioning financial system. As more people invest their savings in cryptocurrencies, lesser resources will be available for banking system.
- **Consumer Protection:** In cryptocurrencies, huge **Information asymmetry** exists between insiders and lay investors. The high volatility of cryptocurrencies and being **largely unregulated, no regulatory recourse** is available for any loss of the consumer. E.g.
 - The **TerraUSD (UST)**, an **algorithmic Stablecoin**, collapsed **almost 97%** in 24 hours. (Stablecoins are cryptocurrencies that attempt to peg their market value to some external reference like US Dollar, Gold etc.)

Related Concept: De-dollarization

De-dollarization describes a move away from a dollar-dominant world order to one where nations sell their US Treasuries to hold reserves in other currencies, or gold, and seek to use their own currencies for transactions between their most important trade partners.

De-dollarization will have positive implication for India with regard to **foreign trade** as well as **rising global acceptance of Rupee**.

So, in the long-term, crypto usage and volatility can have a negative impact on India, causing loss of hard-earned money of the general public, leading to undesirable consequences on **society** and **legitimacy of institutions**.

Challenges in Overcoming Cryptocurrencies Concerns

With the pace, scale and level of cryptocurrencies development and investment, overcoming of threats from cryptocurrencies is a complex task as they:

- **Promoted by many influential people;** leading to **mainstreaming** and giving an **appearance of credibility** and **legitimacy** to them.
- Though regulatory focus has been placed on VDAs across the world, including India, we lack any global or local regulatory framework to manage cryptocurrencies ecosystem. E.g.
 - The draft bill 'Banning of Cryptocurrency & Regulation of Official Digital Currency Bill, 2019' is yet to be introduced in Parliament.

Steps taken in India on VDAs Regulation

- **Flat 30% Capital Gain Tax** (plus cess and surcharges) on all transactions involving VDAs with no offsetting of losses from April 1, 2022.
- **Mandatory Profit/loss disclosure** from Crypto exchanges.
- **Parliamentary Standing Committee on Finance** working towards a **draft bill for overall regulatory policy for VDAs**.
- The **Advertising Standards Council of India (ASCI)** has also issued guidelines on advertising and promotion of crypto assets in India.



Way Forward

With **no clarity on the status** of cryptocurrencies- **legal or illegal** in India- the first step shall start with clarity on status of cryptocurrencies. It will chart out the future course India will take. Also, the concerns highlighted by the RBI and experts can be addressed through:

- **Legal Framework/Regulations** for licensing and authorization of crypto-asset service providers to **mitigate consumer risks, ensure market integrity** and **financial stability**.

- **Mechanism for Tracking and Reporting of Suspected Transactions** by crypto exchanges and other institutions to investigate its use for financial crimes and illicit activities.
- **Managing Macroeconomic Risks** by strengthening monetary policy credibility and de-dollarization policies. For instance, early introduction of Central Bank Digital Currency can also help in this by replacing/competing with private cryptocurrencies.
- **Working towards Global Crypto Regulation** for principles based **Comprehensive, Consistent** and **Coordinated** global framework. It can help in safeguarding financial stability and integrity of national as well as global systems.
- **Prioritize Cross-border collaboration and cooperation** to address technical, legal, regulatory and supervisory challenges. E.g.
 - **Financial Action Take Force (FATF)** can be engaged for principles and mechanisms to curb cryptocurrencies use for money-laundering and terrorism.

To know more about **Cryptocurrency**, please refer to our following Weekly Focus Document.

 <p>Cryptocurrency: A tool of Economic Empowerment or a Regulatory Nightmare?</p>	<p>Cryptocurrency is having its best year yet in 2021; becoming more popular, mainstream, and accessible. But, is there a future for cryptocurrency in India? In what form cryptocurrency would be acceptable to Indian lawmakers and regulators remains to be seen. Discussing the basics of cryptocurrency, the document puts light on their role in economic empowerment of the masses and the path ahead to overcome the emerging regulatory challenges due to their increased usage.</p>	
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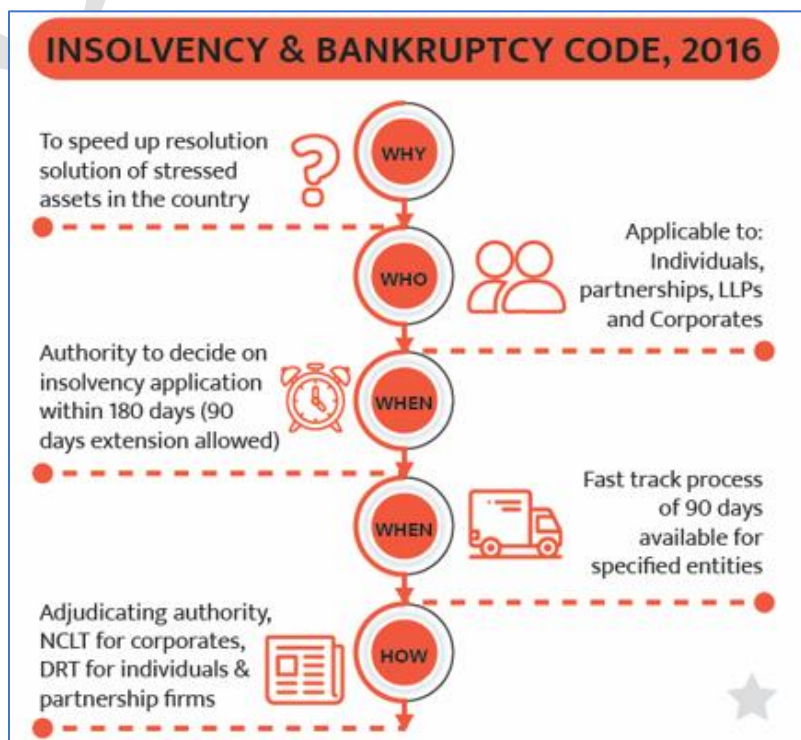
3.2. INSOLVENCY AND BANKRUPTCY CODE (IBC)

Why in News?

The recovery for financial creditors from the resolution of stressed firms under the IBC crashed to a **record quarterly low of 10.2%** of their admitted claims in the last quarter.

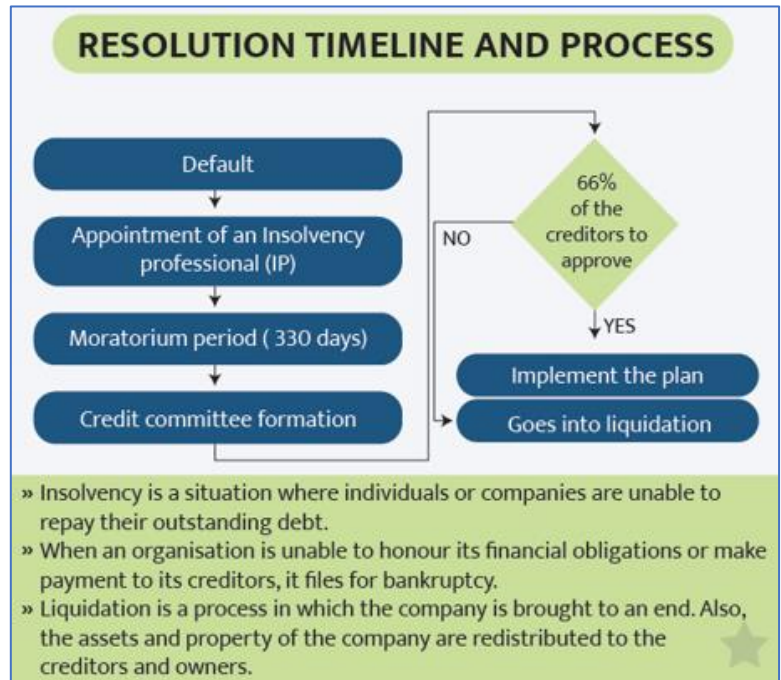
More on News

- At ₹1,288 crore, the realization for financial creditors in the March quarter dropped below the assets' liquidation value of ₹1,316 crore for the first time.
 - Financial creditors are those who have a **strictly financial contract with the company, such as a loan or debt security.**
- In absolute terms, the cumulative recovery for financial creditors till the March quarter stood at Rs 2.25 trillion out of total admitted claims of ₹7.56 trillion.



The Insolvency and Bankruptcy Code (IBC)

- It was introduced in **2016** through an **act of Parliament** to tackle the **bad loan problems** and act as **one stop solution for resolving insolvencies**.
- It **consolidates and amends** the laws relating to **reorganization and insolvency resolution** of all entities- both corporate and individuals.
- It provides for a time-bound process to resolve insolvency (see **infographic on IBC, its timeline and process**) to-
 - **Maximize the value of assets** of such persons, to **promote entrepreneurship, availability of credit** and **balance the interests of all the stakeholders**.
- **Four Pillars of IBC**
 - **Adjudicating authorities** (the National Company Law Tribunal or NCLT & the Debt Recovery Tribunal or DRT).
 - ✓ **National Company Law Appellate Tribunal** is the **Appellate Authority** for hearing appeals against the orders passed by NCLT.
 - **Insolvency Professionals (IPs)** and **Insolvency Professional Associations (IPAs)** for professionalization of insolvency services.
 - **Insolvency and Bankruptcy Board of India (IBBI)** as Regulator over insolvency professional agencies.
 - **Information Utilities (IUs)** (as **National E-Governance Service Ltd**) for high-quality, authenticated information on debts and defaults.



Significance of IBC

In over 5 years of its functioning, IBC has created a **cohesive and comprehensive insolvency ecosystem** based on its features and constant amendments, wherever required.

- **Profound change in creditor-debtor relationship:** It follows the “creditor-in-control” model, a radical departure from prevalent approaches.
- **Establishment of Committee of Creditors:** It functions as a public institution to ensure maximization of value for stakeholders in resolution of a **corporate debtor (CD)**.
- **Power of Operational Creditors:** IBC has increased the negotiating power of operational creditors by allowing them to make applications for the **Corporate Insolvency Resolution Process (CIRP)**.
- **Increased Resolution:** Out of total **5,258 CIRP** under IBC, 3,406 have been closed with:
 - **Rescuing 480** stressed firms through **resolution plans**, and
 - **Referred 1609 CDs for liquidation**.
- **Reduction in Time and Cost of bankruptcy resolution:** The average time taken for resolution was reduced from 4.3 years in 2017 to 650 days in 2021-22.



- **Behavioural Change:** Debtors are resolving distress in the earlier stages, to avoid gradual decline in distressed assets value and consequences of the resolution process.
- **Ease of Doing Business:** Now discontinued by the World Bank, IBC along with other reforms helped in improvement of India's rank in it (63 in 2019 from 100 in 2017).
- **Constant Changes to Strengthen Code:** Since its introduction, IBC has undergone significant changes to improve its performance such as:
 - Reduction in voting threshold of Committee of Creditor (CoC) from 75% to 66%.
 - Introduction of **Pre-Packaged Insolvency Resolution Process (PPIRP) for corporate MSMEs.**

Pre-Packaged Insolvency Resolution Process (PPIRP)

- It is a process whereby 'a resolution arrangement is agreed upon between the distressed CDs and lender before approaching the NCLT for bankruptcy proceedings.
- It follows a **debtor-in-possession model** and allows for a **Swiss challenge** to the resolution plan submitted by a CD in case operational creditors are not paid 100% of outstanding dues.

Differences between PPIRP and Corporate Insolvency Resolution Process (CIRP)

Criteria	PPIRP	CIRP
Control of the firm during insolvency process	Debtors remain in control of their distressed firm.	Company is managed by the resolution professional.
Deadlines	To be completed within a period of 120 days of the commencement date.	To be completed within a period of 270 days of the commencement date.
Process of resolution of the debt	Distressed company enters into direct agreement between secured creditors and the existing owners or outside investors.	Resolution through open bidding system.

Issues in IBC Implementation

- **Adjudicatory Delays:** Inordinate delays in resolution due to protracted legal tussles and bottlenecks in the adjudicating system. E.g. **66%** of companies undergoing resolution have exceeded the **270-day limit** due to reasons like:
 - Significant number of **unfilled vacancies at tribunals** and litigation at appellate authority (NCLAT) and Supreme Court.
- **Low recovery rates:** The creditors, i.e. banks, NBFCs and other financial lenders, to companies undergoing CIRP had to suffer huge haircuts, at times between 90-95% due to delays in admission of application, resolution and bids or unsolicited bids.
 - The **reduced market appetite** for insolvent firms due to **pandemic** has further added to **asset value erosion.**
- **Cross-Border Insolvency:** IBC lacks a **standardized cross-border insolvency** approach, as observed in Videocon and Jet Airways case, increasing complexities and issues such as:
 - **Extent of access to assets** held in a foreign country for an insolvency administrator,
 - **Priority of payments**, i.e. whether local creditors to have access to local assets before funds go to the foreign administration or not,
 - **Recognition of the claims of local creditors** in a foreign administration,
 - **Recognition and enforcement of local securities**, taxation system over local assets where a foreign administrator is appointed etc.
- **Upholding Home Buyers Rights:** Though homebuyers are recognized as **financial creditors** (Chitra Sharma v. Union of India), it requires a minimum threshold of **10%** or **100 homebuyers** (whichever is lower) of one project to initiate the process, causing practical difficulties in meeting the required threshold to initiate insolvency proceedings.
- **Low utilization of IUs:** Despite its vital role in **limiting the Insolvency Resolution time**, it remains the **least utilized** pillar of IBC.

Cross Border Insolvency

- It represents **special circumstances** in which an insolvent debtor has assets and/or creditors in more than one country.
- Under IBC, it is regulated by Section 234 and 235 but they are **ad-hoc in nature and susceptible to delay.**

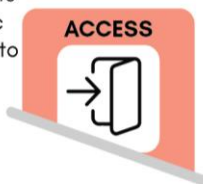
- **Issues in Functioning of IPs and IPAs:** Multiple IPAs regulating IPs lead to various issues such as absence of common standards, non-uniformity in decision-making, lack of due diligence in maintenance of claimants record etc.

Way Forward

To resolve insolvencies in a **time-bound manner** and **maximize value of all stakeholders**, the IBC pillars need to be strengthened with key reforms in its implementation such as:

- **Overcoming Adjudicatory Delays** by immediately filling up of vacancies and a fixed time for approving or rejecting a resolution plan by the adjudicating authority.
 - **Extension of PPIRP** to CDs (other than MSMEs) can be looked at to **reduce burden** at NCLT.
 - **More Benches or Specialized Benches** of NCLT could be set up.
- **Setting a benchmark for the quantum of haircuts allowed** as per global standards or giving leeway to banks in taking haircuts without inviting persecution from enforcement agencies.
- **Adopting the United Nations Commission on International Trade Law (UNCITRAL) Model Law on Cross-border Insolvency (1997)** with certain modifications to suit Indian context **for an internationally competitive and comprehensive insolvency framework.**
- **Formulating a professional code** for the CoC, who take over a company in distress.
- **Establishment of a single professional self-regulatory IPAs** like the Institute of Chartered Accountants of India (ICAI) to set standards and regulate the functioning of IPs.
- **Deepen the Credit Risk Market** by allowing additional types of securitizations. It becomes critical especially since the pandemic due to increased volatilities.
- **Digitize IBC process** to improve records and conduct virtual hearings at NCLT and NCLAT.
- **Reduce threshold on homebuyer** to initiate insolvency proceedings or duty-bound real estate owners to provide details of other home buyers of the project to others, when requested for insolvency.

It allows foreign professionals and creditors direct access to domestic courts and enables them to participate in and commence domestic insolvency proceedings against a debtor.



It allows recognition of foreign proceedings and enables courts to determine relief accordingly.



It allows recognition of foreign proceedings and enables courts to determine relief accordingly.

Four Main Principles of UNCITRAL



It provides a framework for cooperation between insolvency professionals and courts of countries.

3.3. GST COUNCIL

Why in News?

Recently, the Supreme Court, in **Union of India vs Mohit Minerals Pvt Ltd**, held that the recommendations of the GST Council are not binding on either the Centre or the States.

About Goods and Services Tax (GST)

- GST is a **comprehensive, multi-stage, destination based single domestic tax** on the consumption of **goods and services** introduced in the country w.e.f. 1st July 2017.
- It was introduced through the **Constitution (One Hundred and First (101st) Amendment) Act, 2016** for one tax rate across the country.
- It **subsumed several indirect taxes** like excise duty, VAT, service tax, luxury tax etc. on goods and services with few items left out such as-
 - Excise Duty on Alcohol, Property Tax & Stamp Duty, Petroleum crude, Diesel, Petrol, Aviation Turbine Fuel, Natural Gas, Electricity Duty, Basic Custom Duty, etc.
- Under **Article 246A (1)**, it gave the Parliament and Legislature of every State power to make laws with respect to **goods and services tax imposed** by the Union or by such State.
 - For inter-State trade or commerce (**Article 246A (2)**), the Parliament has exclusive power.

GST Council

- It is a **constitutional body** established under **Article 279A (1)**, introduced through the 101st Constitutional Amendment Act.
- Under **Article 279A (4)**, the GST rates to the Union and States are recommended by the GST Council.
- **Decision-making of GST Council:** The GST rates are decided mutually by States and Center at the GST Council Meeting.
 - The GST Council has a **quorum requirement of one-half** of total members for meeting.
 - Its decisions are based on a **majority of not less than three-fourths** of the **weighted votes of the members present and voting**.
 - The weightage of central government vote is **one-third** of the total votes cast while that of all states taken together is remaining **two-thirds** of the total votes cast.

Composition of GST Council (Article 279A (2))

It brings together the Centre and the States for nationwide rollout of GST. Its members are as follows:

- **Union Finance Minister**– Chairperson.
- **The Union Minister of State, in-charge of Revenue or finance**– Member.
- The **Minister In-charge of finance or taxation or any other Minister nominated by each State Government** – Members.
- The **Vice-Chairperson** is selected by members of the Council from one amongst themselves [**Article 279A (3)**].
- **GST Council Office** is in **New Delhi** with **Revenue Secretary** as the **Ex-officio Secretary** to the GST.

Supreme Court (SC) judgment on GST framework

According to latest judgment, both the Parliament and the State legislatures possess simultaneous power to legislate on GST as:

- **Recommendations of the GST Council are only persuasive** (not binding). Article 279A doesn't specifically mention that all GST Council decisions are binding on the parties.
- **Article 246A empowers Parliament as well as State legislatures to make laws relating to GST**, i.e., GST Council decisions are not enforceable, and the Centre or State can reject the GST Council decisions and set different rates for goods and services in their jurisdiction.

Significance of GST Council

- **Uniformity of tax rates and structure:** The GST Council has played a key role in replacing multiple tax rates and processes with uniform tax rates and processes. E.g.
 - Based on the **GST Council recommendations**, we have a **Four Slab Tax Structure** (5%, 12%, 18% and 28%) across India with some in '**Exempt Goods category**' while some goods **attracting a cess** above the 28% rate.
 - ✓ The cess is collected in the **GST Compensation Fund**, from which the **Union Government** makes **bi-monthly compensatory payment to states**.
- **Economic Federalism:** It **fosters economic federalism** with Centre and states giving up their **right to determine the tax rate** on most goods and services for collective decision-making.
 - Till date, **all decisions** of the **GST Council**, except the one of **uniform GST** on state-run and authorized lotteries (a **sin good**), have been decided with **consensus**.
- **Ease of Doing Business:** The GST Council is guided by the need for a **harmonized GST structure** and **harmonized national market** for GST. This helped in **ease of compliance** through seamless tax-credits and removal of cascading of taxation to enable **free flow of goods** within **India**.
- **Competitive Federalism:** Increased inter-state trade promotes competition among states to attract greater investments.

Possible Implications of this judgement and in-built mechanisms which resist it

- **States moving away from GST:** Though it may be **too early** to say that the latest judgment opens a window for **states to move away** from a **uniform taxation regime** and have amendments which lead to different rates but it has the potential to alter the GST regime.
- **Can amplify the effect of already prevalent problems:** But the **increasing expenses, reduced GST collection** since pandemic and soon ending **GST compensation regime (1st July, 2022)** under the **GST (Compensation to States) Act, 2017** might create roadblocks in smooth functioning of GST.

- At the same time, the GST implementation framework makes different taxes difficult. E.g.
 - **If a State remains in GST** and increases tax on certain goods and services- it will be **less preferred by domestic and foreign companies** and it will **increase the tax incidence** of taxpayers as they will be **unable to claim input tax credit** on goods outside GST.
 - **If a State moves out of GST**, it will **bring down its revenue share** from the **Centre** as other states will not want to share their GST revenue with the breakaway State. The **inter-State business** will also **become difficult** and FDI will **move away from the State**.

Way Forward

The SC has highlighted only what was **already in the Constitution**, i.e., distribution of power between the Union and the States. The **objective of the GST regime** also desires it, i.e., to **foster cooperative federalism** and **harmony** between the constituent units through concurrent taxation powers. So, the **cooperative federalism** fabric of GST Council be strengthened by:

- **Addressing the Unequal Voting Structure** issue in GST Council as the Centre and states are **autonomous, independent, and competing units**.
 - Under present distribution no recommendation on a **3/4th majority** can be passed **without Centre's consent**.
- **Resolving differences amicably** to preserve democracy as the GST Council is not only an avenue to exercise cooperative federalism but also for **political contestation**.
 - **Periodic GST Council meetings** and **active participation of states** in making recommendations can help in overcoming such contestations.
- **Constitution of a Dispute Settlement Mechanism** as prescribed under Article 279A (11) with representation from Centre, States, and independent experts from legal and finance professions.

3.4. FOOD INFLATION

Why in News?

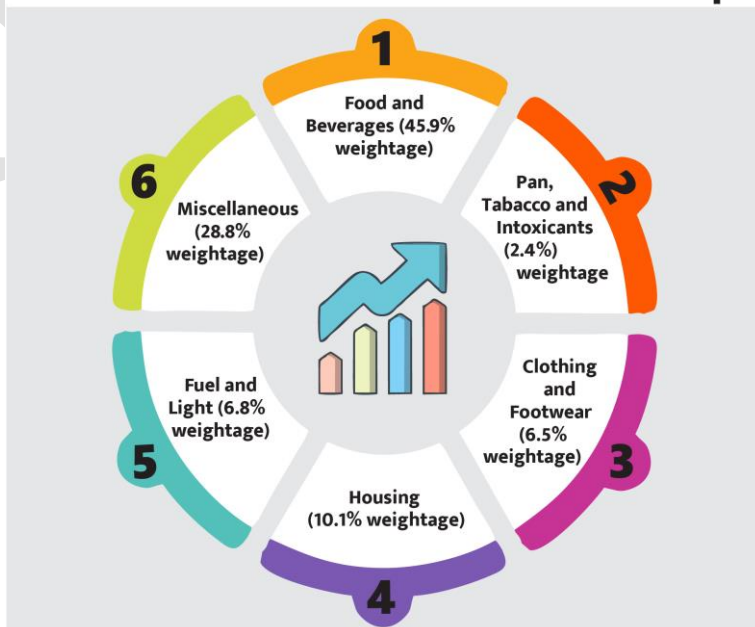
The **Consumer Price Index (CPI) based inflation** or **Headline inflation** touched an **8-year high of 7.79% in April**, a 3.44% rise in the last 7 months (4.35% in September 2021).

Food Inflation in India

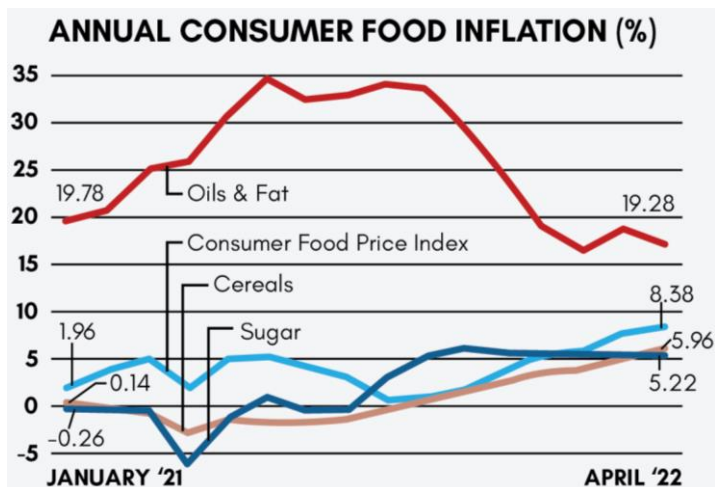
Inflation is a macroeconomic phenomenon representing the **general rise in goods and services prices** in an economy over time. It has different forms like:

- **Headline Inflation:** It represents the change in value of all goods in the basket (see infographic). It is released by the **National Statistics Office (NSO)** with **2012 as Base**.
- **Core Inflation:** Change in prices of goods and services, excluding food and fuel items from headline inflation. E.g., the Core inflation was at 7.24% in April 2022.
 - Core inflation counts items where inflation is likely to persist for a long period. It excludes food and fuel items due to frequent and wider price volatility. E.g., Due to **seasonality** and **irregular shocks** (rain, delay in crop etc.), price variations (especially of perishable commodities like tomato) are common.
- **Food Inflation:** It is a measure of **change in retail prices of food products** consumed by a population group in a given area with reference to a base year.

All India Consumer Price Index- Groups



- It is released by the **National Statistics Office (CSO)** as '**Consumer Food Price Index (CFPI)**' in **three categories -rural, urban and combined - on All India basis** from **May 2014**, with 2012 as Base Year.
- In **last 6 months**, CFPI has increased from **0.68%** in September 2021 to **8.38%** in April 2022 due to rise in price of various commodities (see graph).



Factors leading to Food Inflation

The current inflation is principally **supply shock-driven**, leading to large and quick rise in relative prices globally. In India, the rise in food inflation can be attributed to **low base year inflation** and number of other factors as given below:

Global Factors	<ul style="list-style-type: none"> ● Disruption in Global Production and Supply: Earlier, by Pandemic and now due to the Russia-Ukraine war (two main exporters of agricultural commodities like wheat, sunflower etc.), global production and supplies have been disrupted. ● Global Commodity Price Rise: On account of geopolitical tensions, export curbs etc., the increasing costs of certain crops, raw materials (e.g., fertilizers), and fossil fuels is adding to food inflation. E.g. <ul style="list-style-type: none"> ○ Temporary Palm Oil exports ban by Indonesia increased palm oil prices. ○ Rising crude oil prices has made production of biofuels more attractive, adding to food inflation by increasing sugar, corn prices. ● Exchange Rates: Withdrawal of Monetary Accommodation by central banks (e.g. Federal Reserve) has led to increased capital outflows from developing countries including India. The increased exchange rate due to outflows, adds to the import cost of crude and commodities. ● Climate Change Impact: The impact of extreme weather events (heatwaves, floods etc.) due to climate change is increasing. <ul style="list-style-type: none"> ○ As per IPCC report, with every one-degree Celsius rise in temperatures, wheat yields across the world are likely to suffer by about 5 MMT.
Domestic Factors	<ul style="list-style-type: none"> ● Demand-Supply Mismatch: Though India is self-sufficient in most foodgrains, the huge demand-supply mismatch in edible oils (India imports around 60% of its edible oils consumption) is the main reason behind India's food inflation. ● Rising Input and Marketing Costs: Rise in prices of farm inputs such as fertilizers, crude oil etc. increase the cost of production along with increase in the cost of storage, transportation, processing etc. ● Minimum Support Price (MSP) and Procurement Costs: RBI found a clear impact on inflation due to MSP and its impact gets stronger as government assures procurement. ● Impact of Policies: The export and import tariffs from government as well as the expansionary monetary policy (increasing the money supply since pandemic) has also impacted the food inflation indirectly. ● Domestic Production Challenges: The yield of wheat crop is impacted across North India due to heatwaves in the month of March when the crop is at its final stage.

Impact of High Food Inflation in India: Opportunities and Threats

In short-term, inflation has a **positive influence** due to its **inverse relation with unemployment (Phillips Curve) and economic growth**. Also, being a net-exporter, the global food inflation has created multiple export opportunities for India as:

- **India's agriculture exports crossed \$50 billion** for the first time in FY22 based on record food grains exports such as wheat export of \$2.1 billion in FY22 (\$0.56 billion in FY21).
- It can also help in **bringing the much-needed private investment** in the agriculture sector- improving the **agriculture supply chain** and **doubling farmers income**.
- It can help the government in **meeting its debt obligations** as inflation allows the government to meet its fiscal deficit targets due to rise in nominal GDP.

But inflation beyond a certain level hurts the growth and employment, increasing the risks of **stagflation (stagnant growth with high inflation)**. The risks of stagflation become higher as the food inflation gives rise to various other threats such as:

- **Reduced Purchasing Power:** In developing countries, food items form **30-40%** of the consumption basket unlike developed countries with **10-15%**. Thus, food inflation directly and drastically impacts the overall purchasing power.
- **Reduced Overall Demand:** It is the fallout of reduced purchasing power, reducing consumers demand for non-essential goods and services such as tourism.
 - Combined together, reduced purchasing power and overall demand will lead to **reduced incomes and job losses**, hurting consumers as well as the consumer industries.
- **Reduced Profits of Companies:** In short-term, some companies may see higher profitability by passing on the prices to consumers, in long-term profitability gets hurt due to overall demand reduction.
- **Reduced Savings:** Inflation hurts savers by reducing the real interest earned by them through bank deposits or other similar savings instruments.
- **Reduced Growth:** To curb inflation and rising exchange rate, RBI needs to tighten its monetary policy. This is done by raising the interest rates, thus reducing money supply and economic growth in the immediate term.

Overall, food inflation can diminish private investments and increase risk of companies/sectors increasing price of goods and services in anticipation.

Steps taken to Mitigate Immediate Inflation Risks

- **Exemption of customs duty and agriculture infrastructure development cess** on 20 lakh MT yearly import of crude soybean and sunflower for next 2 years.
- **Limitations on Sugar exports** to 10 million MT for the current season.
- **Excise duty cuts** on petrol and diesel and **import duty cut** on palm oil.
- **Extension of food subsidy** to nearly **800 million** Indians till September under **Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)** etc.

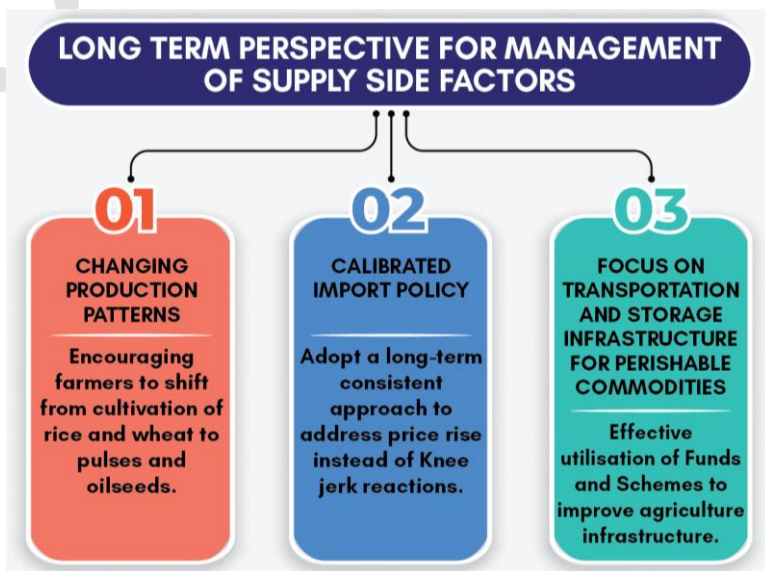
Way Forward

As highlighted in the Economic Survey (2021-22), India needs a **long-term perspective** to manage inflation from **supply side factors**. It involves three important steps (see **image**) to become-

- **self-reliant** in pulses and oilseeds,
- ensure **diversification** of crops, and improve **supply chain** management for reduced wastages, distress sales etc.

Following steps can be taken to ensure the same-

- **Increasing capital expenditure** to support the economy against emerging threats of monetary tightening, reduced purchasing power etc. and **work on overcoming supply disruptions** through domestic production or diversified sources for crops and inputs.
- **Enhance use of Technology** (Drones, Artificial Intelligence, Blockchain technologies etc.) for timely and reliable estimates of crops, impact of climate change etc.
 - It will help in creating **climate-smart agriculture models** for **better timing** of heat-sensitive crops and also stimulate R&D efforts to find heat-resistant varieties of crops.
- **Rationalizing Public Distribution System and Pradhan Mantri Garib Kalyan Anna Yojana (PMGKAY)** to target only those below the poverty line for free or subsidized food.
- **Mandate the submission of anonymized stock data** from all warehouses, including private, to avoid black-marketing and generation of artificial inflation of commodities due to hoarding.



- **Sound Policy Decisions** using comprehensive and permanent factors rather than just production and public stock data. E.g. The recent wheat procurement decision without acknowledging heatwaves impact on production.

3.5. PRADHAN MANTRI FASAL BIMA YOJANA (PMFBY)

Why in News?

The **two working groups**, set up by the **Ministry of Agriculture and Farmers' Welfare** to review the PMFBY, submitted their recommendations to **reverse the falling coverage** of the scheme.

About PMFBY

- It is a Central Government's flagship **crop insurance scheme** launched in 2016, replacing the earlier **National Agricultural Insurance Scheme (NAIS)** and **Modified NAIS**.
 - The **Restructured Weather-Based Crop Insurance Scheme (RWBCIS)** is another **flagship insurance scheme**, also launched in **2016**.
- It aims at **supporting sustainable production** in agriculture sector by way of:
 - Providing **financial support to farmers** suffering crop loss/damage arising out of unforeseen events;
 - **Stabilizing farmers income** to ensure their continuance in farming;
 - **Encouraging farmers to adopt innovative and modern agricultural practices**; and
 - **Ensuring credit worthiness** of the farmers, **crop diversification** and **enhancing growth and competitiveness of agriculture sector** besides **protecting the farmers** from production risks.
- **Implementing Agency: Insurance Company** selected by the States/UTs from the empanelled list of Insurance Companies through bidding.

Importance of Crop Insurance in India



High Percentage of Small and Marginal Farmers (86.2%), i.e. farmers with less than 2 hectares of land with **limited cash surplus**.

High Vulnerability of Agricultural production to **vagaries of Monsoon** and **climate change**, i.e. Heatwaves, heavy rains, deficient rain etc.

Rising Credit needs of agriculture with **limited formal credit** benefit due to **rising default risks** on account of increased crop failure.

Features of PMFBY

- It is a **yield index-based scheme** and operates on the principle of '**Area Approach**' in the selected defined areas called **Insurance Units** such as village or Panchayat level.
- It insures farmers against **all non-preventable natural risks** from **Pre-sowing to Post-harvest** and it is **voluntary for all farmers**- since Kharif 2020.
 - Earlier, it was **compulsory for loanee farmers** by the banks.

Season	Crops Covered	Maximum insurance charges payable by farmers [% of sum insured (SI); rest is paid by centre and state]
Kharif	All foodgrain and Oilseeds crops (all Cereals, Millets, Pulses and Oilseeds crops)	2.0% of SI or Actuarial rate*, whichever is less
Rabi	All foodgrain and Oilseeds crops (all Cereals, Millets, Pulses and Oilseeds crops)	1.5% of SI or Actuarial rate*, whichever is less
Kharif and Rabi	Annual Commercial / Annual Horticultural crops	5.0% of SI or Actuarial rate*, whichever is less

* An actuarial rate is an estimate of the expected value of the future losses of an insurance company.

- Also, a **centralized digital platform- National Crop Insurance Portal (NCIP)** - is made for all stakeholders to **speed up delivery, unify fragmented databases** and **eliminate manual processes** for faster insurance services to farmers.

Though received well by the farming community, covering **567.2 Lakh Ha** of **Gross Cropped Area (GCA)** or 30% in **first year (2016-17)** across **27 States and UTs**, the coverage under the scheme is declining since then.

In terms of farmers, out of **nearly 140 million farmer families** in the country, for the last **three years** the PMFBY enrolment has **not crossed 20 million**.

Reasons behind poor coverage despite initiatives

- **Non-implementation/suspension of the scheme by some States** because of more than **six-fold increase** in PMFBY **premium**; increasing **subsidy liability** of the government. E.g.
 - States like Bihar, West Bengal, Andhra Pradesh etc. have discontinued it due to financial constraints with some starting their own crop insurance schemes.
- **Delays in settlement of farmers' claims** due to various reasons like delays in payment of state share of subsidy, delays in Crop Cutting Experiments (CCEs) and delays in processing claims by insurance companies.
 - CCEs are conducted just before harvest to assess crop loss by estimating average yield for all notified crops in the notified insurance unit. But it suffers from issues of **reliability, lack of funds and trained professionals, high time consumption and labor intensive nature**.
- **Lack of participation from insurance companies** in certain clusters like smaller states/UTs due to low coverage (E.g. Tripura, Meghalaya) and in big clusters like in Maharashtra due to higher risk level/sum insured.
 - The number of participating insurance schemes has also decreased from 19 at start to 11 companies in Kharif 2021.
- **Limited training and Capacity Building** of stakeholders to remove deficiency in knowledge and services which is vital for efficient claim settlement process.
 - It becomes more significant due to **multiple layers of hierarchy** within **each stakeholder** with different training needs.
- **Other reasons like-** Announcement of **Debt Waiver Scheme** by States; **Limited Publicity and Awareness** on scheme due to **low literacy** and **poor socio-economic conditions** of majority farmers among others.

Recent Steps and Recommendations of Working Groups

Recently, to support PMFBY implementation, a **National Technical Support Unit (NTSU)** has been set up within the Department of Agriculture Cooperation and Farmers Welfare (DAC&FW) for planning and executing capacity building activities. An MoU is signed with **UNDP** as well to provide **responsive, demand-driven technical support** on PMFBY. The two Working Groups have also recommended steps to address specific issues as:

- **Coverage: Targeted Premium subsidies** for Small Farmers to increase penetration and bring down the average premium rates with a uniform coverage.
- **Overcoming Delays: Empower Centre to levy penalty** on States for delay in subsidy settlements or **adjust such subsidies against other liabilities** of the central government; and **Use of remote sensing data and weather data** extensively for faster and more accurate crop yield assessment.

Other Steps to improve PMFBY:

- **Strengthen Infrastructure and technology** for hassle free and farmer-friendly delivery of the Scheme. E.g.
 - **Functional office of insurance companies** in each Tehsil as mandated by the PMFBY.
 - Extensive use of technology to assess yield and losses should be supported by actions to gain farmers trust in order to avoid misuse of technology.
- **Evaluate Insurance Companies performance** on a **regular basis** and take action against the defaulting Companies to complete penalization within a fixed timeframe.
- **Monitoring** the compliance to requirement of expenditure of **0.5% of Gross Premium per Company per Season** for publicity and awareness.
- **Utilizing CSR Funds** from the profits of Insurance Companies from PMFBY in the State/District towards development of rural areas in the respective State/District.
- **Linking crop insurance with climatic changes** and redesigning insurance products to make them not just risk transfer tools but a tool to reduce the risk and loss of crops.
- **Offering insurance as priority insurance on the lines of priority sector lending** can increase penetration of crop insurance in rural areas.
- **Competitive Pricing** by having at least two insurance companies in a cluster to help farmers benefit from competitive pricing for insurance products.

3.6. E-SHRAM PORTAL

Why in news?

Latest governmental data about e-Shram portal highlights the plight of unorganised/informal sector in India as well as sharp disparities existing in the society.

About e-Shram Portal

- The portal was **launched by the Union Ministry of Labour and Employment (MoLE)** in August 2021 for the welfare of workers in the unorganized sector who are not members of the EPFO or ESIC.
- **Objectives of e-SHRAM Portal**
 - **Creation of a centralized database of all unorganized workers (UWs)** including Construction Workers, Migrant Workers, Gig and Platform workers, Street Vendors, Domestic Workers, Agriculture Workers, etc., to be seeded with Aadhaar.
 - ✓ Documents like the Aadhaar Number, mobile number, Aadhaar linked bank account are required by the worker to register on the portal.
 - **To improve the implementation efficiency of the social security services** for the unorganized workers.
 - ✓ Integration of Social Security Schemes meant for UWs being administered by MoLE and subsequently those run by other ministries as well.
 - **Sharing of information in respect of registered unorganised workers with various stakeholders** such as Ministries/ Departments/ Boards/ Agencies/ Organisations of the Central & State Governments through APIs for delivery of various social security and welfare schemes being administered by them.
 - **Portability of the social security and welfare benefits** to the migrant and construction workers.
 - Providing a comprehensive database to Central and State Governments for **tackling any National Crises like COVID-19 in future.**
- **Other features of e-shram portal**
 - **Any worker who is unorganized and aged between 16-59**, is eligible to register on the eSHRAM portal.
 - **Universal Account Number (UAN)** containing a 12 digit unique number is issued to each unorganized worker after registration on eSHRAM portal.
 - ✓ **UAN number will be a permanent number** i.e. once assigned, it will remain unchanged for the worker's lifetime.
 - **Registration on eSHRAM portal is free.**
 - Workers registering with the e-shram portal will get an **Accidental Insurance cover of 2 Lacs under Pradhan Mantri Suraksha Bima Yojana(PMSBY)** and premium for the first year will be borne by MoLE.
 - ✓ **The person should be between 18 – 59 years to be eligible for PMSBY** through eSHRAM registration.

Who is an Unorganised worker?

Any worker who is a **home based-worker, self-employed worker or a wage worker in the unorganised sector** including a worker in the organised sector who is not a member of ESIC or EPFO or not a Government employee is called an Unorganised Worker.



What the latest data highlights?

- **Major chunk of working age population is living under poverty:** Over 94 per cent of the 28 crore informal sector workers registered on the e-Shram portal have a monthly income of Rs 10,000 or below while 4.36 per cent have a monthly income between Rs 10,001 and Rs 15,000.

- **Social Stratification:** Over 74 per cent of the enrolled workforce belongs to SCs/STs/OBCs. Low income prevents improvement in their living standard which prevents their upward mobility in the society.
- **Untapped demographic potential:** Age-wise analysis of the data show that 61.72 per cent of the registered workers on the portal are of the age from 18 to 40 years. This shows the extent of India's young generation involved in low skilled work hampering country's realisation of demographic dividend.
- **Persisting gender divide:** Gender analysis shows that 53 per cent of registered workers are female which highlights the overrepresentation of women in informal sector of the economy lacking social security benefits.
- **Rural-Urban divide:** Occupation wise, agriculture is at the top with 52.11 per cent of enrolments done by those related to the farm sector followed by domestic and household workers. These are the sectors that mostly comprise of workers from rural areas.

Initiatives Taken to Support Unorganised Sector

- **Atmanirbhar Bharat Abhiyan (or Self-reliant India Mission)** with an economic stimulus package of Rs 20 lakh crores to cater to various sections including cottage industry, MSMEs, labourers, middle class, industries, among others.
- **Pradhan Mantri Shram Yogi Maan-dhan (PM-SYM)** to protect unorganized workers who perform work like street vendors, agriculture related work, construction site workers, workers in industries of leather, handloom etc.
- **Labour Codes** to simplify the country's archaic labour laws and give impetus to economic activity without compromising with the workers' benefits.
- **Pradhan Mantri Rojgar Protsahan Yojana (PMRPY)** to create employment for the unskilled or semi-skilled workers by providing incentives to the employers. The government will contribute 12% in EPF for the employees for three years.
- **PM SVANidhi:** Micro Credit Scheme for Street Vendors, hawkers, thelewale and people involved in goods and services related to textiles, apparel, artisan products, barbers shops, laundry services etc. in different areas.
- **Deendayal Antyodaya Yojana National Urban Livelihoods Mission** to uplift urban poor by enhancing sustainable livelihood opportunities through skill development.
- **PM Garib Kalyan Ann Yojana (PMGKAY)** to supply free food grains to migrants and poor.
- **One Nation One Ration Card (ONORC) scheme** to provide universal access to PDS food grains for migrant workers.
 - Government is in process of integrating e-Shram portal with One Nation One Ration Card scheme.
- **Atmanirbhar Bharat Rozgar Yojana** for creation of new employment opportunities during the Covid-19 economic recovery phase.
- **Pradhan Mantri Kisan Samman Nidhi** to supplement the financial needs of the Small and Marginal Farmers (SMFs) in procuring various inputs to ensure proper crop health and appropriate yields, commensurate with the anticipated farm income at the end of each crop cycle.

Way forward

India's informal sector is the backbone of the economy. The nation's quality of life hinges on things becoming better for masses of informally employed people. Improving the conditions of workers in the unorganised sector assumes significance from the perspective of inclusive growth.

Need of the hour is to **effectively implement various initiatives** that have already been taken along with **upskilling of the working population** and **imparting necessary proficiency to young individuals**.

3.7. NEWS IN SHORTS

3.7.1. FUEL TAX RATE

- Centre and state have been in conflict regarding tax and duties imposed on petrol and diesel.
 - Though the centre has recently reduced excise duty on petrol and diesel, some states have not reduced VAT imposed on fuel.
- **Petrol/Diesel Pricing in India**
 - Public sector Oil Marketing Companies (**OMCs**) **revise the retail prices of petrol and diesel in India on a daily basis**, according to the changes in the price of crude oil at global level.
 - ✓ Price charged to dealers includes the base price set by OMCs and the freight price.
 - **Retail price of petrol and diesel are made up of mainly 3 components-**
 - ✓ Base price (reflecting cost of international oil),
 - ✓ Central excise duty
 - ✓ State tax.
 - **States apply an ad valorem VAT or sales tax** on the base price, freight charges, excise duty and dealer commission on petrol and diesel.
 - In fact, Central and state taxes form a major chunk of the price of petrol and diesel in India.

- **Central government taxes the production of petroleum products (Excise Duty) while states tax their sale (Sales Tax/ Value Added Tax (VAT)).**
 - ✓ While **excise duty rates are uniform across the country**, states levy **sales tax/ VAT which varies across states.**
 - ⇒ **Excise duty consists of two broad components:** tax component (i.e., basic excise duty), and cess and surcharge component.
 - ⇒ Of this, **only revenue generated from tax component is devolved to states.** Revenue generated by Centre from any cess or surcharge is not devolved to states.
- **Excise duty and VAT on fuel constitute an important source of revenue for both the Centre and the states.** As per the RBI's Study of Budgets 2020-21:
 - ✓ Excise duty on fuel **makes up about 18.4% of the Centre's gross tax revenues.**
 - ✓ Petroleum and alcohol, on an average, **account for 25-35% of states' own tax revenue.**

Related information

- Unlike excise duty, **sales tax is an ad valorem tax**, i.e., it **does not have a fixed value**, and is charged as a percentage of the price of the product.
- The value of excise duty component of the price structure is fixed by centre.
- The **value of the sales tax component is dependent on the other three components**, i.e., price charged to dealers, dealer commission, and excise duty.

3.7.2. US BECOMES INDIA'S TOP TRADING PARTNER

- As per the latest data from Ministry of Commerce, **US was India's top trading partner in 2021-22, surpassing China.**
 - **UAE was the third largest trading partner** of India followed by Saudi Arabia, Iraq and Singapore.
- **Bilateral trade between US and India stood at \$119.42 billion** as against \$80.51 billion in 2020-21. India had a trade surplus with US.

3.7.3. SPECIAL DRAWING RIGHTS (SDR)

- International Monetary Fund (IMF) has **increased the weighting of USD and Chinese Yuan** in its review of the currencies that make up the valuation of its **SDR.**
- SDR is an **international reserve asset**, created by the **IMF in 1969** to supplement its member countries' official reserves.

- Its value is based on a basket of five currencies: **US dollar (highest weightage)**, Euro, Chinese Yuan, Japanese yen, and British Pound Sterling (**lowest weightage**).
- It is allocated to IMF member countries in proportion to their relative share in the IMF.

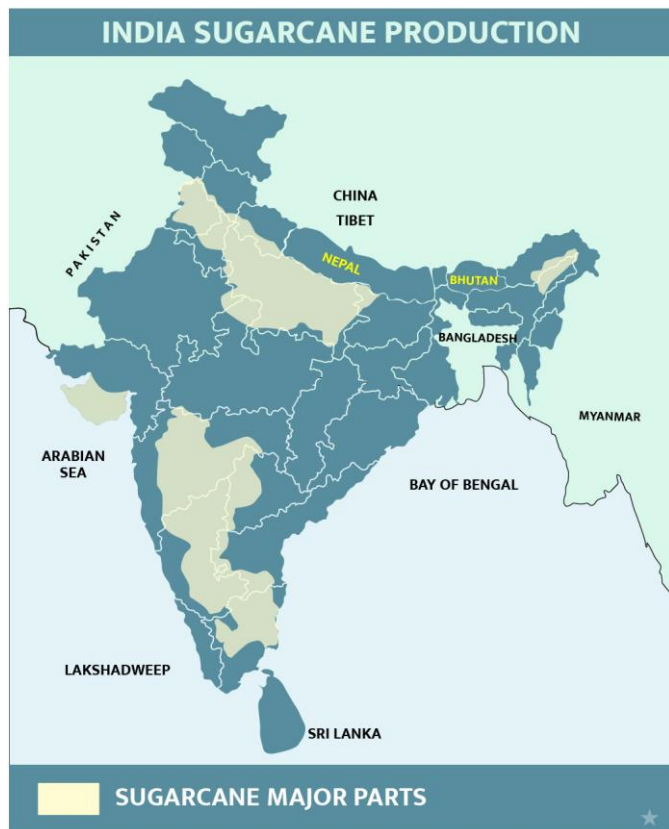
3.7.4. TECHNICAL BARRIERS TO TRADE (TBT)

- Recently, the Indian Government representative has been made the chair of WTO's committee on **Technical Barriers on Trade (TBT).**
- TBT refers to **mandatory technical regulations and voluntary solutions** that **define specific characteristics** that a product should have such as its shape, size, design, packaging etc.
- WTO's agreement on TBT is a **preventive instrument** which aims to ensure that such **measures are non-discriminatory** and **do not create unnecessary obstacles to trade.**
- **TBT Committee work involves two broad areas:** review of specific measures and strengthening implementation of the TBT Agreement.

3.7.5. MAHARASHTRA OVERTOOK UTTAR PRADESH (UP) TO RE-EMERGE AS TOP SUGAR PRODUCER

- After a five-year gap, **Maharashtra has overtaken Uttar Pradesh (UP)** to regain its position as India's top sugar producer.
- **Why the decline in Uttar Pradesh?**
 - **High diversion of sugar cane for making ethanol** recently.
 - **Loss from excess rains and water-logging** in low-lying areas of eastern UP.
 - Most of the **cane area is planted under a single variety i.e., Co-0238**, making it susceptible to **red rot fungal disease.**
- **About Sugarcane**
 - **After Brazil, India is largest sugar producer globally.**
 - It needs **hot and humid climate** with an **average temperature of 21°C to 27°C.**
 - **75-150 cm rainfall** is favorable for sugar cane cultivation.
 - **It requires moisture retention soil**, deep rich **loamy soil** is ideal for its growth.
- **Reason for shifting trend of the sugar industry to peninsular India**
 - Longer crushing period.
 - Adequate rainfall.
 - Higher recovery rates.

- Higher sucrose content than northern India.
- Multiple transportation access due to port areas etc.
- **Significance of sugar industry**
 - **Source of livelihood** for 50 million farmers.
 - **Emerged as multi-product crop** used as basic raw material for production of sugar, ethanol, paper, electricity and besides a cogeneration of ancillary product.
 - Molasses from sugarcane is an important nourish stock for distilleries.



3.7.6. BIHAR GOVERNMENT ALLOWS EXPLORATION OF 'COUNTRY'S LARGEST' GOLD RESERVE

- As per a GSI survey, around 222.88 million tonnes of gold reserve are present in Jamui.
 - As per National Mineral Inventory data, **total reserves of gold ore (primary) have been estimated at 501.83 million tonnes.**
- **States with largest gold resources:** Bihar (44%), Rajasthan (25%), Karnataka (21%), West Bengal (3%), Andhra Pradesh (3%), Jharkhand (2 %).

3.7.7. LEGAL METROLOGY ACT 2009

- Ministry of Consumer Affairs, Food & Public Distribution emphasised on **decriminalise the Legal Metrology Law, 2009.**

- This will **reduce the compliance burden for businesses and consumers.**
- **About the Legal Metrology Law, 2009**
 - It is administered by **Department of Consumer Affairs**, Ministry of Consumer Affairs, Food and Public Distribution
 - It enforces standards related to weights and measures.
 - It prescribes **imprisonment, in addition to fine, for some offences.**

3.7.8. CENTRE NOTIFIED SECOND PHASE OF MANDATORY HALLMARKING WHICH SHALL COME INTO FORCE FROM JUNE 01, 2022

- It will cover **three additional caratages of gold jewellery/artefacts- 20, 23 and 24 carats** mentioned under the Indian Standard IS 1417 and 32 new districts under the mandatory hallmarking.
 - It will come into force via the **Hallmarking of Gold Jewellery and Gold Artefacts (Amendment) Order, 2022.**
 - Earlier, it was made mandatory on **14, 18 and 22 carats of gold jewellery/artefacts** through **Quality control order, 2021.**
- **Hallmarking is the accurate determination and recording of precious metal content in the precious metal articles.**
 - The hallmarking scheme is run by **Bureau of Indian Standards (BIS)** and the hallmark consists of **3 marks**(infographic).
- **About BIS**
 - BIS is the **National Standard Body of India** established under BIS Act 2016 for the **harmonious development of the activities of standardization, marking and quality certification of goods.**
 - **Other certifications of BIS:** **ISI Mark Scheme Registration** for Domestic Manufacturers, **ECO mark** to environmentally friendly products, **BIS Compulsory Registration Scheme (CRS)** for categories of electronics items.
- **About Carats**
 - A **measurement of gold purity, Carats, or Karats, refers to the actual gold content** in the particular piece of jewellery (1 carat = 0.2 gm). E.g.
 - **24 carat means 100% gold. 18 carat contains 75% gold** and rest alloying metals.



3.7.9. PAPER IMPORT MONITORING SYSTEM (PIMS)

- **Ministry of Commerce and Industry** has amended the **import policy of major paper products** from 'Free' to 'Free subject to Compulsory Registration' under PIMS.
- Effective from 01 October, 2022 it **makes registration compulsory for importing 201 types of paper** such as newsprint, handmade paper, envelopes etc.
 - It **excludes currency paper, security printing paper** etc.
- **Benefits: Protect domestic paper industry** by addressing dumping concerns, **Check re-routing of goods** through other countries in lieu of trade agreements, and **Promote Make in India** in the Paper industry.

3.7.10. INDIAN BUSINESS PORTAL (IBP)

- Minister of State for Commerce and Industry launched IBP in New Delhi.
- It is an **online global trade hub for exporters and foreign buyers**.
 - It is Business to Business (B2B) digital marketplace **to empower small medium enterprises (SMEs) exporters, artisans and farmers to identify new markets for their products and grow their sales globally**.
 - Encourage greater exports of products 'Made in India'.
 - **Developed by Federation of Indian Export Organisations**.

3.7.11. FOREIGN INVESTMENT FACILITATION PORTAL (FIFP)

- **FIFP completed 5 years** after abolishment of earlier Foreign Investment Promotion Board (FIPB) in 2017.
- FIFP is **new online single point interface of Government of India** for investors to **facilitate Foreign Direct Investment (FDI)**.
- It is administered by **Department for Promotion of Industry and Internal Trade (DPIIT)**, Ministry of Commerce & Industry.
- It **facilitates single window clearance** of applications which are through approval route.

3.7.12. PASSIVE FUNDS

- SEBI has issued a **circular on passive funds covering matters related to transparency, liquidity and operational aspects** of exchange-traded funds (ETFs) and index funds.

- **Passive Funds** are investment instruments which **replicate a market index or specific market segment**. E.g. Exchange Traded Funds (ETFs) and Index Funds.
 - Unlike with an active fund, the **fund manager does not decide what securities the fund takes on**.
 - This **normally makes passive funds cheaper to invest** in than active funds, which require the fund manager to spend time researching and analysing opportunities to invest in.

3.7.13. THE RESKILLING REVOLUTION INITIATIVE

- Launched by the **World Economic Forum** at its 50th Annual Meeting in January 2020, is working to **provide 1 billion people with better education, skills and economic opportunity by 2030**.
- It aims to **future-proof workers from technological change** and help economies by providing **new skills for the Fourth Industrial Revolution**.
- It is funded by Governments (including India's) and private entities.
- The initiative will expand beyond adult reskilling and upskilling and **integrate a focus on education for children and youth**.

3.7.14. GATISHAKTI SANCHAR PORTAL FOR CENTRALIZED RIGHT OF WAY (ROW) APPROVALS

- Department of Telecommunication (DoT) launched GatiShakti Sanchar portal for centralized Right of Way (RoW) approvals.
- **In line with PM GatiShakti National Master Plan**, Portal will facilitate **smooth deployment of digital communications infrastructure** across the country.
 - It is a **collaborative institutional mechanism** between all stakeholders including Central and State/UT Government(s), Local bodies, and Service Providers.
 - Developed by **MP state Electronics Development Corporation**.
- **Advantages of GatiShakti Sanchar Portal**
 - Ensuring **transparency, accountability, responsiveness** and **effective monitoring** for **timely rollout of 5G network**.
 - **Will streamline Right of Way (RoW) application** and permissions **through a single interface** to submit applications and check status.
 - ✓ Telecom industry depends upon getting **timely approvals for RoW permissions to accelerate infrastructure rollout**.
 - ✓ However, industry faces **challenges such as RoW approval timelines, denial of access** (in commercial / residential areas), **non-**

uniformity in RoW approach, centre-state coordination etc.

- Achieving 'Broadband for All' as envisaged under National Digital Communications Policy, 2018 through better broadband connectivity in remote areas by facilitating faster laying of Optical Fiber Cable, increased tower density etc.
- ✓ Policy envisages three missions:
 - **Connect India:** Creating Robust Digital Communications Infrastructure.
 - **Propel India:** Enabling Next Generation Technologies and Services.
 - **Secure India:** Ensuring Sovereignty, Safety and Security of Digital Communications

3.7.15. INDIAN GAS EXCHANGE (IGX)

- ONGC has become the **first Exploration and Production (E&P) company** in India to trade domestic gas on IGX.
- IGX, a subsidiary of Indian Energy Exchange (IEX), is a **trading platform for natural gas**.
- It allows buyers and sellers of natural gas **to trade both in spot market and in forward market** for imported natural gas.
- **Trading is allowed across three hubs** —Dahej and Hazira in Gujarat, and Kakinada in Andhra Pradesh.
- It **operates under** the regulatory framework of **Petroleum and Natural Gas Regulatory Board (PNGRB)**.



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4. SECURITY

4.1. INTEGRATED BATTLE GROUPS (IBG)

Why in news?

Recently, Army Chief said that IBG consultations are complete and are in the process of final compilation.

Background of IBG

- In 2018, the idea of **IBG was formally conceptualised by General Bipin Rawat, the then Chief of Army Staff (CAS)**. It was tested in the plains and high altitudes in 2019.
- CAS had initiated four major studies to undertake the overall transformation of the Army force. These include
 - **Restructuring of Army Headquarters;**
 - **Force restructuring which includes the creation of Integrated Battle Groups (IBG);**
 - **Cadre review** of officers;
 - **Review of the terms and conditions of Junior Commissioned Officers and Other Ranks.**

Need for improving military organisations

- **Two Front war:** Growing nexus on military and nuclear matters between our potential adversaries i.e. Pakistan and China.
- **Enhance capabilities:** The Indian Army must aim to **achieve cross-spectrum (nuclear, conventional, counter sub-conventional) war-fighting capability** to achieve a favourable outcome in case of a conflict.
- **Modernisation:** The Army needs to be equipped with modern weapons and weapon systems, supported by **technology-based processes and automation** to meet the needs and challenges of the future battlefields e.g. fifth generation aircrafts.
- **Coordination:** There is need to **improve coordination among defence forces and intelligence agencies** to boost intelligence gathering, sharing and surveillance and reconnaissance capabilities.
- **Multi-dimensional role:** In keeping with its mandated roles, the Army has to ensure multi-dimensional capability to **deal with external threats** and also be prepared to assist in dealing with internal security threats such as secessionist uprisings, disaster management etc.

About Proposed Integrated Battle Groups

- IBGs are **brigade sized agile self-sufficient combat formations** which, can swiftly launch strikes against adversary in case of hostilities.
 - Its objective is to **make the force more lethal and suitable to fight a modern war** with the support of technology.
- **Structure of IBG**
 - Each IBG would be tailor made **based on Threat, Terrain and Task** and resources will be allotted based on the **three Ts**. They **need to be light** so they will be low on logistics.
 - They will be able to **mobilise within 12-48 hours based on the location**.
 - IBGs will be **bigger than a brigade (3,000-3,500)** but smaller than a division (10,000-12,000).
 - Each IBG will likely be **headed by a Major General**.
 - IBGs involve the **integration of infantry, armoured tank regiments, artillery, Unmanned Aerial Vehicles (UAVs), combat engineers and signals** into one fighting unit.
 - IBGs will be **defensive and offensive**.
 - ✓ While the **offensive IBGs would quickly mobilise and make thrust into enemy territory** for strikes, **defensive IBGs would hold ground at vulnerable points** or where enemy action is expected.
 - The composition of every IBG would **differ on the basis of the terrain where it is located** — an IBG operating in a desert needs to be constituted differently from one operating in the mountains.

Other similar steps taken

- **Battlefield Management Systems (BMS):** The BMS is aimed to **integrate combat units- armoured, artillery and infantry regiments, infantry battalions, helicopter flights, etc.** into a digital network that will link together all components of the future battlefield.
- **Comprehensive Integrated Border Management System (CIBMS):** To improve the capability of defence forces in **detecting and controlling the cross-border crimes** like illegal infiltration, smuggling of contraband goods, human trafficking and cross border terrorism etc.
 - **Project BOLD-QIT (Border Electronically Dominated QRT Interception Technique):** To install technical systems under CIBMS which enables Border Security Forces to equip Indo-Bangla borders with different kind of sensors in unfenced riverine area of Brahmaputra and its tributaries.

Significance of IBG

- **Boost Defence:** IBG will help in effectively implementing the Cold Start doctrine.
 - Cold Start doctrine of the Indian Armed Forces envisages swift deployment of troops on the western border within days if a situation of a full-blown war arises.
 - This doctrine aims to allow Indian forces to conduct sustained attacks while preventing a nuclear retaliation from Pakistan.
- **Responsive:** It will ensure faster punitive and defensive operations.
- **Mobilisation:** IBGs will be able to execute their operations swiftly and add to the options of the theatre commanders.
- **Resource use efficiency:** It will be possible to optimize resource allocation based on T3, especially in an eventuality of a two front war scenario (Pakistan and China).

4.2. SUBMARINE IN INDIA

Why in news?

Recently, France's Naval Group has **declined the bid for Navy's P-75 India (P-75I) project** as it does not use Air- Independent Propulsion (AIP) system.

About P-75I and P 75

- P-75I, succeeds the P75, is **part of 30-year submarine building plan that ends in 2030**. This will be the **first under the strategic partnership (SP) model**, promulgated by the Defence Acquisition Council (DAC) in 2017.
 - It provides a major **boost to the indigenous design and construction capability of submarines** in India, in addition to **bringing in the latest submarine design and technologies** as part of the project.
 - It will help to **reduce dependence on imports** and gradually ensure **greater self-reliance and dependability of supplies** from indigenous source.
 - By the time P-75I is completed under the 30-year project, India is projected to have **six diesel-electric, six AIP-powered, and six nuclear attack submarines** (yet to be built).
- **P-75 was signed in 2005** with the Naval Group, then known as DCNS, in partnership with Mazagon Dock Shipbuilders Ltd (MDL).
 - The **first Kalvari Class (Scorpene Class) submarine** under the project was commissioned in 2017.
 - It includes construction of six submarines of **Scorpene (diesel-electric) design**.
 - Four of them, **Kalvari, Khanderi, Karanj, and Vela, have already been delivered** to the Navy and commissioned. Other two are INS Vagir and Vagsheer.
 - ✓ **Vagsheer** will be commissioned by late 2023.

Air- Independent Propulsion (AIP) system

- AIP is a **technology for conventional, i.e., non-nuclear submarines**.
- AIP allows a conventional submarine to remain submerged for much longer period (fortnight) than ordinary diesel-electric submarines.
- AIP has a **force multiplier effect on lethality of a diesel electric submarine** as it enhances the submerged endurance of the boat several folds.
- Fuel cell-based AIP has merits in performance compared to other technologies.



History of India's submarine acquisition

1967	India got its first submarine, INS Kalvari of Foxtrot Class from USSR.
1971	Submarines were baptised into war. Between 1971-74, India bought four more Foxtrot Class submarines , and had total of eight Foxtrot submarines.
1981	India signed an agreement with German organisation to buy two Type 209 Shishumar-class submarines .
1986	Russia offered India its Kilo Class submarines and thus India got, INS Sindhughosh .
1987	India got its first SSN (Submersible Ship Nuclear) from Soviet Navy , which it rechristened INS Chakra , which was decommissioned in 1991.
1999	Cabinet Committee on Security approved 30-year plan (2000-30) for indigenous submarine construction.
2016	India commissioned its first SSBN (Submersible Ship Ballistic Nuclear), INS Arihant and second SSBN, INS Arighat to be commissioned in near future.
2019	India signed an agreement for SSN Bratsk (Chakra-3) on lease from Russia, currently being refitted as per Indian specifications and requirements.

Classification of Submarines

Submersible Ship Ballistic Nuclear (SSBNs)	Nuclear-Powered attack submarines (SSNs)	Diesel-electric attack submarines (SSKs)
<ul style="list-style-type: none"> Navy's ballistic missile submarines, often referred to as "boomers," serve as an undetectable launch platform for intercontinental missiles. They are designed specifically for stealth and the precise delivery of nuclear warheads. India has one nuclear ballistic submarine i.e. INS Arihant (S2). <ul style="list-style-type: none"> Second in series, S3 or INS Arighat, is in the advanced sea trials phase. 	<ul style="list-style-type: none"> It is a nuclear-powered attack submarine armed with non-nuclear weapons. SSN and SSGN submarines give the Navy unparalleled stealth to carry out intelligence, surveillance, and covert deployment of Special Operations Forces. Only 6 countries currently have nuclear-powered submarines- UK, US, China, Russia, India and France. <ul style="list-style-type: none"> India had one SSN i.e. INS Chakra-2, an Akula class vessel, was taken on 10-year lease from Russia in 2012 till 2022. 	<ul style="list-style-type: none"> They have two or more diesel engines. They can work in combination, one engine driving a propeller and the other driving a generator. The battery capacity can constrain the amount of time a diesel sub can stay underwater, leading to frequent resurfacing and thus can be easily detected. India has 15 conventional diesel-electric submarines. <ul style="list-style-type: none"> 4 are Shishumar Class (from Germany); 8 are Kilo Class or Sindhughosh Class (from Russia); and 3 are Kalvari Class Scorpene submarines.

Importance of Submarine for India

- Operational Survivability:** Due to their long range and stealth, they are useful platforms for surveillance and intelligence collection owing to their ability to enter an area to watch, to listen, and collect information without being seen.
- Deterrence:** The possession of a capable submarine force can **act as a deterrent to another country**, complicate their planning and raise the risks associated with any operation planned.
- Responsiveness:** They can attack **surface fleets, submarines and merchant shipping by employing torpedoes, missiles or mines**, and **land targets**, if fitted with land attack missiles.
- Operational Endurance:** Submarine are effective in combat operations due to enhanced, freedom of movement, flexibility and lethality.
 - High operational endurance** as they have an ability to deploy and continue an operation for a lengthy period of time without the need for re-supply.

Issues with India's naval build-up

- Delays and Aged Fleet:** India's current conventional submarine fleet is severely aged. After INS Kalvari, inducted recently, the next youngest conventional submarine with the Navy is 17 years old.
 - INS Sindhurakshak**, a Russian-origin Kilo Class submarine, had series of explosions on board its torpedo section.
 - INS Kalvari** took eight years to build and has been inducted five years behind schedule.
- Contractual Obligations:** The Akula class submarine, INS Chakra, on lease from Russia, is only for training Indian sailors and is **not permitted to carry nuclear missiles** or be deployed on operational roles.
- Limited endurance:** Indian Submarines have **low endurance** as compared to other nations. For instance, INS Arihant's nuclear reactor has a short refueling cycle and therefore a limited endurance capacity.
 - It is meant to be **armed with 12 indigenously developed K-15 SLBMs** (submarine launched ballistic missiles), which has a **range of just 750 km**, whereas Chinese missiles have a range of 8000 km.
- Lackadaisical Development:** Slow development of AIP system by Defense Research and Development Organization (DRDO) has led to a **significant delay for the Indian Navy's submarine plans**.
- Lack of Infrastructure:** Shortfalls in essentials capacities such as **advanced towed array sonars (ATAS) to detect enemy submarines**, heavyweight torpedoes to neutralize them, and varied air defense systems, all of which are critical not only to their survivability, but also their overall offensive capability.
- Funding:** Figures from FY2017-2018 indicate that India spends **only 15 percent of its total military expenditure on its navy**, far lower than its peers in the Quad.
 - United States spends nearly 30 percent of its military expenditure on its navy, while Australia and Japan spend nearly 25 percent and 23 percent respectively.

Way forward

- **Indigenous development:** Boost the indigenous design and construction capability of submarines and bring in the latest submarine design and technologies.
- **Enhanced Surveillance:** Enhancement of surface and air surveillance by Indian Navy and Coast Guard ships and aircraft along the coast and in all offshore development areas.
- **Technology upgradation:** The use of new technologies and advanced manufacturing capabilities to the industry will be an important step towards **enhancing the nation's quest for self-reliance** in modern conventional submarine construction.
- **Communications and Intelligence Network:** To **boost maritime security connectivity** between Indian Navy (IN), Indian Coast Guard (ICG) and other government authorities involved in coastal security should be augmented.
- **International cooperation:** There is need to **enhance bilateral agreements with naval powers** such as Russia, USA for deeper cooperation including logistical support, technological transfer.

4.3. NEWS IN SHORTS

4.3.1. PANGONG TSO

- The Ministry of External Affairs has confirmed the building of a second bridge on the Pangong Tso lake close to 2020 border standoff.
- Pangong Tso, meaning high grassland lake in Tibetan, is the **world's highest saltwater lake** situated at a **height of 4,350 m** situated in the **Himalayan range** on **India-China Border**.
- It is an **endorheic lake** (having no outflow to an external body of water such as a river or ocean, and only losing water through evaporation or seepage into the ground) and out of its total length of around **160 km**, **one-third lies in India** (Ladakh region) while the remaining **two-thirds lie in China**.
- It is **known to change colors**, appearing blue, green and red at different times.



4.3.2. EXERCISES IN NEWS

- **CORPAT exercise:** Recently, 4th edition of **India-Bangladesh Navy Bilateral CORPAT exercise** commenced in Northern Bay of Bengal.
- **EX Bongosagar:** 3rd edition of **Indian Navy – Bangladesh Navy Bilateral Exercise 'Bongosagar'** commenced at Port Mongla in Bangladesh.

4.3.3. INS SURAT AND INS UDAYGIRI

- **Ministry of Defence** launched two **frontline warships of the Indian Navy** – (Indian Naval Ship) INS Surat and INS Udaygiri – at Mazagon Docks Limited (MDL).
- 'Surat' is the fourth ship of Project 15B Destroyers, which heralds a makeover of the P15A (Kolkata Class) Destroyers,
 - 15B class of ships are the **next generation stealth guided missile destroyers** of the Indian Navy being built at the Mazgaon Docks Ltd, Mumbai.
- 'Udaygiri' is the **second Stealth Frigate of P17A class**.
 - P17A is the updated version of Project 17A Frigates (Shivalik Class).
- **Existing indigenously built warships** are built under Shivalik class, Talwar class, Brahmaputra class and Godavari class.

4.3.4. INS NIRDESHAK

- **INS Nirdeshak**, second (first was 'Sandhayak') of the four Survey Vessels (Large) projects, **was launched recently**.
- Main role of the ships would be **to undertake full scale coastal and deep-water hydrographic surveys** of ports and navigational channels.

5. ENVIRONMENT

5.1. COP15 OF UNITED NATIONS CONVENTION TO COMBAT DESERTIFICATION (UNCCD)

Why in News?

Fifteenth session of Conference of the Parties (COP15) of United Nations Convention to Combat Desertification (UNCCD) concluded recently.

More about News

- UNCCD, established in 1994, is the **sole legally binding international agreement** linking environment and development to sustainable land management.
 - There are 197 Parties to the Convention, including **196 country Parties and the European Union.**
 - ✓ **India is a signatory.**
 - The UNCCD focuses on **coordinated actions to put the world on a path to land degradation and carbon neutrality.**
- COP15 was held in **Abidjan, Côte d'Ivoire**. Theme of COP15 was **'Land. Life. Legacy: From scarcity to prosperity'**.
 - **The COP has been meeting biennially since 2001.**

Sustainable Development Goal connection

- **Sustainable Development Goal 15: Life on Land** calls for the protection, restoration and sustainable management of land-based ecosystems.
- In doing so **target 15.3** specifically aims to achieve a land degradation-neutral world by the year 2030.

Key outcomes of COP15

New commitments	<ul style="list-style-type: none"> • Accelerate restoration of one billion hectares of degraded land by 2030 by improving data gathering and monitoring. • Establish an Intergovernmental Working Group on Drought for 2022-2024 to support a shift from reactive to proactive drought management. • Address forced migration and displacement driven by desertification and land degradation by creating social and economic opportunities that increase rural resilience and livelihood stability. • Improve women's involvement in land management as important enablers for effective land restoration. • Address sand and dust storms and other escalating disaster risks by designing and implementing plans and policies including early warning and risk assessment and mitigating their human-made causes at source. • Ensure greater synergies among the three Rio Conventions: convention on Biological Diversity, UNCCD, and United Nations Framework convention on climate change.
New Declaration Issued	<ul style="list-style-type: none"> • Abidjan Call issued by the Heads of State and Government to boost long-term environmental sustainability. • Abidjan Declaration on achieving gender equality for successful land restoration. • COP15 "Land, Life and Legacy" Declaration, which responds to findings of UNCCD's flagship report Global Land Outlook 2.
Drought in Numbers, 2022 report	<ul style="list-style-type: none"> • Key findings: <ul style="list-style-type: none"> ○ Since 2000, number and duration of droughts has risen by 29%. ○ Droughts represent 15% of natural disasters but took largest human toll from 1970-2019. ○ From 1998 to 2017, droughts caused global economic losses of roughly USD 124 billion. ○ In 2022, more than 2.3 billion people face water stress. ○ India specific findings <ul style="list-style-type: none"> ✓ Nearly two-thirds of the country suffered drought during 2020-2022. ✓ Geographically, India's drought vulnerability compares with that of sub-Saharan Africa. ✓ Severe droughts are estimated to have reduced India's gross domestic product by 2-5 per cent from 1998-2017.
Other Initiatives	<ul style="list-style-type: none"> • Business for Land initiative aimed at bringing visibility to the commitments made by participating companies towards land degradation neutrality, both in supply chains and CSR activities. • Sahel Sourcing Challenge to enable communities growing Great Green Wall (GGW) to use technology to monitor progress, create jobs and commercialize their produce. <ul style="list-style-type: none"> ○ GGW is an African-led movement to grow an 8,000km natural wonder of the world across the entire width of Africa. • Droughtland, a new UNCCD public awareness campaign.

Land degradation and Desertification in India

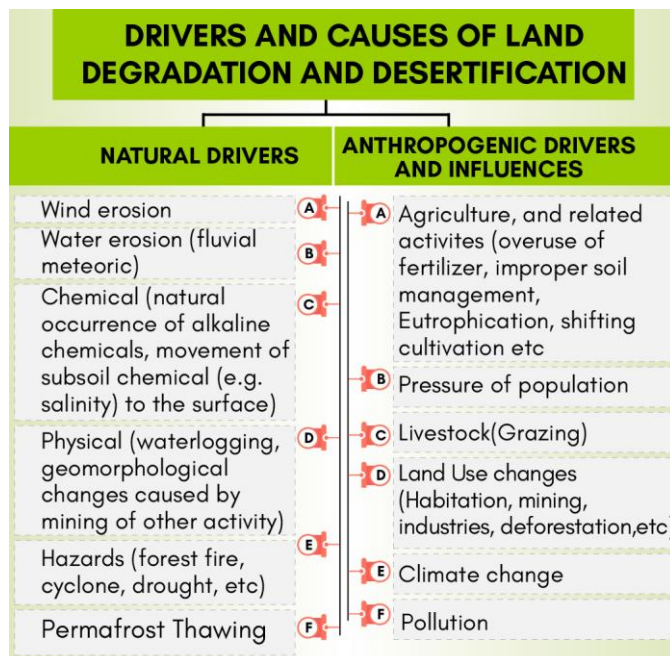
- **Land degradation is decline in productivity of land** in terms of biodiversity and economy, resulting from various causes including natural processes, climate, and human dominance, leading to loss of ecosystem.
 - The term **desertification is subset of land degradation and referred as land degradation occurring in dryland regions (arid, semi-arid and dry sub-humid regions)**.
 - Around 69% of India falls under drylands.
- Around 98 million hectares (30%) of India's total geographical area (TGA) of 328.7 mha underwent land degradation during 2018-19.
 - Around 23.79% (2018-19) of the area undergoing desertification/land degradation with respect to TGA of the country is contributed by **Rajasthan, Maharashtra, Gujarat, Karnataka, Ladakh UT, Jharkhand, Odisha, Madhya Pradesh, and Telangana (in descending order)**.
 - All other remaining states are contributing less than 1% (individually) with respect to country TGA.

Impacts of Land Degradation and Desertification

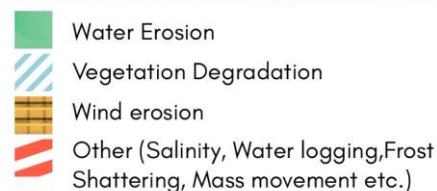
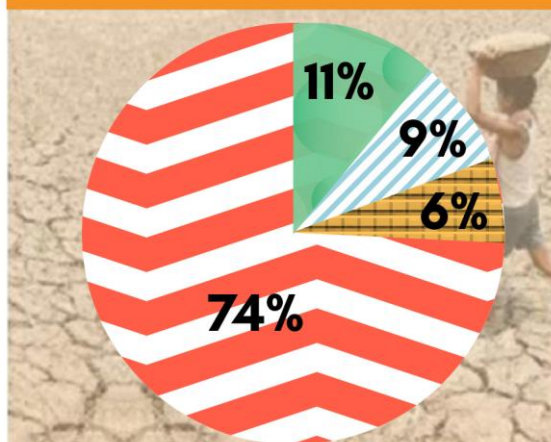
- **Socio-Economic impact**
 - **Reduces land productivity** threatening food security and livelihoods of indigenous populations, small farmers etc.
 - **Reduces the land's ability to store water** resulting in water scarcity.
 - **Insecure land tenure** affects the ability of people and communities to fight climate change, which is **further endangered by land degradation**.
 - **Exacerbates existing societal tensions** and forces migration.
- **Impact on Human health**
 - **Creates ground for zoonotic disease**, water- and foodborne diseases and respiratory diseases.
 - **Respiratory diseases** caused by atmospheric dust from wind erosion and other air pollutants.
 - **Higher threats of malnutrition** from reduced food and water supplies.
 - **More water- and food-borne diseases** that result from poor hygiene and a lack of clean water.
- **Environmental impacts**
 - **Causes extreme weather events**, accelerates biodiversity loss and disruption of ecosystem services.
 - **Contributes to Climate Change:** Land degradation is a driver of climate change through emission of greenhouse gases (GHGs) and reduced ability of land to act as a carbon sink.

Way Forward

- **Utilizing Local and indigenous knowledge** for addressing land degradation: It can help to introduce, implement, adapt and promote the use of locally appropriate responses.
- **Multifunctional landscape approach:** Prioritizing and balancing different stakeholder needs at a landscape scale while identifying those land uses in Land-use planning that best meet the demands of people towards safeguarding biodiversity.



Prevalent processes responsible for desertification/land degradation in the country (2018-19)



- **Creation of windbreaks** through afforestation, tree planting and ecosystem restoration programmes that can function as “green walls” and “green dams” that reduce dust and sandstorms and sand dune movement.
- **Improving Agronomic practices** such as retention of residues and reduced tillage (or no-tillage), use of locally adapted varieties, inter-cropping and crop rotations, Integrated soil fertility management etc.
- **Promoting Agroforestry:** through policy and institutional interventions such as R&D, development and provision of quality planting material, price support instruments and mechanisms, etc.
- **Sustainable forest management (SFM):** SFM aimed at providing timber, fibre, biomass, and non-timber resources can provide long-term livelihood for communities, reduce the risk of forest conversion to non-forest uses (settlement, crops, etc.), and maintain land productivity.

Some successful Practices

- **In Jamni village in Telangana,** people cultivated vegetable kitchen gardens that improved overall land productivity.
- **In Banni region, in Rann of Kutch, Gujarat** land restoration was done by developing grasslands, which helped in achieving land degradation neutrality.
- **In Ghana, community land management groups** were formed, trained, and empowered as community educators in sustainable land management (SLM) practices like the formulation of participatory land use plans, establishment of SLM committees, etc.
- **In Cuba, after severe drought during 2014- 2017,** new varieties of crops that are resistant to extreme weather, including tomato, onion, garlic etc. were encouraged that helped in reversing land degradation.
- **Kubuqi Desert in Ordos,** Inner Mongolia, achieved large-scale desertification control through policy support, industrial investment, market-oriented participation of farmers and herdsmen.

Other International Initiatives/Schemes/Policies

- **Global Initiative on Reducing Land Degradation:** Aims to strengthen the implementation of existing frameworks to prevent, halt, and reverse land degradation within G20 member states and globally.
- **Initiatives launched under the UNCCD**
 - **Land Degradation Neutrality (LDN) Target Setting Programme:** UNCCD is supporting interested countries (including India) with their national LDN target setting process.
 - **LDN Fund:** Officially launched at UNCCD COP 13 to leverage public money to raise private capital for sustainable land projects.
 - **Land for Life Programme** seeks to address the challenges of land degradation, desertification, and mitigation of drought.
- **Bonn Challenge:** Launched by the Government of Germany and IUCN in 2011, it is a global goal to bring 150 million hectares of degraded and deforested landscapes into restoration by 2020 and 350 million hectares by 2030.
 - **India has pledged to restore 21 million ha of degraded and deforested land by 2030.**
- **Reducing emissions from deforestation and forest degradation (REDD+)** initiative by UNFCCC creates a financial value for the carbon stored in forests by offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development.

India's Initiatives/Schemes/Policies

- India promotes **sustainable land management practices in agriculture sector** through schemes such as Pradhan Mantri Fasal Bima Yojana (PMFBY), Soil Health Card Scheme, Pradhan Mantri Krishi Sinchayee Yojna (PKSY), Per Drop More Crop, etc.
- **ISRO's Desertification and Land Degradation Atlas** of entire country to provide data for policy makers.
- **Sustainable land and Ecosystem Management (SLEM) Programme-** which is jointly implemented by Government of India and Global Environment Facility (GEF), aims to promote sustainable land and ecosystem management.

5.2. SUSTAINABLE CITY DEVELOPMENT

Why in news?

Recently, UN-Habitat has identified multi-hazard vulnerabilities, urban sprawl, weak urban mobility and “**green-blue disconnect**” as the pressing issues for Jaipur city.

More in News

UN-Habitat has based its findings on a **sustainable cities integrated approach pilot (SCIAP) project**, as part of which the “sustainable urban planning and management” component was implemented in collaboration with the Jaipur Development Authority and Jaipur Greater Municipal Corporation.

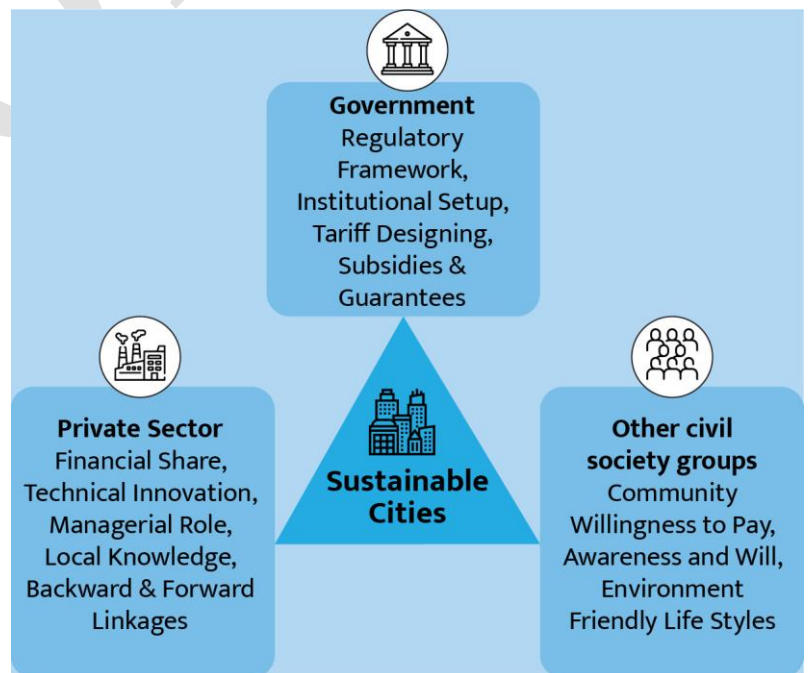
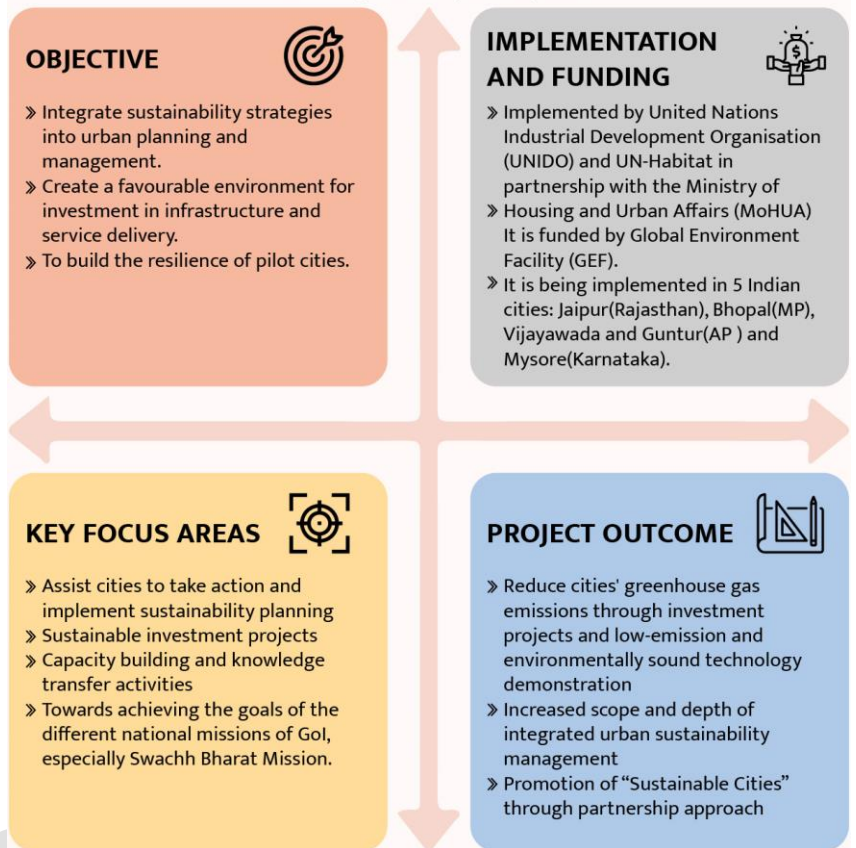
Sustainable city

A sustainable city is one designed to address social, environmental, and economic impact through urban planning and city management. A sustainable city offers a good quality of life to current residents but doesn't reduce the opportunities for future residents to enjoy.

Key sustainability issues faced by Indian cities

- **GHG emissions and climate change:** With growing population and energy demand in fast developing Indian cities, cities are one of the main contributors to India's GHG emissions.
 - As per IPCC, urban areas/cities are uniquely vulnerable to climate change events like flooding, sea level rise, cyclones, heat waves, water stress, among others.
- **Congestion and traffic:** Congestion creates transportation problems and significant increase in traffic emissions (GHG and other air pollutants emissions leading to increase in overall GHG emissions and poor air quality).
 - Sprawling cities that encourage the use of automobiles also directly contribute to **India's energy imports.**
- **People's wellbeing** - According to the World Health Organisation, poor air quality is currently one of the main issues for all cities where toxic air leads to heart and respiratory diseases, strokes, lung cancers and other long-term illnesses.
- **Changes in land use/land cover** - Reduced green cover leads to a decrease in CO2 absorption and increase in surface temperature, a serious threat to cities' resilience capabilities.
- **Social and environmental challenges compound each other** - Increasing differences between high-income and lower-income areas are common in cities. High urban land and housing costs are pushing the poorest populations into areas that are prone to flooding, landslides, and other natural disasters, especially slums and other informal settlements.
 - **Lack of access to basic services in informal settlements** affects socio-economic aspect of the society such as children's education, women empowerment and their health.

ABOUT SUSTAINABLE CITIES INTEGRATED APPROACH PILOT (SCIAP) PROJECT



- **Urban Sprawl and population influx** - With the fast city growth, infrastructure development does not keep at pace with rapidly expanding city areas; capacity of roads remain insufficient, lacking sewage system, and other service constraints ensue.
- **Waste disposal:** Many cities do not have proper systems and facilities to collect and utilize solid waste, and most of the wastes are dumped usually into rivers or into open drains, causing inland water bodies to be polluted and water extracted unfit for human consumption, as well as urban flooding. Waste disposed in open dumps may contaminate soil and ground water and open burning of waste add to a problem of poor air quality.

Steps taken by the government to overcome some of the sustainability problems occurring in cities

- **Initiatives under India's INDC** targeting direct or indirect GHG emissions reduction and developing climate change adaptation capabilities These include:
 - National Smart Grid Mission
 - National Mission for Enhanced Energy Efficiency (NMEEE)
 - Energy Conservation Building Code (ECBC)
 - National Electric Mobility Mission Plan 2020.
- **Swachh Bharat Mission (SBM):** It deals with the problem of waste generation and its main focus areas are: household, community and public toilets as well as solid waste management.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT)-** It aims at improvement of water supply, wastewater management, mobility improvement and green areas development.
- **Solar Cities Program** - The program focuses on renewable energy development and energy efficiency measures in selected cities (60 cities). Each city is obliged to reach a minimum 10% reduction in projected demand of conventional energy within 5 years.
- **Pradhan Mantri Awas Yojana (Housing for All):** A Technology Submission under the Mission facilitates adoption of modern, innovative, and green technologies and building material for faster and quality construction of houses suitable for various geo-climatic zones. It also assist cities in deploying disaster resistant and environment friendly technologies.
- **Smart City Mission** - Focuses on development of core infrastructure and improvement of quality of life in cities with a clean and sustainable environment as well as application of 'Smart' Solutions.

Key barriers in sustainable cities development in India

- **Low environmental awareness** of urban population resulting in unsustainable lifestyle.
- **Inefficient funding** for necessary investments which are not economically viable. The PPP formula has implementation challenges in India.
- **Segmented approach** in city's political and operational structures result in poor integration of plans and actions
- **Insufficient transfer of knowledge** on sustainability management and sectoral solutions, which are needed for improving environmental performance.
- **Lack of integrated planning** resulting to sustainable development strategies not being largely taken into account in development plans and are not addressed cohesively in different policy areas.
- **Low sustainability of externally funded investment projects** (in the context of continuity of projects).

5.3. STATE OF THE WORLD'S FORESTS 2022

Why in News?

State of the World's Forests 2022 (SOFO 2022) was released by the United Nations Food and Agriculture Organization (FAO) during World Forestry Congress.

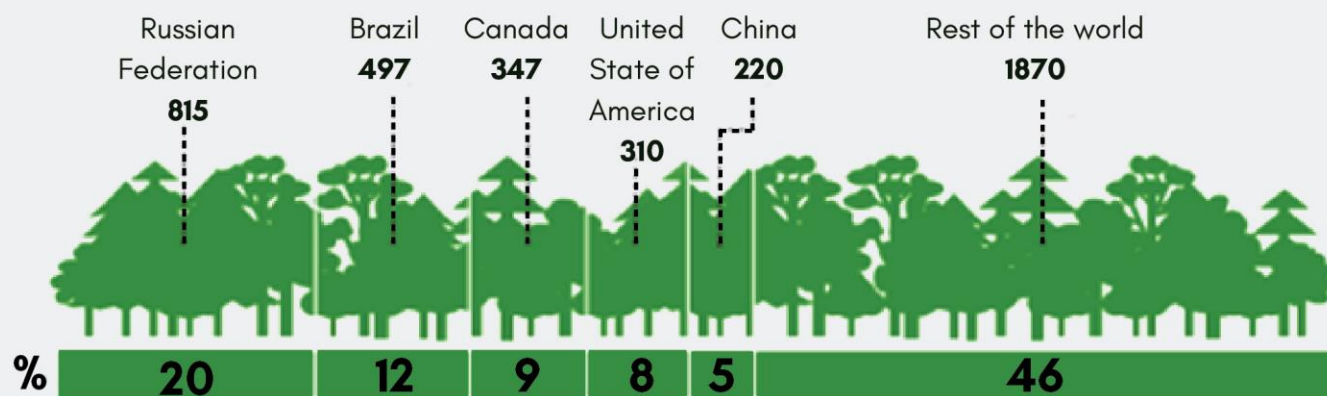
About State of the World's Forests

- It presents **data and analysis on the interaction between forests and people every two years**, with a focus on a specific pertinent topic.
- SOFO 2022 **explores the potential of three forest pathways** for achieving green recovery and tackling environmental crises, including climate change and biodiversity loss.

About Food and Agriculture Organization (FAO)

- It is a **specialized agency of the United Nations** (established in 1945) that leads international efforts to defeat hunger.
- Its goal is **to achieve food security for all** and make sure that people have regular access to enough high-quality food to lead active, healthy lives.
- **With 195 members (including India)**, FAO works in over 130 countries worldwide.
- It is **headquartered in Rome, Italy**.

Top five countries for forest area, 2020(million ha)



Key Findings

Forest's role and value in ecosystem	<ul style="list-style-type: none"> Forests provide habitat for 80% of amphibian species, 75% of bird species and 68% of mammal species, and tropical forests contain about 60% of all vascular plant species. Trees and forests are major means for combating climate change. Forests contain 662 billion tonnes of carbon, which is more than half the global carbon stock in soils and vegetation. Forests absorbed more carbon than they emitted in 2011–2020. It is estimated that more than half of world GDP depends moderately or highly on ecosystem services, including those provided by forests.
Deforestation	<ul style="list-style-type: none"> 420 million ha of forest lost through deforestation between 1990 and 2020. The rate of deforestation is declining but was still 10 million ha per year in 2015–2020. Deforestation, particularly in the tropics, has been associated with an increase in infectious diseases such as dengue fever and malaria.
Benefit to society	<ul style="list-style-type: none"> About 33 million people – 1% of global employment – are estimated to work directly in the formal and informal forest sector. One-third of the global population (about 2.6 billion people) relies on wood and other traditional fuels for household cooking. An estimated 4.17 billion people – 95% of all people outside urban areas – live within 5 km of a forest.
Diseases and Forests	<ul style="list-style-type: none"> COVID-19 pandemic may have longer-term impacts on woodfuel, having pushed an estimated 124 million more people into extreme poverty. More than 30% of new diseases reported since 1960 are attributed to land-use change, including deforestation. 15% of 250 emerging infectious diseases have been linked to forests. The cost of global strategies to prevent pandemics based on reducing the illegal wildlife trade, avoiding land-use change and increasing surveillance is estimated at USD 22 billion–31 billion.

Suggestions

Report provides three forest pathways for achieving green recovery and tackling multidimensional planetary crises, including climate change and biodiversity loss.

- **Halting deforestation and maintaining forests**
 - More efficient, productive, and sustainable agrifood systems are **key for meeting future needs for food** while reducing demand for agricultural land.
 - **Multistakeholder engagement is crucial** for progress in halting deforestation.
- **Restoring degraded lands and expanding agroforestry**
 - According to one estimate, the **restoration of 350 million ha of deforested and degraded land** by 2030 could deliver a **net benefit of USD 0.7–9 trillion** and USD 7–30 for every USD 1 invested.
 - Even in a worst-case scenario, investing in restoration would return a financial profit in 2/3rd ecosystem types.

- **Sustainably using forests and building green value chains**
 - Sustainably meeting rising demand will entail an **increase in supply through restoration, reforestation, and afforestation on degraded lands.**
 - Non-food biobased industries are estimated to grow by 3.3% per year to 2030. A **diverse range of emerging forest-based bioproducts** has the potential to tap into this growth, including biochemicals, bioplastics and textiles.
 - The involvement of **smallholders, local communities and Indigenous Peoples** in the forest pathways is essential.

Related News

Global Forest Resources Assessment Remote Sensing Survey (FRA 2020 RSS) was released by FAO recently.

Key Findings

- **Global Forest Cover**
 - The world has a **total forest area** of 4.06 billion hectares (ha), which is **31% of the total land area.**
 - The **tropical domain has the largest proportion of the world's forests** (45%), followed by the boreal, temperate and subtropical domains.
- **Deforestation**
 - **Rate at which forests are disappearing slowed by nearly 30%** from the first decade of the century to the period from 2010-2018.
 - **Highest deforestation in 2000-2018 occurred in South America,** followed by Africa.
 - **Africa had the largest annual rate of net forest loss and Asia had the highest net gain of forest area** in 2010–2020.
- **Main Drivers of Deforestation**
 - **Cropland expansion** (including oil palm plantations) **is the main driver of deforestation,** causing almost 50% of global deforestation, **followed by livestock grazing,** accounting for 38.5%.

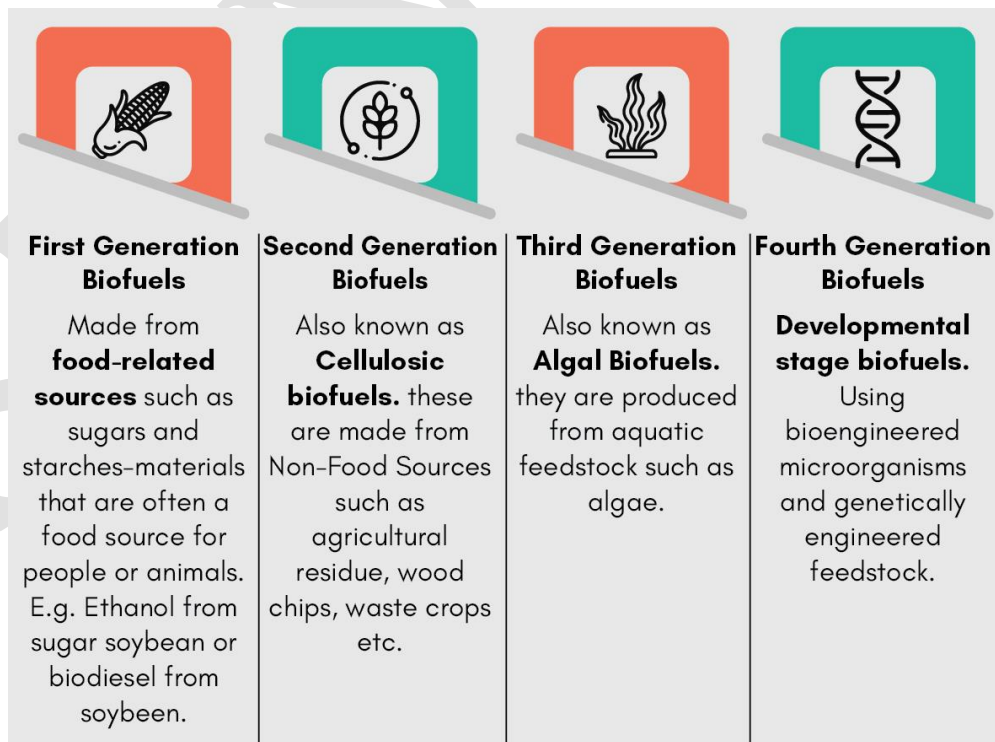
5.4. NATIONAL POLICY ON BIOFUELS-2018

Why in News?

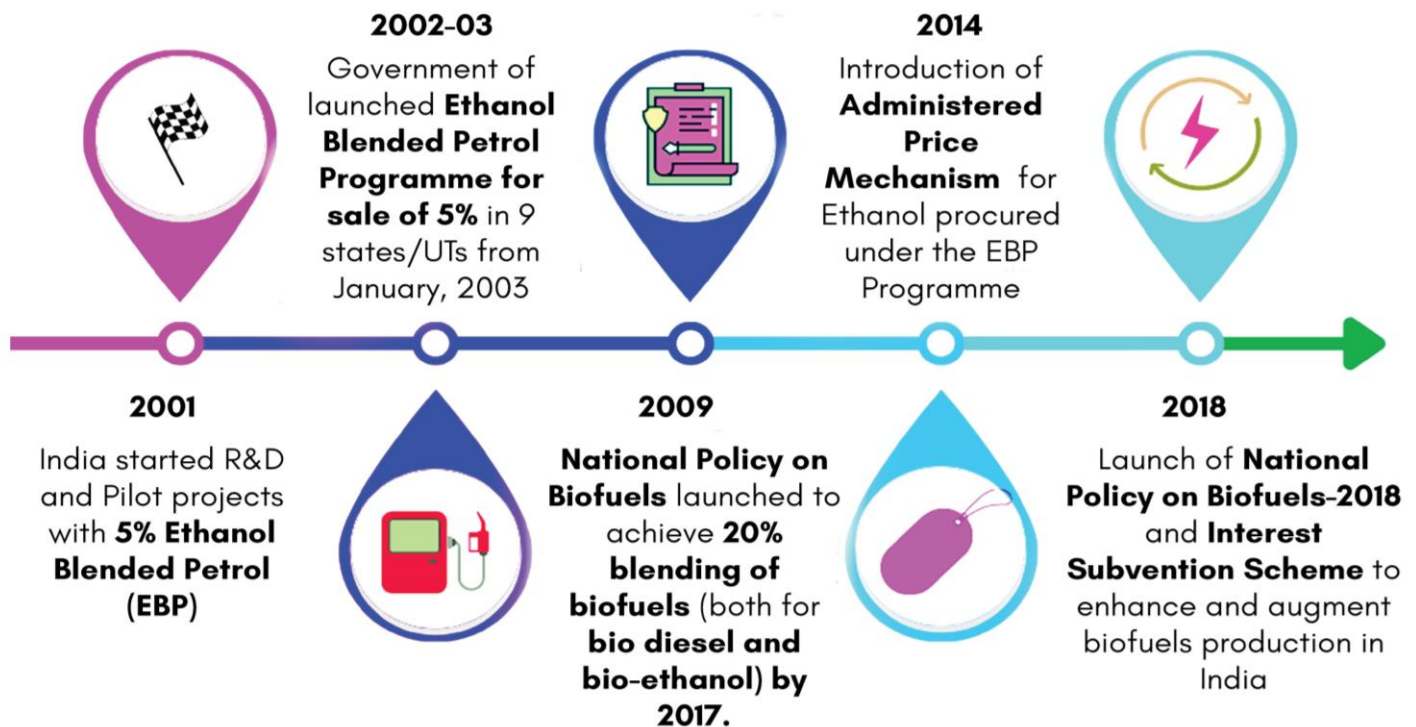
Recently, the Cabinet approved amendments to the **National Policy on Biofuels, 2018** to advance the target of 20% ethanol blending in petrol to Ethanol Supply Year (ESY) 2025-26 from earlier 2030.

About Biofuels

- Biofuels refers to **liquid transportation fuels**, such as **ethanol and biodiesel**, derived from agricultural produce, forests or any other organic material (feedstock).
- Based on the feedstock (raw materials) used to produce biofuels, they are classified into **four generations** (see image).
 - Presently, first-generation biofuels are the main source of biofuels globally despite **140 billion tonnes of agro-waste** or biomass generated from agriculture every year.
- India reached 9.99% ethanol blending in petrol in May 2022, ahead of the **National Biofuels Policy-2018** target of year end (2022).



BIOFUELS: TIMELINE ON KEY DEVELOPMENTS



National Policy on Biofuels-2018

- **Aim:** To increase usage of biofuels in the energy and transportation sectors of the country in the coming decade; and to utilize, develop and promote domestic feedstock and its utilization for production of biofuels.
- **Biofuels Covered:** Bioethanol, Biodiesel and BioCNG.
- **Implementation:** By **National Bio-fuel Coordination Committee (NBCC)**, set up in **2020**, chaired by **Minister Petroleum and Natural Gas**. It has representatives from 14 other ministries and departments to
 - **Take decisions for effective implementation and monitoring** of biofuels program in the country, and
 - **Provide overall coordination** among FCI and oil marketing companies.
- **Other Features (apart from achieved and amended targets):**
 - **Categorization of Biofuels up to three generations** and support production of second generation ethanol Bio refineries through **Viability Gap Funding**.
 - **Increased scope of Raw Material** for 1st Generation Ethanol such as damaged foodgrains, Starch containing materials, sugar containing materials etc.
 - ✓ It also allows use of surplus foodgrains as raw material after **NBCC** approval.
 - To develop the **National Biomass Repository** by conducting appraisal of biomass across the country.

Recent Amendments

Apart from advancing of target, the cabinet also approved:

- Use of **more feedstock** for production of biofuels.
- Production of biofuels **under the 'Make in India' programme** in Special Economic Zones and Export Oriented Units.
- To grant permission for **export of biofuels** in specific cases.
- **Addition of new members to the NBCC** and it has the permission to change the policy.

Significance of National Policy on Biofuels

With nearly **85%** of its oil requirements met through **imports**, the biofuels policy promotes the use of **diverse, domestic and sustainable energy resources**. Being **clean, abundant and affordable**, biofuels offer number of benefits such as:

- **National Energy Security:** It will reduce India's dependence on foreign oil resources and is estimated to save about **\$ 4 billion** annually if the 20% blending is achieved (**NITI Aayog**).
- **Economy:** Stimulating clean-energy companies, it can help India in establishing an advanced bio-industry. It will boost Indian economy through:

- **Job Creation** through bio-refineries, plant operations, village level entrepreneurship and supply chain management.
- **Increased Farmers income**, especially sugarcane farmers, through additional income generation.
- **Waste to Wealth** in agriculture, forestry and Municipal solid waste.
- **Increased infrastructure investment in rural areas** with the setting up of Second Generation bio-refineries.
- **Reduced impact of price volatility** and fuel cost for consumers.
- **Environment:** Due to **Low-Carbon intensity**, biofuels burn cleaner than fossil fuels. It will reduce carbon emissions from energy production and consumption, resulting in:
 - **Lower greenhouse gas emissions** to help in climate change mitigation and health benefits.
 - **Promotion of carbon neutrality** as crops absorb CO₂, which may offset the CO₂ produced when the ethanol is burned.
 - **Help in Municipal Solid Waste Management** by converting waste into fuels.

Issues in its implementation

Production Side	<ul style="list-style-type: none"> ● Impact on Food and Water Security as the estimated ethanol demand of 10.16 billion litres by 2025 will require 6 million metric tonne (MT) of sugar and 16.5 million MT of grains per annum by ESY 2025. <ul style="list-style-type: none"> ○ Being a water intensive crop, the use of sugarcane increases the water footprint. ● Inconsistent availability of sufficient feedstock due to the high vulnerability of the agriculture sector to climatic as well as economic events. ● Higher prices of ethanol in India due to the fixed price of raw materials like sugarcane and food grains. ● Lack of Ethanol production facilities to fulfill targets. Additionally, limited private investment in the sector also remains a challenge.
Transportation, Storage and Usage Side	<ul style="list-style-type: none"> ● Non-uniform availability of ethanol across the country as ethanol is not produced or available in some states for blending. This indirectly increases the cost and emissions due to transportation. E.g. <ul style="list-style-type: none"> ○ Ethanol Blending has not been taken up in North-East states due to non-availability of feedstock or industries. ● Restrictions on inter-state movement of ethanol due to non-implementation of the amended provisions of Industries (Development & Regulation) Act, 1951 by all the States. ● Increased implementation cost as it requires additional storage tanks, ethanol complaint dispensing units, calibration of nozzles etc. ● Increased retrofitting costs as use of E20 (20% ethanol blended petrol) will require Modification of vehicles, increasing the cost of E20 compatible vehicles.

Way Forward

Innovation, Integration and Collaboration is key to achieve the aims of **National Policy on Biofuels**. This can be done by:

- **Ensuring uniform availability of ethanol blends** across India by incentivizing development of advanced generation biofuels (2nd and above).
 - It will also help in reducing food security issues by overcoming the tradeoff with food items.
- **Augmenting Infrastructure of Oil Marketing Companies**, i.e., ethanol storage, handling, blending and dispensing infrastructure.
- **Focus on Sustainability of supplies** by improving plant biomass, overcoming inter-state movement issues, expediting regulatory clearances for new production units and supporting cash constrained sugar mills in bioethanol production.
- **Provide a timeline on rollout of E20 compliant vehicles** and provide tax incentives to absorb the R&D cost on E20 compatible design.

Other biofuels initiatives

- **Pradhan mantri JI-VAN (Jaiv Indhan- Vatavaran Anukool fasal awashesh Nivaran) Yojana** to provide financial support to integrated Bioethanol Projects using lignocellulosic biomass and other renewable feedstock.
 - **Centre for High Technology** is its Implementation Agency.
- **Repurpose Used Cooking Oil (RUCO)** by **FSSAI** to divert used cooking oil from the food value chain to biodiesel manufacturers.
- **GOBARDHAN Scheme** which supports villages in managing organic waste and converting it into biogas and fertilizer.
- **E-100 Project** to set up a network for production and distribution of ethanol across the nation.
- **Ethanol production and promotion policy from states** like Bihar, leading to the country's **first greenfield grain-based ethanol plant** in Purnea.

Related News

Bihar opens India's first greenfield grain-based ethanol plant

- It is the first one developed since the Centre gave a **go-ahead to Bihar's ethanol production and promotion policy-2021**. Ethanol production will help **reduce the cost of petrol and generate employment**.
 - The ethanol plant has been built using the latest technology and **will not discharge any waste**, making it a **zero-liquid discharge plant** that is completely environment friendly.
- **About Zero liquid discharge (ZLD)**
 - It is an engineering approach to water treatment where **all water is recovered** and contaminants are **reduced to solid waste**.
 - It is achieved by **stringing together water treatment technology** that can treat wastewater as the contaminants are concentrated.

5.5. PM-KUSUM SCHEME

Why in News?

Recently, the Central Government removed the performance bank guarantee (PBG) clause for Solar Power Generators (in Component-A) to improve the **PM-KUSUM Scheme performance**.

About PM-KUSUM Scheme

- **Pradhan Mantri- Kisan Urja Suraksha evam Utthaan Mahaabhiyan (PM-KUSUM) scheme** was launched in **2019** by the **Ministry of New and Renewable Energy (MNRE)**.
- It aims to ensure **energy security for farmers** by Harvesting Solar Energy and **increase the share of installed capacity of electric power** from non-fossil-fuel sources to 40% by 2030 as part of **Intended Nationally Determined Contributions (INDCs)**.
- **It targets to add 30.8 Gigawatt (GW) of solar capacity by end of 2022** (original target was 25.7 GW), and **De-dieselization of Farm Sector** by replacing Diesel Pumps with Solar Pumps.

PM-KUSUM: Components and Implementation

The **key objective** of the scheme is to **provide financial and water security to farmers** and achieve 100 GW of Solar Power Generation by 2022 through its components as:

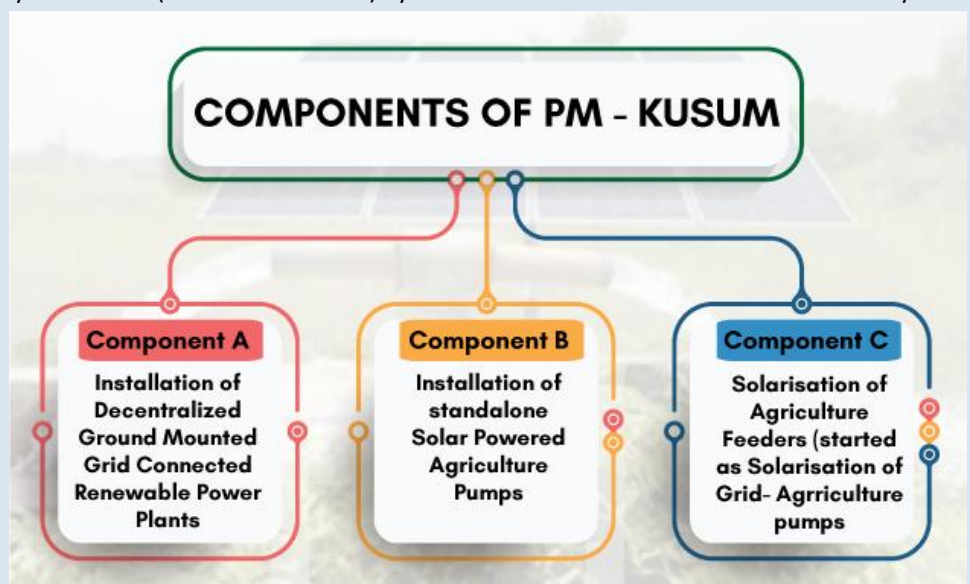
Component-A:

- To set up **500 KW to 2 MW** Renewable Energy based power plants by **individual farmers/ cooperatives/panchayats /farmer producer organizations (FPO)**, on their barren or cultivable lands or pastureland and marshy land, referred as **Renewable Power Generator (RPG)**.
 - **Projects smaller than 500 kW** may be allowed (earlier not allowed) by states based on techno-commercial feasibility.
- The **power generated will be purchased by the DISCOMs** at a pre-fixed tariff determined by respective SERC.
- **Performance Based Incentives @ Rs. 0.40 per unit or Rs. 6.60 lakhs/MW/year**, whichever is less, will be provided by MNRE to DISCOMs for five years for buying from RPGs.

Component-B:

- To support 20 lakh individual farmers in installing **standalone solar pumps** of capacity up to **7.5 Horsepower (HP)** where grid supply is not available.
 - Pumps of Higher Capacity can also be installed; however, the financial support will be limited to 7.5 HP capacity.

- It is **mandatory to use indigenously manufactured solar panels** with indigenous solar cells and modules.



Component-C:

- **Restructured to Solarisation of agricultural feeders** instead of pumps and supports 15 lakh **individual farmers to solarise pumps** of capacity up to 7.5 HP.
- For **Components B and C Centre** bears **30% of pump cost** while **70%** is borne by **State-owned DISCOMs**.

Challenges in implementation

Success of PM-KUSUM is critical to replace **diesel with renewable energy (RE)** in the **farm sector** to make it **diesel-free by 2024**. It offers a number of other benefits as well (see **image**) but the uptake of scheme is limited due to financing and implementation challenges such as:

- **Limited Incentive for Farmers**, especially in states with free power supply and for small and marginal farmers due to scheme focus on bigger pumps.
- **Slow pace of adoption and sanction from government**, reducing the chances of bringing economies of scale. E.g.
 - Under Component-A, only about 5,000 MW capacity has been sanctioned with installation of just 42.75 MW till April 2022. Under Component B and C, only 3.6 lakh and 0.75 lakh individual solar pumps are sanctioned respectively.

- **Impact of pandemic** and the lockdowns hurting vendors' entry into villages.
- **Increased input cost** due to various reasons like rise in prices of solar glass during flood in China, increased aluminum prices etc.
- **Logistics issues** due to the Domestic Content Requirement and supply chain disruptions.
- **Upgrade cost risks** due to rapid Water Table Depletion- as solar installation upgrade is expensive.
- **Awareness issues among beneficiaries and vendors** due to different coordinating departments and agencies in states.

How can removal of Bank Guarantees help?

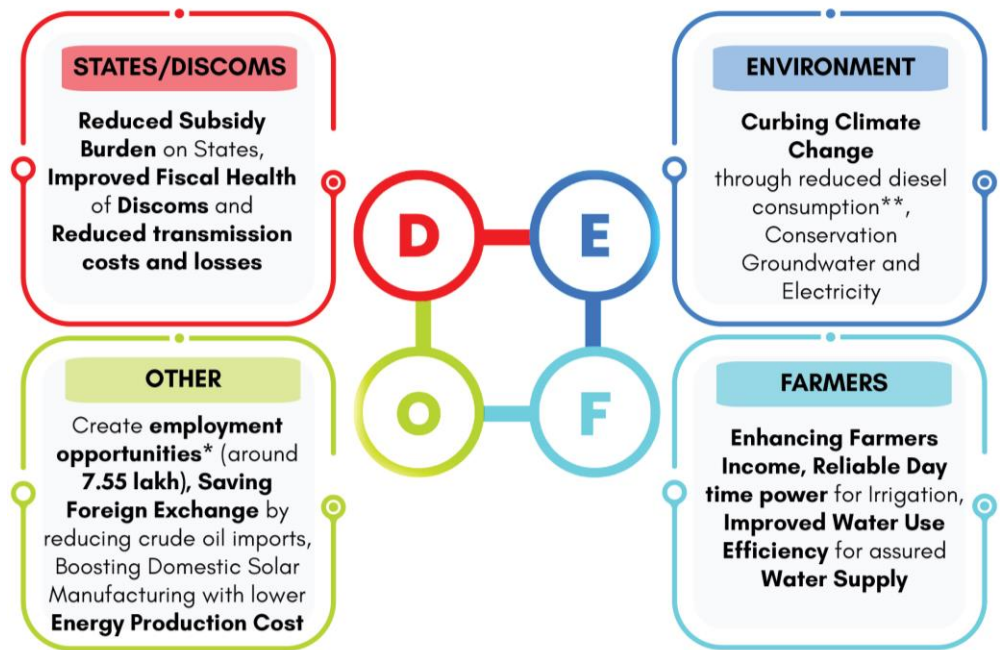
The removal of **bank guarantees for solar power generators** and on **feeder solarization by MNRE** will-

- **Reduce the monetary compliance requirement** on Solar Power Generators,
- **Increase solar power purchase** from DISCOMs having Power Purchase Agreements (PPAs) with Solar Power Generators, and
- **Expedite scheme implementation** for reduced diesel consumption in farms and increasing solar power generation.

Conclusion

Though well-intentioned, the scheme needs greater relook at its financing and implementation mechanism to increase its pace. Even if it achieves its target behind schedule, it will be a big positive in India's effort to support farmers and protect the environment.

Benefits of PM - KUSUM



*-Based on available studies, around 24.50 job-years are created per MW of small capacity solar installation.

** - Diesel-based Agricultural Pumps consume around 5.52 billion litre Diesel, generating CO2 emission equivalent of 15.4 million tonnes.

5.6. UN-ENERGY PLAN OF ACTION TOWARDS 2025

Why in news?

Recently, **Plan of Action Towards 2025** was launched by the UN Energy against the backdrop of a global energy crisis and worsening climate emergency.

More on news

- It is a major step to **catalyse the large-scale action** and **support needed for the transition to clean, affordable energy for all and net-zero emissions**.
- **Energy Compact Action Network (ECAN)** was also launched to match governments seeking support for their clean energy goals with governments and businesses that have already pledged over **\$600 billion in assistance**.
- **SDG 7 aims to, by 2030:**
 - **Ensure universal access to affordable, reliable, and modern energy services,**
 - **Increase substantially the share of renewable energy** in the global energy mix, and
 - **Double the global rate of improvement** in energy efficiency.

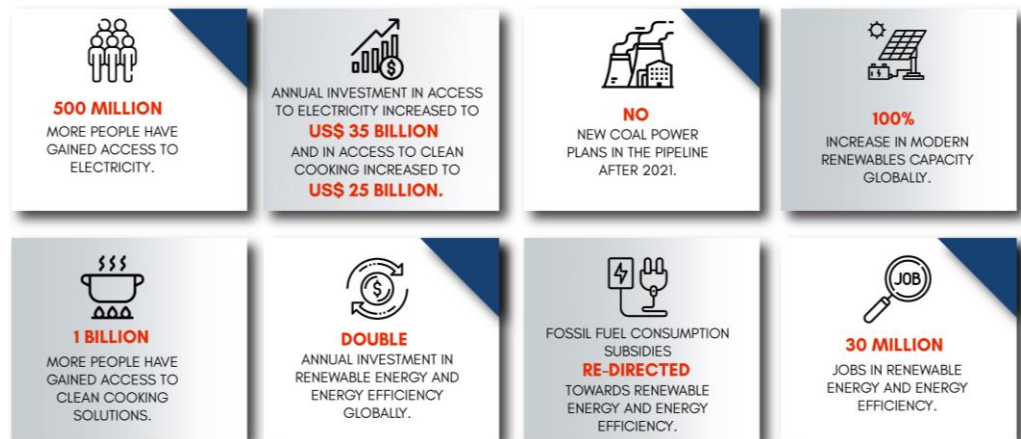
Seven areas identified under UN-Energy Plan of Action

- **Scale up collective UN-Energy action:** Joint programmes, supported by UN-Energy and leveraging relevant Energy Compacts to significantly scale up collective UN system action.
 - It will help to **close the energy access gap, increase modern renewables capacity globally and improve energy efficiency** with a special focus on **ensuring that no one is left behind**.
 - It will help to **promote energy's linkages to employment, gender and intergenerational equality, health, food, education, and all other SDGs**.
- **Scale up Energy Compacts:** Through ECAN, **UN-Energy will create a framework** to bring new stakeholders aboard, **foster coalition-building, and drive towards a continuous increase in ambition and accelerated action, catalyzing finance and investment, etc.**
- **Lead a Global Campaign for SDG 7 Action:** Campaign will **advocate the Global Roadmap, contribute to mobilizing additional Energy Compacts**, communicate best practices in support of accelerating SDG 7 action, making use of dynamic digital platforms and social media.
 - Campaign will also **leverage existing platforms and processes** such as the UNFCCC COP, IRENA Assembly, Vienna Energy Forum and others.
- **Lead by example- Greening UN-Energy organizations' operations:** To improve the UN system's environmental sustainability, on all energy-related issues, with a view to reduce the carbon and environmental footprint of its own operations.

UN Energy

- UN-Energy is the **United Nations' mechanism for inter-agency collaboration in the field of energy** established by the UN System Chief Executives Board for Coordination (CEB).
- UN-Energy reports to the CEB through the High-Level Committee on Programmes (HLCP).
- It **brings together 30 organizations that are global leaders** in their respective fields, covering together all aspects of energy and sustainable development.
- It aims to **promote coherence in the UN system's multi-disciplinary response** to achieve **Sustainable Development Goal (SDG) 7 in support of the 2030 Agenda** for Sustainable Development, and the Paris Agreement on climate change
- It **enhances coordination and collaborative actions within the UN** with regards to **policy development and implementation as well as knowledge sharing** in area of energy.

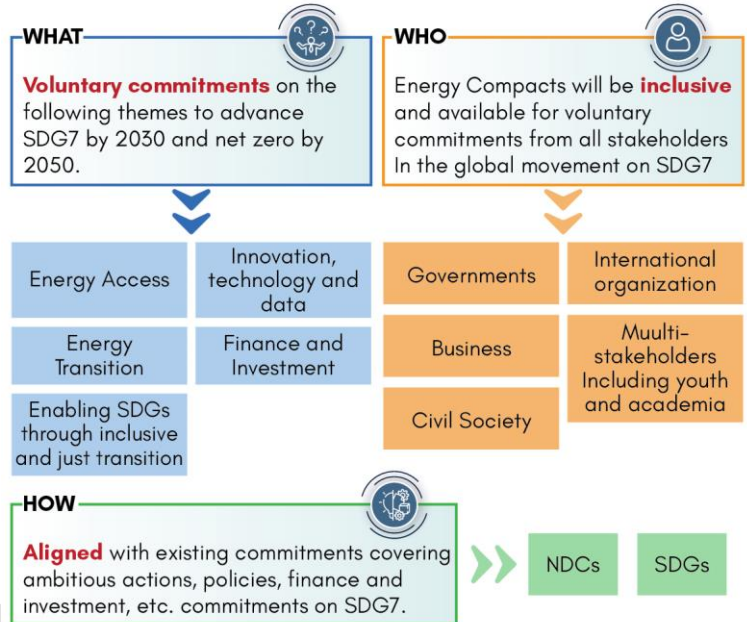
2025 Milestones



- **Convene annual Global SDG 7 Action Forum:** It will be organized under the auspices of the UN General Assembly to **constructively review, discuss and advance relevant issues.**
 - It will be supported by UN-Energy and build on **UN Decade of Sustainable Energy for All 2014-2024.**
- **Inform global agenda-setting and demonstrate thought-leadership:** By harnessing the UN system's collective strengths, UN-Energy can **provide analytical inputs for intergovernmental dialogues, share knowledge,** and document best practices on institutional arrangements, technologies etc.
- **Track and share results.** UN-Energy will track the development and implementation of the Energy Compacts through transparent monitoring frameworks and will then communicate results.

ENERGY COMPACTS - Voluntary, inclusive & complementary

Energy Compacts will be the most **inclusive** umbrella dedicated to bring together **voluntary commitments** on all SDG7 targets in support of achieving all SDGs by 2030 and net zero emissions by 2050.



5.7. COAL GASIFICATION

Why in news?

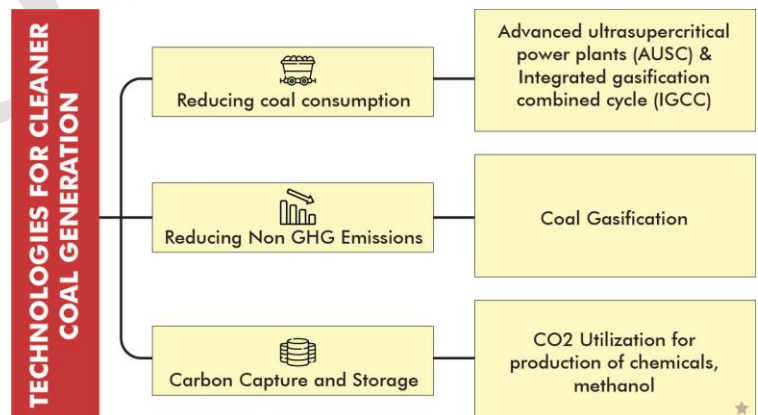
Union government has allowed a concession of 50 percent in revenue share for coal gasification.

More about news

- **Concession of 50% in revenue share can be availed** if the successful bidder consumes the coal produced either in its own plant(s) or plant of its holding, subsidiary, affiliate, associate for coal gasification or liquefaction or sells the coal for coal gasification or liquefaction on a yearly basis.
 - This is subject to conditions that at least 10% of scheduled coal production as per approved mining plan for that year **shall be consumed or sold for gasification or liquefaction.**
- This initiative has taken in **order to achieve self-sufficiency in energy sector.**

About coal gasification

- Coal gasification is the **process converting coal into synthesis gas (syngas)**, which is a mixture of hydrogen (H₂), carbon monoxide (CO) and carbon dioxide (CO₂).
- Coal gasification is **in-situ process**, in which oxygen is injected into the seam along with water and ignited at high temperature, that causes coal to partially oxidize into hydrogen, carbon monoxide (CO), carbon dioxide (CO₂), and methane (CH₄) and hydrogen sulphide (H₂S).
 - In **ex-situ process**, reactor is developed for simulating the gasification process above the surface of ground.
- In the gasification process, **sulphur present in the coal is converted to hydrogen sulphide (H₂S) and minor amounts of carbonyl sulphide (COS).**
 - These sulphur compounds can be easily and economically removed using acid gas removal systems.
- The coal gasification plants **do not produce any scrubber sludge** which need careful and costly disposal. Most part of the **wash water is recycled** and the **residual waste waters** from gasification plants can be **effectively treated.**
- Hence, **coal gasification is considered as clean coal technology** compared to burning of coal.



- Also, coal can be used to produce number of products using clean coal technologies
 - ✓ Hydrogen, Methanol and Fertilizers through coal gasification.
 - ✓ Carbon Fibres, Plastic composites using ash/residue of the coal power plant/ gasifier.

• Types of Gasifiers

- **Fixed Bed Gasifiers:** In this flow of solids is independent of the flow of gas, requires minimal pre-treatment of feed coal and have high thermal efficiency.
- **Fluidized Bed Gasifiers:** This type of gasifier is characterised by uniform particle mixing, uniform temperature gradients with high char recycling rate and less capital cost.
- **Entrained Flow Gasifiers:** This gasifier has ability to handle practically any feed and Syngas obtained from this type of gasifier is free of oils and tars.

Significance of Coal Gasification

- **Achieve INDC targets:** Under Paris Agreement, 2016 India has declared climate change goals as its Nationally Determined Contribution (NDC)
 - In achieving these targets, coal gasification helps in reduction in emissions intensity and promotion of non-fossil fuel-based energy resources.
- **Self-sufficiency and reduce import:** The syngas obtained from the coal gasification can be used to produce urea and obtain multiple products like methanol, Dimethyl ether (DME), olefins and helps India to reduce its import and be self-sufficient.
- **Steel Industry:** CO and H₂ of Syngas are important reducing agent for steel making and are considered as environment friendly method of steel making by reducing import of furnace oil.
- **Pharmaceutical Sector:** India has an ambitious plan of producing active pharmaceutical ingredients (API) indigenously rather importing from China. Thus, potential of Syngas requirement is being examined for making APIs and also methanol as solvent.
- **Integrated Gasification Combined Cycle (IGCC) system:** The synthesis gas can be used in Integrated Gasification Combined Cycle (IGCC) system for efficient and clean generation of electric power.

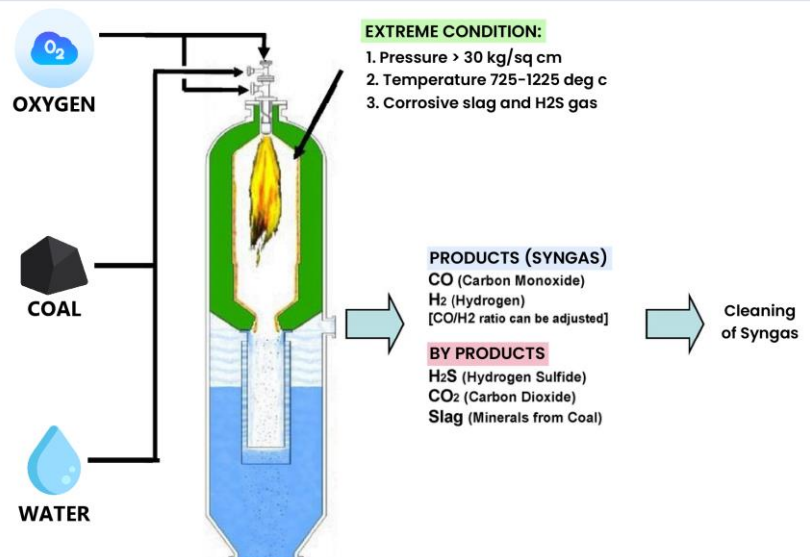
Issues and challenges

- **Capital-intensive:** Setting up of coal gasification plant is a capital-intensive as it requires land, water and electricity and also require long period of time.
- **Inadequate expertise:** The little expertise in domestic sector for coal gasification is challenging factor for success of projects.
- **Low quality coal:** The quality of coal available in India is mostly of low rank high ash coal and technology for conversion of high ash coal to syngas is one of the major challenges.

COAL MINES OF INDIA



BASICS OF COAL GASIFICATION PROCESS



- **Uncompetitive:** The cost of various products produced domestically may not be at par with the imported products. E.g. methanol produced from Coal may not be competitive with methanol produced from Natural Gas.

Way forward

- **Inter stakeholder coordination:** The coordination between various stakeholder, ministries such as Petroleum & Natural Gas, Chemical and Fertilisers, Steel, Coal, Power is also important for the success of various coal gasification projects.
- **Indigenous technology:** There is a need to develop indigenous technology for coal gasification suited to high ash Indian coal.
- **Suitable business model:** Build Own Operate, Build Own Operate Transfer, and Build Own Transfer can be used depending upon the specific project.
- **Investment:** Tools such as Viability Gap Funding, long term off-take contracts, creation of special economic zones are needs to be encouraged to attract private investment.
- **Funding of research and development:** In the field of coal gasification there is a need to earmark adequate annual budget for funding research and development and success of projects.

Initiatives taken by India

- **National Coal Gasification Mission:** Under Atmanirbhar Bharat Abhiyaan, Ministry of Coal has taken initiative for utilizing coal through coal gasification and achieve 100 MT coal gasification by year 2030.
 - **Nodal officer:** All coal companies have been advised to appoint a nodal officer and to prepare an action plan for gasifying at least 10% of their coal production.
 - **Interest Rate Subvention:** Interest Rate Subvention may be provided thereby reducing the interest burden on coal gasification projects and improve the bankability of these projects.
 - **Import duty exemption:** Import duty exemption for capital goods for setting up coal gasification projects may be considered.
- **SHAKTI Policy:** For allocation of long-term coal linkages through auction, SHAKTI policy was adopted in coal gasification projects to reduce the operational expenditure.

5.8. URBAN FIRE

Why in News?

Several people died after a massive fire broke out at an office building in Mundka in Delhi recently.

Urban Fires in India

- Urban fire occurs **in cities or towns with the potential to rapidly spread to adjoining structures**. These fires damage and destroy homes, schools, commercial buildings, and vehicles.



Key facts

- Fire-related accidents have, **on average, killed 35 people every day in the five years between 2016 and 2020**, according to a report by Accidental Deaths and Suicides in India (ADSI), maintained by the **National Crime Records Bureau**.
- Although, during the period the **number of fire accidents reduced by 44%** (16,695 in 2016 to 9,329 in 2020) and the **number of people dying in these accidents dipped by 46%** (16,900 in 2016 to 9,110 in 2020).

Strategies needed for building fire resilience in urban areas

Strengthening guidelines and policy framework	<ul style="list-style-type: none"> • Strict adherence to available norms of electrical load management for new constructions. Encouraging use of low voltage lights in place of incandescent lights. • Guidelines for existing old structures w.r.t fire prevention needs to be formulated. <ul style="list-style-type: none"> ○ Guidelines should also declare the permissible number of flammable materials that can be used for any structure without creating fire risk. • Mainstreaming of fire risks mitigation and management in urban planning and development:
Enforcement of fire safety norms and regulations	<ul style="list-style-type: none"> • Proper evaluation and scrutiny before the sanction and renewal of the permits, licenses, approvals, NOCs, etc. • Strict scheduling for renewal of licenses and permits. • Regular monitoring and inspection by the authorities for checking the functionality of the installed fire-fighting equipment. • Accountability of the officials renewing and sanctioning the licenses and permits needs to be ensured.
Upgradation of fire-fighting equipment and infrastructure	<ul style="list-style-type: none"> • Local fire departments need to upgrade the fire-fighting equipment and infrastructure according to the NDMA Guideline on Scaling, Type of Equipment, and Training of Fire Services. • Procurement of suitable size of vehicles for accessing narrow lanes is necessary. • Pre-Planning of emergency routes. • Integration of real-time traffic monitoring devices to minimise the response time.
Building community resilience	<ul style="list-style-type: none"> • Consultation of all the stakeholders while developing an emergency management plan for any structure or settlement. • Conduction of sensitization and awareness programmes for the urban residents and other stakeholders regarding the prevalent urban fire risks. • Evacuation and safety mock drills needs to be arranged for residents of the high-rise, commercial complexes, institutions like schools and hospital, offices, etc.

Fire safety regulations in India

- **Constitutional Provisions:** Under Twelfth Schedule (Article 243W), the Fire Services come under the power, authority, and responsibility of Urban Local Bodies.
- **National Building Code of India** (published by Bureau of Indian Standards) covers the detailed guidelines for construction, maintenance, and fire safety of the structures.
 - **National Building Code of India 2016** (Part – IV “Fire & Life Safety”) was issued to the States to incorporate the recommendations in their building byelaws.
- **Model Bill to Provide for the Maintenance of a Fire and Emergency Service for the State** (by MHA) to make more effective provisions for the fire prevention and fire safety measures in various types of buildings and premises.
- In 2020, Ministry of Health & Family welfare circulated strict **guidelines stipulating third-party accreditation for fire safety** and that a fire response plan should be in place.
- National Disaster Management Authority (**NDMA**) has also stipulated **requirements for fire safety** in public buildings, including hospitals.

5.9. NEWS IN SHORTS



5.9.1. DEEP AND SHALLOW ECOLOGISM

- Shallow and deep ecologism are the **two strands of environmental philosophy** that have become point of discussion as India continues to grapple with the unrelenting heat waves.
- Deep ecologism is one of the most **radical forms of environmental ethics** which was first advocated by

Norwegian philosopher Arne Naess in 1970. The **alternative** to deep ecology is often referred to as **shallow ecology**.

- They both have **recognized and examined the anthropogenic problems with the environment**, albeit in different ways.

Key difference between the two styles of ecologism

Specifications	Deep ecologism	Shallow ecologism
Place of Human beings in the environment	Anthropocentrism is blamed for the environmental crisis. It argues that all living things have the same right to live and flourish. This means that the interests of other living beings have to be treated as seriously as the interests of humans. For example: Even if we could provide a way of protecting humans from climate change, it would still be a bad thing because many other living beings would suffer.	There is nothing necessarily wrong with the anthropocentric worldview. Nature is only valuable insofar as it serves human interests. For example: Climate change is bad because it will affect human interests.
Priority	Prioritises a 'live and let live' attitude over an 'either you or me' approach. 	It gives priority to humans above other forms of life. 
Approach to deal with pollution and resource depletion	It aspires to sustain nature by making large-scale changes to our lifestyle. For example: The reshaping of transport systems which involve the use of internal combustion engines.	Exponents of this philosophy believe in continuing our present lifestyle, but with specific tweaks aimed at minimising the damage to the environment. For example: Use of vehicles that cause less pollution or air conditioners that do not release chlorofluorocarbons (CFCs).
Decision making on environmental crisis	It considers that developed countries are more responsible for the climate change. Hence, argues for a holistic perspective to the crisis which acknowledges regional differences and the disparities between under and over-developed nations.	' Global ' approach to the environmental crisis.
Impact on inequality		
<ul style="list-style-type: none"> Deep ecologism maintains that by not changing the lifestyle, shallow ecologism further widens the inequalities between countries. For instance, <ul style="list-style-type: none"> Despite constituting only 5% of the world's population, the U.S. accounts for 17% of the world's energy consumption and is the second largest consumer of electricity after China. 		

5.9.2. STATE OF THE GLOBAL CLIMATE REPORT 2021

World Meteorological Organization (WMO) released State of the Global Climate Report 2021.

About State of the Global Climate Report

- This annual report provides details of climate indicators such as temperatures, ocean heat, ocean acidification, sea level rise, sea ice glaciers and extreme weather.
- WMO State of the Global Climate report 2021 complements the IPCC Sixth Assessment report.
 - IPCC prepares comprehensive Assessment Reports about knowledge on climate change, its causes, potential impacts, and response options.

- Also, according to WMO's Global Annual to Decadal Climate Update, there is a 50:50 chance of the annual average global temperature temporarily reaching 1.5 °C above the pre-industrial level for at least one of the next five years.

Key findings

- Four key climate change indicators – greenhouse gas (GHG) concentrations, sea level rise, ocean heat and ocean acidification – set new records in 2021.
 - Concentration of carbon dioxide (CO₂) reached 413.2 parts per million (ppm) globally, or 149% of the pre-industrial level.
 - Methane and Nitrous oxide also continued to increase in 2021.

- **Global mean temperature** in 2021 was around **1.11 ± 0.13°C** above 1850–1900 pre-industrial average. Past seven years (2015–2021) have been warmest years.
 - ✓ **2021 was less warm** than some recent years due to the influence of moderate La Niña events.
- **Global mean sea level reached a new record high in 2021**, rising an average of 4.5 mm per year over the period 2013–2021.
 - ✓ **Sea levels along almost the entire Indian coast are rising** 0 and 2.5 mm / year, faster than the global average.
- **Countries with the highest numbers of internal displacements** (due to Hydro-meteorological hazards): China, Vietnam, and Philippines.
- **Ozone hole over Antarctic was unusually large and deep**, driven by a strong and stable polar vortex and colder-than-average conditions in the lower stratosphere.
- Some ecosystems are degrading at an unprecedented rate. For example, mountain ecosystems, Coral reefs etc. are profoundly affected.
- **Extreme weather led to hundreds of billions of dollars in economic losses** and wreaked a heavy toll on human lives and well-being and **triggered shocks for food and water security and displacement**.
- Climate-related events pose humanitarian risks to society through **impacts on health, food and water security** as well as **human security, human mobility, livelihoods, economies, infrastructure** and biodiversity.

Key suggestions

- **Adaptation:** As extreme weather events become more frequent and intense, **predictions must go beyond what the weather will be to include what the weather will do**. Early Warning Systems allow people to know hazardous weather is on its way, and informs how governments, communities and individuals can act to minimize the impending impacts.
 - UN Secretary has tasked the World Meteorological Organization to lead the effort **to ensure every person on Earth is protected by early warning systems within five years**.
- **Mitigation:** Even if adaptation is improved, the climate will continue to change unless the underlying drivers are addressed. According to the IPCC, **without immediate and deep emissions reductions across all sectors** and regions, it will be **impossible to keep warming below 1.5° C**.

About World Meteorological Organization (WMO)

- It is an **intergovernmental organization** with a membership of 193 Member States and Territories (including India).

- **WMO originated from the International Meteorological Organization (IMO)**, which was founded in 1873 to facilitate the exchange of weather information across national borders.
- Established in 1950, **WMO is the specialized agency of the United Nations** for meteorology (weather and climate), operational hydrology and related geophysical sciences.
- **Secretariat**, headquartered in Geneva, is headed by the **Secretary-General**.
- Its **supreme body is the World Meteorological Congress**.

5.9.3. FIRST MOVERS COALITION

- India has joined the **First Movers Coalition Steering Board**.
- It was launched by the **US and World Economic Forum (WEF)** at COP26 in Glasgow, Scotland.
- It is 'a **global initiative harnessing the purchasing power of companies to decarbonize seven "hard to abate" industrial sectors**'.
 - This includes **Aluminum, Aviation, Chemicals, Concrete, Shipping, Steel, and Trucking** sector accounting for **30% of global emissions**.
- It seeks to **commercialize zero-carbon technologies** and **to scale up critical emerging technologies** essential for the **Net-Zero Transition**.

5.9.4. WORLD ECONOMIC FORUM (WEF) LAUNCHES INDIAN CEOS ALLIANCE FOR "NET-ZERO INDIA"

- WEF announced '**Alliance of CEO Climate Action Leaders India**' to **supercharge India's climate action and decarbonization efforts**.
 - Alliance will serve as **high-level platform to support business leaders** in planning and implementing plans and programmes to achieve climate targets, including net-zero economic growth.
 - It is **part of WEF's Climate Action Platform** and will work towards achieving the vision outlined in the "**Mission 2070: A Green New Deal for a Net Zero India**" from WEF.
 - It will **bring together government, businesses and other key stakeholders** to achieve Indian Prime Minister's ambitious, **five-part "Panchamrit"** pledge.
- **Five elements of 'Panchamrit'** includes
 - India reaching its **non-fossil energy capacity to 500 GW by 2030**.
 - **Meeting 50% of its energy requirements** from renewable energy by 2030.

- Reducing total projected carbon emissions by one billion tonnes from now onwards till 2030.
- Reducing carbon intensity of its economy by less than 45 percent by 2030.
- Achieve target of net zero emission by 2070.
- CEO's alliance can help in overcoming the challenges like climate financing, technological constraints etc by learning from global experiences and support in it by turning businesses into Net Zero.



5.9.5. RAJASTHAN EMERGES AS SOLAR HUB WITH 10 GW CAPACITY

- Rajasthan became the first state to surpass 10 GW of cumulative large-scale solar installations.
 - State has a total of 32.5 GW of installed power capacity.
 - Renewables contributes 55%, followed by thermal energy (43%), and nuclear energy (2%).
- Rajasthan's favourable conditions
 - Highest solar irradiation levels in the country
 - Land availability and minimal power curtailment issues.

5.9.6. PEOPLE'S BIODIVERSITY REGISTER (PBR)

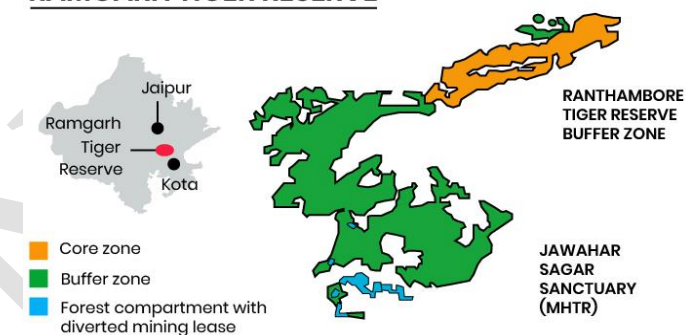
- Kolkata became first major metropolitan city to prepare a detailed register of biodiversity i.e. PBR.
 - PBR contains comprehensive information on locally available Bio-resources including landscape and demography of a particular area or village.
- Biological Diversity Act (BDA), 2002 has made it mandatory for every local self-governing institution in rural and urban areas to constitute Biodiversity Management Committee (BMC) within their area of jurisdiction.
 - Once constituted, BMC must prepare PBR in consultation with local people.
- Advantages: Provides information on Local Biodiversity Hotspots, Sacred Groves, and Other biologically

significant areas, locally endemic and endangered Species.

5.9.7. RAMGARH VISHDHARI TIGER RESERVE

- Rajasthan Government has notified the Ramgarh Vishdhari Wildlife Sanctuary as a tiger reserve.
 - Tiger reserves are notified by the State Government as per provisions of Wildlife (Protection) Act, 1972 on advice of the National Tiger Conservation Authority (NTCA).
- It is the 4th Tiger Reserve of Rajasthan after Ranthambore, Sariska and Mukundra; and 52nd tiger reserve of India.
- Ramgarh Vishdhari: It serves as a tiger corridor between Ranthambore Tiger Reserve and Mukundra Hills Tiger Reserve.

RAMGARH TIGER RESERVE



5.9.8. INDIA FINALISES DEALS FOR CHEETAHS FROM SOUTH AFRICA AND NAMIBIA

- By end of 2022, India is set to receive cheetahs from South Africa and Namibia at Kuno Palpur in Sheopur district of Madhya Pradesh.
 - Project to translocate cheetahs is being implemented by Ministry of Environment with the help of Wildlife Institute of India (WII).
 - Kuno Palpur wildlife sanctuary is suitable location due to favorable habitat, prey abundance etc.
 - ✓ It is only wildlife sanctuary in world to host all four major cat species—lion, tiger, cheetah and leopard.
- Cheetah is a keystone species of dry forests, scrub forests, and savannahs.
 - It was declared extinct in India in 1952 due to over-hunting and loss of habitat.
 - It is also the world's fastest land mammal, and doesn't need much water.
 - Part of Appendix 1 of Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES).

- **IUCN status:** African Cheetah- **Vulnerable** and Asiatic Cheetah – **Critically endangered**.
- **Importance of relocation**
 - Cheetah’s conservation, **being flagship species, will revive grasslands and its biomes and habitat.**
 - Flagship species are species whose conservation is assumed to **correlate positively with protection of other species.**
 - Enhance local community livelihoods through **eco-tourism prospects.**

- In **disrupting ecosystems, light pollution poses a serious threat in particular to nocturnal wildlife,** having negative impacts on plant and animal physiology.
- Increasing **energy consumption.**
- **Ways to tackle light pollution**
 - **Promoting the use of LED technology and green energy** for displays and illuminations.
 - **Avoid illuminated advertisements** (ads) that obscure or diminish the effectiveness of traffic signals.

5.9.9. 1 IN 6 GLOBAL DEATHS IN 2019 LINKED TO POLLUTION: LANCET STUDY

- **Key findings of the report**
 - **Majority of air pollution related deaths** - 9.8 lakh - in India were **caused by ambient PM2.5 pollution.**
 - **Lead contributed 9 lakh premature deaths,** followed by toxic occupational hazards at 8.7 lakh deaths.
 - Excess deaths have led to **economic losses totalling USD 4-6 trillion in 2019 globally,** which is **6.2% of global economic output.**
 - **India's PM2.5 pollution remains well above WHO guidelines** of 5 microgram per cubic metre in 93 percent area of country.

5.9.11. CLIMATE EMERGENCY

- **Vanuatu’s (country in the southwestern Pacific Ocean)** has declared a climate emergency.
- There is **no precise definition of climate emergency,** however, this **move will put the climate and the environment at the very centre of all government policy,** rather than being on the fringe of political decisions.
 - The use of the term emergency is **a way of signalling the need to go beyond reform as usual.**
- In 2019, **UK has become the first national government to declare** an Environmental and climate emergency.

5.9.10. 2022 INTERNATIONAL DARK SKY WEEK CONDUCTED FROM APRIL 22-30

- International Dark Sky Week (April 22-30) is an **annual event** hosted by **International Dark-Sky Association (IDA)** to raise awareness about the **negative impact of light pollution** and celebrate the night sky.
- Light pollution, or photo pollution, is the presence of **excessive, misdirected, or obtrusive artificial (usually outdoor) light. Components of light pollution include**
 - **Glare** – excessive brightness that causes visual discomfort.
 - **Skyglow** – brightening of the night sky over inhabited areas.
 - **Light trespass** – light falling where it is not intended or needed.
 - **Clutter** – bright, confusing and excessive groupings of light sources.
- **Impact of light pollution**
 - **Interferes with astronomical research.**
 - **Adverse health effects** especially on humans on natural body cycles called circadian rhythms and the production of melatonin, which are regulated by light and dark.
 - ✓ **Circadian rhythms** are physical, mental, and behavioural changes that follow a 24-hour cycle.

5.9.12. WORLD FOOD PRIZE

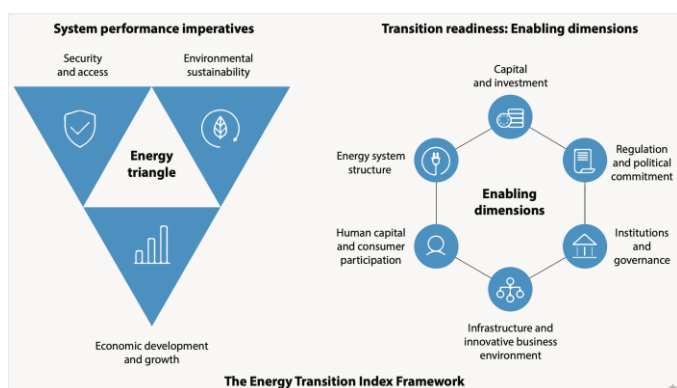
- NASA climate scientist wins World Food Prize for her innovative modelling of the impact of climate change on food production.
- The award was **created by Nobel Peace Prize laureate Norman Borlaug in 1986** to recognise scientists and others who have improved the quality and availability of food.
- It is **awarded by World Food Prize Foundation and it is considered to be Nobel Prize in Agriculture.**
- It is intended to be **awarded to one person,** however in collaboration it can be awarded to multiple persons.

5.9.13. “FOSTERING EFFECTIVE ENERGY TRANSITION” REPORT RELEASED BY WORLD ECONOMIC FORUM (WEF)

- Report uses ‘**Energy Transition Index**’ to benchmark countries' energy transition progress annually on the **three dimensions of energy triangle** and the **enabling dimensions for transition** (see image).
 - Energy transition refers to **shift from fossil-based systems** of energy production and consumption to **renewable energy sources** like wind and solar.
- **Key Findings of the report**
 - **Energy transition not keeping pace with growing climate urgency** with challenges compounded by

risks to energy security, sustainability, and affordable access.

- **Lack of access to an affordable energy supply** has emerged as a key threat to a just transition.
- **Industrial activity generates more than 30% of anthropogenic emissions** with 5 heavy industries representing 80% of industrial emission.
- **Dual diversification** (of supply source and supply mix) is key to **strengthening countries' energy security**.
- **India's energy transition**
 - Power Sector has achieved **100 GW of installed Renewable Energy Capacity**.
 - India has already **achieved emission reduction of 28% over 2005 levels, against the target of 35% by 2030** committed in its NDC (Nationally determined contributions).



5.9.14. 'SCHEME FOR SETTING UP MANUFACTURING ZONE FOR POWER AND RENEWABLE ENERGY (RE) EQUIPMENT'

- The scheme is jointly proposed by the **Ministry of Power and Ministry of New and Renewable energy** to **set up 3 manufacturing zones** for power and RE equipment, **by 2026-27**.
 - **2 would be brownfield** on already developed land and **1 greenfield** in a coastal area of the country.
- The scheme aims to establish a **manufacturing facility of critical equipment, components and spares required for the power sector and RE sector**.
 - **Private companies would be invited** to set up manufacturing zones for this.
 - They would provide for a common **testing facility, and a common infrastructure** facility.
- **Key provisions of the scheme**
 - The identified location would be **away from the eco-sensitive zone of protected areas**.
 - State government must have **26% stake in the joint venture** with private companies.
 - A **Scheme Steering Committee (SSC) and a Project Management Agency (PMA)** shall be constituted for monitoring.

- **Importance of the scheme**
 - **bring down** the manufacturing cost
 - optimization of resources and **economies of scale**
 - **cut down on import reliance** and build domestic capacity
 - **reducing the country's trade deficit**.

5.9.15. JAL JEEVAN MISSION (JJM) ACHIEVES 50% COMPLETION MILESTONE

- India has reached the **milestone of providing tap water to 50 percent of rural households under JJM**.
 - Goa, Telangana, Andaman and Nicobar Islands, Dadra and Nagar Haveli and Daman and Diu, Puducherry and Haryana have already achieved **100 percent household connections**.
 - **Punjab, Gujarat, Himachal Pradesh and Bihar** have coverage of **more than 90 percent**.
 - 108 districts and 1.5 lakh villages have become **HarGharJal**.
 - ✓ **HarGharJal**, flagship programme of Centre, is **implemented by JJM under Ministry of Jal Shakti**, in partnership with States/ UTs.
- JJM, launched in 2019 by Ministry of Jal Shakti, aims at providing **potable water at service level of 55 litre per capita per day** to every rural household through **Functional Household Tap Connection (FHTC)** by 2024.
 - In 2019, 17% of rural population had access to drinking water through taps.
 - **It empowers Panchayati Raj Institutions and communities** by engaging them in water supply schemes.
 - **Fund sharing pattern** between Centre and States/ UTs is **100% for Union Territories without legislature, 90:10 for North Eastern & Himalayan States and UTs with legislature and 50:50 for rest of States**.



5.9.16. BHARAT TAP

- The Ministry of Housing and Urban Affairs (MoHUA) has launched Bharat Tap initiative.
 - It is conducted under aegis of Atal Mission for Rejuvenation and Transformation 2.0 (AMRUT) and Swachh Bharat Mission 2.0 (SBM).
- Bharat Tap initiative aims to provide low-flow, sanitary-ware at scale, and thereby reduce water consumption at source considerably.
 - It will lead to a renewed focus on water conservation efforts and sustainable growth.
 - It is estimated to save minimum 40 percent water, in turn result into energy saving because due to less water required, less energy will be required for pumping, transporting and purification.
- Also, MoHUA launched 'Nirmal Jal Prayas', initiative of National Real Estate Development Council (NAREDCO) Mahi.
 - It aims to map ground water and save 500 crore litres of water per annum.
 - Through the initiative, advocacy, awareness and amplification towards saving water will be disseminated and highlighted.
- NAREDCO was established as an autonomous self-regulatory body in 1998 under aegis of MoHUA.
 - It strives to be the collective force influencing and shaping real estate industry.
 - NAREDCO had established Mahi - NAREDCO Women's Wing for empowering women entrepreneurs and encouraging participation of women in real estate sector and allied fields.

Related information

AMRUT 2.0

- It was launched by Ministry of Housing and urban affair (MoHUA).
- AMRUT 2.0, launched in 2021, for period of 05 years i.e. from 2021-22 to year 2025-26.
- It aims
 - to provide 100% coverage of water supply to all households in around 4,700 ULBs (Urban Local Bodies), by providing 2.68 crore urban household tap connections.
 - Promote Aatma Nirbhar Bharat through encouraging Startups and Entrepreneurs.
 - Promote circular economy of water through formulation of City Water Balance Plan for each city.

SBM 2.0

- It was launched by MoHUA.
- It envisions to make all cities 'Garbage Free' and ensure grey and black water management in all cities other than those covered under AMRUT.
- All ULBs will become ODF+; and all cities with less than 1 lakh population ODF++.

5.9.17. PARTICIPATORY IRRIGATION MANAGEMENT (PIM)

- PIM, adhering to the rules and norms of community-based natural resource management, has gained salience by receiving thrust in the National Water Policy 2002.
- PIM refers to the participation of irrigation users - farmers - in management of irrigation system.
- The purpose of PIM is to manage water in a decentralised manner while allowing the local community to play a significant role in its management and governance.
- PIM Act, 2007 aims to monitor the equitable distribution of water resources between beneficiary farmers through Water Users' Associations (WUAs).
- Objectives of PIM:
 - To create a sense of ownership of water resources and irrigation system among users, so as to promote economy in water use and preservation of system.
 - To improve service deliveries through better operation and maintenance (O&M).
 - To achieve optimum utilization of available resources as per crop needs.
- Need of PIM:
 - To increase the agricultural production to keep pace with requirement.
 - Decrease financial burden of operation and management of old irrigation systems.
 - To achieve equity in water distribution.
 - Money spent by government to recover water charges is more than the amount recovered due to low tariff of water.

National Water Policy 2002

- It is a sectoral policy document, formulated by Ministry of Water Resources (now, Ministry of Jal Shakti).
- It addresses the problem of scarcity of water and the need to conserve this resource through optimal, economical, sustainable and equitable means.
- First NWP was adopted in 1987. It was reviewed and updated in 2002 and later in 2012.

Water Users' Associations (WUAs)

- These are community-based organizations that share a common interest of well performing irrigation systems.
- Under PIM system, WUA has been formed within command area of Government irrigation schemes.
- They are responsible for water distribution and conflict management.

5.9.18. UN EXPERTS CALL UPON NATIONS TO TAP UNCONVENTIONAL WATER RESOURCES

- Book titled ‘Unconventional Water Resources’ is compiled by experts at **United Nations University’s Institute for Water, Environment and Health (UNU-INWEH)**, UNU Institute for Integrated Management of Material Fluxes and of Resources and UN Food and Agriculture Organisation.
- Non-conventional/ Unconventional water resources (UWRs) commonly include **saline water, brackish water, agricultural drainage water, treated or untreated wastewater effluents** etc.
 - All these are waters of inferior or marginal quality.
 - Use of this water requires adoption of **more complex management practices and stringent monitoring procedures.**
- **Six broad categories of UWRs identified by book**
 - **Harvesting water from air and ground** by Cloud Seeding or Rain Enhancement, Fog Harvesting.
 - ✓ Fog harvesting and micro-catchment rainwater harvesting marked as **low-cost and low-impact methods.**
 - **Desalination-** Removing salts or other minerals from wastewater effluent, to obtain fresh water for human consumption.
 - **Tapping fresh and brackish groundwater** offshore and onshore
 - **Reusing used water i.e.** municipal waste-water and agricultural drainage water.
 - **Moving water physically** to water-scarce areas in ships’ ballast holds, or towing icebergs.
 - **Micro-scale capture of rainwater** that would otherwise evaporate.
- **Strategies for UWRs**
 - **Promoting research and practice** on both technical and nontechnical aspects of UWRs.
 - **Ensuring that unconventional waters provide benefits,** not cost to environment
 - **Positioning unconventional waters as a reliable source of water** in times of uncertainty.
 - **Supporting complementary and multidimensional approaches** such as addressing water scarcity and climate change together.

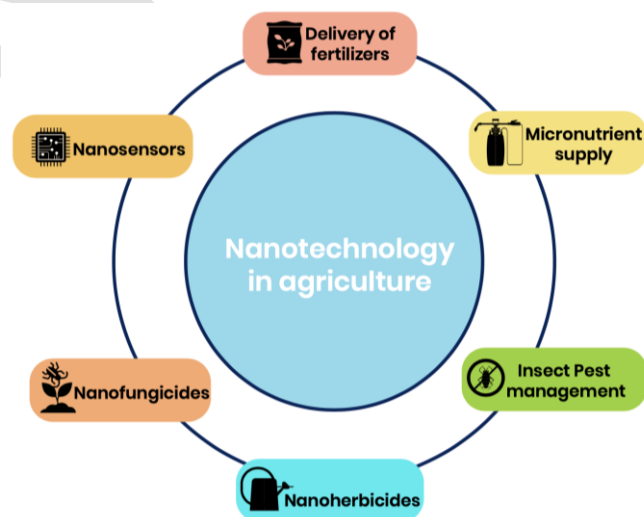
5.9.19. PRIME MINISTER (PM) INAUGURATED WORLD’S FIRST LIQUID NANO UREA PLANT AT KALOL (GUJARAT)

- Liquid nano Urea is a **patented chemical nitrogen fertiliser** developed by IFFCO’s Nano Biotechnology Research Centre at Kalol with nano nitrogen particles (from 20-50 nm).

- One nanometre is equal to a billionth of a metre.
- It is **sprayed directly on the leaves** of plants and gets **absorbed by the stomata-** pores found on the epidermis of leaves.

Benefits of Nano urea


- **Improved agricultural produce with reduced urea consumption** as the efficiency of liquid nano urea is as high as 85-90% in comparison to 25% of conventional urea.
- **Significant reduction in urea imports,** government subsidies and logistics cost.
- **Reduced soil, water and air pollution** from urea, improving quality of underground water and reduction in global warming.
- **Higher shelf life** as no issue of caking on coming into contact with moisture.
- **Other Potential Nanotechnology Opportunities in Agriculture**
 - **Use of Nanoformulations** of herbicides, pesticides and other fertilizers.
 - **Use of Nanosensors** to identify diseases and residues of agrochemicals.
 - **For genetic improvement** of plants to increase productivity, nutritional value or shelf life.



5.9.20. CYCLONE ASANI IN BAY OF BENGAL - INTENSIFIED INTO SEVERE STORM

- As per Indian Meteorological Department (IMD), **Cyclone Asani**, which **developed over southeast regions of Bay of Bengal**, had intensified into a ‘**severe cyclone**’ storm.
 - Asani is **first cyclonic storm** in **North Indian Ocean region in 2022.**
 - It was **named by Sri Lanka.** Asani means “**wrath**” in Sinhalese.

- Cyclone that will form **after Asani will be called Sitrang**, name given by Thailand.
- **Ghurni, Probaho, Jhar and Murasu** are **upcoming names from India**.
- Tropical cyclones are **violent storms that originate over warm ocean waters near the equator**. **Favourable conditions** for their formation are-
 - Large sea surface with **temperature higher than 27° C**.
 - Presence of **the Coriolis force**.
 - Small variations in the vertical wind speed.
 - A **pre-existing weak low-pressure area** or low-level-cyclonic circulation.
 - **Upper divergence** above the sea level system.
- **Naming of cyclone**
 - **Six Regional Specialised Meteorological Centres (RSMCs)**, including IMD, and **five regional Tropical Cyclone Warning Centres** are mandated for **issuing advisories and naming of cyclonic storms**.
 - **Naming of cyclones in Bay of Bengal and Arabian Sea started in September 2004**.

Types of Disturbances	Wind speed in Km/h
Low Pressure	Less than 31
Depression	31-49
Deep Depression	49-61
Cyclonic Storm	61-88
Severe Cyclonic Storm	88-117
Super Cyclone	More than 221 

5.9.21. ANCIENT FOREST DISCOVERED IN CHINESE SINKHOLE

- A cave exploration team has discovered an ancient forest at the bottom of a giant karst sinkhole in south China's Guangxi Zhuang Autonomous Region.
 - The giant sinkhole—also called *tiankeng*, or “heavenly pit. It measures **306 m (1,003 ft) in length, 150 m (492 ft) in width and 192 m (629 ft) in depth**. Its volume exceeds 5 million cubic meters.

About Sinkholes

- Sinkholes are **depressions formed in the ground** when layers of the **Earth's surface start collapsing into caverns** (a large cave).
 - **Sinkholes are often funnel-shaped**, with the wide end open at the surface and the narrow end at the bottom of the pool.
 - They **can occur suddenly and without warning**, because the land under the surface of the Earth can stay intact for a period until the spaces get too big.
- Sinkholes can be formed **due to natural processes or human activity**.
- **Two types of sinkholes exist:**
 - One forms when the roof of a cave collapses and exposes the underground cavern.
 - The second type forms when water dissolves the rock underneath soil and creates an underground chasm.
- Sinkholes are **most common in karst terrain**.
 - Karst forms when **rainwater picks up carbon dioxide as it falls through the atmosphere**, creating H₂CO₃, carbonic acid. The lightly acidic water seeps through the ground, moving through fractures and openings in the rock. The water dissolves calcite, a mineral in limestone, marble and dolostone, creating the characteristic sinkholes, caves and streamways.
- A sinkhole has **no natural external surface drainage**.

5.9.22. PANTANAL WETLAND

- Brazilian scientists warn that **Pantanal, freshwater wetland**, is at risk of collapse.
- Pantanal in **South America**, is one of the **world's largest tropical wetland**.
 - It spans over **179,000 sq. km in Brazil, Paraguay and Bolivia**.
 - It consists of highest concentrations of flora and fauna in South America.
 - In 2000, it was inscribed on **UNESCO's World Heritage List**.
 - **Threat-** Climate change, deforestation in Amazon rainforest and severe drought and massive fires.



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.



6. SOCIAL ISSUES

6.1. CHILD MALNUTRITION IN INDIA











Why in News?

According to a UNICEF report, India has world's highest number of children with severe acute malnutrition.

Key Findings of the report

- Globally, **1 in 5 deaths among children under the age of 5 is attributed to severe wasting** – also known as severe acute malnutrition.
- South Asia remains the hub of severe wasting**, with stats worse than sub-Saharan Africa.
- Wasting cases are **increasing in areas affected by conflict and climate shocks** and the ongoing economic fallout from the COVID-19 pandemic.
- Ready-to-Use Therapeutic Food (RUTF) can save children with severe wasting.**
 - The total cost to treat a child with RUTF is about US\$100.
- UNICEF estimates that **US\$725 million per year is needed to deliver the core package of interventions needed to treat severe wasting** in 22 Global Action Plan countries.
 - Global Action Plan aims to achieve the **SDG targets on child wasting** (reducing proportion of children suffering from wasting to <5% by 2025 and <3% by 2030).

DEFINITIONS

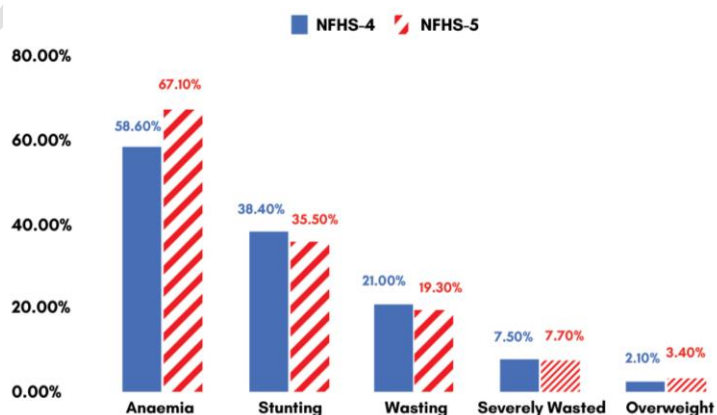
<p>UNDERNUTRITION</p> <p>When children don't eat or absorb enough nutrients to grow</p> 	<p>STUNTING</p> <p>A form of undernutrition when populations of children are too short for their age</p> 	<p>WASTING</p> <p>An extreme form of undernutrition when a child is too thin for his or her height</p> 
<p>HIDDEN HUNGER</p> <p>When children don't get enough essential vitamins and minerals</p> 	<p>WASTING</p> <p>An extreme form of undernutrition when a child is too thin for his or her height</p> 	<p>FOOD DESERT</p> <p>As area or neighbourhood where there are few or no healthy food choices</p> 
<p>OVERWEIGHT</p> <p>When a child's weight is too high for his or her height</p> 	<p>FOOD SYSTEMS</p> <p>All the elements and activities involved in the production, processing, distribution, preparation and consumption of food</p> 	<p>FOOD SWAMP</p> <p>As area or neighbourhood where there are few or no healthy food choices</p> 
<p>OBESITY</p> <p>The most severe form of overweight</p> 		

About Child Malnutrition

- Child malnutrition may be defined as a **pathological state resulting from inadequate nutrition**, including
 - Undernutrition** (protein-energy malnutrition) due to insufficient intake of energy and other nutrients.
 - There are several sub-forms of undernutrition: **wasting** (Low weight-for-height), **stunting** (Low height-for-age), **underweight** (low weight-for-age).
 - Overnutrition** (overweight and obesity) due to excessive consumption of energy and other nutrients.
 - Hidden hunger** i.e. Deficiencies of essential vitamins and minerals – often referred to as micronutrients.
- Malnutrition is not a condition affecting only the poor, it **cuts across all social-economic groups across India.**
- In Global Hunger Index (2021)** – which is calculated based on total undernourishment of the population, child stunting, wasting and child mortality – **India ranks 101st out of the 116 countries.**

Nutritional status of children under - 5 years of age

NFHS - 4 and NFHS - 5: Nutritional Status of children under - 5 years of age



Major factors that contribute to malnutrition

- Poor access to food** – particularly healthy food – contributes to both undernutrition and overnutrition and increases the risk of low birthweight, childhood stunting and overweight or obesity.
- Feeding Habits:** Lack of awareness of nutritional qualities of food, irrational beliefs about food, inappropriate child rearing and feeding habits all lead to under nutrition in the family.

- **Poverty:** Because of low purchasing power, poor cannot afford to buy desired amount and desired quality of food for the family. This starts a vicious cycle of poverty, under nutrition, diminished work capacity, low earning, and poverty.
- **Infections:** Infections like malaria and measles or recurrent attacks of diarrhoea may precipitate acute malnutrition and aggravate the existing nutritional deficit.
- **Anaemic mothers:** since undernourished mothers give birth to undernourished babies, experts say the worsening rate of malnutrition could be a result of women struggling to access nutrition benefits.
- **Socio-cultural factors:**
 - **Inequitable distribution of food in the family:** In most of the poor households, women and preschool children especially girls receive less food than the economically active male members.
 - **Large families:** Rapid succession of pregnancies adversely affects the nutritional status of the mother. Under nutrition may lead to low-birth-weight baby. In large families per capita availability of food is also less.
 - **Poor quality of housing, sanitation, and water supply.** These contribute to ill health and infections thus Contributing to malnutrition.
- **Migration:** Many families migrate to cities to eke out a better living. But that also means being left out of massive government schemes that are mostly delivered at local level.

Impacts of Child Malnutrition

- It increases a child's chance of dying and increases their susceptibility to childhood infections, such as pneumonia, diarrhoea, and malaria.
- **Undernutrition reduces economic advancement** due to losses in productivity, poorer cognition, and poorer educational outcomes. Iron deficiency reduces children's ability to learn.
- **Stunting causes irreversible physical and mental damage for children.** It negatively affects school attendance and performance.
- **Child overweight can lead to early onset of type-2 diabetes, stigmatization, and depression,** and is a strong predictor of adult obesity, with serious health and economic consequences.
- India loses up to **4% of its gross domestic product and 8% of its productivity** due to child malnutrition.

Way forward

- **Social and behavior change initiatives,** such as community-level counselling, dialogue, media engagement and advocacy, especially in marginalized communities, is integral to promoting usage of locally available, nutrient-dense affordable foods for young children.
- **Better Food Systems:** Improving children's nutrition requires food systems to deliver nutritious, safe, affordable, and sustainable diets for all children.
- **Diversifying food production:** by moving away from mono cropping of major cereals to a system that integrates a variety of food items including small millets, pulses, fruits, and vegetables.
- **Improving schemes delivery:** There is an urgent need to invest in the infrastructure of ICDS and the Anganwadi centers as well as improving their coverage.
- **Fortification of complementary foods** and staple foods with micronutrients can be a cost-effective intervention to combat hidden hunger in children.
- **Better policy environment:** Governments need to promote healthy food environments in schools, including healthy meals and limiting the sale and advertising of 'junk food' in proximity to schools and playgrounds.
 - It is also important to strengthen inter-departmental convergence and resource allocation based on real-time data.
- **Improving maternal and childcare-** Improving the primary health centres and other health care services in the rural areas will improve the nutrition profile of women and children.

Initiatives taken by Government

- **Integrated Child Development Scheme and the Anganwadi system** — to provide supplementary nutrition and ration to pregnant and lactating women, run mid-day meal scheme in schools and maternity benefit programme.
- **The National Food Security Act 2013** assures food and nutrition security to the vulnerable and that access to food is a legal right.
- **National Nutrition Strategy (NITI Aayog)** aims to reduce all forms of malnutrition by 2030, with a focus on the most vulnerable and critical age groups.
- **POSHAN Abhiyaan** to achieve improvement in nutritional status of Adolescent Girls, Pregnant Women and Lactating Mothers in a time bound manner.
- **Mission POSHAN 2.0** seeks to address the challenges of malnutrition in children, adolescent girls, pregnant women, and lactating mothers.

- It brings 3 important programmes/schemes under its ambit, viz., Anganwadi Services, Scheme for Adolescent Girls, and Poshan Abhiyaan.
- **Mission Vatsalya** to secure a healthy and happy childhood for every child in India; foster a sensitive, supportive and synchronized ecosystem for development of children.
- **Pradhan Mantri Matru Vandana Yojana (PMMVY)** under which maternity benefit is being provided in three installments to Pregnant Women & Lactating Mothers.

6.2. NATIONAL ACHIEVEMENT SURVEY (NAS) 2021

Why in News?

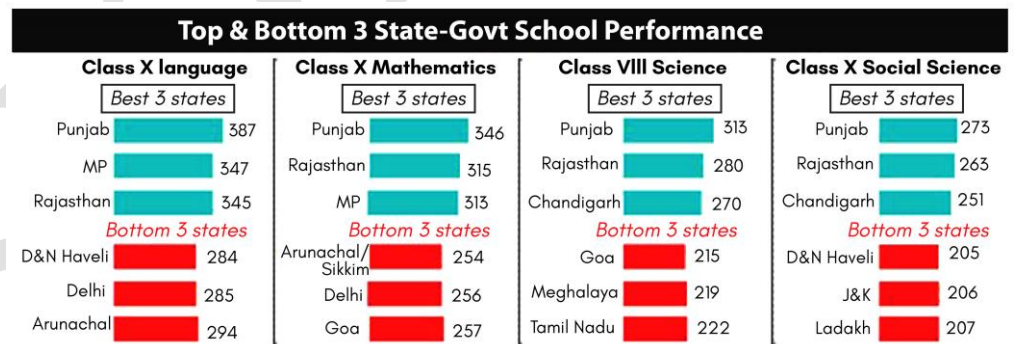
Department of School Education and Literacy, Ministry of Education released the National Achievement Survey (NAS) 2021 report.

About National Achievement Survey (NAS)

- It assesses the health of school education system in the country by conducting comprehensive evaluation survey of children's learning competencies at classes III, V, VIII and X with a cycle period of three years.
 - NAS provide system-level feedback by administering standardized survey to students and collecting information on relevant background variables such as school environment, teaching processes, and student home and background factors.
 - ✓ **NAS is not a school-based examination.**
 - NAS does not provide individual school or student scores. It provides a summary of performance at the District, State, and National levels, with the district as the unit for reporting.
 - The last NAS was held in 2017.

About NAS 2021

- It covered **Government Schools** (Central Government and State Government); **Government Aided Schools**; and **Private Unaided Schools**.
 - Only the schools selected in sample can participate.
- **Subjects covered are Language, Mathematics & EVS for class 3 & 5; Language, Mathematics, Science & Social Science for class 8 and Language, Mathematics, Science, Social Science and English for class 10.**
- **CBSE was the conducting organisation and NCERT designed its framework and tools.**







Key findings



Overall	<ul style="list-style-type: none"> ● Learning levels of school students in almost all subjects, including Mathematics and Language, dropped as they progressed to higher classes.
State-wise	<ul style="list-style-type: none"> ● State-wise government schools in Punjab, Rajasthan and Madhya Pradesh have performed better, scoring significantly higher than the national score. ● The states which performed poorly here are Delhi, Arunachal Pradesh, Telangana, and Chhattisgarh.
Gender-wise	<ul style="list-style-type: none"> ● Number of states and UTs in which performance of girls was better than boys increased significantly this year in comparison with the 2017 survey.
Rural/Urban	<ul style="list-style-type: none"> ● Average performance of schools in rural areas remained "significantly below" those urban areas in same states and UTs.
Category-wise	<ul style="list-style-type: none"> ● Performance of students from the schedule caste (SC)/ schedule tribe (ST)/ Other Backward Classes (OBC) categories remained lower than that of students from the general category.

Others	<ul style="list-style-type: none"> • 78% students find learning at home during pandemic burdensome with 24% lacking access to digital devices at home. • 18% Children’s mother cannot read or write. • 7% Schools are facing teacher’s absenteeism.
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SIGNIFICANCE OF NAS

 <p>EVALUATE PROGRESS</p> <p>To evaluate children's progress and learning competencies as an indicator of the efficiency of the education system, so as to take appropriate steps for remedial actions at district, state and National level.</p>	 <p>BETTER PLANNING</p> <p>It will help to unravel the gaps in learning and will support governments in developing long term, mid-term and short-term interventions to improve learning levels based on NAS data.</p>	 <p>IMPROVING TEACHING STANDARDS</p> <p>Through its diagnostic report cards, NAS findings help in capacity building for teachers, officials involved in the delivery of education.</p>	 <p>RESEARCH AND DEVELOPMENT (R&D)</p> <p>NAS would be a rich repository of evidences and data points furthering the scope of R&D.</p>
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To know more about **School Education**, please refer to our following Weekly Focus Document.

 <p>School Education: Mind is a Tabula Rasa</p>	<p>Foundational learning forms the basis of all future learning. Just as we would not build a house without solid foundations, we cannot expect a child to thrive without solid foundational skills. Yet today, most of these foundations of learning are not strong enough. This document analyses what India has achieved in terms of improving the quality and accessibility of school education and how NEP 2020 envisions to fill the gaps.</p>	
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6.3. MARITAL RAPE

Why in news?

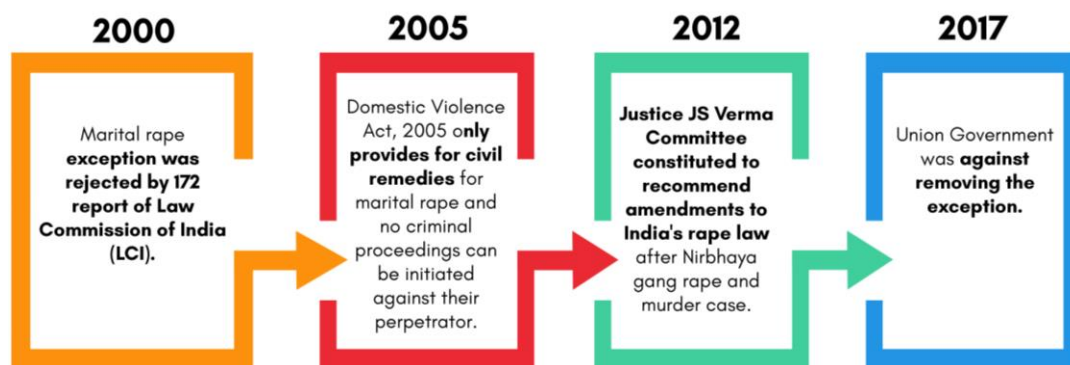
Recently, a two-judge Bench of the Delhi High Court delivered a split verdict in a batch of petitions **challenging the exception provided to marital rape in the Section 375 of Indian Penal Code (IPC).**

More on news

- **Section 375 of IPC defines rape** and lists several notions of consent that, if vitiated, would constitute the offence of rape by a man. However, the provision lays down **two exceptions.**
 - **Exception 2 of the Section 375 of IPC decriminalizes marital rape.** It says sexual intercourse between a man and his wife (not under 15) is not rape.

- **Medical procedures or interventions shall not constitute** rape.
- The petitions **challenging the exception 2 of Section 375 of the Indian Penal Code (IPC)** were filed by **NGO RIT Foundation**, All India Democratic Women’s Association (AIDWA) and a marital rape victim.
 - In 2015, the first petitions to criminalize marital rape were filed in Delhi HC.

Marital rape and its status in India



- Marital rape or spousal rape is the **act of sexual intercourse with one’s spouse without their consent.**
 - The act can be carried out by force or physical violence.
 - Although, it is now widely seen as a form of sexual violence, historically, sexual intercourse within marriage was regarded as a spouse’s right.
- In India, there are **no legal provisions that define “marital rape”.**
- **Status of marital rape in India:**
 - According to **National Family Health Survey (NFHS-5) 2019-2021**, nearly **1 in 3 Indian women age 18-49 have suffered some form of spousal abuse.**
 - **Percentage was higher in Karnataka**, followed by Bihar, West Bengal, and Assam.

Centre and Judicial stand on criminalisation of marital rape	
<p>Centre</p> <ul style="list-style-type: none"> ● In 2017, Union government has opposed the pleas submitting that marital rape cannot be made a criminal offence as it could become a phenomenon that “may destabilise the institution of marriage” and become a potential tool for harassing husbands. 	<p>Judiciary</p> <ul style="list-style-type: none"> ● Independent Thought vs Union of India (2017): Supreme Court increased the age limit from 15 to 18 years. This exception ensures that there will not be rape charges filed against a husband who has sexual relations with his wife who is over 18 years of age without her consent. ● Nimeshbhai Bharatbhai Desai vs State of Gujarat, 2017: A husband cannot violate his wife’s dignity by coercing her to engage in a sexual act without her full and free consent. ● In 2021, Kerala High Court observed that Marital rape is a good ground to claim divorce.

Arguments in favour of criminalizing Marital Rape

- **Violate fundamental rights:** Marital rape exception **violated right to autonomy and privacy under Article 21, Article 14** which guarantees the **equal protection of laws, right to non-discrimination** under Article 15(1).
- **Physical and Psychological effects:** Women goes through physical problems due to marital Rape that includes miscarriages, infections infertility and the chances of diseases like HIV, injuries to private organs, bruises, torn muscles etc.
 - Also, the psychological effects are shock, fear, stress, suicidal tendencies etc.
- **Women Safety:** A high percentage of sexual assaults are committed not by strangers, but by persons familiar to the survivor and especially by spouses and partners.
 - **As per NFHS-5 (2019-2021), 82% married women report their current husband** and 13 percent report former husband as perpetrator.
- **International commitments:** India is one of the only 36 countries where marital rape is still not criminalized. It **damages India’s global standing, as India is signatory to UN Committee on Elimination of Discrimination Against Women (CEDAW).**
- **Rape is rape:** In 2022, **Karnataka HC refused to quash rape charges** filed by a wife against her husband and said that Rape is rape, irrespective of the identity of the perpetrator, and age of the survivor.

- A woman who is raped by a stranger, lives with a memory of a horrible attack; a woman who is raped by her husband lives with her rapist.

Arguments against criminalizing Marital Rape

- **Misuse of law:** Criminalizing marital rape could be misused **to file false cases.**
 - For instance, in 2020, out of total registered 111,549 cases under 498A (relating to dowry), 5,520 were closed by Police citing as false.
- **Burden of proof:** Lack of evidence, like CCTV footage etc. to prove alleged marital rape and therefore, the burden of proof would be a difficult concept to apply in these cases.
- **Breakdown of marriage institution:** One of the main arguments to not criminalize marital rape is that it would lead to the breakdown of the institution of marriage with wives falsely accusing husbands.
- **Gender neutrality:** Rape definition is women centric and even if the exception of IPC section 375 is removed or criminal provisions are added to the Domestic Violence act, husbands will not be able to use those.
- **Right to Privacy:** The criminalization of marital rape would violate the privacy of marriage by allowing the State into the bedroom and by definition, sex within marriage can never amount to rape.

Way forward

- **Adequate law:** Women will be safe from abusive spouses, able to get the help they need to recover from marital rape, and protect themselves from domestic violence and sexual assault.
 - Further, the **Commission on Human Rights** suggested that marital rape should be criminalized.
- **JS Verma Committee recommendations:** In 2013, the Committee, which recommended a slew of legal changes to crimes of sexual assault against women, said that the exception to marital rape should be removed.
 - Also, UNCEDAW, and 172nd Law Commission Report have recommended marital rape’s criminalisation.
- **Ensuring justice:** A proper framework/law should be developed to provide speedy justice to victims of marital rape along with psychological assistance.
- **Awareness:** There is urgent need to create awareness in society and bringing attitudinal change among prosecutor, and police officer.

Marital rape around the world

- In 1922, **Soviet Union, now Russia** became the **first country to criminalise and removed “marital exemption”** from its rape laws in 1922.
- **Countries where offence punishable under law includes** UK, US, Canada, Australia, Sweden, Norway, Denmark, New Zealand, France, Germany, Ireland, Israel, Belgium, Luxembourg, Netherlands etc.
- **Countries where offence is not punishable includes** Ghana, India, Indonesia, Jordan, Lesotho, Nigeria, Oman, Singapore, Sri Lanka and Tanzania.

6.4. NEWS IN SHORTS

6.4.1. MINISTRY OF HEALTH AND FAMILY WELFARE (MOH&FW) RELEASES NATIONAL FAMILY HEALTH SURVEY-5 (NFHS) REPORT

- The main objective of successive rounds of the NFHS has been to **provide reliable and comparable data relating to health and family welfare** and other emerging areas in India.
 - NFHS is a **large-scale, multi-round survey** conducted in a representative sample of households throughout India.
 - Information provided on indicators are **helpful in tracking the progress of Sustainable Development Goals (SDGs)** in the country.
 - Scope of NFHS-5 is expanded by adding new dimensions such as **death registration, pre-school**

education, expanded domains of child immunization, menstrual hygiene etc.

Key findings of the survey

Indicator	NFHS-5 (2019-21)	NFHS-4 (2015-16)
<ul style="list-style-type: none"> • Total Fertility Rates (TFR) (an average number of children per women) <ul style="list-style-type: none"> ○ TFR of about 2.1 children per woman is called the replacement level of fertility, a crucial factor in population growth. 	2.0	2.2

• Contraceptive Prevalence Rate (CPR)	67%	54%
• Antenatal care (ANC) visits by pregnant women in their first trimester	70%	59%
• Unmet needs of family planning	9%	13%
• Full immunization in kids aged 12-23 months	76%	62%
• Sex ratio of the total population (females per 1,000 males) <ul style="list-style-type: none"> ○ This is the first time, in any NFHS or Census, that the sex ratio is skewed in favour of women. 	1,020	991
• Neonatal mortality rate <ul style="list-style-type: none"> ○ Number of deaths among all live births during the first 28 days of life expressed per 1000 live births. 	24.9	29.5
• Infant mortality rate (IMR) (per 1,000 live births) <ul style="list-style-type: none"> ○ Infant mortality is death of an infant before his or her first birthday and IMR is number of infant deaths for every 1,000 live births. 	35.2	40.7
• Under-five mortality rate (per 1,000 live births) <ul style="list-style-type: none"> ○ Probability of a child born in a specific year or period dying before reaching the age of five. 	41.9	49.7
• Women age 20-24 years married before age 18 years (%)	23.3%	26.8%
• Institutional births	89%	79%
• Children under 5 years who are stunted (height-for-age)	36%	38%

• Children under 5 years who are wasted (weight-for-height)	19%	21%
• Children under 5 years who are underweight (weight-for-age)	32.1%	35.8%

6.4.2. CENTRE RELEASES INDIA'S CIVIL REGISTRATION SYSTEM (CRS) REPORT FOR 2020

- Report provides an overview of the working of the CRS in the country and presents a compilation of data on **registered births, deaths, infant deaths and still births with rural-urban & sex-wise break-up and sex ratio at birth based on Civil Registration Records.**
 - Registration of birth and death is done under a central Act "**Registration of Birth and Death Act (RBD), 1969**".
 - ✓ With the enactment of the Act, registration of births, deaths and stillbirths has become **mandatory in India.**
 - ✓ Births and deaths are registered **only at the place of their occurrence.**
 - ✓ **Births and deaths are to be reported within 21 days of occurrence of the event.**
 - The **Registrar General, India (RGI) at the Central Government level** coordinates and unifies the activities of registration throughout the country. However, implementation of the statute is vested with the state governments.
- CRS presents a count of registered births and deaths, while **Sample Registration System (SRS)** provides an estimate of the total number births and deaths.
 - Registration of birth is a **right of every child and is the first step towards establishing her/his legal identity.**

Key findings

- Death registrations increased by **4.75 lakh** in the year **2020** as compared to **2019** with total registered deaths at **81.16 lakh.**
 - **11 states and UTs** registered more than 90% of all deaths.
- Registered **2.42 crores** births in **2020**, decreased from **2.48 crores** in **2019**, with **52% Male** and **48% Female.**
 - **Ladakh** recorded highest sex ratio at birth across India, followed by **Arunachal Pradesh** and Andaman and Nicobar.

6.4.3. GLOBAL REPORT ON ASSISTIVE TECHNOLOGY (GREAT)

The **World Health Organisation (WHO)** and **United Nations Children's Fund (UNICEF)** has jointly launched the first Global Report on Assistive Technology (GREAT).

More about report

- The GREAT report was **developed in response to the World Health Assembly resolution WHA71.8** on improving access to assistive technology adopted in May 2018.
 - WHO defines assistive technology is the **application of organized knowledge and skills related to assistive products, including systems and services**. Assistive technology is a **subset of health technology**.
 - An **assistive product includes** wheelchairs, power chairs, walkers, white canes, assistive listening devices, microphones, oxygen tanks, computers, smartphones, global position systems (GPS), etc.
- The Global Report **recognizes assistive technology and enabling environments** as a precondition for people in need to realize their human rights, and shares evidence-based best practice.
- **GREAT report aims to**
 - Present a **comprehensive dataset and analysis** of current global access to assistive technology using **Population-level data** to build national and global understanding of the need and **System-level data** to measure national system preparedness and strengthening access to assistive technology.
 - Support the implementation of the **UN Convention on the Rights of Persons with Disabilities**
 - Contribute towards **achieving Sustainable Development Goals (SDGs)**, especially in making **Universal Health Coverage (UHC)** inclusive, leaving no one behind.

Initiatives for development of assistive technology in India

- As per the Census 2011, the **differently abled population in India is 26.8 million**. In percentage terms, this stands at **2.21 %**.
- **Centre for Assistive Technology and Innovation (CATI)**: CATI was the first Assistive Technology Center (ATC) established in 2015 at the National Institute of Speech & Hearing (NISH), Kerala, India.
- **Artificial Limbs Manufacturing Corporation of India (ALIMCO)**:
 - It is a **Miniratna Category Central Public Sector Enterprises**, registered under Companies Act 2013, and functioning under **Ministry of Social Justice & Empowerment**.

- It is **100% owned Govt. of India Central Public Sector Enterprises** and started manufacturing artificial aids in **1976**.
- Its objective is to benefiting the persons with disability to the maximum extent possible by **manufacturing, promoting, encouraging and developing artificial limbs and Rehabilitation Aids for persons with disabilities**.

- **Seamless affordable assistive technology for health (SAATH)**: It is resource center by the National Trust and is a Joint venture between India (IIT Kanpur and IISc Bangalore) and Sweden (KTH Sweden and Gavle University working for assistive devices for PwD in India).

Schemes for promoting assistive technology in India

- **Scheme of Assistance to Disabled Persons for Purchase/Fitting of Aids and Appliances (ADIP Scheme)**
 - The ADIP Scheme initiated by the **Ministry of Social Justice and Empowerment** and is in **operation since 1981**.
 - Its aim is to **assist the needy disabled persons** in procuring durable, sophisticated and scientifically manufactured aids and appliances to reduce the effects of disabilities and enhance their economic potential.
 - The **aids and appliances supplied under the Scheme must have due certification**.
 - The scheme also **envisages conduct of corrective surgeries, wherever required**, before providing an assistive device.
- **Sugamya Bharat Abhiyan or Accessible India campaign**: It is a program launched in 2015 to serve the differently-abled people in India. The campaign aims at providing equal opportunities to persons with disabilities to participate in all the aspects of life and live independently with help of assistive devices.

6.4.4. GLOBAL REPORT ON FOOD CRISES (GRFC 2022)

- Sixth annual **Global Report on Food Crises (GRFC 2022)** is released by **Global Network Against Food Crises (GNAFC)**.
 - GNAFC was founded by the **European Union, FAO and World Food Programme (WFP)** at 2016 World Humanitarian Summit to **prevent, prepare for, and respond to food crises** and **support Sustainable Development Goal to End Hunger (SDG 2)**.
- **Key findings**
 - Close to **193 million people** were found **acutely food insecure in 2021** across **53 countries/territories**, an increase of 40 million people from previous year.
 - ✓ The United Nations defines "**acute food insecurity**" as when a **person's inability to consume adequate food** puts their lives or livelihoods in immediate danger.

- ✓ It is hunger that can lead to **famine and widespread death**.
- **Three main drivers** for food insecurity are **conflict, climate change and economic crises**.
- **Grim outlook for 2022** as acute food insecurity is expected to deteriorate further due to **war in Ukraine** and its impact on global food, energy and fertiliser prices and supplies.
- **Recommendation**
 - Need for **greater prioritisation of smallholder agriculture** as a frontline humanitarian response, to overcome access constraints.
 - Achieve food security and improved nutrition using a **3x3 approach**.

The 3x3 approach to addressing food crises



6.4.5. IFPRI RELEASED GLOBAL FOOD POLICY REPORT 2022 ON CLIMATE CHANGE AND FOOD SYSTEMS

- Report highlights a **range of evidence-based policies and innovations** that should be prioritized and implemented now to tackle adaptation and mitigation in our food systems.
- **Key findings of report**
 - By 2030, India's **food production could drop 16%** and the number of those at risk for hunger could **increase 23%**.
 - **Global food production will grow by about 60% over 2010 levels by 2050** in context of climate change.
 - Globally, about **70 million more people will be at risk from hunger**, including more than 28 million in East and Southern Africa.

- **Meat production** is projected to **double in South Asia and West and Central Africa by 2030** and **triple by 2050**.
- **Policy Recommendations**
 - **Investments in R&D for climate-resilient, resource-efficient, and sustainable innovations** in food systems.
 - **Holistic, inclusive governance and management** of water, land, forests, and energy resources.
 - **Promoting healthy diets and increased sustainability** of food production.
 - Improving **value chain efficiency, facilitating trade**, and reducing food loss.
 - Reorienting financial flows and attracting new finance.
 - **Social protection programs must guard poor rural populations**, which make their living from agriculture, against the worst effects of climate change.
- **International Food Policy Research Institute (IFPRI)**, a CGIAR research center established in 1975, **provides research-based policy solutions to sustainably reduce poverty and end hunger and malnutrition**.
 - CGIAR (Consultative Group on International Agricultural Research) is a **global partnership established in 1971 as a unified international organization engaged in research for a food-secured future**.

6.4.6. THE STATE OF INEQUALITY IN INDIA REPORT' RELEASED BY ECONOMIC ADVISORY COUNCIL TO THE PRIME MINISTER (EAC-PM)

- **Prepared by Institute for Competitiveness**, report gives a holistic analysis of **depth and nature of inequality** in India based on inequities in **health, education, household characteristics, income distribution and labour market dynamics**.
 - Inequality refers to **uneven distribution of resources and opportunities**, contributing to poverty and deprivation.
- **Based on data from various rounds** of Periodic Labour Force Survey (PLFS), National Family and Health Survey (NFHS) and UDISE+, **report found that:**
 - An Indian earning a **monthly wage of ₹25,000 is among top 10% of earners** in the country.
 - **Failure of trickle-down approach** as incomes of the **top 1% earners grew 15% during 2017-18 to 2019-2020** while that of the **bottom 10% declined 1%**.
 - Also, **top 1% accounts for 6-7% of total incomes earned** while **top 10% accounts for one-third of all incomes earned**.

- **Employment (2019-20):** Self-employed workers (45.78%), followed by regular salaried workers (33.5%) and casual workers (20.71%).
- **Health, Education and Household conditions recorded significant improvement** such as number of health centres, water and sanitation facilities at schools, safe drinking water and electricity at homes.
- ✓ Nutritional Deprivation still remains a major concern.
- **Recommendations:**
 - Encourage regular exercises like the **Foundational Learning and Numeracy Index and Ease of living Index** for stock taking and how to promote overall well-being.
 - **Equitable access** to education and creation of more jobs with long-term growth for upward mobility among poor.
 - Allocate **more percentage of the expenditure towards social services and social sector** to make the most vulnerable population resilient to sudden shocks and stop their descent into poverty.
 - Establish airtight slabs that **make class-based distinctions clearer** to trace movement within a class and in and out of the class.
 - **Raising minimum income** and introducing universal basic income can reduce Income Gap.
 - **Urban equivalent of schemes like MGNREGS** that are demand-based and offer guaranteed employment should be introduced.

6.4.7. MINISTRY OF HOUSING AND URBAN AFFAIRS (MOHUA) LAUNCHES SWACHH SURVEKSHAN (SS) 2023 UNDER SWACHH BHARAT MISSION URBAN (SBM-U) 2.0

- MoHUA has launched the **8th edition of SS survey 2023** with the **theme of 'Waste to Wealth'**.
 - It is aligned with SBMU 2.0's commitment to **promote circularity in waste management** and focuses on the **vision of 'garbage free' cities**.
- **About SS-2023**
 - SS, **introduced by MoHUA in 2016**, is the world's largest **annual survey of cleanliness, hygiene and sanitation in villages, cities and towns** across India.
 - Evaluation for **SS-23 is based on 3 components:**
 - ✓ **Service Level Progress** -covers Segregated collection, Processing, and disposal, Used water management, and Safaimitra Suraksha.
 - ✓ **Certification** - for Garbage Free City star rating and ODF/ODF+/ODF++/water + certification.

- ✓ **Citizens' voice** -through feedback, grievance redressal, engagement, etc.
- Additional weightage has been given to **source segregation of waste, enhancement of waste processing capacity of cities and reduction of waste going to dumpsites**.
- **Ranking of Wards within cities** is being promoted through SS 2023.
- Assessment of cities will be on dedicated indicators on issues of **'open urination' (Yellow Spots) and 'open spitting' (Red Spots)**, being faced by cities.
- SBM-U 2.0, launched in 2021, focus on **source segregation of solid waste, ensures grey and black water (used water) management** in all cities other than those covered under AMRUT.

Key objectives of Swachh Survekshan

Annual urban sanitation survey conducted by MoHUA through a 3rd Party Assessment Agency



6.4.8. NATIONAL CRECHE SCHEME (NCS)

- As per Ministry of Women and Child Development (MWCD), there has **been lack of fund for NCS**.
- **About the NCS**
 - MWCD is implementing the NCS to **provide day care facilities to children (age group of 6 months to 6 years) of working mothers**
 - It was previously known as the **Rajiv Gandhi National Creche Scheme** for the children of working mothers.
 - **Scheme provides an integrated package of the following services:**
 - ✓ Day-care Facilities including Sleeping Facilities.

- ✓ Supplementary Nutrition (to be locally sourced)
- ✓ Growth Monitoring
- ✓ Health Check-up and Immunization

6.4.9. GOVERNMENT TO ISSUE HEALTH IDS TO NEW-BORNS

- **National Health Authority** is developing a mechanism under which **parents can generate Ayushman Bharat Health Account (ABHA) numbers**, known as health IDs, for their new-borns and young children.
 - Currently, **only individuals above 18 years of age are entitled** to enrol for ABHA cards (under Ayushman Bharat Digital Mission).
- ABHA number will **enable parents to upload all personal health records from birth**, as well as all **healthcare benefits availed**, ranging from public health programmes to insurance schemes.
 - This will allow parents to **track their children's health records**.

6.4.10. SUPREME COURT (SC) RECOGNIZES SEX WORK AS PROFESSION

- SC has issued directions under **Article 142**(discretionary power to the SC to do complete justice in any cause or matter pending before it) to make conditions conducive for sex workers to **live with dignity as per Article 21**.
- **Directions from SC**
 - **No police interference or criminal action** against adult and consenting sex workers,
 - **No separation of child** from mother merely on the ground that she is in sex trade,
 - **Media should not publish their pictures or reveal their identity** while reporting rescue operations.
 - Centre and States must **involve sex workers or their representatives to reform laws**.
 - **UIDAI to provide Aadhaar cards to sex workers** even if they are unable to furnish residence proof.
 - ✓ It is issued by the **National AIDS Control Organization (NACO)** or the **State Health Department**.
- **Problems faced by sex workers:** They suffer violence, criminalisation and marginalisation, at a higher risk of contracting HIV, etc.
- **Legal Position of Sex Work in India:** Under IPC, Voluntary sex work or prostitution is not considered illegal but pimping, owning and running a brothel is unlawful under the **Immoral Traffic (Prevention) Act, 1956**.

Other Initiatives for sex worker

- Resettlement Scheme for Sex Workers
- **'Ujjawalla' scheme** for prevention, rescue, rehabilitation, reintegration, and repatriation of sex workers
- **National Network of Sex Workers (NNSW)**

6.4.11. END DISCRIMINATION, FRAME SPECIFIC POLICIES FOR LGBTIQ+ WORKERS: INTERNATIONAL LABOUR ORGANISATION (ILO) LEARNING GUIDE

- Highlighting **discrimination faced by LGBTIQ+ workers** and its economic cost, ILO called for a **national policy and labour law review to end harassment and exclusion** at workplace.
 - LGBTIQ+ is an acronym for **Lesbian, Gay, Bisexual, Transgender, Intersex and Queer**.
- **Key Findings**
 - Around the world, LGBTIQ+ persons **face harassment, violence, discrimination and unequal treatment** at work.
 - As of 2021, **only 29 countries legally recognized marriage equality**, while 34 provided some same-sex partnership recognition.
 - As of 2020, 81 UN Member States have provided **protection against discrimination based on sexual orientation in employment**. However, LGBTIQ+ still suffers from **lack of social security, social exclusion etc.**
- **Suggestions**
 - **Measuring LGBTIQ+ inclusion** to disclose whether measures and policies being put into place are effective.
 - ✓ **LGBTIQ+ inclusion Index by UNDP and World Bank is based on five dimensions:** Education, Health, Personal Security and Violence, Economic Well-Being, and Political & Civil Participation.
 - **Tripartite actions where**
 - ✓ **Government** can provide legal, policy and social framework for work free of discrimination.
 - ✓ **Employers** can ensure safe and welcoming workplace.
 - ✓ **Workers' organizations** can help LGBTIQ+ workers to organize and exercise their right to freedom of association and engage in collective bargaining.

Evolution of LGBTIQ+ rights in India

- **Naz Foundation vs Govt. Of NCT of Delhi:** HC held that Section 377 of IPC violated rights enshrined under Articles 14,15,19 and 21.

- **National Legal Services Authority v. Union of India:** Supreme Court (SC) created the 'third gender' status for transgenders.
- **Navtej Singh Johar V. Union of India:** SC ruled that Section 377 is unconstitutional.
- **Transgender Persons (Protection of Rights) Act, 2019:** Provide _____ for protection _____ of rights of transgender persons and their welfare.

6.4.12. PRIME MINISTER'S SPECIAL SCHOLARSHIP SCHEME (PMSSS)

- Centre extends PMSSS to Jammu and Kashmir and Ladakh students for another five years.
- It was introduced in 2011 to provide funding to 5,000 meritorious students each year to study in private and government educational institutions across country.
 - It is implemented by All India Council for Technical Education (AICTE).
 - It is aimed at promoting employment opportunities for students from J&K and Ladakh.

6.4.13. ADVANCED KNOWLEDGE AND RURAL TECHNOLOGY IMPLEMENTATION (AKRUTI) PROGRAMME

- AKRUTI promotes youth entrepreneurship in and around Kudankulam Nuclear Power Project (KKNPP).
- AKRUTI programme is offered by Bhabha Atomic Research Centre (BARC).
 - Aimed at encouraging village-level entrepreneurship based on BARC technologies.
 - BARC, under AKRUTI program, presently offers Technologies/ Consultancy in fields of Biodegradable Waste Processing, Water, Food, and Agriculture.
 - To create awareness regarding use of AKRUTI, several Knowledge and Rural Technology Implementation Kendras (KRUTIK) were opened in villages to impart regional-level training.



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7. SCIENCE AND TECHNOLOGY

7.1. GENETICALLY MODIFIED (GM) CROPS

Why in news?

Recently the Department of Biotechnology (DBT) issued **Guidelines for Safety Assessment of Genome Edited Plants, 2022** easing norms for research into genetically modified (GM) crops.

Guidelines for Safety Assessment of Genome Edited Plants, 2022

- Currently, in India, all activities related to Genetically Engineered organisms (GE organisms) or cells and hazardous microorganisms and products thereof are regulated under **Manufacture, Use, Import, Export and Storage of Hazardous Microorganisms/ Genetically Engineered Organisms or Cells, Rules, 1989**.
 - Guidelines is notified by the **Ministry of Environment, Forest and Climate Change under the Environment (Protection) Act, 1986**.
- DBT issued guidelines for the **development and sustainable use of genome editing technologies** in India, specifying the biosafety and/or environmental safety concerns, and describing the regulatory pathways to be adopted while undertaking the genome editing of plants.
 - Guidelines **exempt researchers who use gene-editing technology** to modify the genome of the plant **from seeking approvals from the Genetic Engineering Appraisal Committee (GEAC)**.
 - As per guidelines, **all requirements that researchers must adhere to develop transgenic seeds will apply to gene-edited seeds** except clauses that require permission from the GEAC.
- Guidelines are significant in providing **road map for the sustainable use of genome editing** for product development and accelerate **genetic improvement of crops** through public and private sector research institutions.

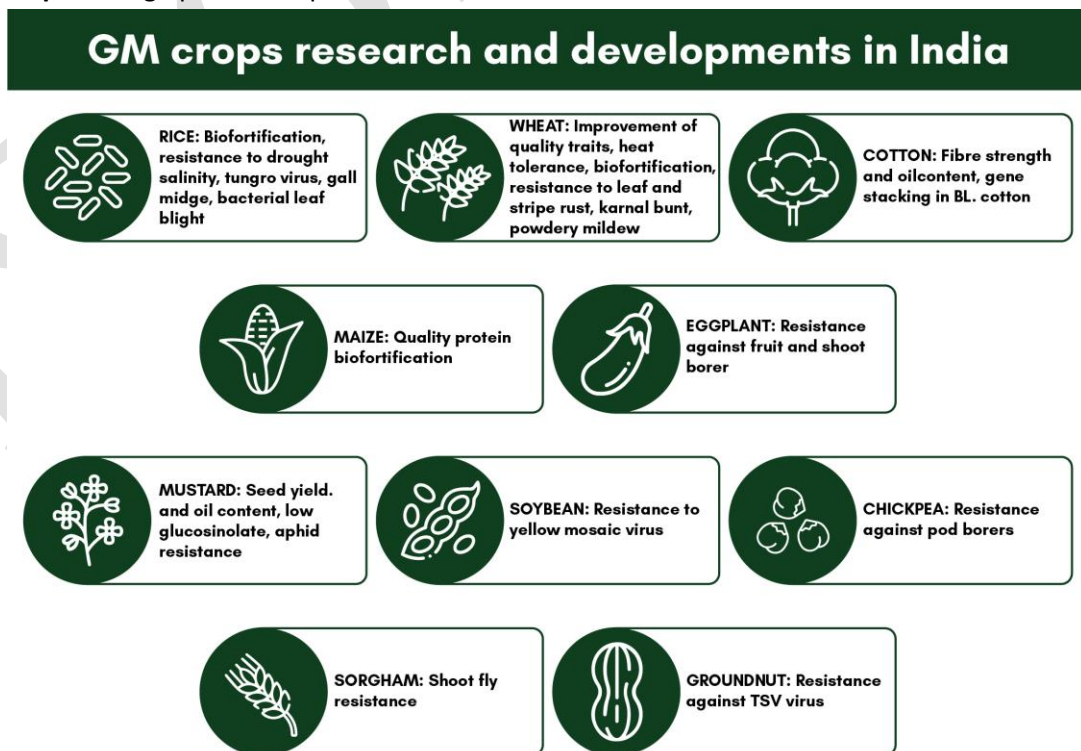
Various applicable Laws, Acts, and Procedures governing genome editing in India

- Biological Diversity Act, 2006
- Drugs and Cosmetic Act 1947
- Seed Act, 1968
- Protection of Plant Varieties and Farmers Rights (PPVFR), 2009
- Food Safety and Standards Act, 2006
- Disaster Management Act, 2005

- Also, guidelines are expected to **bring transformational change** in product development and commercialisation and would contribute towards **increasing farmer's income**.

GM crops and technology

- GM technology involves **direct manipulation of DNA of many organisms**, including plants, bacteria, and animals to alter the desired characteristics.
- In plants it involves introducing a gene from a different species or genus to **alter the desired characteristics**.



- There are several **approaches to genome editing** like Clustered regularly interspaced short palindromic repeats (CRISPR)- associated protein 9 (Cas9), Homing endonucleases or meganucleases and Site-Directed Nuclease etc.
 - **Non-Transgenic Gene Editing** uses of gene editing tools to directly tweak the plant's own genes and does not involve inserting any foreign DNA.
- Usually, in GM plants the cells are then **grown in tissue culture** where they develop into plants and seeds produced by these plants will **inherit the new DNA**.
- BT-cotton is GM crop where a gene from soil bacterium is used to protect a plant from pest attack. It is **only GM crop approved for commercial cultivation** in 2002 by the Government of India.
- Indian Council of Agricultural Research (**ICAR**) **promotes the science based innovative technology including research on GM crops**.
 - **Network Project on Functional Genomics and Genetic Modification in Crops** was launched by ICAR in 2005 for development of GM crops.
- In 2019-20 the area under Bt. Cotton in India was **117.47 lakh hectares, which is almost 94% total area under cotton cultivation** in India.

SDN: Site-Directed Nuclease technology

The goal of SDN technology is to take advantage of the targeted DNA break and the host's natural repair mechanisms to introduce specific small changes at the site of the DNA break.

- The change can either be a small deletion, a substitution or the addition of a number of nucleotides.
- Such targeted edits result in a new and desired characteristic, such as enhanced nutrient uptake or decreased production of allergens.

Three main SDN technologies currently in use include: Meganucleases, Zinc-Finger Nucleases (ZFNs) and Transcription Activator Like Effector Nucleases (TALENs).

SDN applications are divided into three techniques: SDN-1, SDN-2 and SDN-3

SDN-1: produces a double-stranded break in the genome of a plant **without the addition of foreign DNA**.

SDN-2 produces a double-stranded break, and while the break is repaired by the cell, a small nucleotide template is supplied that is complementary to the area of the break, which in turn, is used by the cell to repair the break.

SDN-3 also induces a double-stranded break in the DNA, but is accompanied by a template containing a gene or other sequence of genetic material. The cell's natural repair process then utilizes this template to repair the break; resulting in the introduction of the genetic material.

SDN-1 and SDN-2 do not use recombinant DNA, do not lead to the insertion of foreign DNA. As such, they do not produce new plant varieties that fall under the scope of the GMO legislation. In the case of SDN-3, the newly developed plant should fall under GMO legislation only if foreign DNA exceeding 20 bp is inserted.

Advantages of GM crops

- **Increase productivity and prevent crop loss:** GM crops are resistance to insect damage, tolerant to herbicides, resistance to plant viruses which help farmers prevent crop loss and increases the crop productivity.
- **Food security:** With increase in population demand of food also increasing, to address this GM crops help foods to become more accessible and affordable for consumers.
- **Enhanced nutritional quality:** Many varieties of GM food crops have been developed, to enhance nutritional quality. Eg. Golden rice is a transgenic variety in rice, which is rich in vitamin A.
- **Maintain soil fertility:** GM crops have increased efficiency of mineral usage that reduces excess use of fertilizers and prevents loss of fertility of soil.

Concerns of GM crops

- **Bio-safety of human and animal health:** Risk of toxicity, due to the nature of the product or the changes in the metabolism and the composition of the organisms resulting from gene transfer.
 - Newer proteins in transgenic crops from the organisms, which have not been consumed as foods, sometimes has the risk of these proteins becoming allergens.
- **Environmental concerns:** Since a GMO is artificially created, its breeding with the other crops in the natural ecosystem can result in genetic contamination.
 - GM technology could also allow the transfer of genes from one crop to another, creating super weeds which might be immune to common control methods.

- **Economic concerns:** Yields of GM crops have turned out to be false. For example, in India, with its Bt cotton experience, cotton yield has stagnated around 460 kgs per hectare in the recent past, despite most cotton being GM.
- **Ecological concerns:** GM crops could lead to erosion of biodiversity and pollute gene pools of endangered plant species.
 - Genetic erosion has occurred as the farmers have replaced the use of traditional varieties with monocultures.
- **Ethical concerns:** Unregulated use of GM technology in crop can lead to excessive corporate dominance and unnaturalness of the technology.

Way forward

- **Awareness and information:** Public awareness with reliable evidence-based information on GM crops such as keeping biosafety data out of the public domain needs to be increased to take informed decisions.
- **Government roadmap:** The government should come up with a fresh road map for ensuring food security without jeopardising the biodiversity and compromising with the safety of human health.
- **Capacity building:** There is need of capacity building in GM research agenda and development with science based consistent regulatory policy.
- **Robust clinical trials:** Clinical trials of GM crops need to be contingent on robust demonstration of safety and efficacy.
- Adherence to the principles of **Cartagena Protocol on Biosafety** which is an integral part of the Convention of Biological Diversity.

Various bodies on GM crop regulation

- **Recombinant DNA Advisory Committee (RDAC):** Monitors the developments in biotechnology at national and international levels.
- **Institutional Biosafety Committee (IBSC):** Approves low-risk experiments and ensures adherence to prescribed safety guidelines.
- **Review Committee on Genetic Manipulation (RCGM):** Reviews all ongoing projects involving high-risk and controlled field experiments.
- **Genetic Engineering Appraisal Committee (GEAC):** It functions under the MOEF&CC and is **responsible for approval of**
 - activities involving **large scale use of hazardous microorganisms and recombinants** in research and industrial production from environmental angle
 - proposals relating to **release of genetically engineered organisms and products into the environment** including experimental field trials.
 - The GEAC or any person/s authorised by it shall have powers to take **punitive action under the Environment (Protection) Act 1986.**
- **State Biotechnology Coordination Committee (SBCC):** Reviews the safety and control measures in various institutions handling GMOs. Acts as State level nodal agency to assess the damage, if any, due to release of GMOs and to take on-site control measures.
- **District Level Committee (DLC):** Acts as nodal agency at District level to inspect, investigates and reports to the SBCC or the GEAC about compliance or non-compliance of regulatory guidelines.

7.2. RICE FORTIFICATION

Why in news?

Recently, **Department of Food and Public Distribution has issued Standard Operating Procedure (SOP)** to maintain desired quality standards for implementation of 'Rice Fortification'.

More about news

- Standard Operating Procedure (SOP) for 'Rice Fortification' are issued to **address malnutrition, anaemia and micronutrient deficiencies**
- In order to maintain the desired quality standards of Fortified Rice Kernels (FRK) and Fortified Rice, the **SOP clearly narrates the level-wise**

Role of Food Safety and Standards Authority of India (FSSAI) in food fortification

- The FSSAI has been established under **Food Safety and Standards, 2006 and administered by Ministry of Health & Family Welfare.**
- It **lays down science-based standards** for food and to regulate their manufacture, storage, distribution, sale and import.
- FSSAI is playing a vital role in the food fortification programme.
 - FSSAI, **notified the standards for fortified food** including rice also via **Food Safety Standards (Fortification of Foods) Regulation, 2018 and Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011.**
 - FSSAI is also **mapping the National Accreditation Board for Testing and Calibration Laboratories (NABL)** accredited labs under the states which may test the various quality parameters.
 - **Food Fortification Resource Centre (FFRC)** a unit of FSSAI, functions as a resource hub for fortification provides assistance and monitor & evaluate the programme.
 - FSSAI has notified **'+F' logo to identify fortified foods.**

role & responsibilities of various stakeholders engaged from FRK manufacturing to its distribution to the eligible beneficiaries.

• **SOP in brief**

- Milled rice in which FRK will be blended should



comply with rice specification as per Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011.

- All fortified food shall be **packaged in a manner that takes into consideration the nature of the fortificant added and its effect on the shelf life** of such food.
- Every package of fortified food shall contain the words, **“Fortified with (name of the fortificant)”** and the **+F logo on its label**. It may also carry a tagline **“Sampoorna Poshan Swasth Jeevan”** under the logo.
- Every package of food, **fortified with Iron shall carry a statement, “People with Thalassemia may take under medical supervision.”**

About rice fortification

- Rice fortification is a process of adding micronutrients like **Iron, Folic Acid and Vitamin B12 to rice**.
 - Rice, when fortified, shall **contain mandatory micronutrients** (Iron, Folic Acid, and Vitamin B12), or **optional** (Zinc, Vitamin A, Thiamine, Riboflavin, Niacin, and Pyridoxine) as per levels given by **Food Safety and Standards (Fortification of Foods) Regulations, 2018**.
- According to the FSSAI norms, 1 kg **fortified rice shall contain iron (28mg-42.5mg), folic acid (75-125 microgram) and Vitamin B-12 (0.75-1.25 microgram)**.
 - In addition, rice may also be fortified with **micronutrients such as zinc, Vitamin A, Vitamin B1, Vitamin B2, Vitamin B3 and Vitamin B6**.
- **Various technologies** are available to add micronutrients to regular rice, such as **dusting, coating and extrusion**.
 - **Dusting:** It is a fortification technology that **adds micronutrients onto the surface of the rice grains** using electrostatic force.
 - ✓ This technology provides **limited nutrient protection** when rice is washed, soaked or cooked in excess water, which is then discarded.
 - **Coating and extrusion:** It is **two-step process**. First, coating or extrusion technology is used to **produce fortified kernels** and second the **fortified kernels are blended with non-fortified rice** at a ratio of 0.5% to 2%.

About food fortification

- **Fortification means deliberately increasing the content of essential micronutrients** in a food to improve the nutritional quality of food and to provide public health benefit with minimal risk to health.
- Food fortification is regulated under **Food Safety Standards (Fortification of Foods) Regulation, 2018** and **Fortified food means a food, as specified under the Food Safety and Standards (Food Products Standards and Food Additives) Regulations, 2011**, that has undergone the process of fortification as per the provisions of these regulations.
- In India, **wheat flour and rice are fortified with Iron, Vitamin B12 and Folic Acid, Milk and Edible Oil with Vitamins A and D and Double Fortified Salt with Iodine and Iron** to reduce the high burden of micronutrient malnutrition in India.
- **2030 Agenda for Sustainable Development aim to achieve a world free of hunger** and malnutrition in all its forms, hence food fortification could act as breakthrough for it.

Related information

- Govt has approved the supply of fortified rice in government-run food schemes **by 2024 in a phased manner with an aim to combat nutrition deficiency in all states and UTs**.
- Supply of fortified rice through Targeted Public Distribution System (TPDS) will be done **under National Food Security Act (NFSA), 2013, Integrated Child Development Services (ICDS), PM POSHAN, and other welfare schemes (OWS)**.
- **Entire cost** of rice fortification would be **borne by Centre**.
- **Three phases are envisaged for full implementation**
 - **Phase-I:** Covering ICDS and PM POSHAN in India all over by March, 2022 which is under implementation.
 - **Phase-II:** Phase I above plus TPDS and OWS in all Aspirational and High Burden Districts on stunting (total 291 districts) by March 2023.
 - **Phase-III:** Phase II above plus covering the remaining districts of the country by March 2024.

- In India, **rice is fortified using extrusion technology** in which **milled rice is pulverized and mixed with a premix** containing vitamins and minerals.
 - **Fortified rice kernels (FRK) are produced** from this mixture using an extruder machine.
 - FRK is **added to traditional rice in ratio ranging from 1:50 to 1: 200** resulting in fortified rice nearly identical to traditional rice in aroma, taste, and texture.

Benefit of rice fortification

- It helps in **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**.
- Fortified rice helps in **preventing cretinism, goiter, thyrotoxicosis, brain damage**.
- It **improves foetal and neonatal health** and is helpful in **pregnancy for growth of the baby**.
- According to the Food Ministry every third child is stunted due to lack of access to food. **Rice is one of India's staple foods and access to safe and nutritious food** through fortified rice helps to attain free from hunger.

Concerns with Rice fortification

- **Lead to excess iron:** As per recent report, **ASHA-Kisan Swaraj and Right To Food Campaign (Jharkhand)**, People with **Thalassemia, Sickle-cell anaemia and Malaria**, with high incidence in tribal regions, live in conditions of **excess iron** in the body, while **TB patients are unable to absorb iron**.
 - Consumption of iron-fortified foods by them can lead to **reduced immunity and dysfunctionality of organs**.
 - Jharkhand is an **endemic zone of sickle cell disorder and thalassemia**, with a prevalence of **8%-10%**, which is twice national average.
- **Adulteration:** It is found that 'plastic-rice' has been mixed with normal rice in the name of fortification, which caused abdominal discomfort, gastritis, diarrhoea and nausea to consumers.
- **Improper labelling:** It is found serious lacunas and flaws of fortified food without proper labelling and warning about its adverse impact on people with sickle-cell anaemia and Thalassemia.

Way forward

- **Dietary diversity:** Dietary diversity including fruits, green leafy vegetables are options and more cost-effective way to fight nutritional deficiency than fortification.
- **Complementary strategy:** Food and rice fortification should thus be viewed as a complementary strategy for improving micronutrient status of the population along with natural conventional food products.
- **Targeted fortification:** The rice fortification must be chosen carefully, as well as target the population at risk of inadequacy without creating excessive intake for other subgroups of the population.
- **Information and monitoring:** Fortification of rice must be applied thoughtfully, its effects monitored diligently, and the public informed effectively about its role in dietary intake through appropriate labelling and consumer education.





7.3. FIFTH GENERATION (5G)

Why in news?

Recently, the Prime Minister of India inaugurated the country's first 5G testbed.

More about news

- The 5G testbed has been developed as a **multi-institute collaborative project** by eight institutes led by IIT Madras.
- The other institutes are **IIT Delhi, IIT Hyderabad, IIT Bombay, IIT Kanpur, IISc Bangalore, Society for Applied Microwave Electronics Engineering & Research (SAMEER) and Centre of Excellence in Wireless Technology (CEWIT)**.
- It is **Country's first 5G testbed** to enable startups and industry players to test and validate their products locally and **reduce dependence on foreign facilities**.

3G vs 4G vs 5G vs 6G					
		3G	4G	5G	6G
	Deployment	2004-06	2006-10	2020	2028-2030
	Bandwidth	2 mbps	200 mbps	>1 gbps	1 tbps
	Latency	100-150 millisecond	20-30 millisecond	<10 millisecond	<1 microsecond
	Average Speed	144 kbps	25 mbps	200-400 mbps	About 50 times faster than 5G

- India is also **targeting the rollout of a 6G telecom network to provide ultra-high-speed internet** connectivity, by the end of the decade.

About 5G technologies

- 5G (the fifth generation of cellular networks) is designed to improve network connections by **addressing the legacy issues of speed, latency and utility**, which the earlier/ current generation of mobile networks could not address.
- **5G operates at higher frequencies** to offer a new kind of network that is **designed to connect virtually everyone and everything together** including machines, objects, and devices.
- It will also have an **enhanced throughput to handle more simultaneous connections** at a time than current-generation networks.

Role of 5G technology in growth of India

- **Economic growth:** It is estimated that the 5G network rollout will add \$450 billion to the Indian economy.
- **High speed:** 5G will increase internet speed about 10Gbps and encourage healthy competition with having the cheap telecom data charges.
- **Creation of job:** 5G will help to boost growth in agriculture, health, education, infrastructure, and logistics and creating jobs.
- **Ease of doing:** 5G will advance the pace of development and will bring positive change in the governance of the country, ease of living, and ease of doing business.
- **Self-reliance:** 5G testbed is an important step for self-reliance in the direction of critical and modern technologies. In the absence of it, startups and other industry players were required to go abroad to test and validate their products for installation in a 5G network.

Challenges in the implementation of 5G

- **Low fiberisation footprint:** At present only 30% of India's telecom towers are connected by fibre connection, which is low for efficient 5G operation.
- **Hardware challenge:** Presently Indian communications service providers (CSP) are mostly dependent on foreign telecom original equipment manufacturer (OEM) which hinders the development process.
- **High spectrum pricing:** India's 5G spectrum pricing is almost 7 times higher than the UK, and several times costlier than the global average, which may lead to cash-strap Indian telcos.
- **Tussle between the homegrown and global standard:** The tussle between the homegrown 5Gi standard and the global 3GPP standard is inevitable.
 - Because 5Gi is indigenous and brings obvious benefits, but it also **increases 5G India launch costs and interoperability issues for telcos.**
- **Differences in 5G bands:** 5G works in 3 spectrums of low, mid and high frequency bands, each one has its own advantages and limitations.
 - While the low band offers great coverage, its speed is limited to 100 Mbps. The mid-band offers greater speed, but not a great coverage area and signal penetration. High band offers exceptional speeds up to 20 Gbps but is extremely limited in coverage.
- **Challenge to net neutrality:** The debut of 5G networks is expected to pose a challenge to India's net neutrality rules due to network slicing by telecom operators.
 - **Slicing effectively means giving preferential or differential treatment** to a select set of customers in terms of cost or speed.

Net neutrality

- Net neutrality is the **concept of an open, equal internet for everyone**, regardless of device, application or platform used and content consumed.

Other Steps taken by Government to boost 5G tech in India

- **Cellular Operators Association of India (COAI) has formed the 5G India Forum (5GIF)** that is expected to serve as a national initiative where all stakeholders, private and public, small and large, can meet and discuss the challenges of making 5G a reality in India.
- **National Digital Communication Policy-2018 (NDCP-2018)** lays out the objectives with respect to 5G services in India.
- **Enhancing the backhaul capacity** to support the development of next generation networks.

Way forward

- **Doubling of fibre connectivity:** India needs to double fibre connectivity from 30% for an efficient 5G launch and adoption.
- **Make in India:** India needs to encourage and boost local 5G hardware manufacturing at an unprecedented rate if it needs to realize the 5G India dream and reduce foreign dependence.
- **Rationalization of prices:** It is needed so that the 5G in India may become competitive globally and government generates adequate revenue without hampering implementation plans for 5G in India.
- **Balanced allocation of bands:** Balanced allocation of low, mid and high frequency bands is needed to enhance futuristic 5G technology applications like IoT and smart technology.

To know more about 5G, please refer to our following Weekly Focus Document.

 <p>5G Technology Challenges and Opportunities</p>	<p>5G Technology is one of the lynchpins in the emerging parlance of 4th Industrial Revolution as it drastically alters economy and the life around us. The omnipresence of this technology also brings in a geopolitical dimension to this debate. The multi-dimensional impact of this technology necessitates adoption of a progressive, open but cautious approach for a country like India given the developments in relation to China and United States.</p>	
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7.4. HYPERLOOP SYSTEM

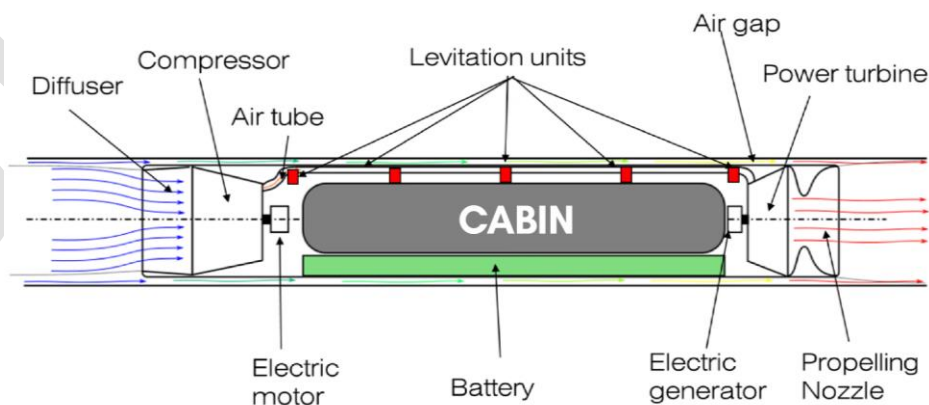
Why in news?

Indian railways is collaborating with IIT Madras for the development of 'indigenous' Hyperloop system.

More about news

- Team named '**Avishkar Hyperloop**', formed by IIT Madras has been applying scalability as well as frugal engineering concepts for the development of Hyperloop-based system for transportation.
- IIT Madras sought support from **Indian Railways for manufacturing assistance, safety regulations' formulation, access to its electrical testing facilities and funding support.**
 - IIT Madras has also proposed to set up a '**Centre of Excellence for Hyperloop Technologies**'.
- The developed prototype would offer the **largest Hyperloop Vacuum Tube in the world** that can be utilized as Test Bed for further research on Hyperloop by the national transporter.
 - Also, tube will be at par with USA's Virgin Hyperloop facility in terms of functionality but will **outperform it in terms of cost significantly.**
- Project will reduce requirement of energy and **make India carbon neutral** and makes hyperloop an attractive proposition for the national transporter.

WORKING OF HYPERLOOP SYSTEM

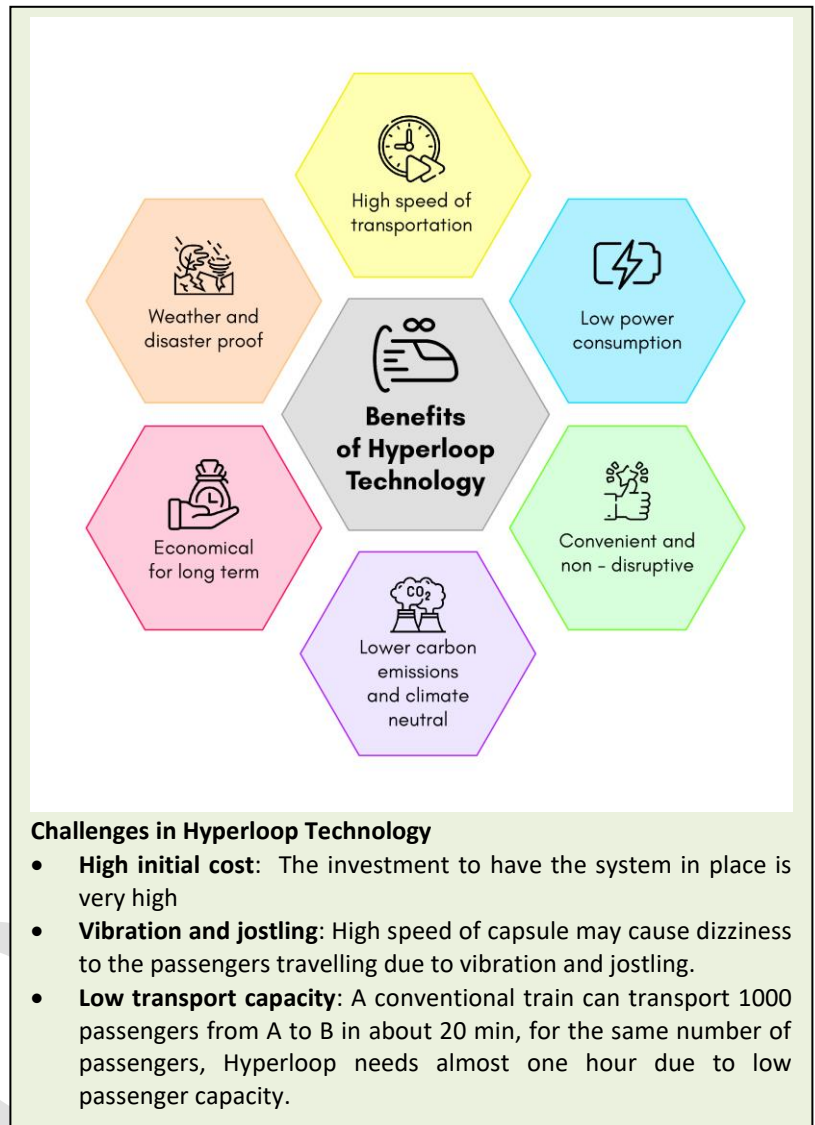


About hyperloop system

- The Hyperloop is a **fifth mode of transportation** other than road, rail, water and air.
- It works on a technology that utilizes **magnetic levitation in low-pressure tubes** to transport both, goods and people at airplane-like speed **up to 750 miles per hour**.
- The working principle of **hyperloop technology is built on the idea of the vacuum train** to create a much more advanced and feasible model.
 - It consists **enclosed chambers called pods** for carrying travellers or freight through tubes or tunnels from which most of the **air has been removed, but not complete vacuum to reduce friction**.
 - Hyperloop uses **electric propulsion** to move pods through the tube.
 - **Low-pressure tubes reduce aerodynamic drag** and **magnetic levitation (maglev) keeps each pod hovering above the track** while pods are in transit.

Conclusion

There are several barriers to a hyperloop revolution across the globe, and a variety of political and economic concerns, among others, need to be addressed in development of system. But still, commercial hyperloop transport systems will surely become a reality and may even become as widespread as cars, trains and planes.



7.5. LITHIUM-ION BATTERY

Why in news?

Recently Union Government has constituted an expert panel to probe the recent series of battery explosions in electric vehicles (EVs).

More about news

- To **reduce the dependence on carbon-rich petrol and diesel**, more and more countries and companies are harnessing the power of electric vehicles
- But there were **incidents of battery explosion**, which led to death of an 80-year-old in Telangana and 60-year-old in Gurgaon, and some EV manufacturers have **recalled some batches of electric scooters** after fire incidents.
- Though EV **primarily uses Lithium-ion batteries**, so it is **necessary to investigate snags and problems** associated with fire of Lithium-ion batteries.

About Lithium-Ion batteries

- A lithium-ion battery is a family of **rechargeable battery types** and consists four components in a lithium-ion cell: **anode, cathode, separator, and the aqueous electrolyte**.

- The **anode is graphite, the cathode is an oxide (LiCoO₂)**, and the alternating layers of anode and cathode are separated by a **porous polymer separator**, which is generally made of polypropylene (PP), polyethylene (PE), or a laminate of PP and PE
- The **electrolyte consists of an organic solvent and dissolved lithium salt**, it provides the media for Li ion transport.
- In Lithium-ion batteries **cells are constructed by stacking alternating layers of electrodes and separator** of porous membrane is used to separate the anode and the cathode in a lithium-ion battery.
 - This **separator allows flow of ionic charge carriers but prevents electrical contact** between the electrodes
- In lithium-ion batteries, the **charging ions move from cathode to anode via the electrolyte, and the electrons move from anode to the cathode**. In the process, Lithium becomes the Lithium ions (Li⁺) charge.

Advantages of lithium-ion battery

- **High specific charge density:** Lithium-ion batteries have a huge specific charge density. The specific charge density is the parameter for detecting the amount of charge a battery can supply, at a particular time period.
- **High voltage:** Lithium-ion battery is the huge voltage battery and a single lithium-ion battery provides 3 to 3.5 volts, which is 3 times higher than Nickel Cadmium (Ni-Cd) batteries and huge enough to be used for various purposes.
- **High energy density:** It is light weight and has high energy density i.e., stores more energy per unit of weight. As it is able to store 150 watt-hours electricity per kg of battery.
- **Low self-discharge:** Self-discharge is less than half that of nickel-based batteries, hence can be used even after batteries are non-operational for some period of time.
- **Applicability:** Due to high-power densities, lithium-ion batteries are used in everyday electronic products such as semi-conductors, laptops, smartphones, and electric vehicles.

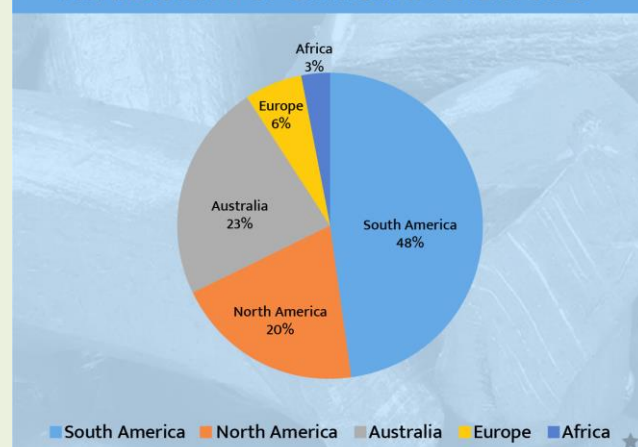
Disadvantages and concerns of Lithium-ion batteries

- **Thermal runaway:** It occurs due to melting of the electrolyte, high operational temperature, poor quality of the battery cells and battery pack assemblies, and lack of active cells assemblies, which leads to catching fire.
- **Less stability:** More the energy density less the stability of the batteries, hence due to high energy density of Lithium-ion batteries their stability is less.
- **High reactivity:** Lithium metal is extremely reactive and dendrites grow out from the electrode and can potentially pierce through the separator and on to the other end, short-circuiting the cell.

About Lithium

- Lithium is currently **produced from hard rock or brine mines**.
- **Australia is the world's biggest supplier**, with production of Lithium from hard rock mines, while Argentina, Chile and China are producing it from salt lakes.
- But global production and demand has so far not fulfilled due **supply shortage of the metal**.

AVAILABILITY OF LITHIUM IN THE WORLD



Lithium in India

- In India first traces of Lithium ever to be discovered in the ancient **igneous rock of Karnataka's Mandya district**.
 - Recent survey also **estimated Lithium reserves of 14,100 tonnes** there.
- Currently **India imports all its lithium needs**, with **China and Hong Kong biggest suppliers**.

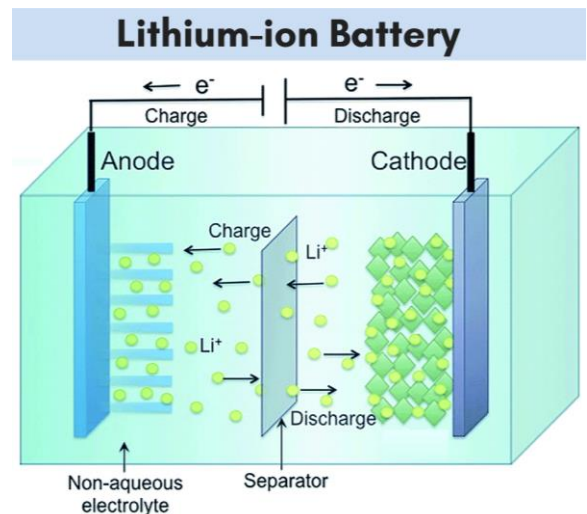
Steps taken for Lithium-ion batteries in India

- **National Mission on Transformative Mobility:** The Government initiated the National Mission on Transformative Mobility in 2019 to encourage domestic Lithium-Ion Cell manufacturing and EV components.
- **ISRO and BHEL agreement:** The Indian Space Research Organisation (ISRO) has signed technology transfer agreement with Bharat Heavy Electricals Limited to develop low-cost lithium-ion batteries.
- **Lithium triangle nations:** India is focusing on 'Lithium Triangle' nations **Argentina, Bolivia and Chile** for joint manufacturing and facilitating the process of acquiring Lithium.

- **Unavailability of lithium:** Battery-grade lithium is less available in India and the country is dependent on import of Li-ion battery cells from China, South Korea, or western Europe.
- **Fragility:** Li-ion is fragile and it needs a protective circuit to keep it running safely, which regulates the peak voltage of each cell during charge and falling too low during discharge.

Way forward

- **Battery thermal management (BMS):** Strong and smart BMS monitors the temperature of the entire battery pack and each cell closely and active cooling system is triggered when temperature reach the maximum levels.
- **Avoid overcharging:** A battery can instigate formation of dendrites which can hinder battery longevity and cause short circuit. Hence overcharging to be avoided.
- **Store and charge in specified temperature:** Follow manufacturer specifications to store and charge batteries. Generally, it is safe to charge between 32° and 113° F and discharge between -40° and 131° F.



Comparison of Lithium-ion battery with other battery types

Nickel-cadmium battery	Solid-state battery	Zinc-air battery
<p>NICKEL CADMIUM BATTERY</p> <p>Shows direction of flow of electrons</p>	<p>SOLID-STATE BATTERY</p>	<p>ZINC-AIR BATTERY</p>
<ul style="list-style-type: none"> • Nickel-cadmium batteries are prone to memory effect that accumulates crystal from cell that can cause a battery to lose electrical storage area, while Lithium-ion batteries are not. • Nickel-cadmium batteries can be stored or used for up to 5 years. Lithium-ion batteries can last for anywhere between 2 and 3 years. • Energy density of lithium-ion cells is nearly four times higher than that of nickel-cadmium batteries. • Nickel-cadmium batteries can offer more than 1,000 charge and discharge cycles, while Lithium-ion batteries offers between 300 and 500 charge and discharge cycles. • Nickel-cadmium batteries have a higher rate of self-discharge than 	<ul style="list-style-type: none"> • Solid-state lithium-metal battery replaces the polymer separator used in lithium-ion batteries with a solid-state separator, that enables the use of a lithium-metal as anode, which is more energy-dense. • Solid state batteries lowers charging time and improve life by eliminating the need to have lithium diffuse into the carbon particles as in conventional lithium-ion cells. • Solid-state batteries can hold up to 50% more energy that their lithium-ion counterparts, while they're expected to reach an 80% charge within 12 minutes • Solid state battery is new technology and till now perfect material for a solid electrolyte with the ideal ionic 	<ul style="list-style-type: none"> • Unlike Li-ion batteries, where entire used battery pack has to be replaced, but in zinc-air batteries only anode replacement is required rather than the entire battery. • Zinc is extensively available and this would naturally reduce reliance on countries like China or South Korea for Li-ion battery cells, reducing imports. • Zinc air batteries are less expensive than Li-ion batteries. • Zinc air batteries are water-based, have a longer shelf-life and have a high turnaround efficiency.

<p>lithium-ion batteries at 1.5-2% per month.</p> <ul style="list-style-type: none"> Lithium-ion batteries operate at higher voltages compared to nickel-cadmium batteries. Li-ion batteries do not contain toxic cadmium, which makes them easier to dispose of than Ni-Cd batteries. 	<p>conductivity has been difficult to be found.</p>	
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7.6. VIRTUAL PRIVATE NETWORK (VPN)

Why in news?

Recently, **Central government has asked virtual private network (VPN) companies** to keep a record of their logs of customer information as directed by Indian Computer Emergency Response Team (CERT-In).

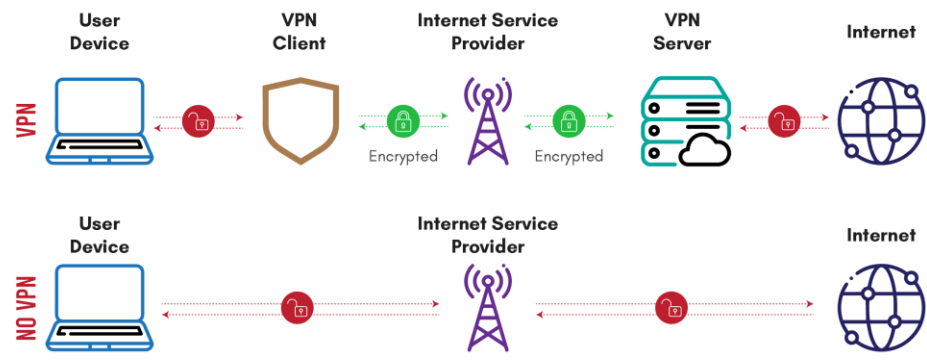
About CERT-In guidelines & it analysis

- New directives by CERT-In under **Information Technology Act, 2000** states that:
 - All cloud service providers and VPN providers will be required to **maintain a series of extensive customer information for at least five years.** Even after any cancellation or withdrawal of the registration.
 - Data centre companies and cryptocurrency exchanges**, too, are asked to collect and store user data by CERT-In.
 - VPN companies will have to regularly report the cases around the 20 cyber security vulnerabilities** listed by CERT-In.
- These new guidelines **aim to deal with the gaps that hinder the government in responding to certain cybercrime incidents.**
- Though it helps in cybercrimes there are **certain issues** as mentioned:
 - Against user privacy:** Adhering to CERT-In guidelines by VPN providers would go against the nature of their services to protect user privacy.
 - Lack of technical means:** A 60-day compliance time to set up an online validation facility is a challenging task and will require significant engineering and architecting for a seamless onboarding experience.
 - Additional cost:** small and medium enterprises that the government's mandate to keep logs of users for five years and verify the details, will significantly add to their costs.
 - Against Ease of Doing Business:** Businesses, specially those conducting transnational business with and within India, will likely have serious doubts about the safety of their data and this could go against the very spirit of Ease of Doing Business.

Indian Computer Emergency Response Team (CERT-In)

- CERT-In is a **functional organisation of Ministry of Electronics and Information Technology** with objective of securing Indian cyber space. It provides **incident prevention, response services and security quality management services.**
- Information Technology (amendment) Act 2008 designated CERT-In to serve as the **national agency for performing the following functions in the area of cyber security:**
 - collection, analysis and dissemination of information on cyber incidents;
 - forecast and alerts of cyber security incidents;
 - emergency measures for handling cyber security incidents;
 - coordination of cyber incidents response activities
 - issue guidelines, advisories, vulnerability notes and whitepapers relating to information security practices, procedures, prevention, response and reporting of cyber incidents;

HOW A VPN WORKS



About Virtual Private Network (VPN)

- VPN is an **encrypted connection** over the Internet from a device to a network **in real time**.
- Traffic on the virtual network is sent securely by establishing an encrypted connection across the Internet **known as a tunnel**.
- The encrypted connection helps ensure that sensitive **data is safely transmitted and traffic remains private** as it travels.
- This **prevents unauthorized people from eavesdropping** on the traffic and allows the user to conduct work remotely.
- **Types of VPNs**
 - **Secure Sockets Layer (SSL) VPN:** It enables individual users to access an organization's network, client-server applications, and internal network utilities and directories **using HTML-5-capable browser, but without the need for specialized software**.
 - **Site-to-site VPN:** A site-to-site VPN is essentially a private network designed to hide private intranets and allow users of these secure networks to access each other's resources.
 - **Client-to-Server VPN:** This involves the user not being connected to the internet via his own ISP, but establishing a direct connection through VPN provider. This essentially **shortens the tunnel phase of the VPN journey**.

Benefits of using VPN

- **Secure encryption:** To read the data, you need an encryption key. VPN provides encrypted connection in real time. With the help of this online activities are hidden even on public networks.
- **Secure data transfer:** It helps to access important files that requires a secure connection on network. VPN services connect to private servers and use encryption methods to reduce the risk of data leakage.
- **Encryption of IP address:** The primary job of a VPN is to hide your IP address from user ISP and other third parties. This allows user to send and receive information online without the risk of anyone but user and the VPN provider seeing it.
- **Encryption of protocols:** VPN prevent from leaving traces, in the form of internet history, search history and cookies and prevents third parties from gaining access to confidential information.
- **Disguising whereabouts:** VPN servers essentially act as proxies on the internet. Because the demographic location data comes from a server in another country and does not determine actual location and remains permanently hidden.
- **Kill switch:** Sudden interruption in VPN connection interrupts secure connection and detect sudden downtime and terminate preselected programs, reducing the likelihood that data is compromised.

Issues associated with using VPNs

- **Data leaks:** A study showed that 72% of free VPNs embedded third-party trackers in their software. These trackers are used to gather data on your online activities.
- **Jurisdiction:** The country where your VPN is located affects how secure your VPN is.
 - For instance, if your VPN is in a country whose government has data retention laws, the VPN might be forced to store the information in secret.
- **Bypass cybersecurity walls:** Parliamentary Standing Committee on Home Affairs notes the technological challenge posed by VPN services and Dark Web, that can bypass cyber security walls and allow criminals to remain anonymous online.
- **Commercial ramifications:** VPN has commercial ramifications for businesses like Netflix and other content providers that have geographical restrictions.

Way Forward

- Asking VPN service providers to store user data may not be desirable either, especially since the **proposed Personal Data Protection Bill is yet to be passed by the Parliament**.
- The Centre can, however, take other measures to ensure that **cybercriminals do not hide behind a VPN platform**. This can be done through a consultative process not just with VPN players but also with global law enforcement agencies.
- **Rules can be framed that puts the onus on VPN service providers** for keeping their platforms safe.

- For instance, **The Information Technology (Intermediary Guidelines and Digital Media Ethics Code) Rules, 2021 (IT rules) announced in 2021** puts in a framework that brings in transparency in terms of the responsibilities and duties of the internet intermediaries including Twitter and Facebook.

7.7. DRAFT NATIONAL DATA GOVERNANCE FRAMEWORK POLICY

Why in news?

The Ministry of Electronics and Information Technology released a revised Draft National Data Governance Framework Policy (NDGFP).

National Data Governance Framework Policy

The framework is the **revised version of Draft India Data Accessibility and Use Policy, 2022** which was released for consultation in February 2022 but received criticism for considering monetisation of data through sale and licensing to private entities.

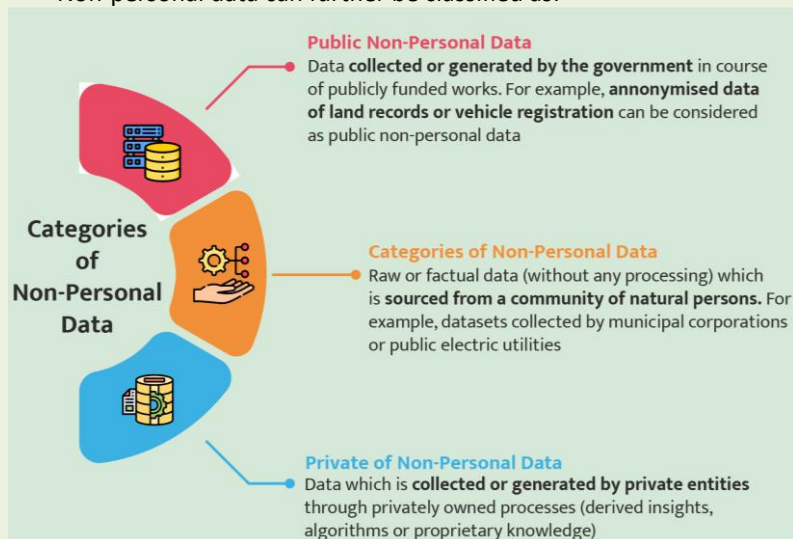
- **Aim:** To **enhance access, quality, and use of data**, in line with the current and emerging technology needs of the decade.
- **Objectives** To accelerate Digital Governance, have standardized data management and security standards across the whole of Government, etc.
- **Applicability:** All Government departments and entities, all non-personal datasets and data and platform, rules, standards governing its access and use by researchers and Start-ups.
- **India Data Management Office (IDMO):** This shall be set up under the Digital India Corporation (“DIC”) under MeitY and shall be responsible for
 - framing, managing and periodically reviewing and revising the Policy.
 - encourage and foster the data and AI-based Research, start-up ecosystems by working with the Digital India Start-up Hub.
- **Data Management Units (“DMUs”):** Every Ministry/Department shall have “DMUs” that are headed by a designated CDO who shall work closely with the IDMO for ensuring implementation of the Policy.
- **Private companies can also create datasets** and contribute to India datasets programme.

Need of NDGFP

- **Maximising data led governance:** With the accelerated digitization in India, the volume and velocity of data generated is also increasing exponentially. This data can be used effectively for more effective digital government, public good and innovation and to improve citizens’ experience and engagement with the government.

Non-personal data (NPD)

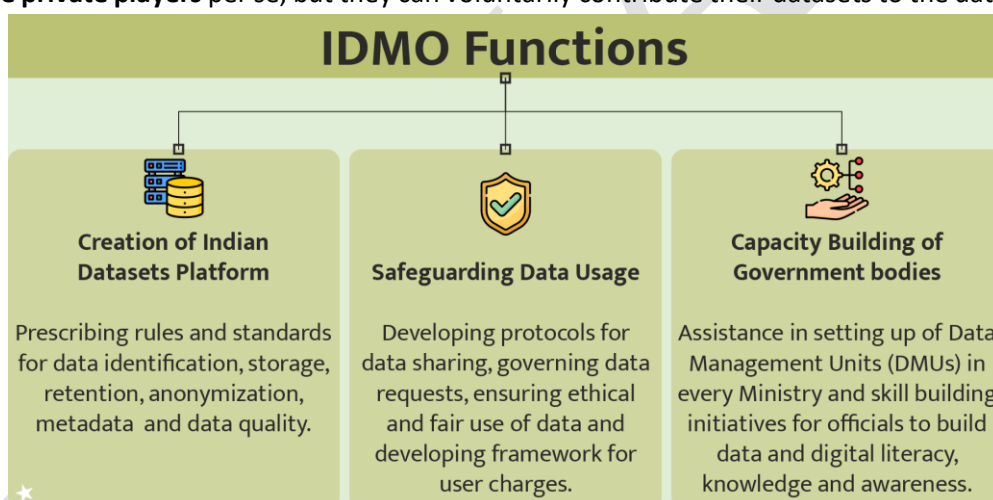
- Non-personal data is **any set of data which does not contain personally identifiable information.**
 - For example, while order details collected by a food delivery service will have the name, age, gender, and other contact information of an individual, it will become non-personal data if the identifiers such as name and contact information (i.e. the personal data) are taken out.
- It is all the data other than personal data (defined in Draft Data Protection Bill, 2019).
- In terms of origin, non-personal data can be data which never related to natural persons (such as data on weather or supply chains), or data which was initially personal data, but has been anonymised (through use of certain techniques to ensure that individuals to whom the data relates to cannot be identified).
- The **data principal** is the entity to whom the non-personal data relates to. This entity can be an individual, a community, or a company
- Non-personal data can further be classified as:



- **To transform and modernize Governments data collection and management processes:** Digital Government data is currently managed, stored and accessed in differing and inconsistent ways across different government entities, thus attenuating the efficacy of data-driven governance, and preventing an innovative ecosystem of data science, analytics and AI from emerging to its full potential.
- **Promoting digital economy:** To enable and catalyze vibrant AI and Data led research and Start-up ecosystem, by creating a large repository of India datasets which in turn would be enablers of India's digital economy.
- **Enabler for creating data privacy standards:** The framework will accelerate creation of common standard based public digital platforms while ensuring privacy, safety, and trust.
- **To prevent crimes:** The lack of appropriate legislation has encouraged crimes such as data theft, data misappropriation, cyber-squatting, etc.

Components under NDGFP:

- **Indian Datasets Platform:** One-stop platform consisting of anonymized non-personal datasets from across Government entities collected from Indian citizens or those in India. This platform shall **process requests and provide access to the datasets to Indian researchers and startups.**
 - **NDGFP does not apply to the private players** per se, but they can voluntarily contribute their datasets to the data repository.
 - There is **no provision for monetisation of such data.**
- **Indian Data Management Office (IDMO):** The framework encapsulates three pronged functions of the IDMO (refer infographic).



Challenges associated with collection and usage of Non-Personal data

- **Mutual exclusion of personal and non-personal data is difficult:** Such data, even if anonymized, bears a risk of re-identification. For example, a person could be uniquely identified even in a huge crowd if he/she is the only one with location tracking enabled on a mobile phone even as location data is considered NPD.
- **Security Implications:** Such data could have an impact on national security or strategic interests of the country upon reaching the hands of enemies of the state.
- **Privacy Concerns:** Such data bears risk of collective harm to a group e.g. ghettoization or institutionalised bigotry on the basis of race, religion, sexual orientation etc.
- **Confidentiality Concerns:** Such data could be business sensitive or may include confidential information and may have been derived using proprietary technology developed by such companies.

Measures to be taken to ensure a safe and transparent data regime:

- **Finalising the Data Protection Bill, 2021 and the regulations for protection of non-personal data** to work in tandem with NDGFP.
- **Technical threshold for data anonymization should be specified** as until then it will not be possible to categorically stipulate what constitutes anonymized data, leading to privacy breaches.
- **Steps are needed to ensure a fair data market** for all and stronger regulations to prevent misuse of non-personal data and market failures.
- **Mandatorily regulating access to privately held non-personal data** for all players to be a next step to NDGFP as most of citizen data is stored by private monopolies.

Conclusion

Data-led governance is a cornerstone of government's digital government vision and the framework has a critical role to play in boosting India's Data Economy.

As the **draft only lays down broad contours and the detailed terms of this data sharing regime are yet to be released**, most interactional implications of NDGFP such as **data privacy, security, intellectual property, and data monopoly issues seem open-ended at the moment.**

Specific policies governing standards for data anonymization, rules for conditions of access to such data to private players, rules safeguarding processing and fair and ethical usage of such data by private entities shall be key to ensuring a safe and transparent data regime.

Related News

NITI Aayog launched the National Data & Analytics Platform (NDAP) for open public use

- NDAP is a user-friendly web platform from NITI Aayog accessible to all users irrespective of **device in use, technology or ability**.
 - The platform hosts **foundational datasets from various government agencies**, presents them coherently, and provides tools for **analytics and visualization**.
- **Aim:** To democratize access to Public Government Data through improved access and use of published Indian Government Data.
- **Need:**
 - Data is not published in a **user-centric manner** which creates difficulty in further analysis,
 - Data ecosystem **is incoherent** due to different standards
- **Governance structure:**
 - A **high powered inter-ministerial steering committee** under the chairmanship of Vice Chairman, NITI Aayog to provide direction and oversee progress.
 - A **Technical Advisory Group** to **provide expert consultation**.
 - **Project Management Unit** to **coordinate** with different stakeholders.
 - A **technology vendor** for development and operation of NDAP.
- **Significance:**
 - **User-friendly and engaging**, tailored to the needs of policymakers, researchers, citizens etc.
 - **Standardized** format which makes it easy to do **cross-sectoral analysis**,
 - Standard Operating Procedures to ensure **data is updated regularly**,
 - Encourage **discussion** on social media,
 - **Data-driven** decision making etc

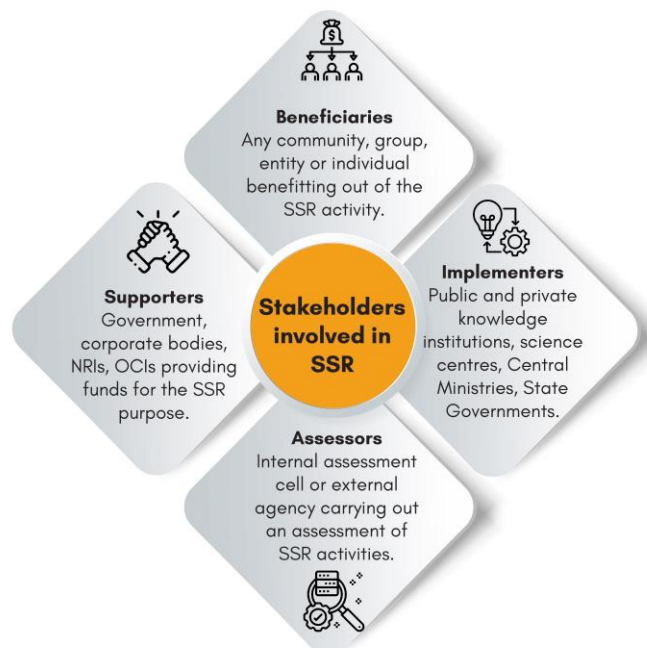
7.8. SCIENTIFIC SOCIAL RESPONSIBILITY (SSR)

Why in news?

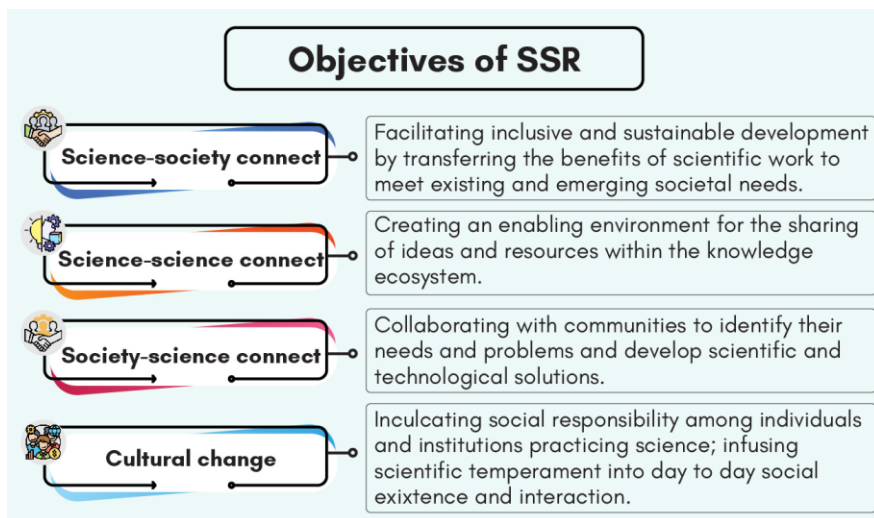
Recently, **Department of Science and Technology (DST)** has released Scientific Social Responsibility Guidelines 2022.

Scientific Social Responsibility (SSR) Guidelines, 2022

- **Scientific Social Responsibility (SSR)** is defined as the ethical obligation of knowledge workers in all fields of science and technology to voluntarily contribute their knowledge and resources to the widest spectrum of stakeholders in society, in a spirit of service and conscious reciprocity.
- Till now India has made significant progress in science and technology since independence.
 - As per National Science Foundation (NSF) database India is placed in **3rd among countries in scientific publication** and ranked **46th in Global Innovation Index (GII)**.
- Despite making a good **progress in Science Technology and Innovation (STI)**, the transfer of scientific knowledge and its benefits to society **remains an area of concern**.
- **SSR Guidelines 2022**
 - All Central Government Ministries and State Governments would **plan and strategize their SSR** in accordance with their respective mandates.
 - Every knowledge institution would **prepare its implementation plan in consultation with Anchor Scientific Institution (ASI)** for achieving its SSR goals and prepare its SSR code of conduct.



- All knowledge workers would be **sensitised by their institutions as well as by Anchor Scientific Institution about their ethical responsibility** to contribute towards the betterment of society, national developmental and environmental goals.
 - ✓ Every knowledge worker is expected to **contribute at least ten person-days in a year towards SSR over and above their regular work** except those in administration or are involved directly in the management of SSR implementation.
- There should be an **SSR assessment cell in each institution including Anchor Scientific Institution** to periodically assess institutional projects and individual activities and each knowledge institution would publish an annual SSR report.
- Individual and institutional **SSR activities should be adequately incentivised**, including with necessary **budgetary support**.
- SSR activities and projects of a knowledge institution **would not be outsourced or subcontracted**.



Need of SSR Guidelines

- **Social welfare**: SSR facilitate the integration of science and society and build synergy among the stakeholders thereby ensuring transfer of scientific knowledge for the benefit of society.
 - SSR would therefore **strengthen the knowledge ecosystem and bring efficiency** in harnessing the benefit of science for the society.
- **Attitudinal change**: It would also bring about an **attitudinal change in the mindset and the work style** of the scientific community, thereby enhancing the social outreach of our scientific community.
- **Access to resource and knowledge**: SSR guidelines will create institutional mechanism to facilitate easy access to resources and knowledge.
- **Self-reliance**: SSR has the potential to fundamentally transform society by improving the lives of our citizens towards building a self-reliant nation.
- **Sustainable development**: SSR would **strengthen the existing efforts of institutions and impart thrust** to the initiatives of the government such as transformation of Aspirational Districts, Make in India, Swachh Bharat and Digital India towards achieving inclusive growth and sustainable development.



Conclusion

Thus, SSR guidelines envision a scientific ecosystem with systematically evolved interconnections among stakeholders to create two-way engagement among science and society in the pursuit of a more driven scientific community building a self-reliant nation.

7.9. BLACK HOLES

Why in News?

The black hole at the centre of Milky Way was photographed for the first time.

More on News

- **The first photograph of Sagittarius A***, a supermassive black hole about 26,000 light years from Earth and situated at the centre of the Milky Way, **was revealed by astronomers of the Event Horizon Telescope (EHT)**.
 - EHT is an **international collaboration** (of observatories) **capturing images of black holes** using a virtual Earth-sized telescope.
- **In 2019, astronomers captured the first ever photograph of a black hole M87**, which was in a distant galaxy called Messier 87.

About Galaxy

- A galaxy is a **huge collection of gas, dust, and billions of stars** and their solar systems, all held together by gravity.
 - **Our solar system** is a small **part of the Milky Way Galaxy**.
- Galaxies can be **spiral, elliptical or irregular shaped**.

General Theory of Relativity

- This theory was proposed by **Albert Einstein in 1915**.
- Essentially, it's a **theory of gravity** whose basic idea is that instead of being an invisible force that attracts objects to one another, **gravity is a curving or warping of space**. The more massive an object, the more it warps the space around it.
 - In the first major test of general relativity, **astronomers in 1919 measured the deflection of light from distant stars as the starlight passed by our sun**, proving that gravity does, in fact, distort or curve space.
- **In 2016, the discovery of gravitational waves** (subtle ripples in the fabric of spacetime) was another confirmation of general relativity.

About Black Holes

- A black hole is a place in space where **gravity pulls so much that even light cannot get out**. The gravity is so strong because matter has been squeezed into a tiny space.
- **This can happen when a star is dying** (our sun will never turn into a black hole as it is not big enough to make a black hole).
- Because no light can get out, **people can't see black holes**. They are invisible.
- Black holes **do not go around in space eating stars, moons, and planets**. Earth will not fall into a black hole because no black hole is close enough to the solar system for Earth to do that

Detection of Black Holes:

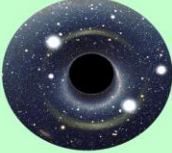
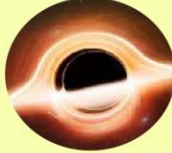

- They **cannot be directly observed** because they themselves do not emit or radiate light, or any other electromagnetic waves that can be detected by instruments built by human beings.
- But the **area just outside the boundary of the black hole** (Event Horizon), which has vast amounts of gas, clouds and plasma swirling violently, **emit all kinds of radiations, including even visible light**.
 - Space telescopes with special tools can help find black holes. The special tools can see how stars that are very close to black holes act differently than other stars.
- Hence, the presence of black holes **can be inferred by detecting their effect on other matter nearby them**.

Related Information

2020 Nobel Prize in Physics

- **One half was awarded to Roger Penrose** for the discovery that black hole formation is a robust prediction of the general theory of relativity.
- **And the other half was awarded jointly to Reinhard Genzel and Andrea Ghez** for the discovery of a supermassive compact object at the centre of our galaxy. A supermassive black hole is the only currently known explanation.
 - They focused on a region called Sagittarius A* at the centre of our galaxy.

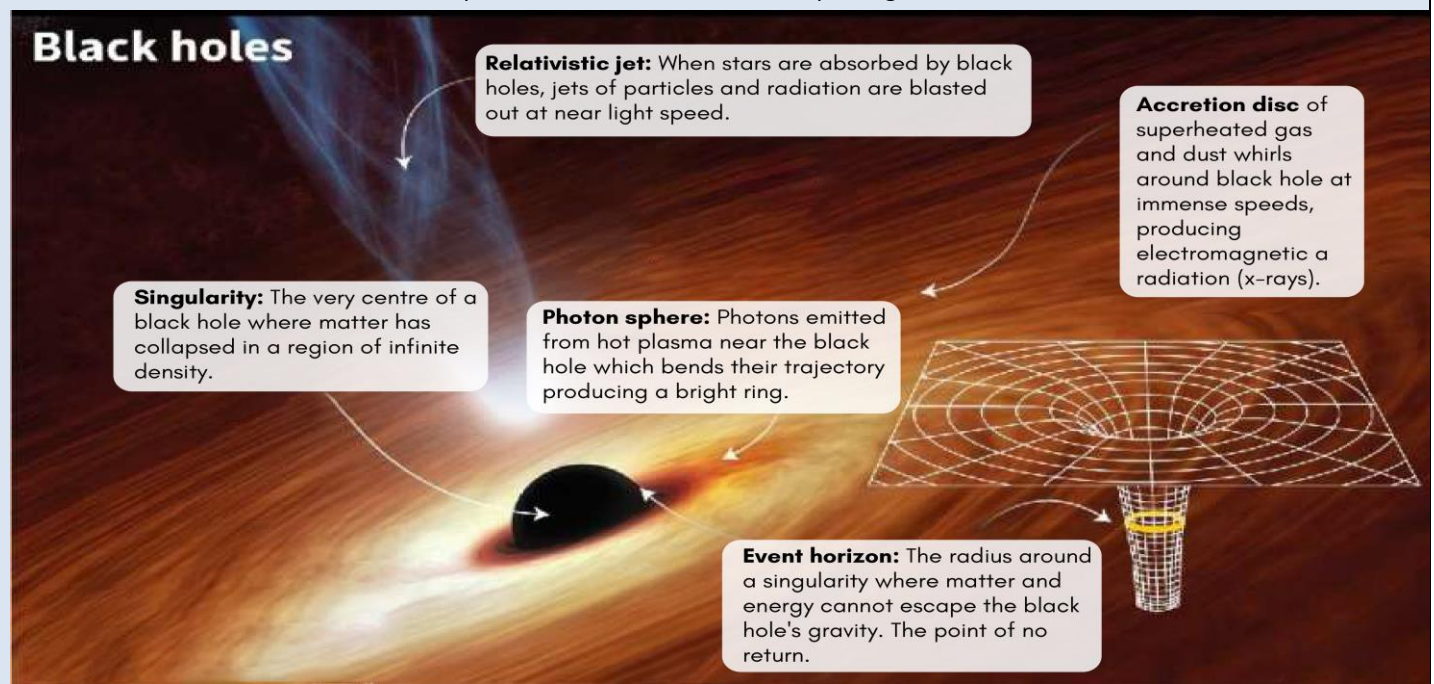
Importance of studying Black Holes

Tiny Black Holes	Stellar Black Holes	Supermassive Black Holes
 <ul style="list-style-type: none"> ● As small as just one atom. ● These black holes are very tiny but have the mass of a large mountain. ● These black holes were formed when the universe began. 	 <ul style="list-style-type: none"> ● Its mass can be up to 20 times more than the mass of the sun. ● There may be many, many stellar mass black holes in Earth's galaxy (the Milky Way) ● They were formed when the center of a very big star falls in upon itself, or collapses. <ul style="list-style-type: none"> ● When this happens, it causes a supernova (supernova is an exploding star that blasts part of the star into space) 	 <ul style="list-style-type: none"> ● These black holes have masses that are more than 1 million suns together. ● Supermassive black holes were made at the same time as the galaxy they are in.

- Black holes are **laboratories for testing fundamental theories** that explain how the Universe works on the largest and the smallest scales.
- **Enhances the understanding of gravitational force**- which can be useful for the Global Positioning Satellites to make them accurate to more than a few metres.

Basic Parts of Black Hole

- **Singularity:** It is the one-dimensional point in the centre of a black hole which contains a huge mass in an infinitely small space, where density and gravity become infinite and space-time curves infinitely. It is a tiny volume with very big density.
- **The event horizon:** It is the "point of no return" around the black hole. It is not a physical surface, but a sphere surrounding the black hole that marks where the escape velocity is equal to the speed of light.
- **The Schwarzschild Radius:** This is the event horizon's radius. It is the radius at which the escape velocity is equal to the speed of light.
- **The Ergosphere:** If the black hole is rotating, then as it spins, its mass causes the space time around the black hole to rotate as well. This region is called the ergosphere.
- **The Accretion Disk:** This is a disk composed of stellar material that is spiraling towards that black hole.



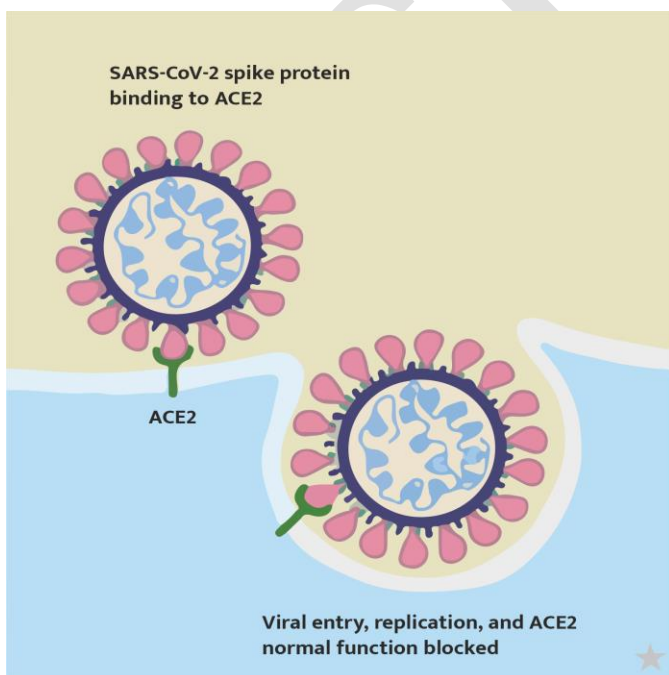
7.10. NEWS IN SHORTS

7.10.1. BIOLOGICAL RESEARCH REGULATORY APPROVAL PORTAL (BIORRAP)

- Department of Biotechnology has developed BioRRAP to track the regulatory approvals for a research proposal on a single portal.
- BioRRAP provides a single route to direct the applicant to regulatory agencies providing requisite approval relevant to the biological research.
 - BioRRAP ID generated through this portal is linked with the portals of various regulatory agencies.
- This will provide more credibility to such biological researches and will strengthen interdepartmental synergies and increase efficacy in functioning of agencies regulating various aspect of biological research.

7.10.2. ANGIOTENSIN CONVERTING ENZYME 2 (ACE2)

- ACE2 is a “receptor,” protein that provides the entry point for the coronavirus into human cells.
- It is of two types:
 - a full-length form that can bind to the cell membrane of healthy host cells
 - a shorter, soluble form that circulates in the blood in small amounts.
- According to a recent study the membrane-bound form of ACE2 is essential for enabling infection with SARS-CoV-2. Soluble ACE2 lacks the ability to anchor to the cell membrane.



7.10.3. MONKEYPOX

- Nigeria recorded first death due to Monkeypox and World Health Organisation said that **Monkeypox would not turn into pandemic.**
- **Monkeypox is zoonotic disease caused by the virus** belonging to the Orthopoxvirus genus.
 - The Orthopoxvirus genus also includes **variola virus (which causes smallpox), vaccinia virus (used in the smallpox vaccine), and cowpox virus.**
- It was first discovered in 1958, largely occurring close to tropical rainforests of Central and West Africa.
- Animal-to-human transmission can occur from direct contact with the blood, bodily fluids, or cutaneous or mucosal lesions of infected animals.

7.10.4. MINISTRY OF AYUSH AND FOOD SAFETY & STANDARDS AUTHORITY OF INDIA (FSSAI) FORMULATES REGULATIONS FOR 'AYURVEDA AAHARA' PRODUCTS

- Regulations have been framed to ensure the manufacturing of quality Ayurveda food products and to help in expanding the international market for Make-In-India products.
 - Also, these regulations will further strengthen India's global positioning as a custodian of the Ayush system.
- **Key highlights of the regulations**
 - Manufacturing and marketing of 'Ayurveda Aahara' products will now adhere to strict **Food Safety and Standards (Ayurveda Aahara) Regulations, 2022 rules.**
 - Prior approval for 'Ayurveda Aahara' shall be in accordance with **Food Safety and Standards (Approval for Non-Specific Food and Food Ingredients) Regulation, 2017.**
 - A special logo has been created for “Ayurveda Aahara” category, which will enable easier identification and reinforce quality in Ayurveda food products.
 - 'Ayurveda Aahara' will not include Ayurvedic drugs or proprietary Ayurvedic medicines and medicinal products, cosmetics, narcotic or psychotropic substances and herbs.
- Food Safety and Standards Authority of India is a statutory body established by the Ministry of Health & Family Welfare, Government of India under the **Food Safety and Standards Act, 2006**, to consolidate food safety and regulation in India.

- **Logo of various food by FSSAI**

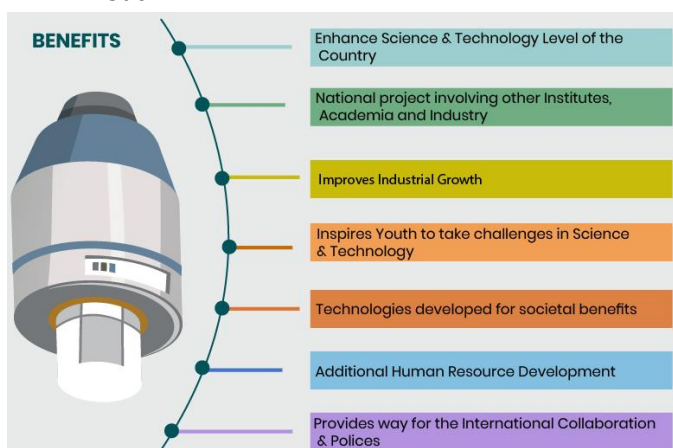
	<ul style="list-style-type: none"> • It represents a healthy 'Indian thali' (plate) to ensure a balanced and wholesome diet comprising all food groups in the right quantity for good health.
	<ul style="list-style-type: none"> • To identify as Vegan products. • Green color leaf depicts the ingredient/plant origin.
	<ul style="list-style-type: none"> • For Vegetarian Food
	<ul style="list-style-type: none"> • For Non-Vegetarian Food

7.10.5. INDIAN SPACE RESEARCH ORGANISATION (ISRO) SUCCESSFULLY TESTS SOLID ROCKET BOOSTER HS200 FOR GAGANYAAN PROGRAMME

- The successful test of the HS200 booster is a milestone towards India's **human spaceflight mission 'Gaganyaan'**.
 - The HS200 is the **world's second largest operational booster using solid propellants**.
 - It is the '**human-rated**' version of the S200 rocket boosters used on the **Geosynchronous Satellite Launch Vehicle Mk-III (GSLV Mk-III)**, also called the LVM3.
 - The GSLV Mk-III uses **three propulsion stages: Solid, Liquid, and Cryogenic**.

- ✓ Earlier ISRO successfully carried out the long duration hot test of the **liquid propellant Vikas Engine**.
- ✓ Vikas Engine is a **high thrust engine to enhance lifting power of various Indian Launch Vehicles**.
 - GSKV-Mk III is capable of launching **four-tonne satellites in the Geosynchronous Transfer Orbit (GTO)**.
- **About Gaganyaan Programme**
 - It envisages undertaking the demonstration of indigenous capability to undertake **human spaceflight to Low Earth Orbit** (an orbit of 2,000km or less).
 - ✓ Until now **only the US, Russia and China** have managed to send manned missions to outer space.

- As part of this programme, **two unmanned missions and one manned mission will be carried out.**



7.10.6. STRATOSPHERIC OBSERVATORY FOR INFRARED ASTRONOMY (SOFIA) MISSION

- **NASA is planning to shut down SOFIA telescope that found water on Moon.**
- **SOFIA is a 2.7-meter infrared telescope inside Boeing airplane, flying at an altitude around 40k feet above the surface.**
 - SOFIA is joint collaboration between **NASA and German Space Agency (DLR).**
 - It has been **collecting data to understand star birth and death and formation of new solar systems.**
 - It is designed to observe **cosmic objects in far-infrared wavelengths.**
 - In 2019, **SOFIA discovered helium hydride** — first molecule formed in Universe almost 14 billion years ago.

7.10.7. PLANTS IN THE MOON'S SOIL

- Scientists have for the first time successfully **grown plants in the Moon's soil.**
- This lunar soil, also called **regolith**, was brought to Earth from the Moon by the **Apollo-era astronauts.**
- Researchers have grown the hardy and well-studied **Arabidopsis thaliana** in the nutrient-poor **lunar regolith.**
 - **Arabidopsis thaliana, native to Eurasia and Africa, is a relative of mustard greens and other cruciferous vegetables** like broccoli, cauliflower, and Brussels sprouts.
- The breakthrough will open the doors to **harvest crops on the Moon** in the future which will help in **extended stay of humans** on the moon.

7.10.8. SCIENTIFIC RESEARCH INFRASTRUCTURE MAINTENANCE AND SHARING NETWORKS (SRIMAN) GUIDELINES, 2022

- The SRIMAN Guidelines are released by the **Department of Science and Technology** for **better access and sharing of publicly funded Scientific Research and Development Infrastructure.**
 - It includes **Networking and Cluster Approach**, creating **Cluster Central Instrumentation Facility (CCIF)** to reduce redundancy and acquire more variety of equipment.
 - CCIF will also tie up with industries, especially MSMEs and startups.

7.10.9. AI-BASED IRASTE TO MAKE ROADS IN INDIA SAFER TO DRIVE

- **'Intelligent Solutions for Road Safety through Technology and Engineering' (iRASTE) project** is being implemented in Nagpur to tackle problem of road accidents.
 - It is **undertaken by IIIT Hyderabad and supported by the Department of Science and Technology (DST).**
 - It is under DST's **National Mission on Interdisciplinary Cyber-Physical Systems (NM-ICPS)**
 - ✓ NM-ICPS aims to create a **strong foundation and a seamless ecosystem for CPS technologies by coordinating and integrating nationwide efforts** encompassing knowledge generation, human resource development, research, etc.
- **Significance of iRASTE**
 - **Provides solution to address potential road accidents** in quick, accurate, and inexpensive way.
 - **Predict and identify risks on road**, and collision alert system to communicate timely alerts to drivers.
 - **Identify 'grey spots'**, i.e., by data and mobility analysis by continuously monitoring dynamic risks on entire road network.
 - ✓ Grey spots are **locations on roads, which left unaddressed could become blackspots** (locations with fatal accidents).
- **Road safety targets**
 - Reduce road accident deaths by **50% by year 2024.**
 - By 2030, all countries have **national laws to restrict or prohibit use of mobile phones** while driving.
 - By 2030, all countries accede to **one or more of core road safety-related UN legal instruments.**

Steps taken for road safety in India

- **LaneRoadNet (LRNet)**, new framework with an **integrated mechanism considering lane and road parameters using deep learning**, has been designed to address problems of Indian roads.
- India is **signatory to United Nation's Brasilia Declaration** to reduce road fatalities.

7.10.10. PRIME MINISTER WI-FI ACCESS NETWORK INTERFACE (PM-WANI) SCHEME

- RailTel, a mini Ratna PSU under Ministry of Railways, has launched **PM-WANI scheme based access to its Public Wi-Fi services across 100 railway stations in 22 states.**
 - Wi-Fi network **can also be accessed through Mobile App 'Wi-DOT'**, built by RailTel and C-DOT.
- PM-WANI, by Department of Telecommunications, **aims to elevate wireless internet connectivity** in the country by envisaging **provision of Broadband through Public Wi-Fi Hotspot** providers.
- PM-WANI eco-system **will be operated by different players:**
 - **Public Data Office (PDO):** It will establish, maintain, and operate only WANI compliant Wi-Fi Access Points and deliver broadband services to subscribers.
 - **Public Data Office Aggregator (PDOA):** It will be an aggregator of PDOs and perform the functions relating to Authorization and Accounting.
 - **App Provider:** It will develop an App to register users and discover WANI compliant Wi-Fi hotspots in the nearby area and display the same within the App.
 - **Central Registry:** It will maintain the details of App Providers, PDOAs, and PDOs.

About Wi-Fi

- **Wi-Fi, or Wireless Fidelity**, is a **wireless networking technology** that gives **internet access to devices** like desktop computers, laptops, mobile phones, smart TVs etc.
- It uses **radio frequencies, or radio waves**, in frequency **bands 2.4GHz to 5GHz** to communicate between devices.
- **Public Wi-Fi:** These are the Wi-Fi hotspots at public places such as airports, coffee shops, hotels etc.- allowing internet access for free.
- **Risks associated with public Wi-Fi-** Theft of Personal Information, Man-in-the-Middle attacks (form of eavesdropping), Malware distribution, malicious hotspots etc.

7.10.11. DATA EMPOWERMENT PROTECTION ARCHITECTURE (DEPA)

- The **Bank for International Settlements (BIS)** has endorsed India's **Data Empowerment Protection Architecture (DEPA).**
- DEPA is a **joint public-private effort for an improved data governance** approach. It creates a digital framework that **allows users to share their data on their own terms** through a third-party entity, Consent Managers.
- DEPA's **first application has been in the financial sector**, for greater inclusion and economic growth.
 - It is being tested in the health sector, as well as others.
 - **DEPA forms the final layer of India Stack**, a set of APIs that allows governments, businesses, startups and developers to utilise a unique digital infrastructure aimed at presence-less, paperless, and cashless service delivery.
- **Significance of DEPA**
 - **Empowers people to seamlessly and securely access their data** and share it with third party institutions.
 - It includes **private 'consent manager' institutions** that ensure that individuals can **provide consent for data shared securely and protect data rights.**
 - **Enables small businesses to access affordable loans**, insurance, and better financial management products easily.
 - Reduction in transaction cost and increased competition.

About BIS

- **Established in 1930**, the BIS is owned by 63 central banks (RBI is a member). Its head office is in Basel, Switzerland.
- **BIS mission is to support central banks' pursuit of monetary and financial stability** through international cooperation, and to act as a bank for central banks.

7.10.12. PARAM PORUL

- PARAM PORUL is a **state-of the art Supercomputer at NIT Tiruchirappalli** under Phase 2 of National Supercomputing Mission (NSM).
- Majority of the components used to build **PARAM PORUL have been manufactured and assembled within the country.**
- It is **based on Direct Contact Liquid Cooling technology** to obtain a high power usage effectiveness and thereby reducing the operational cost.
- Under NSM, **till date 15 supercomputers** have been installed across the nation with a computing capacity of 24 petaflops.

- **PARAM Shivay** was the first Supercomputer assembled indigenously.

7.10.13. QUANTUM INTERNET

- In a big step towards the quantum Internet, **researchers have successfully teleported quantum information across a basic network.**
- Quantum internet is an idea **based on the theoretical use of quantum computers** to construct a new kind of network.
 - In contrast to the **traditional internet which operates through the use of binary signals** (represented by 0's or 1's) in data packets, the **quantum internet would utilize quantum bits, or qubits**, to encode information as 0's, 1's, or both at the same time.
- **Applications:** Securely sharing private information, connecting several quantum computers to boost processing power, use of highly precise, linked quantum sensors etc.

7.10.14. TRUE RANDOM NUMBER GENERATOR (TRNG)

- Indian Institute of Science has developed a TRNG which **can improve data encryption and provide improved security for sensitive digital data** (credit card details, passwords, etc.).
- **Encrypted information can be decoded** only by authorised users who have **access to a cryptographic 'key'** (unpredictable and randomly generated to resist hacking).
 - 'Key' generated by computers using **pseudorandom number generators** (rely on re-programmed tables to produce numbers) appear random but are not.
 - A **TRNG extracts random numbers from inherently random physical processes** (using the random motion of electrons), making it more secure.



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8. CULTURE

8.1. IRON AGE

Why in news?

Recently Carbon dating of excavated finds at Mayiladumparai, Tamil Nadu has pushed evidence of iron being used in India back to 4,200 years ago.

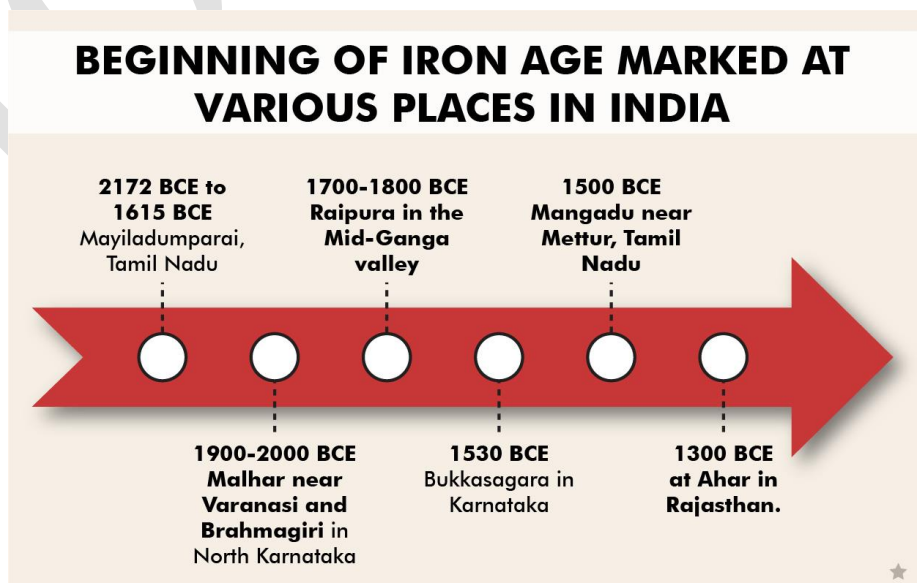
Key findings

- Archaeological excavations in Mayiladumparai have found that the **date of iron artefacts unearthed 'ranges from 2172 BCE to 1615 BCE'**.
 - Mayiladumparai** is an important site with cultural material dating back between the **Microlithic (30,000 BCE) and Early Historic (600 BCE) ages**.
- The cultural items revealed that the **site had survived since the Neolithic period** till the historical period.
 - Microlithic, Neolithic, Iron Age, Early Historic and Historic are the five cultural sequences** identified based on ceramics, iron objects, rock art, memorial stones and inscriptions.
- The late **Neolithic period in Tamil Nadu** began before 2200 BCE, based on a cultural deposit 25 cm below the dated level.
- Black and red ware pottery** were introduced during the **late Neolithic period**, rather than the Iron Age, as previously thought.
- Before the latest discovery**, the earliest evidence of **iron use for Tamil Nadu** was from Thelunganur and Mangadu near Mettur, dating back to **1500 BCE**.

MAJOR PERIODS IN EARLY INDIAN ARCHAEOLOGY	
2 million BP (BEFORE PRESENT)	Lower Palaeolithic
80,000	Middle Palaeolithic
35,000	Upper Palaeolithic
12,000	Mesolithic
10,000	Neolithic (early agriculturists and pastoralists)
6,000	Chalcolithic (First use of copper)
2600 BCE	Harappan civilisation
1000 BCE	Early iron, megalithic burials
600 BCE -400 CE	Early Historic

Significance of the findings

- Timeline revisited:** The dates when humans entered the **Iron Age vary from one region of the world to another**. In India, too, the date has been revised with successive findings over the decades.
- Beginning of culture:** With the latest evidence tracing the Iron Age to 2000 BCE, experts believe that it could be assumed that our cultural seeds were laid in 2000 BCE.
- Relations between the IVC and Sangam culture:** The Tamil Brahmi scripts were once believed to have originated around 300 BCE, until 2019 when excavation at Keeladi in Tamil Nadu pushed the date back to 600 BCE. The dating narrowed the gap between the IVC and Tamilagam/South India's Sangam Age.
 - This, along with the current findings at Mayiladumparai is **being seen as an evidence of some kind of relations between both the civilisation**.
 - Tamil Nadu has announced that it would carry out a **project on a comparative study of graffiti found in Keeladi and the signs of the IVC**.



Conclusion

It is well known that civilizations experienced rapid advancement during and after the Iron Age. However, there is no certainty over the exact time period when use of iron came into existence. More research need to be done to resolve this mystery.

Relevance of use of metal in Indian civilisation: History of civilisation is linked to the use of metals which are needed for agriculture and in turn shape the **socio-economic conditions** of the civilisation.

- **Society during usage of copper:** Copper was widely used in the Indus Valley Civilisation (IVC). However, Iron was not known to people of IVC. Useful **tools made out of copper** were **brittle** and not as strong as iron tools would be. Also, **non-availability of copper for technological and mass exploitation** forced other regions of the country to remain in the Stone Age.
- **Society during usage of iron age:** The main factor in the **expansion of the Aryan culture** during the later Vedic period was the beginning of the use of iron around 1000 BC. Use of iron technology led to the **production of agricultural tools and weapons** and agriculture became the mainstay of the later Vedic people (the god Indra acquired a new epithet 'Lord of the Plough' in this period). Also, iron tools were **used to clear the dense forest** of northern and eastern parts of India.
 - There has been a **continuous increase in the population** during the later Vedic period due to the expansion of the economy based on agriculture. The increasing number and size of Painted Grey Ware (PGW) settlements in the doab area shows this.

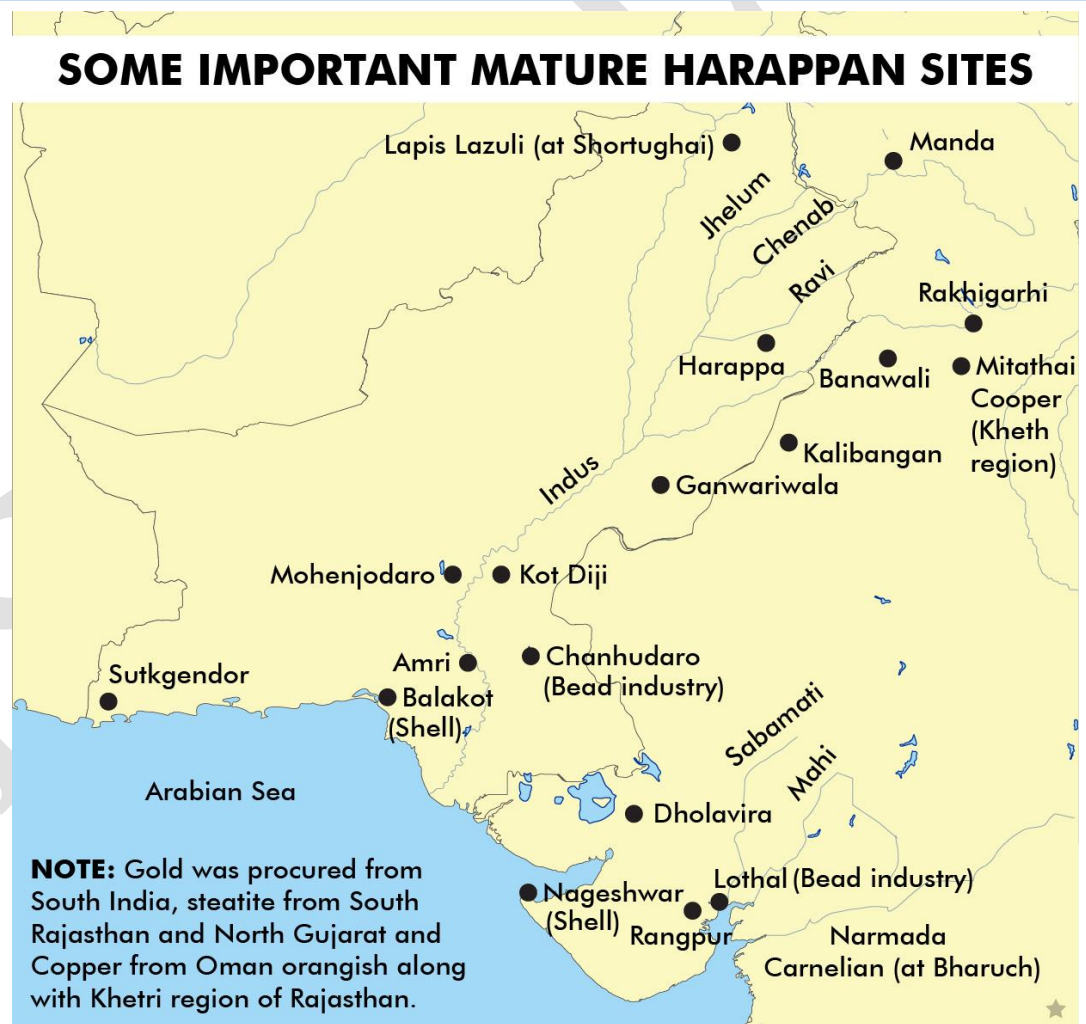
8.2. RAKHIGARHI

Why in news?

The latest round of excavations at the Harappan site of Rakhigarhi in Haryana's Hisar has revealed the structure of some houses, lanes and a drainage system.

About Rakhigarhi

- The site of Rakhigarhi is **one of the five known biggest townships of Harappan civilization** on Indian sub-continent. Other four are Harappa, Mohenjodaro and Ganveriwala in Pakistan and Dholavira (Gujarat).
- It represents the **mature Harappan phase** as it had planned township having mud-brick as well as burnt-brick houses with proper drainage system.
- **Animal sacrificial pit lined with mud brick** and triangular and circular fire alters on the mud floor have also been excavated
- **Key findings during recent excavation**
 - **Skeletal remains** of two women were found that is believed to be nearly 5,000 years old. Pots and other artefacts were found buried next to the remains, part of funerary rituals back.



- **Artefacts:** Steatite seals, terracotta bangles, terracotta unbaked sealing with relief of elephants, and the Harappan script.
- **Signs of settlement:** Excavation at Mound No. 3 has revealed what appears to be “an aristocratic settlement”.
 - ✓ In all Harappan sites excavated so far, there have been **similar signs of three tiers of habitation — ‘common settlements’ with mud brick walls, ‘elite settlement’ with burnt brick walls alongside mud brick walls, and possible ‘middle-rung settlements’.**
 - ✓ Researchers are yet to determine whether these three levels were based on community or occupation.
- **Jewellery unit:** Possible remains of a 5,000-year-old jewellery making unit have been traced, which signifies that trading was also done from the city.

About Harappan/ Indus Valley Civilisation (IVC)

- The IVC was the **earliest civilisations in South Asia.**
- It is also known as **the Bronze Age civilization**, a term that refers to communities using bronze as a material to make their major tools, but more importantly implies urban societies.
 - Several early Bronze Age societies in the Old World are known, which include **Mesopotamia, Egypt and China**, other than the Harappan.
 - It is also commonly referred to as **the Indus-Sarasvati Civilization (Sarasvati River mentioned in Vedic sources) and the Harrapan Civilization** as Harappa was the first one to be discovered.
- **The span of the Harappan Civilisation is subdivided into three periods:**
 - **Early:** 3300 BC to 2600 BC.
 - **Mature:** 2600 BC to 1900 BC.
 - **Late:** 1900 BC to 1700 BC.
- **Mature Harappan phase** is the **urban phase** and is characterized by certain **distinctive material traits**, such as long chert blades, steatite seals, chert weights, red pottery with black designs, bronze tools of certain types, beads of specific designs and shapes, as well as bricks used for construction made in a particular ratio.
- The most unique feature of this civilisation was the **development of urban centres.**
- **Enigmatic script:** Harappan seals usually have a line of writing, probably containing the name and title of the owner. Most **inscriptions are short**, the longest containing about 26 signs. Although the **script remains undeciphered to date**, it was evidently **not alphabetical** and was written from right to left. The script is yet to be deciphered
- **Sinuli:** It is a village in Baghpat district of Uttar Pradesh. Recent archeological findings at this village suggest the **presence of a warrior class of people in the region** during the Copper-Bronze.

Conclusion

Although the current excavations at Rakhigarhi have revealed “an aristocratic settlement”, more rounds of excavation will be needed to ascertain the structure and nature of this elite settlement.

Major Harappan sites

Major Harappan sites	Distinct features
Dholavira in Gujarat	<ul style="list-style-type: none"> • Located on the arid island of Khadir in Gujarat, Dholavira is the fifth largest metropolis of IVC. • The site has a fortified citadel, a middle town and a lower town with walls made of sandstone or limestone instead of mud bricks in many other Harappan sites. • It also has a sophisticated water management system with a cascading series of water reservoirs. • The site includes a large cemetery with cenotaphs of six types testifying to the Harappan’s unique view of death. • Evidence for inter-regional trade with other Harappan cities, as well as with cities in the Mesopotamia region and the Oman peninsula have also been discovered. • It was also a hub of manufacturing jewellery made of shells and semi-precious stones, like agate and used to export timber. • It is a UNESCO World Heritage Site.

Lothal in Gujarat	<ul style="list-style-type: none"> It was an important port city, with a dockyard, of the Harappan civilisation, with structures made of mud bricks. From a graveyard in Lothal, 21 human skeletons were found. Foundries for making copperware were also discovered. <p>Ornaments made of semi-precious stones, gold etc. were also found from the site.</p>
Harappa in Pakistan	<ul style="list-style-type: none"> The Harappan seal is possibly the most distinctive artefact of the Harappan or IVC. Made of a stone called steatite, such seals often contain animal motifs and signs from a script that remains undeciphered A granary has also been found at Harappa. It has the rows of circular brick platforms, which were used for threshing grains. It is included in the tentative list of UNESCO world Heritage list.
Mohenjodaro in Pakistan	<ul style="list-style-type: none"> It is the best preserved urban settlement in South Asia. The planned city mostly built with baked bricks has two sections the Citadel in west and the Lower Town in East. On the Citadel a Buddhist stupa was constructed with unbaked brick in the 2nd century AD. Buildings are laid out along streets intersecting each other at right angles The city had public baths (the Great Bath is the most prominent); a college of priests; an elaborate drainage system; wells, soak pits for disposal of sewage, and a large granary. Other important findings: A piece of woven cloth, the bronze 'dancing girl' figurine and stone sculpture of a bearded man discovered at Mohenjodaro. It is a UNESCO World Heritage Sites.
Kalibangan, Rajasthan	<ul style="list-style-type: none"> Kalibangan or 'black bangles' - derives its name for the dense distribution of the fragments of black bangles which were found at the surface of its mounds. It had ploughed field and the lower city of Kalibangan was fortified.
Banawali, Haryana	<ul style="list-style-type: none"> It is known for its centralized planning among Harappan settlements. In Banawali, the main streets were winding rather than straight. The excavations have yielded three-fold culture sequence: Pre-Harappan (Early-Harappan), Harappan and Bara (post Harappan).

8.3. RAJA RAM MOHAN ROY: 'THE FATHER OF INDIAN RENAISSANCE'

Why in news?

Recently, India celebrated the 250th birth anniversary of Raja Ram Mohan Roy.

Personal life

One of the most influential social and religious reformers of the 19th century, Raja Ram Mohan Roy was born into a prosperous upper-caste Brahmin family, and grew up within the framework of orthodox caste practices of his time: child-marriage, polygamy and dowry, etc. Key facts of his life are as follows:

- Birth:** He was born on May 22, 1772 to Ramakanta Roy and Tarini Devi in Radhanagar village of Hoogly district, Bengal Presidency.
- Education:** Alongwith the modern education, he also studied **Vedas, the Upanishads, Kalpa Sutra and other Jain texts** and the **Tantric works** with the aid of Hariharananda Tirthaswami and religious texts of **Islam and Christianity**. Such education bred in him scepticism towards religious dogmatism and social strictures.
 - Polyglot:** He knew Bengali, Persian, Arabic, Sanskrit, and English.
- Career:** He entered the services of the East India Company as a **clerk** and later on was **promoted to the post of Deewan**.
- Death:** He died of **meningitis in 1833** while residing in Bristol, England.

Various designations to Raja Ram Mohan Roy

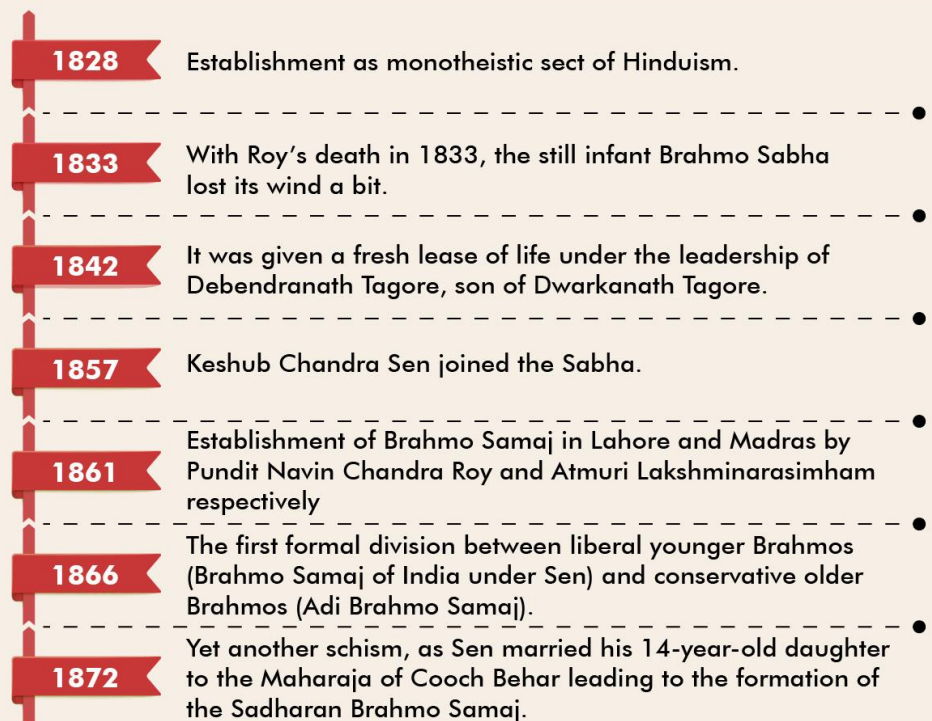
- The **title 'Raja'** was bestowed upon him by the Mughal emperor **Akbar II, in 1831**.
- Gopal Krishna Gokhale** called him the '**Father of Modern India**'.
- Rabindranath Tagore** called him a '**Bharatpathik**' by which he meant to say that Roy combined in his person the underlying spirit of Indic civilisation, its spirit of pluralism, tolerance and a cosmic respect for all forms of life.
- Several historians consider him as one of the **pioneers of the Indian Renaissance**. He was a nonconformist to regressive traditions.

Raja Ram Mohan Roy: The pioneer of modern Indian Renaissance.

Some of his important contributions are as follows-

- **Bengal Sati Regulation, 1829:** This regulation, passed under the Governor General William Bentinck, banned the practice of Sati. It was passed due to the relentless advocacy against sati by Roy alongside Ishwar Chandra Vidyasagar.
- **Equal rights to women:** He had also vehemently opposed child marriage and polygamy, while demanding equal inheritance rights for women.
- **Educational Reforms:** He campaigned for the modernisation of education, in particular the introduction of a Western curriculum. In this spirit, he **opposed establishment of the Sanskrit College**. Important educational institutions established by him include:
 - **Hindu College in 1817** in collaboration with Scottish philanthropist David Hare. Later on, this came to be known as **Presidency University**.
 - **Anglo-Vedic School in 1822.**
 - **Vedanta College in 1826.**
 - **The General Assembly's Institution in 1830** in collaboration with Alexander Duff. Later on, this came to be known as **Scottish Church College**.
- **Religious Contributions:** Roy had a three-fold mission:
 - **Hindu reformer:** As a Hindu Reformer, he gave a Unitarian reaction to the Hindu Shastras from the Vedanta and the Mahanirvana Tantra. He established:
 - ✓ **Atmiya Sabha (Society of Friends), 1814:** It was established to nurture philosophical discussions on the idea of monotheism in Vedanta and to campaign against idolatry, casteism, child marriage and other social ills.
 - ✓ **Brahmo Sabha, 1828:** It was setup with Debendranath Tagore, Rabindranath Tagore's father. It is also known as Brahmo Samaj.
 - **Muslim defender:** As a muslim defender of the faith, he wrote the '**Tuhfat-UI-Muwahhiddin'** (1803) and the '**Monozeautul Adiyar'**, which were polemical works.
 - **Christianity:** He gave a Unitarian version of the entire body of scriptures, old and new, in his controversies with the Christian Missionaries.
- **Freedom of the press:** He petitioned the British for freedom of the press in 1829 and 1830. He published
 - **'Sambad Kaumudi' (the Moon of Intelligence):** Founded in the year 1821, this Bengali weekly was **the first newspaper in an Indian language**.
 - **'Miratul- Akhbar' (the Mirror of News):** Founded in the year 1822, it was India's first Persian newspaper. Roy was also the first editor of this newspaper.
- **Economic reforms:**
 - **Exposed British for economic exploitation of India:** He was the first one to figure out that The East India Company was flowing approximately three million pounds a year from India to England.

THE BRAHMO SABHA OR BRAHMO SAMAJ



- **Voiced for poor peasants:** Even though he hailed from a Zamindar background, he continuously fought against the fixed revenue for the cultivators in Bengal and opposed heavy export duties imposed on Indian goods.
- **Rise in stipend to Mughal emperor:** He persuaded the British government to increase the Mughal Emperor's stipend by £30,000.
- **Political reforms:** He publicly, never demanded independence for India, but still, fought for the civil rights of the Indians and opposed the racial superiority of Europeans.

Conclusion

In the words of Ramachandra Guha, "**Roy was unquestionably the first person on the subcontinent to seriously engage with the challenges posed by modernity to traditional social structures and ways of being.** He was also one of the first Indians whose thought and practice were not circumscribed by the constraints of kin, caste and religion."

8.4. CHHATRAPATI SHAHU MAHARAJ

Why in news?

The death centenary (May 6th, 1922) of legendary king Shahu Maharaj was observed by the State of Maharashtra.

About Shahu Maharaj

- Shahu Maharaj was **born in Kolhapur District**, to Jaisinghrao Appasaheb Ghatge (Father) and Radhabai (Mother) **in June, 1874.**
- He was a **descendant of Chhatrapati Shivaji Maharaj**, the founder of the modern Maratha Empire.
- Originally named **Yashwantrao Ghatge**, he was **adopted into the Bhonsale dynasty** and became the ruler of Kolhapur in 1894.
- **Major Events associated with Shahu Maharaj**
 - **Vedokta controversy:** 'Vedokta' refers to Vedic religious rites which are supposedly the right of all the twice-born castes (Brahmins, Kshatriyas and Vaisyas), as opposed to the 'Puranokta' (from the Puranas) rites which all Shudras were entitled to perform.
 - ✓ The controversy arose on account of the **contested Kshatriya status of the Marathas**. In 1899, Shahu maharaj staked his claim to Vedokta. His royal priest, however, refused to oblige him since Shahu maharaj, in his view, was a Shudra. This turned out to be a **Brahmin versus non-Brahmin fight**.
 - **Association with Dr. B. R. Ambedkar:** He provided financial support to Ambedkar to complete his study. In 1920, together they organised a conference for the betterment of the untouchables. In this conference Shahu maharaj **declared Dr. Ambedkar "the true leader of the oppressed classes in India"**. He also financed Dr Ambedkar's newspaper 'Mooknayak (Leader of the Dumb) '.

His key contributions in making of the modern India:

- **Education:** He took following initiatives to promote education for all:
 - Established the **Miss Clarke Boarding School for the socially quarantined segments** of the community.
 - Introduced several **scholarships for the poor but meritorious students from backward castes**.
 - Initiated a **compulsory free primary education for all** in his state.
 - Established **Vedic Schools that enabled students from all castes and classes to learn** the scriptures and propagate Sanskrit education among all.
- **Social reforms:** He legalised widow remarriage in 1917 in Kolhapur. In 1919, he legalised Inter-caste and Inter-religion Marriage. He also passed the Law for Prevention of Cruelty against Women and the Manifesto against Observance of Untouchability.
 - Shahuji was **influenced by the works of Jyotiba Phule**, and patronised his **Satya Shodhak Samaj**. In his later life, he **moved towards the Arya Samaj**.
 - **Beginning of positive discrimination:** Shahu maharaj reserved 50% of the posts in the state's services, for the backward classes. It was the beginning of what came to be called 'reservation' or 'affirmative action'.
- **Political reform:** He established the **Deccan Rayat Association** in Nipani during 1916. The association sought to secure **political rights for non-Brahmins** and invited their equal participation in politics.

- **Economic reforms:** He introduced a number of projects like spinning and weaving mill, dedicated market places, establishment of co-operative societies for farmers, and established the King Edward Agricultural Institute to teach the farmers to increase crop yield and related technologies. He initiated the Radhanagari Dam in 1907 (the project was completed in 1935).
- **Freedom Fight:** On Bal Gangadhar Tilak's suggestion, he helped the Shivaji Club, who undertook revolutionary activities, with money and weapons.

Conclusion

Shahu maharaj was committed to the welfare of the backward classes and also to the idea of a modern, forward-looking society that was modelled on what he had observed in Europe.

8.5. NEWS IN SHORTS

8.5.1. MARTAND TEMPLE

- After almost three decades, the auspicious **Navgrah Ashtamangalam Pooja** was held at the **ancient Martand Sun temple in Mattan in Jammu and Kashmir**.
- Martand Temple was built by **King Lalitaditya of Karkota Dynasty of Kashmir (724 to 761 CE)** in honour of Sun or Martand in the **8th century**.
 - It is one among the **oldest sun temples** such as **Konark, Almora, Modhera and Borsad Sun Temple**.
- It is considered as an example of **Kashmiri architectural skills** built in a **square field** using **limestone** and **pillars in Greek Pattern**.
 - In **15th century** it was destroyed on order of Muslim ruler **Sikander Butshikan**.
- Today, it has been tagged as a **site of national importance** (protected by ASI).

8.5.2. CENTRAL ADVISORY BOARD ON ARCHAEOLOGY (CABA)

- **CABA was re-constituted recently.**
- **Its functions would include:**
 - **Advising Centre** on matters relating to archaeology,
 - **Promoting closer contacts** of Archaeological Survey of India (ASI) with Indian Universities conducting Archaeological Researches and other and other Institutions carrying out archaeological studies,
 - **Training future Archaeologists,**
 - Providing for **closer association of State Governments with ASI activities.**
- **Minister of Culture will be the Chairman** and members will include officials from Ministry of Culture and ASI, MPs, nominees of State governments etc.
- **Board will meet once a year.**

8.5.3. INTERNATIONAL BOOKER PRIZE

- Renowned Hindi author **Geetanjali Shree became the first Indian to win** this award for 2022 for her book **'Tomb of Sand (Ret Samadhi)'**. Her book is also the **first Indian-language book to be recognised** by the award.
- **International Booker Prize**
 - It was **constituted in 2005 to complement the Man Booker Prize** which is for English novels and has been won by Indians in the past.
 - It is awarded **annually for a book that is translated into English and published in the UK or Ireland.**

8.5.4. YUVA TOURISM CLUBS

- CBSE along with Ministry of Tourism has asked its **affiliated schools to form YUVA Tourism Clubs.**
- Objective is to **develop young ambassadors for Indian tourism**, make them aware of tourism possibilities in India and **appreciate our rich cultural heritage.**
- Initiative will also **lead to development of soft skills** like teamwork, management, leadership and **encourage adoption of ecological tourism.**

8.5.5. EVENTS OF NATIONAL IMPORTANCE

- **Ministry of Information and Broadcasting** has notified a **fresh list of sporting events** of national importance.
- These are **notified under Sports Broadcasting Signals (Mandatory Sharing with Prasar Bharati) Act.**
 - Act mandates the **broadcasting rights holders** of these sporting events to **share live feed with public broadcaster Prasar Bharati.**
- **Following events are declared as events of national importance:** all Olympics Games, Commonwealth Games and Asian Games, various sports events like cricket, tennis, hockey, football, badminton, Kabaddi, etc.

8.5.6. THOMAS CUP

- **India won its maiden Thomas Cup title** beating Indonesia 3-0 in the final.
- Thomas Cup is an **international badminton competition** (started in 1948). The 16 teams that compete are representing member nations of the Badminton World Federation (BWF).
- It was **started by** a legendary badminton player of England **Sir George Alan Thomas**.
- The three teams with the most titles are **Indonesia (14), China (10), and Malaysia (5)**.

- **Denmark was the first non-Asian country** to win the Thomas Cup.

8.5.7. GLOBAL TRAVEL AND TOURISM DEVELOPMENT INDEX

- **Released by:** World Economic Forum.
- Index assesses 117 economies biennially, **identifying key factors in enabling the sustainable and resilient growth of travel and tourism economies**.
- **India** ranked at **54th position** out of 117 assessed countries while **Japan** ranked **1st** in the index.



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9. ETHICS

9.1. ETHICAL CORPORATE GOVERNANCE IN STARTUPS

Introduction

Since the economic reforms of 1990's, entrepreneurship and business firms in India have gone through a plethora of changes. Startups are the latest addition to it, supported by **digitization**. But in recent times, several startups have found themselves with poor internal controls or avoidable controversies (e.g., BharatPe). This has ignited the need for strengthening **ethical corporate governance standards/principles** in these new-age companies.

About Ethical Corporate Governance

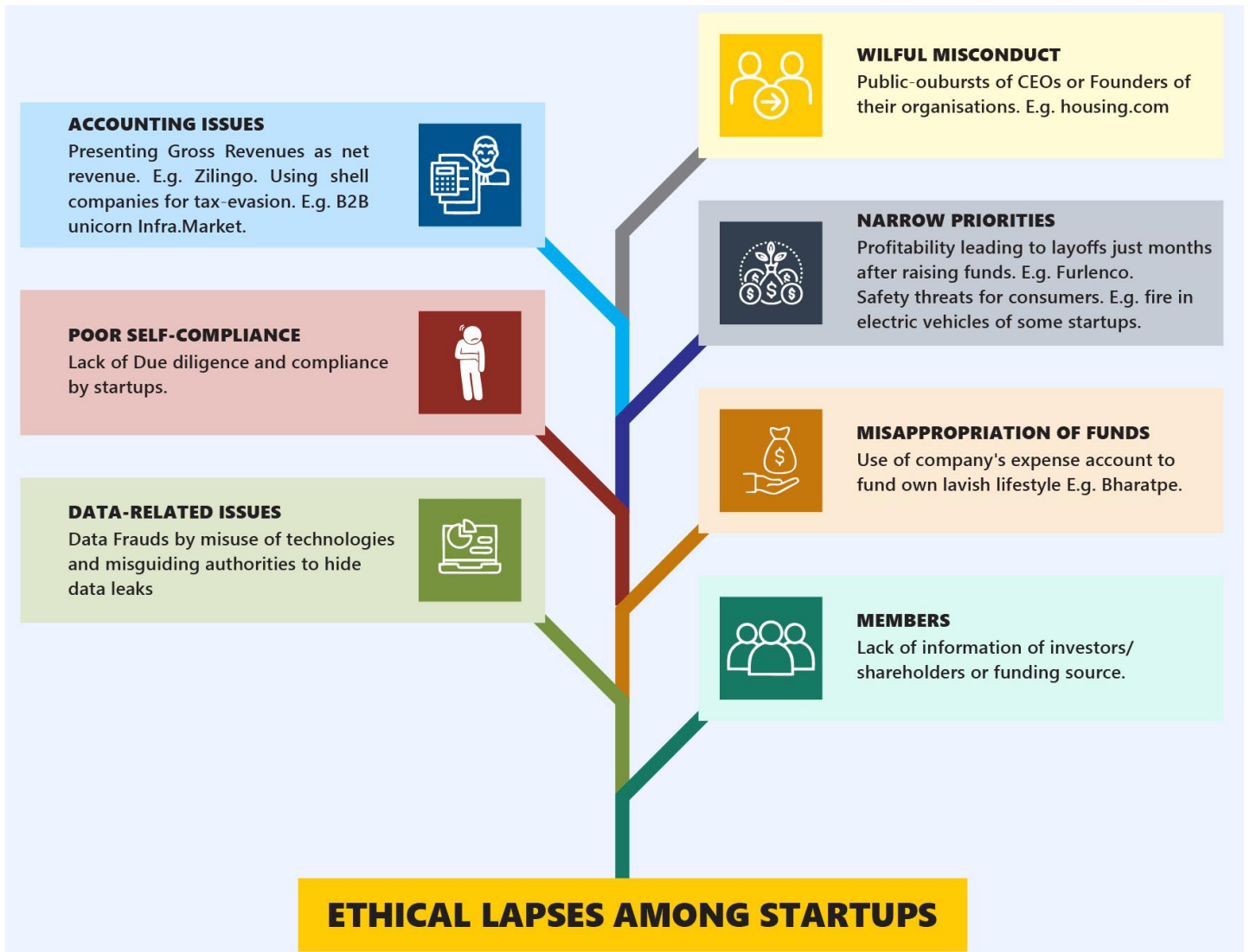
- The **Cadbury Committee** defined corporate governance as "the system by which companies are directed and controlled."
- It represents the structure of rules, practices, and processes used to direct and manage a company for its efficient and effective functioning.
- Ethical Corporate Governance is when these rules, practices and processes are **driven by moral principles or values** to ensure efficiency.



- It includes principles of **accountability, transparency, integrity, fairness, corporate social responsibility** etc.
- The **board of directors** of a company hold the prime responsibility of ensuring this **ethical corporate governance** by:
 - **Aligning company decisions with interests of all stakeholders**, i.e., shareholders, senior management, financiers, employees, customers, government, community etc., and
 - **Preventing the operational and managerial malpractices**, serving **quality goods or services to customers** and yield benefits of ethical corporate governance for all.

Why is there a need for Ethical Corporate Governance in Startups?

- **Unconventional nature:** Startups are the **early-stage companies** focusing **beyond conventional strategies** for smart solutions to problems in a **cost-effective manner**. This warrants an improvised application of the ethical corporate governance principles.
- **Large and growing numbers:** India has the **3rd largest startup ecosystem** in the world with **71,248 recognized startups**, including **100 unicorns**, with a total valuation of over **₹25 lakh crore rupees**.
- **Sectoral omnipresence:** They are present in almost every conceivable space and function as the new **engines of growth, job creation** and **socio-cultural transformation** In India.
- **Young age of founders, limited business exposure and short-term interests** like funding rather than long-term sustainability leads to increased ethical lapses (see image).



Why is it challenging for Start-ups to adopt Ethical Corporate Governance?

Unlike big corporate houses or listed companies with availability of guidelines, resources and experience, startups suffer from issues such as:

- **Limited resources:** In initial stages, most startups lack people or funds necessary for creating systems and processes for building an ethical workplace.
- **Young-age of entrepreneurs:** As number of startups are started by entrepreneurs with negligible or zero experience, they tend to have limited understanding of why ethical systems and corporate governance is essential for long-term growth.
- **Workplace culture issues:** The workplace culture prevalent in India is largely employer centric, creating issues like limited accountability, low emphasis on values such as fairness etc. This indirectly discourages start-ups to adopt an ethical culture organically.
- **Short-term Focus:** When started or in an early stage, the focus of most startups are attracting funding, which could lead to the neglect of ethical principles necessary in the long-term perspective.
- **Underdeveloped Ecosystem:** Indian startup ecosystem has some **missing links** such as **proper mentorship and support; public interest-oriented Venture Funds** etc.

How can start-ups get freedom of growth without compromising their ethical responsibilities?

Not a one approach to corporate governance may be right for all companies, including startups. But they can start by following some ethical principles, applied to their context:

- **Accountability:** The Company Management should follow the **obligation to explain and reason** for the company's **actions and conduct**. Streamlined methods can be adopted for this communication to avoid additional regulatory burden on Start-ups.
- **Responsibility:** On behalf of the company, the **Board of Directors/investors** should accept full responsibility for the powers they are given and **exercise the authority**.
- **Transparency:** Inform stakeholders about the **company's activities**, what it plans to do in the future and any risks involved in its business strategies as part of **good governance**. Digital tools like weekly newsletters, updated website could be used make the associated cost minimal.
- **Fairness:** The corporate strategy, developed and implemented by management, should focus on long-term value creation through **timely disclosures**; helping investors to assess the **financial and business soundness and risks of the company**.
- **Corporate Social Responsibility (CSR):** In decision-making, management should consider the interests of all company's constituencies, including:
 - **Stakeholders** such as employees, customers, suppliers, and the community, and
 - **Regard for environmental, health, safety, and sustainability** for long-term value creation.
- **Leadership:** The top of startups should set the tone- demonstrating **company's commitment to integrity and legal compliance**- to set the groundwork for an **ethical work culture**.
- Also, other stakeholders have the responsibility to make Ethical Governance easier by-
 - **Government:** Developing a **Code of Best Practices** on corporate governance standards and providing tailor-made versions ethical practices for different sectors (in order to encourage compliance).
 - **Citizens:** In addition to being customers, they are co-producers and evaluators of services. The choices that they by and large dictate the processes and products of companies. They can help by making more ethically responsible choices.

Conclusion

Starting a company is just a beginning on a long journey. Ethical corporate governance helps a startup in this by building and sustaining **reputation**, attract/retain **talented employees** and gain **trust** towards its **stated objectives**. An ethical start-up ecosystem will lay the foundation for an ethical economy, an ethical society, and most importantly the ethics in individual action.

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10. SCHEMES IN NEWS

10.1. MEMBERS OF PARLIAMENT LOCAL AREA DEVELOPMENT SCHEME (MPLADS)

Why in news?

Recently, the **Ministry of Finance has revised the rules**, under which the **interest accumulated on the MPLADS fund** will be **deposited in the Consolidated Fund of India** for timely and efficient utilisation of funds.

More about News

- Earlier, the interest accrued on the **fund used to be added to the MPLADS account** and **could be used for the development projects**.
- The proposed changes are aimed at **timely and efficient utilisation of funds**.

Objective	Silent Features
<ul style="list-style-type: none"> • To enable MP to recommend works of developmental nature with emphasis on the creation of durable community assets based on the locally felt needs to be taken up in their Constituencies in the area of national priorities namely drinking water, education, public health, sanitation, roads, etc. 	<ul style="list-style-type: none"> • It is a Central Sector Scheme, launched in 1993. • Ministry of Statistics and Programme Implementation (MoSPI) is responsible for the policy formulation, release of funds and prescribing monitoring mechanism for implementation of Scheme. • District Authority is responsible for overall coordination and supervision of works under scheme at district level and inspect at least 10% of works under implementation every year. • Fund is released in the form of grants in-aid directly to the district authorities on receipt of requisite documents. • Funds under MPLADS are non-lapsable. • MPs receive Rs.5 crore each year in two instalments of Rs. 2.5 crore each. • Every year, MP shall recommend atleast 15 percent of MPLADS funds for areas inhabited by SC population and 7.5 percent for areas inhabited by ST population. • In the event of “Calamity of severe nature” in any part of the country, an MP can recommend works up to a maximum of Rs.1 crore for the affected district. • Based on the innovative ideas received from the local people regarding developmental projects, a ‘One MP – One Idea’ Competition may be held in each Lok Sabha constituency annually to select the three best innovations for cash awards and certificate of appreciation for next five best innovations. • Recommendations are as follows <ul style="list-style-type: none"> ○ Members of Lok Sabha (LS) can recommend work within their Constituencies. ○ Elected Members of Rajya Sabha (RS) can recommend works in one or more districts in the State from where he/she has been elected. ○ An elected MP can contribute MPLADs fund in a place outside that State/ UT, or outside the constituency within State (or both) for eligible works up to a maximum of Rs. 25 lakh. ○ Nominated Members of LS and RS can select any one or more Districts from any one State for implementation of their choice of work under the scheme.

10.2. PRIME MINISTER’S EMPLOYMENT GENERATION PROGRAMME (PMEGP)

Why in news?

Government extends PMEGP scheme for five more years till FY26 with Rs 13.5k crore outlay.

Objective	Salient Features
<ul style="list-style-type: none"> • To generate employment opportunities in rural as well as urban areas of the country through setting up of new self- 	<ul style="list-style-type: none"> • It was launched in 2008 by merging the two schemes namely Prime Minister’s Rojgar Yojana (PMRY) and Rural Employment Generation Programme (REGP). • It is a central sector scheme being administered by the Ministry of Micro, Small and Medium Enterprises (MoMSME). • It is a credit-linked subsidy programme. <ul style="list-style-type: none"> ○ Only one person from family is eligible for obtaining financial assistance under the scheme.

<p>employment ventures/projects/micro enterprises.</p> <ul style="list-style-type: none"> To bring together widely dispersed traditional artisans! rural and urban unemployed youth and give them self-employment opportunities to the extent possible, at their place. To provide continuous and sustainable employment to a large segment of traditional and prospective artisans and rural and urban unemployed youth in the country, so as to help arrest migration of rural youth to urban areas. To increase the wage-earning capacity of workers and artisans and contribute to increase in the growth rate of rural and urban employment. 	<ul style="list-style-type: none"> ✓ The 'family' includes self and spouse. ○ Assistance under the Scheme is available only for new projects. ● Benefits: <ul style="list-style-type: none"> ○ Under the scheme, beneficiaries can get loans up to ₹50 lakh for setting up new manufacturing units and ₹20 lakh for setting up new service units. ✓ Existing units or units already availed any government subsidy either under State/Central Government Schemes are not eligible for assistance. ○ Government subsidy <ul style="list-style-type: none"> ✓ For rural areas : 25% for general category and 35% for special category, which includes SC/ST/OBC/Minorities/Women, Ex-serviceman, Physically Handicapped, NER, Aspirational and Border district. ✓ For urban areas: 15% for general category and 25% for special category. ✓ As per recent modifications, areas falling Panchayati Raj institutions will be accounted under rural areas and areas under municipality will be recognised as urban areas. ● Criteria for fixing targets: <ul style="list-style-type: none"> ○ Extent of backwardness of state, unemployment; extent of fulfilment of previous year targets; population of state/union territory; and availability of traditional skills and raw material. ○ A minimum target of 75 projects/district is awarded to all districts of the country to achieve inclusive growth. ● Nodal/ Implementing Agencies: <ul style="list-style-type: none"> ○ At National Level: Khadi and Village Industries Commission (KVIC) is the nodal agency at National Level. <ul style="list-style-type: none"> ✓ The Government subsidy is routed by KVIC through the identified Banks into the beneficiaries' bank accounts. ○ At State level: State offices of KVIC, State Khadi and Village Industries Boards (KVIBs) and District Industries Centres (DICs) are implementing agencies in the ratio of 30:30:40. ● Performance: <ul style="list-style-type: none"> ○ Around 7.8 lakh micro enterprises have been assisted with a subsidy of Rs 19,995 crore for providing employment to around 64 lakh people from inception till now. ○ Around 80 per cent of the units assisted under PMEGP are in rural areas and about 50 per cent units are owned by scheduled caste, scheduled tribe and women entrepreneurs. <div style="text-align: center;"> </div>
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10.3. PRADHAN MANTRI JEEVAN JYOTI BIMA YOJANA (PMJJBY), PRADHAN MANTRI SURAKSHA BIMA YOJANA (PMSBY), AND ATAL PENSION YOJANA (APY)

Why in news?

Recently, PMJJBY, PMSBY, and APY complete seven years, launched under Ministry of Finance in 2015, of providing affordable insurance and social security to the people.

Specifications	PMJJBY	PMSBY	APY
Objective	<ul style="list-style-type: none"> It is a Central sector pension scheme. One-year accidental insurance scheme which is renewable from year to year. Offering coverage for death or disability due to any reason. Offered by Life Insurance Corporation. 	<ul style="list-style-type: none"> Aimed at covering the population not covered under any accidental insurance cover at highly affordable premium of just Rs.12 per year. Offered through Public Sector General Insurance companies. 	<ul style="list-style-type: none"> It is a central sector scheme. Subscribers would receive the fixed minimum pension at the age of 60 years, depending on their contributions. It replaced the Swavalamban scheme. Administered by Pension Fund Regulatory and Development Authority (PFRDA) under overall administrative and institutional architecture of the National Pension System (NPS).
Eligibility	<ul style="list-style-type: none"> Available to citizens (including NRIs) in age group of 18 to 50 years. Subject to annual renewal, benefits are available till age of 55 (entry, however, will not be possible beyond the age of 50 years). Those having a savings bank account who gives their consent to join and enable auto-debit. 	<ul style="list-style-type: none"> Available to citizens (including NRIs) in age group 18 to 70 years having a bank account. Individual may re-join, by paying annual premium. 	<ul style="list-style-type: none"> Open to all Indians between the age of 18 and 40. Any bank account holder who is not a member of any statutory social security scheme can avail of the scheme. All existing members of the government's 'Swavalamban Yojana NPS Lite' will automatically be migrated to the APY.
Salient features	<ul style="list-style-type: none"> Rs 2 Lakh life cover for death due to any reason. Premium of Rs. 330/- per annum. Risk cover is applicable only after first 45 days of enrolment. 	<ul style="list-style-type: none"> Rs. 2 Lakh for accidental death and permanent full disability. Rs. 1 Lakh for permanent partial disability. Premium payable is Rs.12/- per annum per member. 	<ul style="list-style-type: none"> Subscriber would receive guaranteed minimum monthly pension of Rs 1,000 to Rs 5,000 per month after attaining age of 60 years, depending on contribution. Spouse of subscriber can continue contribution to APY account of subscriber, after death of subscriber, for remaining vesting period, till original subscriber would have attained age of 60 years. Return of indicative pension wealth to nominees after death of spouse. Contributions to APY are eligible for tax benefits similar to NPS. Subscribers can make contributions to APY on monthly/quarterly/half-yearly basis. Central Government's co-contribution: 50% of total contribution or Rs. 1000 per annum, whichever is lower for a period of 5 years. Minimum period of contribution by any subscriber is 20 years.
Achievement	<ul style="list-style-type: none"> Enrolments rose to 12.76 crore. 11,522 crore rupees has been paid for over 5 lakh 76 thousand claims. 	<ul style="list-style-type: none"> Enrolments have been over 28.37 crore. 1930 crore rupees have been paid for over 97, 227 claims. 	<ul style="list-style-type: none"> More than 4 crore individuals have subscribed.

Places in News: India

Jammu and Kashmir

- Navgrah Ashtamangalam Pooja was held at the ancient Martand Sun temple.
- Government has inaugurated India's first Lavender festival at Jammu's Baderwah district.

Ladakh

- Scientists have discovered almost 35 million years old rare Madtsoiidae snake fossil from malasse deposits of Ladakh Himalaya.
- Ministry of External Affairs has confirmed the building of a second bridge on the Pangong Tso lake.

Bihar

- Bihar opens India's first greenfield grain-based ethanol plant

Arunachal Pradesh

- BRO conducted final break through blast of Nechiphu Tunnel.

Andaman & Nicobar (A&N) Islands

- A&N Islands get clearance for gas-based power plant

Chhattisgarh

- Chhattisgarh recognises community forest rights (CFR) of the tribals of the KangerGhati National Park (KNP)

Telangana

- A prehistoric rock shelter with rock paintings from the Mesolithic age, megalithic burials and microliths have been found.

Rajasthan

- Rajasthan became the first state to surpass 10 GW of cumulative large-scale solar installations
- Rajasthan Government has notified the Ramgarh Vishdhari Wildlife sanctuary as a tiger reserve

Madhya Pradesh

- Bhopal and Indore are set to be included under India's first set of smart cities.

Maharashtra

- Ministry of Tourism inaugurated public amenities at Kanheri Caves.
- Maharashtra overtook Uttar Pradesh to re-emerge as top sugar producer.

Tamil Nadu

- Iron Age in Tamil Nadu stretches back to 2172 BCE according to iron implements discovered from Mayiladumparai.
- India's 1st Vertical Lift Sea Bridge (Pamban Bridge) to be ready by December end.

Places in News: World

Sweden
Sweden have applied to join NATO.

Finland
Finland leaders in favour of seeking NATO membership.

Nordic Countries
2nd India-Nordic Summit at Copenhagen.

Nagorno-Karabakh
It is a disputed territory between Armenia and Azerbaijan.

Germany

- India, Germany Sign \$10.5 Billion Green Deal.
- Germany withdraws UN court case against Italy over World War II

Jordan
India and Jordan have signed current year and long term MoUs for assured fertilizers supply to India.

China
Hangzhou 2022 Asian Games are postponed to 2023.

Japan
Chinese naval vessels passed through the Miyako Strait, that separates Japan's Okinawa's main island from Miyako Island.

Philippines
Bongbong Marcos Jr is set to be the new President of Philippines.

Israel
Israel court paves way for eviction of 1,000 Palestinians from West Bank area

Nigeria
Nigeria recorded first death due to Monkeypox.

La Reunion Island
Recently, the navies of India and France carried out the 2nd joint patrol.

Brazil





- 24th Deaflympics will be organised in Brazil.
- Brazilian scientists warn that Pantanal, freshwater wetland, is at risk of collapse

Jamaica
President Kovind becomes first Indian President to visit Jamaica.

Côte d'Ivoire
Fifteenth session of Conference of the Parties (COP-15) of United Nations Convention to Combat Desertification (UNCCD) held.

Mozambique
India and Mozambique agreed to step up counter-terrorism efforts.

Personalities in News









Personality	About	Ethical Values Exhibited by the personality
 <p>Jagadguru Basaveshwara</p>	<ul style="list-style-type: none"> ● Basaveshwara, or Basavanna, was a 12th century philosopher and social reformer who founded the Lingayat Sect, also known as the Virashaiva movement. <ul style="list-style-type: none"> ▫ His life and works are given in Basava Purana, written by Palkuriki Somanatha. ● He believed in equality and hard work, leading to his work towards social reforms (abolition of caste, gender equality, widow remarriage etc.) and shared his experiences through Vachanas. ● He served King Bijjala of Kalachuri Dynasty and founded Anubhava Manatapa, a parliament where academicians and philosophers can congregate and share experiences. 	<ul style="list-style-type: none"> ● Egalitarianism and dignity of labour <ul style="list-style-type: none"> ▸ He penned down poems to question the social and political order of his time based on hierarchy of status and wealth. ▸ In his teachings, he advocated for the dignity of manual labour and its right to be recognized.
 <p>Devasahayam Pillai</p>	<ul style="list-style-type: none"> ● Devasahayam Pillai (Blessed Lazarus) has been granted sainthood by the Vatican Roman-Catholic church. <ul style="list-style-type: none"> ▫ He is the first Indian layman to be declared a saint by the Vatican. ● Devasahayam was born on April 23, 1712 in Nattalam village in Kanyakumari district (Tamil Nadu). ● He went on to serve in the court of Marthanda Varma of Travancore. ● He became a Catholic in 1745, a few years after coming into contact with a captain from Dutch East India Company while serving the royal house of Travancore. ● He was baptised in 1745, and assumed the name 'Lazarus', meaning 'God is my help'. 	<ul style="list-style-type: none"> ● Conviction of belief <ul style="list-style-type: none"> ▸ He sacrificed his life for his beliefs about the equality of humankind and his struggle to end caste based distinctions
 <p>Shri Hemwati Nandan Bahuguna</p>	<ul style="list-style-type: none"> ● He was an Indian National Congress leader and former Chief Minister of Uttar Pradesh. ● Born in Bughani, Pauri Garhwal, Uttarakhand in a Garhwali Brahmin family. ● He joined freedom movement at young age of seventeen and was imprisoned and tortured by British authorizes for his role in Quit India movement. ● Worked for underprivileged sections of society. 	<ul style="list-style-type: none"> ● Patriotism and Zeal <ul style="list-style-type: none"> ▸ He was deeply wedded to the concept of liberty that drew him into the freedom movement at the young age of 17. ▸ He throughout his life, had unwavering commitment to democracy.
 <p>Balkrishna Doshi</p>	<ul style="list-style-type: none"> ● Indian architect Balkrishna Doshi was conferred with Royal Gold Medal, 2022 by Royal Institute of British Architects (RIBA). <ul style="list-style-type: none"> ▫ He is the only Indian to have been awarded both the Royal Gold Medal and Pritzker Architecture Prize, often referred to as the Nobel Prize of architecture, in their lifetime. 	<ul style="list-style-type: none"> ● Visionary <ul style="list-style-type: none"> ▸ He is a renowned architect and urban planner and has realized a wide range of projects, adopting principles of modern architecture and adapting them to local culture, traditions, resources, and nature. He is one of the few pioneers of modern architecture.

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WEEKLY FOCUS

Holistic coverage of an issue every week

ISSUE	DESCRIPTION	LEARN MORE
 <p>Agricultural Inputs - Part I Soil and Water: Elemental Agricultural Inputs</p>	<p>The foundations of sound agriculture is built on basic conditions such as good fertility of the land and availability of water. The document deals with two of the basic inputs i.e. soil and water and discusses the underlying issues with each of them. It further takes us deep into the grey areas which are often talked about and potential areas to work on.</p>	
 <p>Agricultural Inputs- Part II Seeds and Pesticides: Essential Consumable Inputs</p>	<p>Once the foundations are ensured, crop raising requires good quality seeds and their protection from damage due to pest attacks. Through this document, issues related to these two have been discussed along with the measures that have been taken to protect crops as well as our farmers. Further reading reveals how inadequate farmer awareness is still a major issue that is stalling the progress in this domain.</p>	
 <p>Agricultural Inputs- Part III Agricultural Mechanisation and Credit: Growth driving capital inputs</p>	<p>Is the availability of adequate farm credit and efficient farm machinery the panacea for all the agricultural issues being faced? This document while examining the issues in availability of these inputs, also discusses the issues that emerge even after these are available. It also identifies the future potentials in this area.</p>	
 <p>Decoding Democracy: From Evolution to Threats to Revival</p>	<p>Across the world, concern has been growing about the future of democracy, and there is considerable dissatisfaction with how democracy is working in practice. Let us go back through this document to the basic question of what is democracy and how it came into being. Is democracy still the preferred form of government and if yes, what the world leaders and we as citizens can do to protect and strengthen it?</p>	

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AIR



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SINGLA**

4
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VERMA**

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**UTKARSH
DWIVEDI**

6
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**YAKSH
CHAUDHARY**

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