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## Monthly Current Affairs April 2023

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**This Document was prepared under the supervision of Mr. Pramod Singh, Director, Edge IAS.**

**Current Affairs, April 2023**

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# 1. Polity and Governance

## 1.1 State of Denotified Tribes

### Why in news?

A standing committee of Parliament has criticised the functioning of the development programme for de-notified, nomadic and semi-nomadic tribes.

### Who are denotified, nomadic and semi-nomadic tribes?

- It has been estimated that South Asia has the world's largest nomadic population. In India, roughly 10% of the population is denotified and nomadic.
- Denotified tribes (DNTs) are communities that were notified as being 'born criminal' during the British regime under a series of laws starting with the Criminal Tribes Act of 1871.
- They were denotified in 1952 when independent India repealed this act but the Habitual Offenders Act, 1952, kicked in soon after.
- Nomadic and semi-nomadic communities are defined as those who move from one place to another rather than living at one place all the time.
- A National Commission for De-notified, Nomadic and Semi-Nomadic Tribes (NCDNT) was first set up in 2003 and later reconstituted in 2005.
- It was headed by Balkrishna Sidram Renke and estimated their population at around 10.74 crore based on Census 2001.
- A new Commission which was constituted in 2014 to prepare a state-wise list submitted its report in 2018 identifying 1,262 communities as de-notified, nomadic and semi-nomadic.

### What is the standing committee report about?

- The Standing Committee on Social Justice and Empowerment tabled its 31st report in Parliament.
- The Committee noted that the Department could not spend even a single rupee in 2021-22 on the Scheme for economic empowerment of DNT communities.
- The budgetary allocation has been reduced to Rs 28 crore for 2022-23 against the budgetary allocation of Rs 50 crore for 2021-22.
- It also noted that the department has already delayed in formulation of the Scheme for welfare of denotified, nomadic and semi-nomadic communities.
- The Committee has found that the department has not been able to take any decision in placing these communities in SC, ST and BC categories till date.

### What is DWBDNC?

- The 2014 commission that submitted report in 2018 had recommended the setting of up a permanent commission for these communities.
- However, the government set up the Development and Welfare Board for De-notified, Nomadic and Semi-Nomadic

### Communities (DWBDNC) under the Societies Registration Act, 1860.

- It was set under the aegis of Ministry of Social Justice and Empowerment for the purpose of implementing welfare programmes.
- The DWBDNC was constituted in 2019 under the chairmanship of Bhiku Ramji Idate.
- Also, a committee has been set up by the NITI Aayog to complete the process of identification of the DNCs.
- Ethnographic studies of DNCs are being conducted by the Anthropological Survey of India.

### **What is the history of deprivation faced by these communities?**

Many commissions and committees have referred to the problems of these communities. These include

- Criminal Tribes Inquiry Committee, 1947
- Ananthasayanam Ayyangar Committee, 1949
- Kaka Kalelkar Commission, 1953
- B N Lokur's Advisory Committee, 1965
- B P Mandal Commission , 1980
- National Commission to Review the Working of the Constitution (( chairmanship of Justice M N Venkatachaliah), 2002

### **Problems faced**

- Marginalization from social and economic mainstream
- Low human development index and high relative deprivation index
- Large deprivation from the gains of planned development
- Lack of empowerment
- Carriers of social stigma
- This is partly because these communities are largely politically quiet that they do not place their demands concretely before the government.
- They lack vocal leadership and also lack the patronage of a national leader.

### **What welfare measures were taken by the government?**

- Dr. Ambedkar Pre-Matric and Post-Matric Scholarship for DNTs- This centrally sponsored scheme was launched in 2014-15 for the welfare of those DNT students who are not covered under SC, ST or OBC.
- The income ceiling for eligibility is Rs 2 lakh per annum.
- Nanaji Deshmukh Scheme of construction of hostels- This centrally sponsored scheme was launched in 2014-15 to provide hostel facilities to those DNT students who are not covered under SC, ST or OBC to enable them to pursue higher education.
- The income ceiling for eligibility is Rs 2 lakh per annum.
- The Central Government provides a maximum of 500 seats per annum throughout the country.
- Assistance to voluntary organization working for the welfare of OBCs- From 2017-18, this scheme has been extended for DNTs and EBCs as Central Sector Scheme of Assistance for Skill Development of OBCs/ DNTs/ EBCs.
- Scheme for Economic Empowerment of DNT Communities (SEED)- It has four components
- To provide coaching of good quality for DNT candidates to enable them to appear in competitive examinations
  - To provide health insurance to them
  - To facilitate livelihood initiative at community level

## **1.2 Tripura's Darlong Community in ST List**

### **Why in news?**

Darlong Community in Tripura was officially included in the list of Scheduled Tribes after the Lok Sabha passed the Constitution (Scheduled Tribes) Order (Amendment) Bill, 2022.

### **Who are Darlongs?**

- Tripura houses 19 tribal communities including Tripuri, Brus, Jamatia, Noatia, Uchoi, Chakma, Mog, Lushai, Kuki, Munda, Kour, Oram, Santhal, Bhil, Bhutia, Sermai, Garo, Khasi, Lepcha and Halam.
- Darlong is a tribal community of 11,000 people with a high prevalence of education, cultural activities serving in different high positions in the local administration.
- Darlongs, despite being Scheduled Tribes, were never given ST certificates.

- They were considered a generic tribe under the Kuki community, and were handed their tribal certificates as members of 'Kuki' community.
- The identity crisis among them culminated in the demand for a separate statutory identity of their own in 1995.
- A bill to include Darlongs in the list of STs as a sub-tribe of Kuki community was first placed before the Parliament in 2016.

#### **What does the amendment entail?**

- As per Article 342 (1), the President may after consultation with the Governor specify the tribal communities as Scheduled Tribes.
- As per Article 342 (2), Parliament may by law include in or exclude any tribal community from the list of Scheduled Tribes specified in a notification issued under clause (1)
- The Constitution (Scheduled Tribes) Order (Amendment) Bill, 2022 seeks to amend the Constitution (Scheduled Tribes) Order, 1950 for inclusion of certain community in the list of Scheduled Tribes in relation to the State of Tripura.
- The Bill proposes to include Darlong community as a sub-tribe of "Kuki" in the list of Scheduled Tribes.

#### **Why is tribal identity a big issue in Tripura?**

- The Sixth Schedule of the Constitution provides for the administration of tribal areas in Assam, Meghalaya, Tripura, and Mizoram to safeguard the rights of the tribal population.
- Nearly 30 % of population in Tripura are tribals, who mostly live in areas under jurisdiction of the Tripura Tribal Areas Autonomous District Council (TTAADC)
- When the state was merged into the Indian Union, it saw tribals become minority due to arrival of East Pakistani refugees who fled their country.
- There have been rising demands for Tipraland – a proposed separate state for tribals.
- Greater Tipraland – a proposed separate state for Tiprasa or Tripuris (tribal and non tribal) living in the state is also witnessed.

#### **What are the government's major tribal development plans?**

- NCST- The National Commission for Scheduled Tribes (NCST) was established by inserting a new Article 338A in the Constitution through the Constitution (89th Amendment) Act, 2003.
- Vanbandhu Kalyan Yojana (VKY) - It aims at creating enabling environment for need based and outcome oriented holistic development of the tribal people.
- Adi Adarsh Gram Yojana- It was implemented for integrated development in tribal villages spanning from health, education and drinking water.
- STC funds- There have been gradual and a steady increase in Scheduled Tribe component (STC) funds since the last few years.
- The Ministry of Tribal Affairs had recently introduced a scheme of nearly Rs 7,000 crore to provide broadband and 4G connectivity in tribal hamlets under the STC funds.
- Scholarships- Under the scholarship schemes, around 30 lakh ST students are being covered for financial assistance through DBT mode
- Eklavya Model Schools-It was set up to impart quality education to ST children in remote areas in order to enable them to avail of opportunities in high and professional educational courses and get employment in various sectors.
- Livelihood opportunities- Several schemes have been introduced to support marketing and development of activities for livelihood such as
  - Institutional Support For Development And Marketing Of Tribal Products/Produce
  - Marketing Of Minor Forest Produce (MFP) Through Minimum Support Price (MSP)
  - The Van Dhan Scheme

## 1.3 Tamil Nadu Special Reservation Act of 2021

### Why in news?

The Supreme Court has quashed the Tamil Nadu Special Reservation Act of 2021 on the ground that it was not based on updated quantifiable data.

### What is the history of reservation in the state of Tamil Nadu?

- The first BC Commission (1969-70), headed by A.N. Sattanathan, talked of having a device for removing the top layers of the communities periodically (creamy layer concept).
- The second BC Commission headed by Ambasankar advocated compartmental reservation by grouping the BCs on the basis of backwardness.
- Up until 1971, Tamil Nadu's total reservation had stood at 41%.
- In 1989, a new category called MBC and DNC was carved out of the BCs and given 20% exclusively from the then quantum of 50%.
- In 2007, Muslims in the BCs were provided with 3.5% reservation.
- In 2009, 3% reservation was provided for Arunthathiyars out of 18% quota for the SCs.

### How Tamil Nadu's reservation stands at 69% despite the 50% quota cap?

- In 1990, Tamil Nadu's overall reservation was taken to 69%.
- But the Indira Sawhney case judgement capped the total reservations within the 50% limit.
- The High Court of Madras and Supreme Court ruled that the reservation should not exceed 50% in the matter of admission to educational institutions.
- The Tamil Nadu government introduced the Tamil Nadu Backward Classes, Scheduled Castes and Scheduled Tribes (Reservation of Seats in Educational Institution and of appointments or posts in the Services under the State) Bill, 1993.
- The President's assent came which cemented the 69% reservation for Tamil Nadu.
- The Act was also brought under the Ninth Schedule of the Constitution.
- Article 31B of the Constitution states that none of the Acts that are included under the Ninth Schedule shall be deemed to be void by any court or tribunal

### What is the act about?

- The Tamil Nadu Special Reservation Act of 2021 or the Vanniyar quota law was introduced to meet the demand of Vanniyars, a caste that is classified among the Most Backward Classes (MBC).
- The law provided an internal reservation of 10.5% for the Vanniyar community in education and employment within the 20% quota for all MBCs and DNCs.
- The act was promulgated based on the recommendations of the Tamil Nadu Backward Classes Commission.
- The legislation was challenged before the High Court which held it unconstitutional.
- The court cited the lack of adequate quantifiable data on the socio-educational status of the Vanniyars with the State government before the introduction of the law.
- It also cited that the sub-classification done solely based on population data, in the absence of any objective criteria, is in violation of the constitution of India.
- Aggrieved by the judgment, Tamil Nadu had moved an appeal before the Supreme Court.

### What is the Supreme Court's judgement?

- Violation of fundamental rights- The apex court upheld the Madras high court judgment, stating that the law violates Article 14, 15 and 16 of the constitution.
- Under Articles 14, 15 and 16 of the constitution, the government is allowed to make special laws to protect the marginalised classes of society.
- However, the same needs to be backed by quantifiable data on the socio-educational status of the class or community concerned.



- If there is enough data to prove that the class of persons are socially and economically backwards and need reservations, such reservation cannot go beyond 50% (Indira Sawhney case).
- In case the state exceeds the 50% limit, the same needs to be justified on valid grounds or else it will amount to giving preferential treatment from among the same class.
- Absence of quantifiable data- The Bench was of the view that caste can be the starting point for providing internal reservation, but the State Government has to justify it with adequate data.
- No proper analysis- The Court also pointed out that no analysis had been made of the relative backwardness and representation of other communities in the MBCs and DNCs.

#### **Is it possible for States to make changes in the backward classes list?**

- The 102nd Amendment to the Constitution created the National Backward Class Commission and empowered the President to notify the backward classes list for each State.
- The Supreme Court had ruled, in the Maratha reservation case, that the Amendment took away the power of the States to notify or identify OBCs.
- Later, the 105th Amendment made it explicit that the States could make changes in their lists.
- The Supreme Court also held that the State Government had the legislative competence to pass the Act.

## **1.4 The End of the Marital Rape Exception**

### **Why in news?**

The Karnataka High Court's order has refused to quash charges of rape against a man accused of forcibly having sex with his wife.

### **What is marital rape?**

- The term marital rape (also referred to as 'spousal rape') refers to unwanted intercourse by a man on his wife obtained by force, threat of force or physical violence or when she is unable to give consent.
- The origin of the marital rape exception lies in the treatise on criminal law of England called the 'History of the Pleas of the Crown' pronounced in 1736.
- The concept was that the husband cannot be guilty of a rape committed by himself upon his lawful wife due to their mutual matrimonial consent.
- This was translated into criminal codes, including the Indian Penal Code which India adopted.
- India is one of the countries including Pakistan, Afghanistan, Bangladesh, Egypt, Algeria and Botswana that have not criminalised marital rape.
- In the United Kingdom, in 1991, the exception to marital rape was done away stating that law should declare that a rapist remains a rapist subject to the criminal law, irrespective of his relationship with the victim.

### **What are the provisions available in India regarding marital rape?**

- Section 375 of the IPC defines rape and provides for exceptions in the case of married couples.
- Exception 2 of Section 375 states that sexual intercourse by a man with his own wife, the wife not being under 15 years of age, is not rape.
- Section 376 of the IPC provides for punishment for rape.
- The Justice Verma Committee, set up in 2012 to reform criminal law has proposed that the exception for marital rape be removed.
- The Constitution guarantees women the fundamental rights under Articles 14, 15, 19 and 21 the right to live with dignity, personal liberty, bodily integrity, sexual autonomy, right to reproductive choices, right to privacy, right to freedom of speech and expression.

### **What is the High Court's view?**

- Case background-A woman had filed a criminal complaint of rape against her husband due to the repeated

acts of sexual assault she had to face.

- The police registered her complaint and the Sessions Judge took cognisance and framed charges under Section 376.
- The husband filed an application to drop the charge of Section 376 but the Sessions Judge rejected it.
- This led to the husband approaching the High Court seeking to quash the criminal proceedings.
- High Court order- The court refused to quash the charge of rape against the husband.
- It held that the exception to marital rape in the IPC violates women's right to equality which is the very soul of the Constitution.
- Also it amounts to discrimination because a wife is treated as subordinate to the husband.
- The court also stated that the exemption of the husband on committal of such assault cannot be so absolute that it becomes a licence for commission of a crime.

#### **What were the earlier judgments?**

- In *Independent Thought vs. Union of India, 2017*, the Supreme Court held that sexual intercourse by a man with his wife, who is below 18 years of age is rape.
- In 2021, Chhattisgarh High Court ruled that sexual intercourse or any sexual act by a husband with their spouse would not constitute rape even if it was forcible or against the consent of a legally wedded wife.
- The Constitutionality of the marital rape exception is also under challenge before the Delhi and Gujarat High Courts.

## **1.5 Reforming Death Penalty**

#### **What is the issue?**

The Supreme Court has taken a suo moto cognizance to consider laying down guidelines for assessment of mitigating circumstances in death penalty cases.

#### **What are the legal provisions available regarding death sentence?**

- Despite a global moratorium against the death penalty by the UN, India retains the death penalty.
- Death penalty may be awarded under the provisions of criminal procedure.
- Death penalty can be awarded in case of the following offences
  1. Waging war against the Government of India (Section 121)
  2. Abetting mutiny actually committed (Section 132)
  3. Giving or fabricating false evidence upon which an innocent person suffers death (Section 194)
  4. Murder which may be punished with death or life imprisonment (Section 302)
  5. Abetment of suicide of a minor or insane, or intoxicated person. (Section 305) (6)
  6. Dacoity accompanied with murder. (Section 396)
  7. Attempt to murder by a person under sentence of imprisonment for life if hurt is caused. (Section 307)

The POCSO Act was amended in August 2019 to introduce the death penalty for the non-homicide offence of penetrative sexual assault on children.

#### **How are judges supposed to choose between life and death sentences?**

- A framework was developed by the Supreme Court, after it upheld the constitutional validity of the death penalty in *Bachan Singh's* case in 1980, to decide on factors while choosing between life imprisonment and death sentence.
- The framework states that legislature in the Criminal Procedure Code (CPC) would consider life imprisonment as the default punishment.
- The judges would need to give "special reasons" if they wanted to impose the death sentence which means death penalty can be awarded in "rarest of rare cases".
- This framework also stated that the judges must consider both the mitigating and aggravating factors concerning crime and the accused while announcing death penalty.

- Machhi Singh Vs. State of Punjab case provided exceptions to the rarest of rare rule and death penalty can be invoked when
  - Murder is committed in extremely brutal manner so as to arouse extreme indignation of the community
  - Murder is committed by a motive which shows total depravity and meanness
  - The crime is enormous in proportion

#### **What are the protections guaranteed under the constitution?**

- Article 21 - The Maneka Gandhi case held that Article 21 affords protection not only against executive actions but also against legislations.
- Thus, a person can be deprived of his life under capital punishment, only if there is a law which is just, fair and reasonable.
- Article 72 - The President can pardon even death sentence, while the governor cannot under Article 161.
- Even when the pardon was denied to a death row convict, there is scope for judicial review if the presidential decision is arbitrary, irrational and discriminatory.
- Article 134- Right of appeal was provided from the High Court verdict to Supreme Court in any case where capital punishment was imposed on an accused in reversal of acquittal order.

#### **What are the avenues available to a death-row convict?**

- A criminal trial has two stages — the guilt stage and the sentencing stage.
- Sentencing happens after the accused has been found guilty of the crime and this is the stage where punishment is determined.
- Anything presented or said during sentencing cannot be used to reverse or change the finding of guilt.
- After a trial court awards the death penalty, the sentence must be confirmed by a High Court.
- The sentence cannot be executed till the time the High Court confirms it, either after deciding the appeal filed by the convict, or until the period allowed for preferring an appeal has expired.
- If the High Court confirms the death penalty and it is also upheld by the Supreme Court, a convict can file a review petition.
- If the review petition is rejected, the convict can file a curative petition for reconsideration of the judgment.

#### **What are the concerns?**

- The 'The Death Penalty in India: Annual Statistics' was published by Project 39A of National Law University (NLU), Delhi.
- Concerns have been raised that the death penalty has been awarded mainly considering the crime factor while overlooking the accused.
- Only the brutality factor of the crime was considered while awarding death sentence without sufficiently bringing in the circumstances of the accused.
- There has been widespread concern that the imposition of death sentences has been arbitrary.
- Similar concerns have been expressed by the Law Commission of India (262nd Report).

#### **Reasons**

- Sentencing information about the accused is very scarce
- Vast majority of death row prisoners are economically vulnerable and very often receive poor legal representation
- No real guidance on how judges must go about assigning weight to aggravating and mitigating factors

#### **What is the Supreme Court's view on this matter?**

- The judgments in Santa Singh (1976) and Mohd Mannan (2019) have recognised that it is important to collect this complex interplay of information sentencing.
- It requires professionals other than lawyers to collect such information.

- The criminal justice system needs to ensure that systems are created for procedural fairness.
- The Supreme Court has now looked into setting guidelines for reviewing the procedure of awarding death sentences.

## 1.6 Laws that govern tapping a Phone

### Why in news?

Sanjay Raut, a political party leader has accused the Centre of protecting IPS officer Rashmi Shukla, under probe for tapping the phones of political leaders in 2019.

### How are phones tapped in India?

- During the times of fixed-line phones, mechanical exchanges would link circuits together to route the audio signal from the call.
- When exchanges went digital, tapping was done through a computer.
- Authorities make a request to the service provider, which is bound by law to record the conversations on the given number and provide these in real time.
- Competent authority to tap phones- In the states, police has the power to tap phones.
- At the Centre, 10 agencies are authorised to do so including the Intelligence Bureau, CBI, Enforcement Directorate, National Investigation Agency, R&AW and Delhi Police Commissioner.
- Tapping by any other agency would be considered illegal.
- The competent authority must record reasons for tapping in writing.

### What laws govern phone tapping?

Act- Phone tapping in India is governed by the The Indian Telegraph Act, 1885.

Time- Phone tapping can be done

- On the occurrence of any public emergency
- In the interest of the public safety
- Conditions- Phone tapping can be done by the Centre or States if they are satisfied it is necessary in the interest of
  - Public safety
  - Sovereignty and integrity of India
  - Security of the State
  - Friendly relations with foreign States
  - Public order
  - Preventing incitement to the commission of an offence
- Exception- An exception has been given for the press.
- The press messages of correspondents accredited to the Central Government or a State Government that is intended to be published in India shall not be intercepted, unless their transmission has been prohibited under this sub-section.
- Authorisation- Rule 419A of the Indian Telegraph (Amendment) Rules, 2007 talks about the authorising orders that has to be conveyed to the service provider in writing.
- Phone tapping orders is issued by
  - The Secretary to the Government of India ( Ministry of Home Affairs) in the case of Government of India
  - The Secretary to the State Government in-charge of the Home Department in the case of a State Government
- Emergency situations- In unavoidable circumstances, such an order may be issued by an officer, not below the rank of a Joint Secretary to the Government of India, who has been authorised by the Union Home Secretary, or the State Home Secretary.
- If it is not feasible to get prior directions, a call can be intercepted with the prior approval of the authorised officers.
- The order has to be communicated within 3 days to the competent authority, who has to approve or

disapprove it within 7 working days.

### **What are the checks against misuse?**

- Telephone conversation is an important facet of a man's private life. Telephone tapping would thus infract Right to
- Privacy under Article 21 of the Constitution.
- Last resort - Interception must be ordered only if there is no other way of getting the information.
- Directions for interception- The directions for interception remain in force, unless revoked, for a period not exceeding 60 days.
- They may be renewed, but not beyond a total of 180 days.
- Review Committee- Any order issued by the competent authority has to contain reasons, and a copy is to be forwarded to a review committee within seven working days.
- When the Review Committee is of the opinion that the directions are not in accordance with the provisions, it may set aside the directions and orders for destruction of the copies of the intercepted messages.
- Destruction of records- Records pertaining to such directions shall be destroyed every six months.
- Service providers are required to destroy records pertaining to directions for interception within two months of discontinuance of the interception.
- Unauthorised interception- In case of unauthorised interception, the service provider may be fined or even lose its licence.

## **1.7 Draft Battery Swapping Policy**

### **Why in news?**

Amid several instances of Electric Vehicles (EVs) erupting into flames, Niti Aayog has released a draft battery swapping policy.

### **What is battery swapping?**

- Battery swapping is an alternative which involves exchanging discharged batteries for charged ones and provides flexibility to charge them separately.
- This de-links charging and battery usage and keeps the vehicle in operational mode with negligible downtime.
- Battery swapping is generally used for smaller vehicles such as 2 wheelers and 3 wheelers with smaller batteries that are easier to swap.
- Battery swapping offers three key advantages relative to charging
  1. Time
  2. Space
  3. Cost efficient

### **What are the key proposals of the policy?**

The policy has proposals offering

- Incentives to electric vehicles (EVs) with swappable batteries
- Subsidies to companies manufacturing swappable batteries
- A new battery-as-a-service business model
- Standards for interoperable batteries
- Rollout of the policy
  - Phase 1- All metropolitan cities with a population of more than 40 lakh will be prioritised within 1-2 years of the draft policy getting finalised.
  - Phase 2- Other major cities with a population greater than 5 lakh will be covered under the second phase.
- Applicability- The policy will only support batteries using Advanced Chemistry Cells (ACC) that are

equivalent or superior to EV batteries supported under the government's FAME-II scheme.

- Tax reduction- The draft policy has suggested that the GST Council consider reducing the differential across the tax rates on Lithium-ion batteries and electric vehicle supply equipment.
- Currently, the tax rate on the former is 18 %, and 5 % on the latter.
- Incentives- The policy also proposes to offer the same incentives available to electric vehicles that come pre- equipped with a fixed battery to electric vehicles with swappable batteries.
- The size of the incentive could be determined based on the kWh (kilowatt hour) rating of the battery and compatible EV.
- Contract duration- The government will specify a minimum contract duration for a contract to be signed between EV users and battery providers.
- This is to ensure that they continue to provide battery swapping services after receiving the subsidy.
- Charging stations- The policy requires state governments to ensure public battery charging stations are eligible for EV power connections with concessional tariffs.
- It proposes to bring such stations under existing or future time-of-day (ToD) tariff regimes, so that the swappable batteries can be charged during off-peak periods when electricity tariffs are low.
- Nodal agency- The Bureau of Energy Efficiency (BEE), the Central Nodal Agency responsible for the rollout of EV public charging infrastructure, will be responsible for the implementation of battery swapping networks across the country.
- Authority- Transport Departments and State Transport Authorities will be responsible for easing registration processes for vehicles sold without batteries or for vehicles with battery swapping functionality.
- Municipal corporations will be responsible for planning, zoning permissions and land allocation for battery swapping stations.
- UIN- The policy also proposes to assign a unique identification number (UIN) to swappable batteries at the manufacturing stage to help track and monitor them.
- Similarly, a UIN number will be assigned to each battery swapping station.
- Data-sharing agreements- Major battery providers will be encouraged to sign data-sharing agreements to provide information on battery health, performance, and to enable more flexibility to consumers through peer-to-peer roaming networks.
- Grievance redressal- Battery Providers shall be designated as the Point of Contact with EV owners and shall be responsible for grievance redressal.
- Battery reuse and recycling- To address the concerns related to battery life and resale value, BIS or other relevant organizations shall develop regulations.
- Battery Management Rules shall be released separately to cover the end-of-life handling of the batteries in detail and fix the Extended Producer Responsibility (EPR).

#### **What is the battery-as-a-service model?**

- Niti Aayog said battery swapping will fall under the battery-as-a-service (BaaS) business model.
- It involves users purchasing an EV without the battery and paying a regular subscription fee to service providers for battery services throughout the vehicle lifetime.
- BaaS is applicable for both fixed and removeable batteries and is the channel to implement swapping solutions.
- The business models would have to ensure interoperability between EVs and batteries for a successful mainstreaming of battery swapping as an alternative.

#### **What does the draft policy say on EV safety?**

- A rigorous testing protocol will be adopted to ensure a high level of protection (avoid any unwanted temperature rise) at the electrical interface.
- The battery management system, which is a software that controls battery functions, will have to be self-certified and open for testing to check its compatibility and capability to meet safety requirements.
- Batteries shall be tested and certified as per AIS 156 (2020) and AIS 038 Rev 2 (2020) standards for safety

of traction battery packs.

- Swappable batteries have to be equipped with advanced features like IoT-based battery monitoring systems, remote monitoring and immobilisation capabilities for better protection of assets.

## 1.8 Jahangirpuri Eviction Drive

### What is the issue?

Recently, a fleet of bulldozers descended on Jahangirpuri in Delhi to demolish buildings, petty shops, and the entrance gate of a mosque.

### What is the Jahangirpuri eviction drive?

- Communal violence had broken out in the Jahangirpuri area on April 16 when a Hanuman Jayanti Shobha Yatra, which did not have police permission, clashed with Muslims as it went alongside the mosque.
- The demolition drive was initiated after a petition was given to North Delhi Municipal Corporation (NDMC) to demolish the illegal constructions of the rioters in Jahangirpuri.
- Soon after the demolitions started, the Supreme Court in an urgent hearing ordered that “status quo” be maintained until further orders.
- But the demolition continued for over an hour after the order was passed.
- The Jahangirpuri drive comes in the backdrop of demolition drives carried out by the State governments in Khargone and Anand where bulldozers were used to raze encroached properties.

### What are the major legal concerns of citing “illegal encroachment”?

The actions of state and local authorities to bulldoze shops and homes in riot-hit Muslim neighbourhoods citing “illegal encroachment” raises major legal concerns

1. Such actions show a disregard for the due process of law and established judicial precedents regarding evictions.
2. It conveys the use of brute state power for collective punishment undermining the basic tenets of criminal law.

### What is the case of illegal encroachment in Delhi?

- According to the Delhi Economic Survey 2008-09, about 24% of the city lived in planned colonies and the rest lived in informal or unplanned areas.
- The Draft Master Plan of Delhi, 2041 also acknowledges the informality that characterises Delhi.
- Since the 1970s, there have been many waves of regularisation of unauthorised colonies initiated by the state.
- The Union Government launched the PM-UDAY (Unauthorised Colonies in Delhi Awas Adhikar Yojana) scheme which confers property rights to residents of unauthorised colonies.

### What protections are in place against eviction?

- Section 343 of the Delhi Municipal Corporation Act, 1957, which allows the corporation to order the demolition of buildings, states that “no order of demolition shall be made unless a notice is served to the affected person for a reasonable opportunity”.
- Irrespective of the legal status of the settlement, no public authority can demolish buildings without giving the affected parties a chance to be heard.
- The Delhi High Court, in *Sudama Singh vs Government of Delhi* (2010), mandated that the state should comply with fair procedure before undertaking any eviction.
- This got crystallised in the Delhi Slum & JJ Rehabilitation and Relocation Policy, 2015.
- In *Ajay Maken vs Union of India* (2019), the Delhi High Court held that no authority shall carry out eviction without conducting a survey, consulting the population that it seeks to evict and providing adequate rehabilitation for those eligible.

- The court invoked the idea of the “Right to the City” and the “Right to Adequate Housing” from international law and held that slum-dwellers possess the right to housing and should be protected from forced and unannounced eviction.
- Given these precedents, before a public authority undertakes any action in Jahangirpuri, it should not only serve notice but also consult those that it seeks to evict.

**What does this action signify?**

- Threat to minorities- The bulldozer itself has now become a symbol of brute state power and a revolting mascot to intimidate minorities.
- It raises alarms on the establishment of a bulldozer state that dispenses majoritarian justice.
- Authoritarian state- The demolition activities seem to be purposefully done under full media glare to convey the unbridled power.
- Arbitrary actions- Under the new bulldozer state, even before any charges are framed, the executive arbitrarily imposes a form of collective punishment upon a whole neighbourhood.
- In the midst of such a majoritarian upsurge, the rule of law cannot be saved purely through judicial intervention and would need broader political struggles.



## 2. International Relations

### 2.1 India-Nepal Relations

#### Why in news?

The Nepal Prime Minister, Sher Bahadur Deuba, paid a long-awaited visit to India, his first bilateral visit abroad, in keeping with tradition.

#### What are the developments of India-Nepal relations over the years?

- Diplomatic relations- India-Nepal relations were founded on the age-old connection of history, culture, tradition and religion.
- The two countries established diplomatic relations on 17 June 1947.
- India's neighbourhood first policy signifies the importance of Indo-Nepal relations.
- Political relations- The frequent high level visits by the leaders of the two countries at different points of time and the interactions constitute the hallmark of the ties between the two countries.
- The recent visit of Nepal's PM to India reiterates the need for strengthening the existing bilateral mechanisms.
- Economic relations- India is Nepal's largest trading partner.
- Following the massive earthquakes in Nepal in 2015, India promptly offered helping hands.
- Nepal has escalating trade deficit with India. Nepal and India have concluded bilateral Treaty of Transit, Treaty of Trade and the Agreement of Cooperation to Control Unauthorized Trade.
- In the International Conference on Nepal's Reconstruction (2015), the Government of India pledged grants and soft loans.
- Connectivity- The 1950 Treaty of Peace and Friendship was sought by the Nepali authorities in 1949 to provide for an open border and for Nepali nationals to have the right to work in India.
- The BBIN Motor Vehicles Agreement (MVA) in which Nepal is a partner will permit the member states to ply their vehicles in each other's territory for transportation of cargo and passengers.
- Multilateral and Regional Fora- Both Nepal and India work in tandem in the United Nations, Non-aligned Movement and other international fora on most of the important international issues.
- Both the countries have been deeply engaged in the regional and sub-regional frameworks of SAARC, BIMSTEC and BBIN for enhancing cooperation for greater economic integration.

#### What are the positive outcomes of the Deuba regime?

- Cross-border rail link- The Rs 787 crore project of cross-border rail link (35km) from Jayanagar (Bihar) to Kurtha (Nepal) has been operationalised recently.
- The Konkan Railway Corporation will provide the necessary technical support initially.
- Circuit transmission line- The 90 km long 132 kV double circuit transmission line connecting Tila (Solukhumbu) to Mirchaiya (Siraha) has been inaugurated.
- It was constructed with an Exim Bank concessional loan of Rs 200 crore where a dozen hydroelectric projects were planned in the Solu corridor.
- Technical cooperation agreements providing technical cooperation were also signed such as the
  - In the railway sector
  - Nepal's induction into the International Solar Alliance
  - Between Indian Oil Corporation and Nepal Oil Corporation on ensuring regular supplies of petroleum products
- Mahakali Treaty- The Mahakali Treaty, signed in 1996 covers the Sarada and Tanakpur barrages as well as the Pancheshwar Multipurpose project.
- The ambitious \$7 billion project needs political will to move it forward.
- The current joint vision statement on power sector cooperation recognises the opportunities for joint development power generation projects together with cross border transmission linkages and

coordination between the national grids.

- U.S. Millennium Challenge Corporation (MCC) - The agreement provides a grant of 500 million dollars for building 318 km of high voltage transmission lines along with sub-stations and the maintenance of 300 km of the East-West highway.
- Recently, Mr. Deuba pushed through the ratification of the agreement with the (MCC), despite the reservations of his coalition partners and China.

#### **Why is China's role in Nepal a matter of concern?**

- During monarchy- China maintained a link with the Palace and its concerns were primarily related to keeping tabs on the Tibetan refugee community.
- After monarchy- China has shifted attention to the political parties and to institutions such as the Army and Armed Police Force and considers Nepal an important element in its growing South Asian footprint.
- Recent years- In 2016, the then PM, Mr. Oli visited Beijing to negotiate an Agreement on Transit Transportation.
- Later, a Protocol was concluded with China providing access to four sea ports and three land ports.
- China has overtaken India as the largest source of foreign direct investment.
- China is also engaged with airport expansion projects at Pokhara and Lumbini.

#### **How to manage the growing differences?**

- The 1950 Treaty of Peace and Friendship- This treaty is viewed as a sign of an unequal relationship, and an Indian imposition.
- The two Foreign Ministers should possibly acknowledge the report of the groups on the 1950 treaty publicly to kickstart Track 2 conversations.
- Many Nepali nationals who were legally entitled to hold Rs 25,000 of Indian currency (given that the Nepali rupee is pegged to the Indian rupee) were left high and dry due to demonetisation.
- Boundary issue- The boundaries had been fixed in 1816 by the British, and India inherited the areas over which the British had exercised territorial control in 1947.
- While 98% of the India-Nepal boundary was demarcated, two areas, Susta and Kalapani remain disturbing.
- In 2019, when India issued new maps following the division of the State of Jammu and Kashmir as Union Territories, Mr. Oli expanded the Kalapani area dispute by endorsing a new map of Nepal.
- To build upon the positive mood, it is necessary these issues be discussed, behind closed doors and at Track 2 and Track 1.5 channels.
- India needs to be a sensitive and generous partner for the "neighbourhood first" policy to take root.

## **2.2 India and the U.K. Crafting a New Legacy**

### **Why in news?**

Recently, the U.K. Foreign Secretary had visited India and participated in the inaugural edition of India-U.K. Strategic Futures Forum, a Track 1.5 Dialogue, pushing the bilateral relationship on an upward trajectory.

### **What are the areas of cooperation between the two countries?**

- 2030 Roadmap- India and the UK adopted the ambitious 'Roadmap 2030' to elevate bilateral ties to a Comprehensive Strategic Partnership.
- India's Indo-Pacific Oceans Initiative- The U.K. will join India's Indo-Pacific Oceans Initiative and become a major partner on maritime security issues in Southeast Asia.
- The U.K. is a regional power in the Indo-Pacific as it possesses naval facilities in Oman, Singapore, Bahrain, Kenya, and British Indian Ocean Territory.
- Defence cooperation- India is a key strategic partner for the U.K. and was underscored by signing of Defence and International Security Partnership between India and the U.K. in 2015.
- Joint cyber security programme- A new joint cyber security programme is set to be announced to protect online infrastructure as both parties attempt to carry out joint exercises to combat threats from cyber

criminals and ransomware.

- Strategic Tech Dialogue- India and the U.K. plan to hold the first Strategic Tech Dialogue, a ministerial-level summit on emerging technologies.
- British International Investment funding- The U.K. has confirmed 70 million euro of British International Investment funding to support the usage of renewable energy in India.
- India–U.K. Free Trade Agreement- In January, India and U.K. managed to conclude the first round of talks for an India–U.K. Free Trade Agreement.
- The negotiations reflected shared ambitions to secure a comprehensive deal between the fifth and sixth largest economies in the world as both sides covered over 26 policy areas.

#### **What are the new areas of cooperation?**

- The newer areas of cooperation include
- Fintech
- Market regulation
- Sustainable and green finance
- Cyber security
- The notable success of the collaboration with Oxford-Astra Zeneca and the Serum Institute of India in producing Covishield vaccines in India has been one of the instances of successful cooperation.
- The forthcoming visit of Mr. Johnson to New Delhi signifies the importance of India's role in the dynamically changing global order as New Delhi prepares itself to host the G20 presidency in 2023.
- As India seeks to carve out a new role for itself in the evolving global order as a 'leading power' and the U.K.
- recalibrates its strategic outlook post-Brexit, this is a unique moment in India-U.K. ties.
- New geopolitical realities demand a new strategic and it is time to seize the moment to lay the foundations of a partnership that can respond adequately to the challenges of the 21st century.

## **2.3 India-Sri Lanka Fisheries Issue**

#### **Why in news?**

After a gap of 15 months, the India-Sri Lanka Joint Working Group (JWG) on fisheries held its much-awaited deliberations in virtual format.

#### **What is the history of the issue?**

- One of the major reasons complicating the issue is of Kachchatheevu Island.
- India ceded the uninhabited island to Sri Lanka in 1974 under a conditional accord.
- In 1976, through an exchange of letter, both India and Sri Lanka agreed to stop fishing in each other's waters.
- In 2009, the Sri Lankan government declared Kachchatheevu Island as sacred land owing to a Catholic shrine's presence on the piece of land.
- The Central government of India, according to the 1974 accord, recognises Sri Lanka's sovereignty over Kachchatheevu.

#### **What is the recent issue?**

- The State government has control up to 12 nautical miles (NM) from the base line, while the rest is vested with the Union government.
- Poaching in the territorial waters of Sri Lanka- Recently, seven fishermen — five from Tamil Nadu and two from Sri Lanka have died in mid-sea clashes.
- As sections of fishermen from Tamil Nadu continue to transgress the International Maritime Boundary Line, cases of getting arrested and boats being impounded by the Sri Lankan authorities continue.
- The issue got aggravated when the impounded boats were auctioned despite a bilateral understanding on the matter.

### **Why is trawling a bone of contention between the two countries?**

- As per the Tamil Nadu Marine Fisheries Regulation Act, 1983, bottom trawling operations shall not be conducted within three nautical miles from the coast line.
- Bottom trawling is a method of fishing that involves dragging heavy weighted nets across the sea floor, in an effort to catch fish.
- The use of mechanised bottom trawlers by Tamil Nadu fishermen is an issue not just between the two states but is seen as an adverse activity affecting the marine ecology.
- The actions of the Tamil Nadu fishermen adversely affect their counterparts in the Northern Province who are also struggling to come to terms with life after the civil war.
- At the same time, the fishermen of Tamil Nadu experience the lack of fishing areas (full of rocks and coral reefs besides being shallow) consequent to the demarcation of the IMBL in June 1974.
- Under the Tamil Nadu Marine Fishing Regulation Act 1983, mechanised fishing boats can fish only beyond 3 NM from the coast pushing the fishermen to cross the IMBL frequently.

### **How can the issue be resolved?**

- Fisher-level talks- The people of the two countries in general have common threads of language, culture and religion, all of which can be used purposefully to resolve any dispute.
- Role of government- The Tamil Nadu fishermen have to commit themselves to a swift transition to deep sea fishing or other alternative methods for which the government have to come forward as a guarantor.
- Whenever there is a genuine complaint about Tamil Nadu fishermen having damaged the properties of the counterparts, the Indian government can compensate this through proper channels.
- India's MoU with Sri Lanka for the development of fisheries harbours can be modified to include a scheme for deep sea fishing to the fishermen of the North.
- R&D- The JWG has agreed to have joint research on fisheries, which should be commissioned at the earliest.
- Deep sea fishing- India have to modify its scheme on deep sea fishing to accommodate the concerns of its fishermen so that they take to deep sea fishing without any reservation.
- The revised scheme has to absorb satisfactorily not only the unit cost of long liners but also the running cost.
- There is a need for the Central and State government to implement the Pradhan Mantri Matsya Sampada Yojana proactively to covers alternative livelihood measures including seaweed cultivation, open sea cage cultivation, and sea ranching.
- Institutional mechanisms- The two countries should explore the possibility of establishing a permanent multi-stakeholder institutional mechanism to regulate fishing activity in the region.

## **2.4 Fifth BIMSTEC Summit – 2**

### **Why in news?**

In its 25th year, and at its fifth summit held in hybrid format in Colombo, the organisation adopted a charter which aims at providing greater coordination among the members.

### **What is BIMSTEC?**

- BIMSTEC is a regional multilateral organization comprising 7 Member States lying in the littoral and adjacent areas of the Bay of Bengal.
- This sub-regional organization came into being on 6 June 1997 through the Bangkok Declaration.
- The seven Member States are Bangladesh, Bhutan, India, Nepal, Sri Lanka, Myanmar and Thailand.
- It has its secretariat at Dhaka, Bangladesh.
- Initially, the economic bloc was formed with 4 Member States with the acronym 'BIST-EC' (Bangladesh, India, Sri Lanka and Thailand Economic Cooperation).

## BIMSTEC Centres

- BIMSTEC Energy Centre
- BIMSTEC Centre on Weather and Climate To know about Fifth BIMSTEC Summit-1, [click here](#)

## What is the Colombo package of the fifth BIMSTEC Summit?

- The process of re-defining its purpose and rejuvenating its organs and institutions was launched at the
- Leaders' Retreat convened by India in 2016.
- It gathered momentum in Kathmandu Summit in 2018 and the result is now seen in the package of agreements announced at the fifth summit.
- BIMSTEC Charter- It presents BIMSTEC as "an inter-governmental organization" and lists 11 items such as acceleration of economic growth and social progress in the Bay of Bengal region, promotion of multidimensional connectivity, etc.
- The grouping now views itself as a regional organisation whose destiny is linked with the area around the Bay of Bengal.
- Sectors of cooperation- It was decided to re-constitute and reduce the number of sectors of cooperation from 14 to 7.
- Each member-state will serve as a lead for a sector
  - Trade, investment and development (Bangladesh)
  - Environment and climate change (Bhutan)
  - Security, including energy (India)
  - Agriculture and food security (Myanmar)
  - People-to-people contacts (Nepal)
  - Science, technology and innovation (Sri Lanka)
  - Connectivity (Thailand)
- Master Plan for Transport Connectivity- It was devised and backed by the Asian Development Bank (ADB).
- It lists 264 projects entailing a total investment of 126 billion dollars applicable for 2018-2028.
- Others- The package also includes three new agreements signed by member states, relating to
  - Mutual legal assistance in criminal matters
  - Cooperation between diplomatic academies
  - Establishment of a technology transfer facility in Colombo

## Why is this Summit significant?

- Edge over SAARC- The new charter comes at a time when the need for an alternative regional-global organisation is increasingly being felt because of the declining nature of SAARC which has not met since 2014.
- Security- The Bay of Bengal borders the Strait of Malacca which is the main energy lane for the eastern and Southeast Asian nations.
- The security relevance of BIMSTEC has been growing especially after the Easter Sunday bombings in Sri Lanka in 2019.
- Domestic problems aside- BIMSTEC members like Myanmar and Bangladesh have challenges like the Rohingya crisis since 2017.
- As of now, the grouping included Myanmar in the summit indicating that it will not interfere in domestic political problems and provides scope for an inclusive meet.

## What are the concerns?

- Trade pillar- The pillar of trade, economic and investment cooperation needs greater strengthening at a faster pace.
- A framework agreement for a comprehensive Free Trade Agreement (FTA) was signed in 2004.
- Of the seven constituent agreements needed for the FTA, only two are in place as of now.
- The need for expansion of connectivity was stressed by everyone but finalising legal instruments for coastal shipping, road transport and intra-regional energy grid connection remains unfinished.
- Deepening cooperation in security matters and management of Humanitarian Assistance and Disaster

Relief (HADR) was achieved speedier.

- Bilateral issues- BIMSTEC members like Myanmar and Bangladesh have challenges like the Rohingya crisis that both sides have been dealing with since 2017.

#### **How will this Summit prove beneficial to India?**

- Trade- Having walked away from mega trade blocs such as the RCEP, India's willingness to explore an FTA within the framework of a near-home regional grouping may provide greater accommodation for multi-party interests.
- Security- India will steer the security pillar of BIMSTEC and is expected to coordinate region wide security cooperation.
- Connectivity- The BBIN connectivity project of Bangladesh, Bhutan, India and Nepal is expected to be merged with the port and infrastructure projects like the Sittwe port of Myanmar and Payra port of Bangladesh and Colombo of Sri Lanka.
- Advantage over SAARC- SAARC has been weighed down by issues between India and Pakistan while BIMSTEC appears to be an inclusive platform setting aside the bilateral problems.

## **2.5 Genocides**

### **Why in news?**

Washington and Kyiv are accusing Russia of genocide in Ukraine, but the ultimate war crime has a strict legal definition and has rarely been proven in court.

### **What is genocide?**

- The 1948 Genocide Convention defines genocide as crimes committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group, as such.
- A genocide is a crime that can take place both in time of war as well as in time of peace.
- Criminal acts comprising genocide include killing members of the group, causing them serious bodily or mental harm, creating conditions calculated to destroy them, preventing births, or forcibly transferring children to other groups.
- Three cases so far have met international courts' threshold
  - The Cambodian Khmer Rouge's slaughter of minority Cham people and Vietnamese in the 1970s
  - The 1994 mass killing of Tutsis in Rwanda
  - The 1995 Srebrenica massacre of Muslim men and boys in Bosnia

The Genocide Convention was the first human rights treaty adopted by the United Nations General Assembly in 1948 after the atrocities committed during the Second World War. India is a party to the Convention.

### **How to prove the genocide?**

- To establish genocide, prosecutors must first show that the victims were part of a distinct national, ethnic, racial or religious group.
- This excludes groups targeted for political beliefs.
- Genocide is harder to show than other violations of international humanitarian law, such as war crimes and crimes against humanity, because it requires evidence of specific intent.
- Accusation by Ukraine and the U.S.- They accused Russia of trying to wipe out the idea of being able to be Ukrainian.
- Russia's stand- Russia has called the attack against its smaller neighbour "a special operation" to halt genocide against Russian speakers in Ukraine.

### **What are the other cases of genocide?**

- The International Criminal Court (ICC) and The International Court of Justice (ICJ) has jurisdiction over genocide.
- Past cases- The International Criminal Tribunal for Rwanda convicted dozens of senior officials, all of them

Hutus, of genocide against Tutsis.

- In 2018, a hybrid U.N.-Cambodian tribunal found two leaders of Cambodia's Khmer Rouge guilty of genocide.
- The International Criminal Tribunal for the former Yugoslavia convicted several key figures of genocide for their roles in the Srebrenica killings during the Balkan wars of the 1990s.
- Present cases- The ICC previously issued an arrest warrant on charges of genocide against former Sudanese President Omar al-Bashir, but his trial cannot begin until he is in custody in The Hague.

#### **The ICJ is hearing two cases**

- Claims that Myanmar has committed genocide against Rohingya Muslims.
- Claims by Ukraine that Russia is using accusations of genocide as a false pretext for invasion.

#### **Quick Facts**

- The International Residual Mechanism for Criminal Tribunals
- It was established by the Security Council through the adoption of resolution in 2010.
- It consists of two branches corresponding to the two tribunals.
- The International Criminal Tribunal for Rwanda (ICTR) branch is located in Arusha, Tanzania.
- The International Criminal Tribunal for the former Yugoslavia (ICTY) branch is located in Hague.

## **2.6 China-Solomon Islands Pact**

#### **Why in news?**

China's government announced that it had signed a landmark security pact with the Solomon Islands, evoking concern from Australia and the U.S.

#### **What is the agreement about?**

- The agreement is the first of its kind that China has agreed with any country which is basically an inter-governmental framework agreement on security cooperation.
- Under the agreement, the two sides will conduct cooperation in areas such as maintenance of social order, protection of the safety of people's lives and property, humanitarian assistance and natural disaster response.
- It is unclear how China plans to support the Solomon Islands in maintaining social order and whether Chinese security forces will be deployed.
- But, according to a draft that was leaked last month, the Solomon Islands can request police and military personnel to assist in maintaining social order China can also make ship visits and use its ports for logistics.

#### **What is the response of the Indo-Pacific countries?**

- Australia- Australia is just 2000km south of the Solomon Islands and has seen years of escalating tensions with China.
- Australia was deeply disappointed and concerned about the lack of transparency with which this agreement has been developed, noting its potential to undermine stability in the region.
- New Zealand- New Zealand said the country was saddened that the Solomon Islands had made the pact.
- The U.S. - The US National Security Council official is due to arrive in the Solomon Islands for high-level talks.
- The US has said it will re-open its embassy in the Solomon Islands, which has been closed since 1993.

#### **Why is this pact a cause of concern?**

- Regional security- The significance of the pact extends beyond the immediate regional security concerns in the Pacific.
- Military bases- For decades, China insisted it would never open a military base abroad, but, in 2017, the PLA put into use its first foreign base in Djibouti.

- The Solomon Islands government said the agreement does not imply China will build a base there.
- Interference- Chinese media have mentioned China- Pakistan patrols in Pakistan-occupied Kashmir.
- Reports have suggested the deployment of security forces in Tajikistan near the Wakhan corridor that links Afghanistan and Xinjiang.
- Neglect of doctrines- Key pillar of China's peaceful rise doctrine was popularised by Panchsheel — the "non-interference" in the internal affairs of other countries.
- China's past commitments on military bases and non-interference were intended to show the world Beijing would not seek to become a global supreme leader but its intention does not square with that idea.

## 2.7 The Kuril Island Dispute

### What is the issue?

Japan's Diplomatic Bluebook for 2022 described the Kuril Islands as being under Russia's "illegal occupation".

### What are the Kuril Islands/ Northern Territories?

- Japan calls the Kuril Islands as Northern Territories while Russia calls it as the South Kurils.
- These are a set of four islands situated between the Sea of Okhotsk and the Pacific Ocean near the north of Japan's northernmost prefecture, Hokkaido.
- The Soviet Union had seized the islands at the end of World War II and by 1949 had expelled its Japanese residents.
- Japan claims that the disputed islands have been part of its since the early 19th century.

### What lies behind the dispute?

Japan's claim- Japan's sovereignty over the islands is confirmed by several treaties like

- The Shimoda Treaty of 1855
- The 1875 Treaty for the exchange of Sakhalin for the Kuril Islands (Treaty of St. Petersburg)
- The Portsmouth Treaty of 1905
- Russia's claim- Russia claims its sovereignty by quoting
  - The Yalta Agreement (1945)
  - The Potsdam Declaration (1945)
  - The San Francisco Treaty of 1951
- Persisting differences- Under Article 2 of the treaty, Japan had "renounced all right, title and claim to the Kuril Islands."
- However, Japan argues that the San Francisco Treaty cannot be used here as the Soviet Union never signed the peace treaty.
- Japan also refuses to concede that the four disputed islands were in fact part of the Kuril chain.
- The islands that Japan considers its own are named
  - Kunashiri (known in Russian as Kunashir)
  - Etorofu (Iturup)
  - Shikotan
  - Habomai islets

### Have there been attempts at resolution?

- Japan-Soviet Joint Declaration 1956- The declaration restored diplomatic relations between the two nations.
- In 1956, it was suggested that two of the four islands would be returned to Japan once a peace treaty was signed.
- In 1960, Japan and the United States signed the Treaty of Mutual Cooperation and Security by which the US adopted the role of guarantor of Japanese security and laid the foundations for continued American military presence in the Pacific.



- The influence of the United hampered the signing of a peace treaty between Soviet and Japan.
- Recognition of dispute- The Soviet Union later hardened its position and only in 1991 it recognised that the islands were the subject of a territorial dispute.
- Joint economic development- Under the then Prime Minister Shinzo Abe's tenure, joint economic development of the disputed islands was explored.
- But nationalist sentiments on both sides prevented resolution of the dispute.

**What is the current issue and what lies ahead?**

- Japan stresses that the Kuril Islands must be demilitarised if any serious proposals are to come to fruition.
- Soon after the Russian invasion of Ukraine, Japan made a statement that Russia had occupied the southern part of the Kuril Islands, thereby violating international law.
- Japan has been among the most loyal of Western allies in denouncing Russian aggression and punishing it with sanctions.
- Japan's Diplomatic Bluebook for 2022 describing the Kuril Islands as being under Russia's "illegal occupation" will further damage relations between the two countries.
- Japan might have felt that this is a good opportunity to further isolate Russia and paint it as a "habitual offender" of international law.
- Japan has also said that a constructive relationship with China is best for both parties purposefully not mentioning directly to the Senkaku Islands dispute.
- Japan's policy shift on the Kuril Islands might affect the bilateral relations with Russia while advancing the possibility of its two neighbours, China and Russia, coming together against it.

## 3. Economy

### 3.1 Marketing Mix

- The marketing mix refers to the set of actions, or tactics, that a company uses to promote its brand or product in the market.
- A marketing mix includes multiple areas of focus as part of a comprehensive marketing plan.
- A marketing mix often refers to E. Jerome McCarthy's four Ps - Product, Price, Placement, and Promotion.
- However, nowadays, the marketing mix increasingly includes several other Ps like Packaging, Positioning, People and even Politics as vital mix elements.
- Importance - All the elements of the marketing mix influence each other.
- They make up the business plan for a company and handled right, can give it great success.
- But handled wrong and the business could take years to recover.
- Marketing mix needs a lot of understanding, market research and consultation with several people, from users to trade to manufacturing and several others.

### 3.2 Peer-to-Peer Lending

- Peer-to-peer (P2P) lending is a form of direct lending of money to individuals or businesses without an official financial institution participating as an intermediary in the deal.
- Due to some unique characteristics, peer-to-peer lending is considered as an alternative source of financing.
- It is also known as "social lending" or "crowd lending."
- P2P lending has only existed since 2005, but the crowd of competitors already includes Prosper, Lending Club, Upstart, and StreetShares.
- P2P lending websites are platforms that purely act as an intermediary or marketplace that connects borrowers and lenders.
- The site sets the rates and terms and enables the transactions.
- P2P lenders are individual investors who want to get a better return on their cash savings than a bank savings account or CD offers.
- P2P borrowers seek an alternative to traditional banks or a better rate than banks offer.
- Loans provided - P2P lending offers both secured & unsecured loans.
- However, most of the loans in P2P lending are unsecured personal loans.
- Secured loans are rare for the industry and are usually backed by luxury goods.
- Advantages - Higher returns to the investors, More accessible source of funding, Lower interest rates, etc
- Disadvantages - High credit risks, No insurance/ government protection, etc
- Some jurisdictions do not allow P2P lending or require the companies that provide such services to comply with investment regulations.
- Related Links - Peer-To-Peer Lending - CRED Mint

### 3.3 Account Aggregator

- Around 2.5 lakh accounts were linked to Account Aggregator (AA) System, and nine banks go live on the AA System.
- Account aggregation or financial data aggregation is a process whereby data from several or all of an individual's or household's financial accounts are collected in one place.
- Account aggregating allows customers to aggregate data on all their financial assets within a single financial institution.
- In terms of online banking, the user may be provided with a service that curates a home page on which account holders can see information from all of their checking, savings, CDs, and brokerage accounts.
- The data is then stored in the account aggregation software, allowing access to balance information and transaction records.

- Account Aggregators (AAs) are personal finance software, apps, and online services that provide account aggregation services.
- They allow individuals to share and access data from one financial institution to another in the consolidated networks of AAs.
- These aggregators have received approval to access and share data by the Reserve Bank of India (RBI).
- Structured as NBFCs, account aggregators would disrupt the borrowing system from institutionalized financial institutions that make money on having custody of the borrower's financial data.
- With the launch of this mechanism to make credit availability easy, the big business of packaging, analyzing, and selling financial information would be disrupted, just as UPI disrupted the e-wallet business.
- Benefits - The borrower can avail services such as access to loans and access to money management if their banks join the AA network of data sharing.
- Account aggregators act as facilitators of small credit.

### 3.4 Legal Entity Identifier

- The Legal Entity Identifier (LEI) is a 20-digit alpha-numeric code used to uniquely identify parties to financial transactions globally.
- LEI code is based on the ISO 17442 standard developed by the International Organization for Standardization (ISO).
- It connects to key reference information that enables clear and unique identification of legal entities participating in financial transactions.
- Each LEI contains information about an entity's ownership structure and thus answers the questions of 'who is who' and 'who owns whom'.
- LEI was conceived as a key measure to improve the quality and accuracy of financial data systems for better risk management post the global financial crisis.
- The publicly available LEI data pool can be regarded as a global directory that greatly enhances transparency in the global marketplace.
- Recently, the Reserve Bank of India (RBI) has extended the guidelines on LEI to large borrowers of Non-Banking Financial Companies (NBFCs) and Primary (Urban) Co-operative Banks (UCBs).
- It also advised that non-individual borrowers enjoying aggregate exposure of ₹5 crore and above from banks and financial institutions (FIs) shall be required to obtain LEI codes as per the given timeline.
- As per the timeline, the borrowers having exposure of ₹25 crore are required to obtain LEI by April 30, 2023.
- Borrowers who fail to obtain LEI codes from an authorized Local Operating Unit (LOU) shall not be sanctioned any new exposure nor shall they be granted renewal/enhancement of any existing exposure.
- However, departments/agencies of Central and State Governments (not PSUs registered under Companies Act or established as Corporation under the relevant statute) shall be exempted from this provision.

### 3.5 Latest Monetary Policy Review by the RBI

- In its latest bi-monthly monetary policy review, the Reserve Bank of India (RBI) has decided to prioritise its focus on inflation over growth, retain its accommodative stance while gradually withdrawing it, among others.
- Focus - The RBI has decided to focus on inflation over growth by sucking out money from the system in a multi-year time- frame.
- It has decided to remain accommodative while focusing on withdrawal of accommodation stance, which has been there since 2019.
- Rates - For the eleventh time in a row, the RBI has decided to keep the repo rate unchanged at 4%.
- Marginal standing facility (MSF) rate & bank rate remain unchanged at 4.25%.
- The RBI also introduced a Standing Deposit Facility (SDF) at 3.75%, aimed at liquidity management.
- With this, the RBI has restored the LAF corridor with SDF at the base at 3.75% and MSF at 4.25%.
- The Fixed Reverse Repo Rate has been kept at 3.35% and along with SDF will impart flexibility to RBI's liquidity management.

- In the wake of the rise in crude oil and commodity prices and the impact of the Russian invasion of Ukraine, the RBI has slashed the growth forecast to 7.2% for fiscal 2022-23 from 7.8% projected earlier.
- Factors - Even though the Russia's war won't impact India directly, it could potentially impede the economic recovery of India through elevated commodity prices & global spill-over channels.
- The other factors that pose downside risks to the outlook are,
- Financial market volatility induced by monetary policy normalisation in advanced economies,
- Renewed Covid-19 infections in some major countries,
- Augmented supply-side disruptions and protracted shortages of critical inputs such as semiconductors and chips.
- The RBI has also increased the retail inflation projection from 4.5% to 5.7% in 2022-23.
- Factors - The spike in international crude prices since end-February poses substantial upside risk to inflation through both direct and indirect effects.
- Sharp increases in domestic pump prices could trigger broad-based second-round price pressures.
- A combination of high international commodity prices and elevated logistic disruptions could aggravate input costs across agriculture, manufacturing, and services sectors.
- Their pass-through to retail prices warrants continuous monitoring and proactive supply management.

### 3.6 Standing Deposit Facility

- While retaining the Fixed Reverse Repo Rate at 3.35%, the Reserve Bank of India (RBI) introduced the Standing Deposit Facility (SDF) at an interest rate of 3.75% to absorb excess liquidity to control inflation.
- The Standing Deposit Facility (SDF) is introduced nearly 8 years after the Patel Committee propagated an independent, transparent, non-collateralized concurrent offering.
- It will allow the banks to park their excess funds but without any collateral from RBI.
- It will be set at 25 basis points below the policy rate (Repo rate).
- The SDF will replace the Fixed Rate Reverse Repo (FRRR) as the floor of the Liquidity Adjustment Facility corridor.
- No collateral - In 2018, the amended Section 17 of the RBI Act empowered the RBI to introduce the SDF an additional tool for absorbing liquidity without any collateral.
- By removing the binding collateral constraint on the RBI, the SDF strengthens the operating framework of monetary policy.
- Since the SDF comes with the conditionality of no collateral of G-secs to be given by the RBI to banks, it will free up securities from Statutory Liquidity Ratio (SLR) holdings of banks.
- This will thus result in lowering of excess SLR holdings and will lead to an increase in demand for bond
- Role of SDF - The main purpose of SDF is to reduce the excess liquidity of Rs 8.5 lakh crore in the system, and control inflation.
- It will be applicable to overnight deposits at this stage.
- It would, however, retain the flexibility to absorb liquidity of longer tenors as and when the need arises, with appropriate pricing.
- The SDF is also a financial stability tool in addition to its role in liquidity management.
- With the Marginal Standing Facility (MSF) at the upper end of the policy corridor at 4.25%, the SDF will make up the duo of standing facilities – one to absorb and the other to inject liquidity.

### 3.7 SBI Increased MCLR

- The State Bank of India (SBI), India's largest commercial bank, raised the marginal cost of funds-based lending rates (MCLR) by 10 basis points (bps) across tenures to 7.1%.
- MCLR, which RBI instituted with effect from April 1, 2016, is the lowest interest rate that a bank or lender can offer.
- It is applicable to fresh corporate loans and floating rate loans taken before October 2019.
- EBLR - The RBI then switched to the external benchmark linked lending rate (EBLR) system where lending rate is linked to benchmark rates like repo or Treasury Bill rates.
- Banks linked their EBLR to the RBI's repo rate, which declined from 5.40% to 4% since October 2019.

- When the RBI hikes the repo rate, EBLR will go up and vice versa.
- The share of EBLR loans in total advances was 39.2% in December 2021.
- Raising MCLR - The SBI raising the MCLR signals that the soft rates regime that has prevailed since 2019 may be over.
- The lending rate revision by SBI is likely to be followed by other banks in the days to come.
- MCLR-linked loans had the largest share (53.1%) of the loan portfolio of banks as of December 2021.
- As a result of the increase in MCLR, borrowers who have taken home, vehicle, and personal loans will find their equated monthly instalments (EMIs) rising in the coming months.
- With the RBI set to withdraw the accommodative policy (the willingness to expand money supply to boost economic growth), lending rates are expected to rise further in the coming months.
- Banks expect a hike repo rate - the main policy rate - as the RBI seeks to suck out liquidity from the system to rein in inflation.
- Indicating upward pressure on interest rates, the yield on 10-year benchmark government bonds has reached 7.15%.
- On the other hand, the cost of funds is set to increase, prompting banks to hike lending rates.
- Deposit rates will also rise meaningfully over the next 1-2 months.
- This means a fixed deposit holder is sitting on a negative return, as there is high inflation now.

### 3.8 Fincluvation

- India Post Payments Bank (IPPB) announced the launch of Fincluvation.
- Fincluvation will be a permanent platform of IPPB to co-create inclusive financial solutions with participating Fintech Start-ups.
- It is an Industry first initiative to create a powerful platform to mobilize the start-up community towards building meaningful financial products aimed at financial inclusion.
- Fincluvation will allow the start-ups to work together with IPPB and DoP experts to develop solutions and conduct pilots using the postal network and IPPB's technology stack.
- It invites startups to Participate, Ideate, Develop and Market intuitive and tailored products and services that can be taken to the customers.
- Startups are encouraged to develop solutions aligned with any of the following tracks-
- Creditization - Develop Innovative & Inclusive credit products aligned with the use cases of target customers and take them to their doorsteps through Postal network.
- Digitization - Bring convenience by converging traditional services with the Digital Payment Technologies like making usual Money Order service as Interoperable Banking service.
- Any Market-led solutions that can help solve any other problem relevant to IPPB and/or DoP in serving the target customers
- Fincluvation mentors will work closely with the startups to tweak products to the customer needs and align the go-to-market strategies with operating models of IPPB and DoP.

#### India Post Payments Bank

- India Post Payments Bank (IPPB) has been established in 2018.
- It comes under the Department of Posts (DoP), Ministry of Communication with 100% equity owned by Government of India.
- The bank has been set up with the vision to build the most accessible, affordable and trusted bank for the common man in India.
- The fundamental mandate of IPPB is to remove barriers for the unbanked and under-banked and reach the last mile leveraging a network comprising 160,000 post offices (145,000 in rural areas).
- IPPB's reach is built on the key pillars of India Stack - enabling Paperless, Cashless and Presence-less banking in a simple and secure manner, through a CBS-integrated smart phone and biometric device.
- IPPB's motto - Every customer is important; every transaction is significant, and every deposit is valuable.

### 3.9 Pyramid Schemes and MLM Model

- The Enforcement Directorate (ED) attached ₹757.77 crore worth of assets of direct-selling company Amway India Enterprises Private Limited, accusing it of running a Multi-level Marketing (MLM) pyramid scam.

#### Pyramid Scheme

- A pyramid scheme is an unsustainable business model in which original investors make money by recruiting others rather than by selling actual products or services.
- In a pyramid scheme, an entity promises participants payment or services primarily for enrolling other people into the scheme, rather than supplying a product or service to the public.
- As the new participants rope in fresh recruits, money keeps flowing up the chain eventually making an ever-increasing pyramid or hierarchy.
- These are also called money circulation schemes.
- This scheme becomes unsustainable after a sizable number of people have been roped in, as profits minimise when the acquired money is being circulated amongst the group.

#### MLM Model

- There is a thin line between a pyramid scheme and an MLM model.
- MLMs are similar in nature to pyramid schemes but differ in that they involve the sale of tangible goods.
- The focus on the sale of more products as a compensation model rather than commissions for recruiting more members is what differentiates an MLM model from a pyramid scheme.
- Unlike indirect sales companies that use a network of wholesalers, distributors, and retailers to sell their products, MLM companies rope in members of the public to directly sell their products.
- These members, while not being employees of the company, recruit more people to join the product selling network, thus putting in place a mechanism that expands this web and revenue.

#### Laws governing these schemes in India

- In 2021, the Centre released new guidelines for direct selling companies like Tupperware, Amway, and Oriflame, banning them from promoting pyramid or money circulation schemes.
- With the Consumer Protection (Direct Selling) Rules, 2021, direct selling companies were for the first time brought under the ambit of the Consumer Protection Act.
- The new Rules were introduced to make these companies liable for the grievances arising out of the sale of goods or services by its direct sellers.
- The rules said that direct selling entities and direct sellers would be prohibited from
- Promoting a pyramid scheme or
- Enrolling any person on such scheme or
- Participating in such arrangement in any manner whatsoever in the garb of doing direct selling business.
- Another legislation banning such activities is the Prize Chits and Money Circulation Schemes (Banning) Act, 1978.
- This bans prize chits and money circulation schemes or enrolment as members or participation therein.

### 3.10 New Investment Policy-2012

- The Cabinet Committee on Economic Affairs has approved the proposal of the Department of Fertilizers for extension of applicability of New Investment Policy (NIP)-2012 for the 3 units of Hindustan Urvarak & Rasayan Ltd.
- The New Investment Policy of 2012 was proposed by the Department of Fertilisers, Ministry of Chemical & Fertilizers.
- In 2013, the Government of India approved this policy to facilitate fresh investments in urea sector and to make India self-sufficient.
- The policy lays down guidelines to fix gas prices and also other roadmaps for attracting investment in the urea sector.

- It provides a structure of a floor price and a ceiling price for the amount payable to Urea units, which will be calculated based on the delivered gas price (inclusive of charges & taxes) to respective urea units.
- The floor and ceiling price of each urea unit shall be operative with respect to the computed Import Parity Price (IPP).
- IPP defined for urea under the investment policy of 2008 is the average C&F price without any applicable custom duties and handling and bagging charges at the port.
- If the computed IPP (payable) is between the floor and the ceiling price for that gas cost, it is the IPP (payable) which will be used.
- If the IPP is above or below the ceiling or the floor respectively, it is the ceiling or floor price that will be acceptable as the case may be.

### 3.11 Guidelines on Capital Requirements for NBFCs-UL

- The Reserve Bank of India (RBI) issues guidelines on capital requirements for NBFCs-Upper Layer (NBFCs-UL).
- This follows a circular for Scale Based Regulation for NBFCs. This circular is applicable to all NBFCs identified as NBFC-UL, except core investment companies (CICs).
- The NBFCs-UL must maintain, on an on-going basis, Common Equity Tier 1 (CET1) ratio of at least 9% of risk weighted assets.

#### Elements of the CET-1 capital will comprise of

- Paid-up equity share capital issued by the NBFC,
- Share premium resulting from the issue of equity shares,
- Capital reserves representing surplus arising out of sale proceeds of assets,
- Statutory reserves and Revaluation reserves arising out of change in the carrying amount of an NBFC's property, consequent upon its revaluation in accordance with the applicable accounting standards may, at the discretion of the NBFC, will be reckoned as CET1.

#### Other disclosed free reserves, if any.

- Balance in Statement of Profit & Loss Account after allocations and appropriations i.e. retained earnings at the end of the previous financial year. Accumulated losses shall be reduced from CET 1.
- Profits in current financial year may be included on a quarterly basis if it has been audited or subject to limited review by the statutory auditors of the NBFC.
- Loans and advances under ₹5 crore - In a separate set of guidelines on loans and advances by NBFCs, the RBI has spelt out regulatory restrictions for NBFCs in the Middle and Upper Layer.
- Unless sanctioned by the board of directors or committee of directors, NBFCs shall not grant loans and advances aggregating ₹5 crore and above to the,
  - Directors (including the Chairman/MD);
  - Relatives of directors;
  - Any firm in which any of director or their relative is interested as a partner, manager, employee or guarantor; or
  - Any company in which any director their relative is interested as a major shareholder, director, manager, employee or guarantor.
- In the real estate sector, while appraising loan proposals, NBFCs must ensure that the borrowers have obtained prior permission for the project from government, local government/ other statutory authorities.
- To ensure that the loan approval process is not hampered on account of this,
- The proposals may be sanctioned in normal course, But the disbursements shall be made only after the borrower has obtained requisite clearances from the government or other statutory authorities.

### 3.12 Time Banking

- Time banking is a bartering system for various services, where people exchange services for labor-time

based credits as a unit of account, rather than money.

- Labor-time units can be credited to a person's account in the time bank and redeemed for services from other members of the time bank.
- The term "Time Banking" was coined by American lawyer Edgar Cahn, who advocated its use to supplement government social services.
- It is an intermediate system between a system of monetary indirect exchange and a reciprocal gift economy with some of the pros and cons of each.
- Time banking can be considered a form of community currency. Time poverty
- Time poverty is defined as "not having enough time" to pursue interests beyond unpaid domestic / care work.
- Unpaid labour is not considered 'real work' and is often devalued by the men and society, who directly benefit from it.
- The situation leads to emotional strain and combined with the time poverty, the costs often outweigh the benefits.
- Often, women do not find enough time or motivation to participate in activities outside the household.
- Time poverty has a direct bearing on the ability of women to contribute to or participate in the labour market and / or public or political life.
- In 2020, female labour force participation rate declined compared to 2019 in 58 of the 66 countries surveyed by the UN Department of Economics and Social Affairs.

### 3.13 RBI's Monetary Policy Review

#### Why in news?

The Reserve Bank of India recently issued its monetary policy report and kept key lending rates (repo rate and reverse repo) unchanged.

#### What is the monetary policy?

- The monetary policy is a collection of financial tools and measures available with the RBI to safeguard and promote economic growth.
- Monetary policies basically control the overall supply of money available to commercial banks and, indirectly, to individual users and companies.
- The primary objective of a monetary policy is to maintain price stability while keeping in mind objective of growth.

#### What is the big picture emerging from the monetary policy review?

- Accommodative stance- The committee voted to keep the central bank's stance 'accommodative' so that it remains conducive for easier borrowing between the RBI and other banks.
- Repo rate and reverse repo- The repo and reverse repo rate were kept unchanged at 4 % and 3.35 % respectively.
- Growth forecast- RBI has slashed the growth forecast to 7.2% for fiscal 2022-23 from 7.8% projected earlier.
- Retail inflation projection- RBI has also increased the retail inflation projection from 4.5% to 5.7% in 2022-23.
- Repo rate is the interest charged by the RBI when commercial banks borrow from them by selling their securities to the central bank.
- Reverse repo rate is the interest rate the RBI pays to commercial banks when they store excess cash reserves with the central bank.

#### How has inflation moved of late?

- The RBI's objective is to achieve the medium-term target for consumer price index (CPI) inflation of 4% within a band of  $\pm 2\%$ , while supporting growth.
- Provisional CPI data released by the NSO showed that headline CPI inflation for February 2022 edged up to



6.1%.

- Retail inflation rose to 5.59% cent in December 2021 from 4.35% in September.
- Reasons for rising inflation
  - The rise in oil and commodity prices
  - Supply disruptions due to the war

#### **What policy instruments has the RBI proposed to tackle this situation?**

- The RBI's liquidity management is characterised by two-way operations
- Variable rate reverse repo (VRRR) auctions of varying maturities- to absorb liquidity
- Variable rate repo (VRR) auctions - to meet temporary liquidity shortages and offset mismatches
- SDF- In this review, the RBI has introduced the Standing Deposit Facility (SDF) for absorbing liquidity at an interest rate of 3.75%.
- Both the standing facilities - the MSF and SDF, will be available on all days of the week, throughout the year.
- The FRRR rate, retained at 3.35%, will remain part of the RBI's toolkit, and its operation will be at the discretion of the RBI for purposes specified from time to time.
- The FRRR along with the SDF will impart flexibility to the RBI's liquidity management framework.

#### **What is SDF and how will it operate?**

- The idea of an SDF was first mooted in the Urjit Patel Monetary Policy Committee report in 2014.
- In 2018, the amended Section 17 of the RBI Act empowered the Reserve Bank to introduce the SDF.
- The SDF will help the central bank in absorbing liquidity (deposits) from commercial banks without giving government securities in return to the banks (collateral).
- The main purpose of SDF is to reduce the excess liquidity and control inflation.
- The SDF is also a financial stability tool in addition to its role in liquidity management.
- The SDF will replace the fixed rate reverse repo (FRRR) as the floor of the liquidity adjustment facility corridor.
- The SDF rate will be 25 bps below the policy rate (Repo rate), and 50bps lower than the marginal standing facility (MSF).
- It would retain the flexibility to absorb liquidity of longer tenors as and when the need arises, with appropriate pricing.

#### **Is a long-term tightening of money supply indicated?**

- The RBI has now decided to focus on inflation over growth as inflation remains above the RBI's upper band of 6%.
- The RBI has said it will engage in a calibrated withdrawal of the accommodative stance over a multi-year time frame in a non-disruptive manner beginning this year.
- The gradual tightening of money supply is expected to push up interest rates.

### **3.14 The Care Economy**

#### **Why in news?**

Care work is vital for economies in general and India needs to have a strategy and action plan for improved policies.

#### **What is care economy?**

- The care economy refers to the paid and unpaid labor and services that support caregiving in all its forms.
- Care work encompasses direct activities such as feeding a baby or nursing an ill partner, and indirect care activities such as cooking and cleaning.
- It also encompasses a range of sectors such as education, health, and social work involving teachers, nurses, community health workers, social workers, and domestic workers.
- As per the ILO, India spends less than 1% of GDP on the care economy.

### **Why is there an increasing demand for care work?**

- Demographic transition- Demographic transition in low- and middle-income countries will lead to a higher proportion of the elderly at the expense of the working-age population.
- Urbanisation- Urbanisation is changing the traditional joint-family structure to nuclear, single-parent, and transnational households, alienating them from community care bonds.
- Climate change- Climate change has caused water scarcity and rural food distress which increases care burden on women and children.

### **What is the significance of care economy?**

- The importance of care work is covered in various international commitments such as the SDGs and the International Labour Organization (ILO)'s Centenary Declaration.
- Work balance- ILO's report highlights the importance of maternity, paternity, and special care leave, which help balance women's and men's work and family responsibilities throughout their lives.
- Employment- According to the International Trade Union Confederation (2019), an investment of 2 % GDP in care in India would create 11 million jobs, of which 32.5 % would be garnered by women.
- Health outcomes- Workplaces that provide time, income security and space for undertaking care services such as breastfeeding, enable positive nutrition and health outcomes.
- Aging in dignity- Nurturing elderly care services will deliver the benefits of aging in dignity and independent living as the population grows older.

### **What is the status of care services?**

- Maternity leave- Maternity leave is a universal human and labour right.
- India offers 26 weeks of maternity leave, against the ILO's standard mandate of 14 weeks.
- But, this coverage extends to only a tiny proportion of women workers in formal employment in India, where 89% of employed women are in informal employment as given by ILOSTAT.
- Paternity leave is not provided in many countries, including India.
- Globally, the average paternity leave is 9 days, which further aggravates inequity.
- Child care- India has a long history of mandating the provision of creches in factories and establishments but there is limited information on its actual implementation.
- Though childcare and anganwadi workers undertake important work, they lack recognition as workers and do not have requisite access to workers' rights and entitlements in India.
- Domestic workers- Important developments such as Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, minimum wage schedule in many States, etc. have been extended.
- However, domestic workers face challenges in accessing decent work.
- They became ad hoc care workers during the novel coronavirus pandemic without adequate social or health protection measures.
- According to the Government's 2019 estimates, 26 lakh of the 39 lakh domestic workers in India are female.

### **What is the need of the hour?**

- Women's unpaid work is valued at 3.1 % of GDP in India.
- Action plan- In consultation with the relevant stakeholders, the government needs to conceptualise a strategy and action plan for improved care policies, care service provisions and decent working conditions for care workers.
- Public good- Care work should be viewed as a collective responsibility and public good.
- Investment- Investing in a combination of childcare infrastructure and parental leave policies will have a higher maternal employment to population ratios.
- Gender-inclusive economic growth- Recognising AWWs, ANMs, ASHAs, domestic help, etc. as formal sector workers would allow their economic contribution to be counted in the GDP.
- ILO's 'Decent Work Agenda' principles emphasis on recognising the value of unpaid care work.
- Reducing gender-based income inequalities- India's average female daily wage was 59 % of the male wage in 1993-94 and improved to 72 % in 2018-19.

- 5R framework- The ILO proposes a 5R framework for decent care work centred around achieving gender equality. It urges on
  1. Recognition
  2. Reduction of unpaid care work
  3. Redistribution of unpaid care work
  4. Rewarding care workers and decent work
  5. Representation in social dialogue and collective bargaining.

### 3.15 World Bank Forecast for India

#### Why in news?

With reference to World Bank forecast, some headline indicators may be shining, but the recovery is still ragged and vulnerable.

#### What did the World Bank forecast?

- Growth-The World Bank reduced its 2022 growth projections for South Asian economies to 6.6% from an earlier estimate of 7.6%.
- India's GDP may now grow by 8% in 2022-23 before dropping further to 7.1% in 2023-24.
- The Bank's chief economist has said that their overall assessment is that GDP growth could actually be 1.3 percentage points lower, or 7.4%.
- Fiscal deficit- It further noted that even though countries like India and Maldives have seen their overall fiscal deficit fall in 2021 as compared to 2022, deficits are still higher than pre-pandemic levels.
- Imports and Exports- Imports and exports remained the fastest growing sectors in both Q3 and Q4, with higher growth in imports than in export contributing to current account deficits.
- It has emphasised that post-pandemic growth was already uneven and fragile before the Russia-Ukraine conflict triggered fresh challenges.
- The ripple effect of high oil and food prices that prevailed even before the war and were exacerbated since February 24 hitting people's real incomes.
- The unenthusiastic post-COVID recovery in India's household consumption will be further restricted by high inflation and incomplete labour market revival.
- India's recovery varies widely across sectors and manufacturing remains troubled due to weak demand and increasing input costs.

#### Why do the World Bank's predictions about India seem more optimistic?

- ADB's prediction- The Asian Development Bank expects India's GDP for the year to rise 7.5% with retail inflation of around 5.8%.
- RBI's view- The RBI reset growth hopes from 7.8% to 7.2%, while raising its inflation projection for the year from 4.5% to 5.7%.
- Inflation- Economists expect inflation to trend much higher, even above 7% in the first half of the year, and well over the comfort threshold of 6% over the full year.

#### What lies ahead?

- Monetary and fiscal policy mandarins need to address inflation more aggressively.
- There is a need to rethink growth engines as well - RCEP needs a revisit, as advised by key ally Japan.
- The farm sector that has so far been resilient through the pandemic's worst phases needs careful handling as the cost of inputs is rising sharply.

### 3.16 Higher Inflation in Rural India

#### What is the issue?

The retail inflation rate surged to 6.95% while the rural inflation surged to 7.66% this March.

### **How have urban and rural inflation trends differed over the past year?**

- Inflation is the rate at which the value of a currency is falling and, consequently, the general level of prices for goods and services is rising.
- Urban inflation has usually tended to be higher than rural inflation by an average of about 0.8 percentage points through 2021 except August and May 2021.
- The rural inflation surpassed the urban inflation by 0.2 percentage points in January 2022 and reached 6.38% in February even as urban inflation declined to 5.75%.
- In March 2022, the gap between the two has surpassed 1.5% with urban inflation at 6.12% and rural inflation hitting 7.66%.

### **What are the key drivers of higher inflation in the hinterland?**

- Food inflation- Food has a higher weight in the Consumer Price Index (CPI) and food inflation was the key driver for the headline inflation rate jump in March.
- The food inflation in rural India reached 8.04% whereas food inflation in urban India was a full percentage point lower.
- The vegetable price trends have been most worrisome that reached 10.6% in March 2022.
- Fuel inflation- The inflation in fuel and light and clothing, were the key factors driving up rural prices.
- The fuel prices are higher in rural areas due to connectivity issues and prices of traditional fuel like firewood have also risen simultaneously.
- Education- A persistently higher inflation in education costs of about 1 to 1.5 percentage points was witnessed.
- Labour shift- This trend could also be explained by the shift of labour between urban and rural areas in the last two years, which has also injected volatility into demand dynamics.
- Others- The inflation rates for items such as oils and fats, clothing, footwear, fuel and light and personal care were higher than the urban counterparts.

### **Which sections are affected the most?**

- Sections affected- While high inflation affects the poor the most in general, the fact that price rise in food is driving the current surge.
- Also, the food inflation is expected to rise along with both fuel and core inflation (excluding food and energy prices).
- The bottom 20% of the population in urban as well as rural India is facing the worst effects.
- The rural bottom 20% faced the highest inflation at 7.7% in March, while the upper 20% of the income segment in the rural experienced 7.6% inflation.
- Reasons- While food price risks have risen due to the Russia-Ukraine conflict, higher prices for farm sector inputs could further drive the food inflation.
- Future prospects- The cost of production is likely to increase by around 8-10% and the MSP should at least be higher by around 12%-15%.
- With a normal monsoon anticipated this year, this would determine whether rural consumer demand will rebound or remain constricted in upcoming months.

## **3.17 Corporate Defence Mechanisms to prevent Hostile Takeovers**

### **Why in news?**

Publicly listed companies are most exposed to threats of a hostile takeover. However, with time, they have come up with varied defence mechanisms to prevent such takeovers.

### **What is the issue?**

- Recently, billionaire Elon Musk now has said that he wants to buy Twitter outright, taking it private to restore its commitment to free speech.
- Elon Musk currently owns about 9% of Twitter shares.
- The company's board has resisted this and deployed the "poison pill" mechanism.

### What is a 'Poison Pill' defence?

- A poison pill is officially known as a shareholder rights plan.
- A poison pill is a defense tactic utilized by a target company to prevent or discourage hostile takeover attempts.
- Poison pills allow existing shareholders the right to purchase additional shares at a discount, effectively diluting the ownership interest of a new, hostile party.
- Poison pills often come in two forms
  - Flip-in strategy- Allows the shareholders, except for the acquirer, to purchase additional shares at a discount.
  - Flip-over strategy- Allows the stockholders to purchase the shares of the acquiring company at a deeply discounted price if the hostile takeover attempt is successful
- The mechanism protects minority shareholders and avoids the change of control of company management.
- Poison pills also often open the door to further negotiations that can force a bidder to sweeten the deal.
- If a higher price makes sense to the board, a poison pill can simply be cast aside, clearing the way for a sale to complete.
- Twitter's mechanism- Twitter's plan works by imposing a significant penalty on any investor that builds up a stake of at least 15% in the Twitter without the board's approval.
- If Musk were to hit the 15% threshold, the Twitter board can grant shareholders the right to buy one-thousandth of a share of preferred stock for each common share they own, at a price of 210 dollars.
- That option makes it virtually impossible for anyone to buy Twitter.

### What are the other corporate defence mechanisms to prevent hostile takeovers?

- Greenmail Defence- In this, the target company pays a premium, known as greenmail, to purchase its own shares back at inflated prices from a corporate raider.
- After accepting the greenmail payment, the raider generally agrees to discontinue the takeover and not buy any more shares for a specific time.
- Crown jewel defence- Crown jewels are the most profitable or valuable corporate units or assets that belong to the company.
- The Crown Jewel Defense strategy is when the target company of a hostile takeover sells its most valuable assets to reduce its attractiveness to the hostile bidder.
- Pac-man defence- It prevents a hostile takeover by initiating a reverse takeover.
- In a Pac-Man defense, the target firm tries to acquire the company that has made a hostile takeover attempt.
- The target company could make use of its 'war chest' or securing finances from outside for the reverse takeover bid.
- White Knight defence- A white knight is a hostile takeover defense whereby a 'friendly' company acquires a corporation at fair consideration when it is on the verge of being taken over by an 'unfriendly' acquirer.
- The unfriendly bidder is generally known as the "black knight."

## 3.18 States vs Centre on Fuel Taxes

### Why in news?

The Centre and the states are at loggerheads over taxes and duties on petrol and diesel.

### What is the issue?

- As fuel prices soared in November 2021, the Centre, for the first time in over three years, cut central excise duties on petrol by Rs 5 per litre and diesel by Rs 10 per litre.
- 21 states then cut VAT in the range of Rs 1.80-10 per litre for petrol and Rs 2-7 per litre for diesel.
- As per the RBI's State Finances report for 2021-22, the revenue loss to states due to this is estimated at 0.08% of GDP.
- The global oil prices have been at elevated levels since the time Russia invaded Ukraine due to which

global oil supply halted.

- So, the relief measures that were provided were outweighed by a series of 14 price hikes in 16 days.
- The Centre feels that the states are not reducing VAT in line with the Centre's cut in excise duty.
- But the states have expressed concerns over their fiscal cushion, especially with the GST compensation regime due to end in June.
- Value-added tax (VAT) is a consumption tax on goods and services that is levied at each stage of the supply chain where value is added, from initial production to the point of sale.

#### **How significant is fuel taxes?**

- Excise duty and VAT on fuel constitute an important source of revenue for both the Centre and the states.
- Excise duty on fuel makes up about 18.4% of the Centre's gross tax revenues.
- Petroleum taxes with states are shared out of basic excise duty.
- The Centre also levies additional excise duty and cesses on petroleum products.
- Of the revenue receipts of states, central tax transfers comprise 25-29%, and own tax revenues 45-50%.
- Central and state taxes currently account for about 43% and 37% of the retail price of petrol and diesel respectively in Delhi.

#### **How fuel is taxed?**

- The tax on fuel does not fall under the Goods and Services Tax (GST).
- Taxes on petrol and diesel are split into multiple components at the state and central level.
- States apply an ad valorem VAT or sales tax on the base price, freight charges, excise duty and dealer commission on petrol and diesel.
- While state VAT collections have risen along with higher fuel prices and previous hikes in excise duties, the states' share of excise duties on fuel was reduced in the FY2022 Budget.

#### **Changes introduced**

- The Basic Excise Duty (BED) on petrol and diesel was cut by Rs 1.6 and Rs 3 per litre respectively
- The special additional excise duty was cut on both by Rs 1 per litre
- An Agriculture Infrastructure and Development Cess (AIDC) of Rs 2.5 per litre on petrol and Rs 4 on diesel was introduced

It reduced the states' share as collections from cesses are not part of the shareable pool.

The Latin phrase ad valorem means "according to value." All ad valorem taxes are based on the assessed value of the item being taxed.

#### **What is the reason for variation in fuel prices?**

- External factors- Since, the retail prices of petrol and diesel in India are linked to the international prices of crude oil, global crude oil prices plays a key role.
- Internal factors- Taxes and dealers' commissions also impact the price of domestic petrol.
- Inter-regional variation- This difference in fuel retail prices is due to the different tax rates levied by the respective state governments on the same products.
- Freight charges depend upon the distance between the refining plant and the petrol pump; the farther is the petrol pump from the oil refining unit, the more is the freight charge.
- Because of this, the prices may vary from region to region.

### **3.19 India's Power Crisis**

#### **What is the issue?**

Despite high coal production, thermal power plants in India are suffering from shortages.

#### **Is India heading towards a power crisis?**

- Coal-based power generation accounts for about 53% of India's total power capacity as on March 2022.
- Several States across the country are expected to face coal shortages that might lead to power shortages

in the coming weeks.

- India had faced a similar energy crisis in October 2021, but the crisis this around may be worse with peak power demand expected to rise higher due to increasing temperatures.

#### **Reasons for this crisis**

- Depleting coal supplies at thermal power plants
- High global thermal coal prices ( the prices of coal are over 350% higher year on year)
- Below normal imports
- Interruption in coal supply mainly due to heavy rains
- High demand for coal (Demand for coal has increased by 9% over the previous year)
- Temperature rise

#### **How critical is the coal shortage?**

- The situation at thermal power plants is deteriorating consistently and had reached critical levels.
- As per the National Power Portal, both imported coal-based (ICB) power plants and domestic coal-based power plants were facing critical stocks.
- As per the Central Electricity Authority report, of the total 173 thermal power plants in the country, 100 thermal power plants' coal stock situations are critical.
- The total stocks available were 23.17 million tonnes (MT) against a daily requirement of 2.76 MT.
- The stocks at this level will last for less than nine days.
- States like Gujarat and Maharashtra already declaring load shedding (the deliberate shutdown of electric power in a part or parts of a power-distribution system, generally to prevent the failure of the entire system when the demand strains the capacity).

#### **What steps has the government taken to tackle this problem?**

- Revised coal stocking norms- The government has issued revised coal stocking norms, which mandate the power plants to maintain sufficient stocks at all times
- Constitution of Groups- An Inter-Ministerial Sub Group with senior officials from Ministries of Power, Coal, Railways, CEA, CIL and SCCL meet regularly to take various operational decisions to enhance supply of coal to thermal power plants.
- Imports- Power Ministry has advised power plants to import about 36 MT coal for blending during 2022-23 with a view to build sufficient coal stock at power plants.
- Monitoring- The Ministry has a Core Management Team (CMT) to ensure close monitoring of coal stocks at thermal power plants.
- Role of Coal India- Coal India, the state-owned miner claims that it has ramped up supplies to thermal power plants by nearly 12% annually.

#### **Why is this crisis recurring every year?**

- Lack of coordination- The lack of coordination between various ministries involved in the process such as Power Ministry, Coal Ministry and Railways is the foremost reason.
- Blaming game- The Coal Ministry blames the Indian Railways for non-availability of adequate rakes.
- Similarly, the Railways has pointed out the mismanagement in loading and unloading of rakes by the Coal India.
- Poor planning- Despite high coal production and despatch miners, the supply at power plants has still not gone above 15 days in the last six months which implies poor planning.
- While Karnataka is mixing renewable energy and non-renewable energy sources to wean dependence on thermal power plants, the long-term solution may be to start switching away from coal exploring sustainable solutions.

## 3.20 Smart Cities Mission

### Why in news?

The government has announced that 80 of the 100 planned Integrated Command and Control Centres have been set up, with the rest to be completed by August 15.

### What is the Smart Cities Mission?

- India is urbanizing exponentially with the expected influx of over 400 million people over next 35 years.
- Smart city is defined as a one that makes optimal use of all the interconnected information available to better understand and control its operations and optimise the use of limited resources.
- Smart Cities Mission was launched in 2015 under the Ministry of Housing and Urban Affairs.
- The Mission is operated as a Centrally Sponsored Scheme.
- Objective- To promote cities that provide core infrastructure, clean and sustainable environment and give a decent quality of life to their citizens through the application of smart solutions.
- 100 cities have been selected to be developed as Smart Cities through a two-stage competition.
- Area based development- It includes city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development).

### Key focus areas

- Construction of walkways, pedestrian crossings, cycling tracks
- Efficient waste-management systems
- Integrated traffic management and assessment

Assessment of indices- It also assesses various indices to track urban development such as the Ease of Living Index, Municipal Performance Index, City GDP framework, Climate Smart Cities assessment framework, etc.

### Fundamental principles of Smart Cities

- Community at the Core
- More from less
- Co-operative and Competitive Federalism
- Integration, Innovation, Sustainability
- Technology as a means
- Convergence

### What is an Integrated Command and Control Centre (ICCC)?

- The ICCCs are envisaged to be the brain for city operation as it will act as a decision support system for city administration to respond to the real time events by consuming data feeds from different data sources and by processing information out of the data sets.
- The Smart Cities Mission includes setting up ICCCs for each smart city.
- Monitoring- These ICCCs are designed to enable authorities to monitor the status of various amenities (water, power supply, traffic movement, city connectivity and internet infrastructure, etc.) in real time.
- Operations management- The ICCC acts of a smart city acts as a “nerve centre” for operations management.
- Data processing- The ICCC is the nodal point of availability of all online data and information relating to smart services included in a smart city.
- War rooms- During the pandemic, they also served as war-rooms for Covid-19 management.
- Link with CCTNS- The ICCCs are linked to the CCTNS (Crime and Criminal Tracking Networks and Systems) network under the Ministry of Home Affairs.

### What is the current status of the Smarts Cities Mission?

- The project had an initial deadline of 2021 for the first lot of 20 smart cities out of the 100 selected.
- The cities were selected over a period of two years between 2016 and 2018, each with a deadline of completion within five years from the time of their selection.
- On the recommendation of NITI Aayog, the timeline was extended last year until 2023 due to delays



caused by the pandemic.

- According to Ministry data, the SCM has so far covered over 140 public-private partnerships, 340 smart roads, 78 vibrant public places, 118 smart water projects and over 63 solar projects.
- The Ministry noted that almost 100% of these projects have been work-ordered.
- Currently, the Centre is preparing a 60-point action plan.
- The Ministry of Housing and Urban Affairs has begun work to finalise its recommendation for providing ICCCs as a service to states and smaller cities.
- The Ministry is also aiming to finalise an ICCC model and implement a pilot project across 6 states — Uttar Pradesh, Maharashtra, Karnataka, Madhya Pradesh, Rajasthan and Tamil Nadu.

### 3.21 India's Wheat Exports

#### Why in news?

Egypt which is one of the largest importers of wheat, had agreed to source the cereal from India.

#### What is the status of India's wheat exports?

- Wheat is the second-most-produced cereal grain behind maize and India is the second largest producer next to China.
- Russia is the market leader for wheat exports (almost 15% share) and Ukraine is also a major producer.
- India expects to produce 112 million tonnes of wheat in the current season.
- The government requires 24-26 million tonnes a year for its food security programmes.
- With surplus wheat production, opportunities have opened up and this fiscal and exports in FY23 is set to beat the target of 10 million tonnes.
- Apart from Egypt and Jordan, countries in East Africa are also likely to source the food grain from India.

#### Reasons for high scope for India

- Competitive price
- Acceptable quality
- Availability of surplus wheat
- Geopolitical reasons

#### What is being done to facilitate the exports?

- The APEDA was established under the Agricultural and Processed Food Products Export Development Authority Act, 1985 under the Ministry of Commerce and Industry.
- The Agricultural and Processed Food Products Export Development Authority (APEDA) and Ministry of Agriculture are sending delegations to several countries to resolve market issues.
- The Commerce Ministry has put in place an internal mechanism to facilitate and get the paperwork ready for the related sanitary and phytosanitary applications to help facilitate shipments.
- The railways is providing rakes on priority to move the wheat.
- Testing laboratories are all geared up to complete the Pest Risk Analysis for countries to provide market access.
- Pest Risk Analysis is the process of evaluating biological or scientific and economic evidence to determine whether an organism is a pest, whether it should be regulated, and the strength of any phytosanitary measures to be taken against it.

#### What is the future outlook?

- The government is optimistic about the long-term export opportunities not only for wheat, but for all cereals including millets and super foods.
- If Indian wheat prices remain competitive and geopolitical and weather conditions stay favourable, the scope is good for wheat exports.
- India has already won the confidence of markets such as Sri Lanka and Bangladesh but needs to establish itself in the new markets too.

## 3.22 Procurement of Parboiled Rice

### What is the issue?

The Centre has said it will stop the purchase of excess parboiled rice, of which Telangana is a major producer.

### What is parboiled rice?

- Parboiled rice refers to rice that has been partially boiled at the paddy stage, before milling.
- However, there is no specific definition of parboiled rice of the Food Corporation of India or the Food Ministry.
- Suitable varieties- Generally, all varieties can be processed into parboiled rice, but it is ideal to use long slender varieties to prevent breakage during milling.
- However, aromatic varieties should not be parboiled because the process can make it can lose its aroma.

### What are the different processes used for parboiling rice?

- All processes generally involve three stages
  1. Soaking
  2. Steaming
  3. Drying
- After passing through these stages, the paddy goes for milling.
- Common method- The paddy is soaked in hot water 8 hours.
- The water is then drained and the paddy steamed for 20 minutes and it is sun-dried.
- CFTRI method- The Central Food Technological Research Institute (CFTRI), Mysuru, uses a method in which the paddy is soaked in hot water for 3 hours.
- The water is then drained and the paddy steamed for 20 minutes and it is dried in the shade.
- PPRC method- The Paddy Processing Research Centre (PPRC), Thanjavur follows a method known as the chromate soaking process.
- It uses chromate, a family of salt in which the anion contains both chromium and oxygen, which removes the odour from the wet rice.

Milling is a crucial step in post-production of rice that aims to remove the husk and the bran layers, and produce an edible, white rice kernel free of impurities.

### What are the pros and cons of parboiling?

- **Pros of parboiling**
  - Parboiling makes rice tougher.
  - It reduces the chances of the rice kernel breaking during milling.
  - It increases the nutrient value of the rice.
  - Parboiled rice has a higher resistance to insects and fungi.
- **Cons of parboiling**
  - The rice becomes darker and may smell unpleasant due to prolonged soaking.
  - Setting up a parboiling rice milling unit requires a higher investment than a raw rice milling unit.

### What is the new tussle now?

- The Telangana government has been demanding that the Centre procure paddy from the State at the minimum support price (MSP).
- According to the Food Ministry, the total stock of parboiled rice is 40.58 lakh metric tonnes (LMT) as on April 1, 2022.
- Out of this, the highest stock is in Telangana, followed by Tamil Nadu and Kerala.
- According to the Ministry, the demand for parboiled rice has come down in recent years.
- The Ministry said that the current stock of parboiled rice was sufficient to meet the demand for the next two years.
- So the Centre maintains that it can only procure raw rice and very less parboiled rice as per demand.
- Telangana, which is a decentralised procurement state (DCP) is demanding a uniform paddy procurement policy.

## 4. Science & Technology

### 4.1 The Complete Human Genome

#### Why in news?

Scientists published the first complete human genome, offering new promise in the search for clues regarding disease-causing mutations and genetic variation.

#### What is human genome?

- A genome is defined as an organism's complete set of Deoxyribose Nucleic Acid (DNA), including all of its genes.
- It consists of all of the approximately three billion base pairs of deoxyribonucleic acid (DNA) that make up the entire set of chromosomes of the humans.
- Non-uniformity- Human genome is mostly the same in all people, but a very small part of the DNA does vary between one individual and another.
- Excepting identical (monozygous) twins, no two humans on Earth share exactly the same genomic sequence.
- Non-static- It is susceptible to certain changes.

#### How did the mapping of human genome evolve?

- Human Genome Project- The HGP was the international, collaborative research program for complete mapping and understanding of all the genes of human beings.
- It began in 1990 and was completed in 2003.
- It contained information from a region of the human genome known as the euchromatin where the chromosome is rich in genes and the DNA encodes for protein.
- The 8% was left out and was called heterochromatin and it does not produce protein.
- Heterochromatin was given lower priority because it was thought to be "junk DNA" while euchromatin contained more genes that were simpler to sequence with the tools available at the time.
- Now, a large team has accounted for that 8%, completing the picture of the human genome for the first time.
- The fully sequenced genome is the result of the efforts of a global collaboration called the Telomere-2-Telomere (T2T) project.

#### What is the significance of this mapping?

Knowledge of the human genome provides an understanding of

- The origin of the human species
- The relationships between subpopulations of humans
- The health tendencies or disease risks of individual humans
- The new reference genome, called T2T-CHM13, includes highly repetitive DNA sequences found in and around the telomeres (structures at the ends of chromosomes) and the centromeres (at the middle section of each chromosome).
- The new sequence is known to play important roles in evolution and disease.
- A complete human genome makes it easier to study genetic variation between individuals or between populations.
- Constructing a complete human genome can serve as a reference to understand which variations might be responsible for disease.
- The new T2T reference genome will complement the standard human reference genome, known as Genome Reference Consortium build 38 (GRCh38), which originated from the Human Genome Project.

#### What were the earlier projects regarding genome mapping?

- Genome India Project- It was spearheaded by Centre for Brain Research.

- It aims to build a grid of Indian reference genome to understand the type and nature of diseases and traits that comprise the diverse Indian population.
- International HapMap Project- It is a partnership of scientists and funding agencies from Canada, China, Japan, Nigeria, the United Kingdom and the United States.
- The goal is to determine the common patterns of DNA sequence variation in the human genome and to make this information freely available in the public domain.
- 1000 Genomes Project- It began in 2008 and created a catalogue of common human genetic variation, using openly consented samples from people who declared themselves to be healthy.
- The International Genome Sample Resource (IGSR) maintains and shares the human genetic variation resources built by the 1000 Genomes Project.

## 4.2 Electric Vehicle Fires

### What is the issue?

The recent incidents of fire involving electric two-wheelers (ETWs) have raised concerns over quality and safety of these vehicles.

### What are EVs?

- EVs are vehicles that are either partially or fully powered on electric power.
- While some EVs used lead acid or nickel metal hydride batteries, the standard for modern battery electric vehicles is now considered to be lithium ion batteries.

### What are lithium ion batteries, and how do they work?

A Li-ion battery consists of an anode, cathode, separator, electrolyte, and two current collectors.

The anode and cathode is where the lithium is stored, while the electrolyte carries positively charged lithium ions from the anode to the cathode and vice versa through the separator.

The movement of the lithium ions creates free electrons in the anode, which creates a charge at the positive current collector.

### Features

- Light weight
- High energy density
- Ability to recharge
- Longer lifespan compared to a lead acid battery
- More efficiency
- Greater driving range

Because of the high energy density, a battery management system (BMS) is applied to a Li-ion battery to make sure they operate safely.

A BMS constantly measure the voltage, current flowing, charging and discharging rate, battery life cycle, and efficiency.

### What are the pros and cons of EVs? Pros of EV

- Low running costs- Electric vehicles have low running costs as they have less moving parts for maintaining.
- Energy efficient- EVs convert over 77% of the electrical energy from the grid to power at the wheels.
- Environmentally friendly- They also very environmentally friendly as they use little or no fossil fuels.
- Reduced energy dependence- Electricity is a domestic energy source.
- Performance benefits- Electric motors provide quiet, smooth operation and stronger acceleration and require less maintenance than internal combustion engines.

### Cons of EV

- Driving range- EVs have a shorter driving range than most conventional vehicles.
- Recharge time- Fully recharging the battery pack can take 3 to 12 hours. Even a "fast charge" to 80% capacity can take 30 min.

- Thermal runaway- Even if few batteries malfunction and cause a short circuit, it can kickstart a chain reaction resulting in a fire, given that a battery pack is tightly packed with a number of Li-ion cells.

#### **Why did the EVs' batteries catch fire?**

- The actual reasons behind the Ola and Okinawa EVs catching fire are currently unknown as the companies have said they are investigating the matter.
- Okinawa said that from its preliminary observations, the fire in its scooter was a result of short circuiting due to negligence in charging the vehicle.
- A number of reasons could result in these batteries becoming a fire risk, such as
  - Manufacturing defects (use of cheap knocked down kits and batteries)
  - External damage
  - Faults in the deployment in the BMS
  - Extremely high temperatures
  - Thermal runaway
  - Prior accidents of a vehicle which may have damaged the battery pack
  - Overcharging

#### **What is the need of the hour?**

- Addressing the lacunae- The government too has been lax and has allowed ETWs with speeds of less than 25 km/hour to be sold without any serious certification.
- Proper investigation- The Ministry of Road Transport and Highways has ordered a probe into the vehicles catching fire abruptly.
- It has reached out to the Centre for Fire Explosive and Environment Safety (CFEES) to carry out investigations.
- Alternative options- Debates are mounting on whether battery swapping would be a better solution for electric scooter in India.
- When the user's vehicle battery is discharged fully or about to be discharged, manufacturers or a third-party provider just swaps it out with a fully-charged battery at a battery-swapping station.
- One of the key elements of EV, charging is in complete control of the swapping company and the customer never has to charge the battery.
- The other advantage of swapping is that there is always an extra pool of batteries giving ample time to charge the batteries.
- The government needs to act swiftly to frame stringent regulations and standards.

### **4.3 Geotagging of Payment System Touchpoints**

#### **Why in news?**

Recently, the Reserve Bank of India issued a framework for geo-tagging of payment system touchpoints.

#### **What is Geo-tagging of payment system touchpoints?**

- Geo-tagging refers to the process of adding geographical identification to a media based on the location of smartphones or GPS-enabled electronic devices.
- Geo-tags can be applied to media such as photos, videos, websites, text messages and QR codes.
- Geo-tagging is said to capture the geographical coordinates (latitude and longitude) of payment touch points deployed by merchants to receive payments from their customers.

#### **How does it work?**

The central bank has two categories of physical infrastructure through which digital payment transactions are carried out

1. Banking infrastructure
  2. Payment acceptance infrastructure
- Banking infrastructure- It covers payment transactions made through bank branches, counters, ATMs and Cash Recycle Machines (CRMs), among others.

- Payment acceptance infrastructure- It includes PoS terminals, QR codes deployed by banks / non-bank Payment System Operators (PSOs), etc.
- The RBI framework mandates that banks and non-bank PSOs should maintain a registry with accurate location of all payment touchpoints across the country.
- The registry must contain merchant-related information such as the merchant name, ID, type, category, contact details as well as location details such as address and state, district.
- They can report information on payment touch points to the RBI through the Centralised Information Management System (CIMS).
- Any updates and changes about the existing payment touch points shall be reported within 7 calendar days from the date of updation.

#### **Why is it important?**

- According to the National Payments Corporation of India (NPCI), UPI-led digital transactions crossed the highest- ever value of Rs 81-lakh crore in FY22, however, a large number of people, especially in the rural parts continue to use cash as the primary mode of transaction.
- Deepen digital payments- RBI's geo-tagging framework focusses on deepening digital payments and providing inclusive access to all citizens of the country.
- Monitoring- It will enable proper monitoring of availability of payment acceptance infrastructure like Points of Sale (PoS) terminals, QR codes, etc.
- It further monitors infrastructure density across different locations.
- Distribution of payment infrastructure- Such monitoring will support policy intervention to optimize the distribution of payment infrastructure.
- It identifies the scope for deploying additional payment touch points, and facilitates focused digital literacy programmes.
- Devising intervention strategies- Capturing the accurate location of payment touch points is essential to upscaling and chalking out intervention strategies.
- Digital penetration- It provides insights on regional penetration of digital payments.

## **4.4 Cryptos and CBDC**

#### **Why in news?**

The central bank must note that a Central Bank Digital Currency (CBDC) can only be a fiat currency and not a crypto.

#### **What are crypto assets?**

- A crypto asset is a digital asset; but not all digital assets are crypto assets.
- The distinguish features of crypto assets:
  - Uses cryptography
  - Depends on distributed ledger technology
  - No need for a third party such as a bank to issue crypto assets
  - Have three primary uses: as an investment, a medium of exchange, and to access goods and services.
- Crypto assets are commonly known as cryptocurrencies such as Litecoin, Ripple, Bitcoin, and Ethereum.

#### **What is CBDC?**

- A CBDC is a legal tender issued by a bank in a digital format.
- Also known as digital base money or digital fiat currencies, a CBDC is no different from hard cash, apart from the fact that they are in a digital or virtual form.
- It is not meant to replace hard cash but coexist as an additional form of payment method.

#### **What were the different stands taken on cryptos?**

- Finance minister- In the Budget session, it was said that Cryptocurrency will be discouraged via taxation and capital gains provisions.
- RBI Governor- The Governor of the RBI highlighted that private cryptocurrencies are a big threat to our

financial and macroeconomic stability.

- Also he said that these cryptocurrencies have no underlying asset.
- Deputy Governor of RBI- A Deputy Governor of the RBI called cryptos worse than a Ponzi scheme and argued against legitimizing them.
- Supreme Court- The Supreme Court of India has asked the Government whether or not cryptos are legal.

#### **How do cryptos become acceptable as tokens for exchange?**

- A currency is a token used in market transactions.
- Historically, commodities (copper coins) have been used as tokens since they themselves are valuable.
- But paper currency is useless till the government declares it to be a fiat currency as it derives its value from state backing.
- Cryptos are a string of numbers in a computer programme and there is no state backing.
- Cryptos acquire value and can be transacted via the net which enables them to function as money.

#### **Is it possible to ban cryptos?**

- The total valuation of cryptos recently was upward of 2 trillion dollars which is more than the value of gold held globally.
- Cryptos which operate via the net can be banned only if all nations come together.
- Even then, tax havens may allow cryptos to function, defying the global agreement.

#### **What are the concerns of CBDC?**

- Blockchain enables decentralisation where everyone on the crypto platform has a say but, central banks want a fiat currency to be exclusively issued and controlled by them.
- Theoretically everyone can 'mine' and create crypto unlike the centrally controlled CBDC.
- Solving the 'double spending' problem and being a crypto (not just a digital version of currency) seems impossible.
- A centralised CBDC will require the RBI to validate each transaction.
- CBDCs at present cannot be a substitute for cryptos that will soon begin to be used as money. This will impact the functioning of central banks and commercial banks.
- Double-spending is the risk that a cryptocurrency can be used twice or more. It occurs when someone alters a blockchain network and inserts a special one that allows them to reacquire a cryptocurrency.

## **4.5 M2e**

- The influenza A virus was isolated for the first time in 1931, and the first attempts to develop a vaccine against the virus began soon afterwards.
- These viruses cause seasonal epidemics and also pandemics at random intervals.
- Vaccination is the most effective way of preventing the spread of influenza infection.
- But, the seasonal influenza strains mutate rapidly and new strains of the virus proliferate. This makes it very difficult to make a vaccine that can consistently generate a sufficient degree of immunity.
- However, the M2e peptide of influenza A virus is a conserved region section, meaning it doesn't undergo too many mutations across the several kinds of influenza A strains.
- Therefore, to design a universal flu vaccine the M2e peptide can be targeted and then the immune system can be primed to generate antibodies.
- But, it has a limited ability to trigger a strong and long-lasting immune response and this has represented a major roadblock in its clinical development.
- Vaccine Platform - Recently researchers have reported a novel vaccine platform to deliver M2e to immune cells.
- By deploying this platform, a single shot vaccine containing M2e was able to trigger long-lasting immune responses that could protect effectively against multiple strains of the flu.
- This vaccine approach has the potential to Minimise the amount of M2e vaccine antigen and the need for strong adjuvants,

- Reducing potential side-effects, particularly in more vulnerable populations.

#### 4.6 Epilepsy

- Epilepsy is a chronic Non-Communicable Disease of the brain that affects people of all ages.
- It is characterized by recurrent seizures, which are brief episodes of involuntary movement that may involve a part of the body (partial) or the entire body (generalized) and are sometimes accompanied by loss of consciousness and control of bowel or bladder function.
- Seizure episodes are a result of excessive electrical discharges in a group of brain cells.
- Symptoms - Seizure symptoms can vary widely.
- Some people with epilepsy simply stare blankly for a few seconds during a seizure, while others repeatedly twitch their arms or legs.
- One seizure does not signify epilepsy (up to 10% of people worldwide have one seizure during their lifetime).
- Epilepsy is defined as having two or more unprovoked seizures.
- Treatment - Treatment with medications or sometimes surgery can control seizures for the majority of people with epilepsy.
- Some people require lifelong treatment to control seizures, but for others, the seizures eventually go away.
- Some children with epilepsy may outgrow the condition with age.
- Response - WHO, the International League Against Epilepsy (ILAE) and the International Bureau for Epilepsy (IBE) led the Global Campaign Against Epilepsy to bring the disease out of the shadows.

#### 4.7 Two-finger Test

- The Madurai Bench of the Madras High Court directed the State to ban 'two-finger test' on victims of sexual offences, particularly on minor victims.
- A "per vaginal" or two-finger test is an explicitly intrusive physical examination wherein a doctor inserts two fingers inside the vagina of a rape survivor to check if
- The hymen is intact or not.
- The size of the vaginal opening and the laxity of vagina.
- It examines the laxity of vagina in order to determine if the woman has engaged in or has been subjected to sexual intercourse.
- As per WHO, the two-finger test cannot prove that a woman has had a vaginal intercourse or not.
- The technique is practised on the assumption that a hymen can be torn because of sexual intercourse and that the appearance of female genitalia can determine the sexual history of a woman.
- Controversy - Virginity testing is a patriarchal idea which transgresses ethics, ethical medical practices, as well as the privacy of the victim.
- For decades, however, the two-finger test was the only method of confirming rape.
- In addition to being medically uncalled-for, it is exclusively performed on women, mostly without their consent.
- The practice is rooted in gender and power inequalities, wherein a woman's body is a subject of archaic ideas and/or can be regulated as per men's desires.

#### 4.8 Haemophilia

- The World Haemophilia Day is observed on April 17 every year. This year's theme "Access for all: Partnership. Policy. Progress."
- Hemophilia is usually an inherited X-linked recessive bleeding disorder in which the blood does not clot properly.
- This can lead to spontaneous bleeding as well as bleeding following injuries or surgery.
- Blood contains many proteins called clotting factors that can help to stop bleeding. People with



hemophilia have low levels of either factor VIII (8) or factor IX (9).

- Causes - Hemophilia is caused by a mutation or change, in one of the genes, that provides instructions for making the clotting factor proteins needed to form a blood clot.
- This change or mutation can prevent the clotting protein from working properly or to be missing altogether.
- These genes are located on the X chromosome.
- Symptoms - Bleeding within joints that can lead to chronic joint disease and pain; it often affects the knees, elbows, and ankles.
- Bleeding into the skin (which is bruising) or muscle and soft tissue causing a build-up of blood in the area (called a hematoma).
- Bleeding after circumcision (surgery performed on male babies to remove the hood of skin, called the foreskin).
- Bleeding in the head and sometimes in the brain which can cause long term problems, such as seizures and paralysis.
- Death can occur if the bleeding cannot be stopped or if it occurs in a vital organ such as the brain.
- Severity - The severity of hemophilia that a person has is determined by the amount of factor in the blood.
- The lower the amount of the factor, the more likely it is that bleeding will occur which can lead to serious health problems.
- In rare cases, a person can develop hemophilia later in life.
- The majority of cases involve middle-aged or elderly people, or young women who have recently given birth or are in the later stages of pregnancy. This condition often resolves with appropriate treatment.
- Diagnosis - To make a diagnosis, doctors would perform certain blood tests to show if the blood is clotting properly.
- If it does not, then they would do clotting factor tests, also called factor assays, to diagnose the cause of the bleeding disorder.
- Treatment - The best way to treat hemophilia is to replace the missing blood clotting factor so that the blood can clot properly.
- This is done by infusing (administering through a vein) commercially prepared factor concentrates.

## 4.9 Colour Blindness

- The Supreme Court has directed the Film and Television Institute of India (FTII) not to exclude candidates suffering from colour blindness from its courses on film making and editing.
- Colour blindness or colour deficiency is the inability to see colours in the normal way.
- Colour blind individuals often cannot distinguish between certain colours - usually greens and reds, and sometimes blues as well.
- Two types of cells in the retina detect light
  - Rods - Distinguish between light and dark, and
  - Cones - Detect colour.
- There are three types of cones that see colour - red, green, and blue - and our brains use the information from these cells to perceive colour.
- Causes - Colour blindness can be the result of the absence of one or more of these cone cells, or their failure to work properly.
- In a situation where all three cone cells are present but one of them is malfunctioning, mild colour blindness may occur.
- Most colour blind people are born with the condition (congenital colour blindness), but some can develop it later in life.
- Congenital colour vision deficiencies are usually passed on genetically.
- A problem with colour vision that arises later in life could be the result of disease, trauma, or ingested toxins.
- Medical conditions that may increase the risk of getting colour blindness include glaucoma, diabetes, Alzheimer's, Parkinson's, alcoholism, leukaemia, and sickle-cell anaemia.

- Severity - Colour blindness may be of different kinds and degrees.
- Mildly colour blind people often see all colours properly only when the light is good.
- There are others who cannot tell one colour apart from another no matter how good the light is.
- In the most severe kind of colour blindness, vision is black-and-white, that is, everything appears as a shade of grey.
- Color blindness generally affects both eyes, and the condition remains roughly the same for as long as the individual is alive.
- Treatment - Colour blindness cannot as yet be treated or reversed.
- However, it can be corrected to some extent by wearing special contact lenses or colour filter glasses.
- Diagnosis - In the case of a child, parents can notice the deficiency for the first time when the child is beginning to learn colours.
- The child may have difficulty in seeing colours or in recognising the brightness of colours in ways that would be considered 'normal'.
- The child may also show an inability to distinguish between shades of the same or similar colours.
- At risk - Men suffer from a higher incidence of colour blindness than women.
- Around the world, every tenth male is estimated to have some form of colour deficiency.
- In India, the Supreme Court in the FTII case quoted, "Estimated 8% of male population and less than 1% female population have red and green colour deficiency being the most common form of colour-blindness."

#### 4.10 Genome-editing Technology

- The Central Government paved the way for easy introduction of genome edited crops. The genome-edited crops are different from genetically-modified crops.
- A decade ago, scientists in Germany and the US discovered a technique which allowed them to 'cut' DNA strands and edit genes.
- For agriculture scientists this process allowed them to bring about desired changes in the genome by using Site Directed Nuclease (SDN) or Sequence Specific Nuclease (SSN).
- Nuclease is an enzyme which cleaves through nucleic acid - the building block of genetic material.
- The highly effective clustered regularly interspaced palindromic repeat (CRISPR)-associated proteins based systems allow for targeted intervention at the genome sequence.
- This tool has opened up various possibilities in plant breeding. This tool can now edit genome to insert specific traits in the gene sequence.
- Categories - Depending on the nature of the edit that is carried out, the process is divided into three categories - SDN 1, SDN 2 and SDN 3.
- SDN1 introduces changes in the host genome's DNA through small insertions/deletions without introduction of foreign genetic material.
- In the case of SDN 2, the edit involves using a small DNA template to generate specific changes.
- Both these processes do not involve alien genetic material and the end result is indistinguishable from conventionally bred crop varieties.
- But, the SDN3 process involves larger DNA elements or full length genes of foreign origin which makes it similar to Genetically-modified organisms (GMO) development.
- Genetically-modified Organisms involves modification of the genetic material of the host by introduction of a foreign genetic material.
- In the case of agriculture, soil bacteria is the best mining source for such genes which are then inserted into the host genome using genetic engineering.
- The basic difference between genome editing and genetic engineering is that while the former does not involve the introduction of foreign genetic material, the latter does.
- In the case of agriculture, both the techniques aim to generate variants which are better yielding and more resistant to biotic and abiotic stress.
- Before the advent of genetic engineering, such variety improvement was done through selective breeding which involved carefully crossing plants with specific traits to produce the desired trait in the offspring.

- Genetic engineering has not only made this work more accurate but has also allowed scientists to have greater control on trait development.

#### 4.11 Variable Refresh Rates

- Google is testing support for Variable Refresh Rates (VRR) in the Chrome OS 101 Dev Channel.
- Refresh rate is the number of times a display is capable of refreshing in a second. It is measured in hertz (Hz).
- The higher the refresh rate, the better the quality of viewing experience.
- Displays with over 120 Hz can deliver a smoother and more comfortable viewing experience.
- This is necessary while playing video games or watching videos.
- Variable Refresh Rates (VRR) is also termed as dynamic refresh rate or adaptive refresh rate.
- It supports a wide range of refresh rates, allowing its refresh rate to change in real-time based on the frames-per-second (FPS) rate coming from a source device such as a gaming console.
- It allows your screen to adjust how often it refreshes the image to match the frame rate from your console or PC.
- Working - VRR is designed to eliminate syncing issues that arise when the refresh rate of a display does not match with the FPS of the content from a source device.
- Issues such as screen-tearing, judder (wobbling effect) and lag are common when refresh rate and FPS are not synchronised.
- VRR screen technology can improve gaming experience in both console and PC-based gaming.
- In mobile devices, a VRR solution can improve the gaming experience of users by keeping up with intense gameplay and also save battery power.

#### 4.12 Near Field Communication Technology

- Recently, Google Pay has launched the 'Tap to pay for UPI' feature in India, in collaboration with Pine Labs. The feature makes use of Near Field Communication (NFC) technology.
- NFC is a short-range wireless connectivity technology that allows NFC-enabled devices to communicate with each other and transfer information quickly and easily with a single touch.
- NFC transmits data through electromagnetic radio fields, to enable communication between two devices.
- NFC-enabled devices must be either physically touching or within a few centimetres from each other for data transfer to occur.
- To work, both devices must contain NFC chips, as transactions take place within a very short distance.
- Applications of NFC - NFC tech has a wide range of applications besides driving payment services like Google Wallet and Apple Pay.
- It is used in contactless banking cards to perform money transactions or to generate contact-less tickets for public transport.
- Contactless cards and readers use NFC to secure networks and buildings, to monitor inventory and sales, to prevent auto theft, to keep tabs on library books, and to run unmanned toll booths.
- NFC is behind the cards that we wave over card readers in subway turnstiles and on buses to check tickets.
- It is present in speakers, household appliances, and other electronic devices that we monitor and control through our smartphones.
- With just a touch, NFC can also set up WiFi and Bluetooth devices in our homes.
- It also has an application in healthcare, to monitor patient stats through NFC-enabled wristbands. NFC is used in wireless charging too.
- NFC in Google Pay - Google Pay has been the first among UPI apps to bring the Tap-to-Pay feature working on POS terminals.
- It allows users with UPI accounts configured on GPay to make payments just by tapping their NFC-enabled Android smartphones on any Pine Labs Android point-of-sale (POS) terminal and verify the payment.
- The process is much faster compared to scanning a QR code or entering the UPI-linked mobile number which has been the conventional way till now.

- Safety - NFC technology is designed for an operation between devices within a few centimetres from each other.
- This makes it difficult for attackers to record the communication between the devices compared to other wireless technologies which have a working distance of several metres, according to the NFC forum.

#### 4.13 Splinternet

- Russia's invasion of Ukraine does seem as a potential trigger for a splintered internet.
- The idea of 'Splinternet' was proposed by Clyde Wayne Crews, a researcher at libertarian think-tank Cato Institute.
- The 'Splinternet' is an internet splintered into disparate realms controlled by different dispensations or powers.
- It is also referred to as cyber-balkanization or internet balkanization.
- The fundamental proposal was to have more internets instead of having more regulations.
- Over the past two decades, a splintering of internet has occurred in some limited ways. For example,
- China's 'Great Firewall' keeps American tech giants out while pushing online services developed indigenously.
- In 2019, Russia passed the online Iron Curtain (the sovereign internet law) that enabled it to disconnect its internet from rest of the world.
- In Iran, a project called the National Information Network (NIN) or National Internet in Iran has been initiated by the state-owned Telecommunication Company of Iran.

#### 4.14 Hermes StarLiner

- Israel becomes the first-ever country to allow drones in civilian airspace.
- The Israeli Civil Aviation Authority (CAA) has issued certification to the Hermes Starliner drones.
- This is Israel's first certification for unmanned aircraft vehicles (UAVs) to operate in civilian airspace for the benefit of agriculture, environment, fight against crime, the people and the economy.
- Hermes Starliner was manufactured and developed by Elbit Systems, an Israeli defense electronics company.
- It can fly for up to 36 hours at an altitude of around 7600 m, and can carry an additional 450 kg of thermal, electro-optical, radar and other payloads.
- Uses - Hermes Starliner will also be able to
- Participate in anti-terror and border security operations,
- Perform maritime rescue and search,
- Take part in securing public events, and
- Take part in environmental inspection and commercial aviation missions.
- There are two variants - Hermes 450 and Hermes 900.
- For safety reasons, international aviation regulations prohibit uncertified aircraft from flying in civilian airspace, limiting the operation of UAVs to unsegregated airspace.

#### 4.15 Sarmat Intercontinental Ballistic Missile

- Russia has successfully test-fired the Sarmat intercontinental ballistic missile.
- The Sarmat is a Russian liquid-fueled intercontinental ballistic missile capable of nuclear charges.
- This multiple independently targetable reentry vehicle (MIRV)-equipped weapon can be deployed with 10 or more warheads on each missile.
- It is claimed that it has the longest range of destruction of targets in the world.
- Dubbed Satan-2 by Western analysts, Sarmat is designed to elude anti-missile defence systems with a short initial boost phase, giving enemy surveillance systems a tiny window to track.
- The name Sarmat is based upon the nomadic Sarmatian tribes which used to live between 6th and 4th

century BC in current territories of Russia, Ukraine and Kazakhstan.

#### 4.16 Bio-Digester

- It is a system that biologically digests organic material, either anaerobic (without oxygen) or aerobically (with oxygen).
- Most food, including fat, greases, and even animal manure, can be processed in a bio-digester.
- Microbes and other bacteria break down organic materials in a bio-digester.
- Biodigesters are a closed system; so, it gives off no odor from food waste; this will eliminate flies and rodents from the facility.
- Biodigesters are a living system and do require maintenance. However, they are easy to use and maintain.
- It utilizes organic waste, particularly animal and human excreta, to produce fertilizer and biogas.
- The capacity of food a biodigester can process depends on the size; larger the digester more food it can handle.
- Biodigester systems can be implemented on farms that need to improve soil fertility or the quality of life of the producers if the conditions referred to above are in place. Permanent access to water is required.
- In India, Biodigester technology has been developed by Defence Research Development Organisation (DRDO) for resolving the problems of un-decomposed human waste.

#### Other Solid Waste Management Techniques

- Bio-methanation,
- Vermi-composting,
- Anaerobic digestion or any other appropriate processing for bio-stabilisation of biodegradable wastes, and
- Waste to energy processes including refused derived fuel for combustible fraction of waste or supply as feedstock to solid waste based power plants or cement kilns.
- Related Links - National Policy on Biofuels 2018, Sustainable Alternative Towards Affordable Transportation (SATAT) scheme
- Similar Links - Ethanol Blended Petrol Programme & Biodiesel Blending Programme

#### 4.17 Battery Passport

- German-funded consortium of 11 carmakers and battery producers, including BMW, Umicore and BASF, are aiming to develop a "battery passport" that traces the content and carbon footprint of batteries in Europe.
- The Battery Passport is a digital representation of a battery that conveys information about all applicable ESG and lifecycle requirements based on a comprehensive definition of a sustainable battery.
- Each Battery Passport will be a digital twin of its physical battery enabled by the digital Battery Passport platform.
- [The Battery Passport platform offers a global solution for securely sharing information and data.
- This platform aims to go beyond enabling the performance management of just one battery to that of all batteries across the full industry value chain.]
- Batteries could carry a QR code linking to an online database where EV owners, businesses or regulators could access information on the battery's composition.
- This digital tool should also make it easier to recycle raw materials inside batteries, which would cut dependence on foreign suppliers which control the vast majority of resources, like lithium and nickel, essential for battery production.

#### 4.18 Garbology

- Garbology is the study of modern culture through the analysis of what is thrown away as garbage.
- As an academic discipline, it was pioneered at the University of Arizona and long directed by William

Rathje.

- It uses colouring books, board games & activity-based learning to drive long-term behavioural change among school students, especially with regard to consumption & waste management.

### Twisted Bilayer Graphene

- Researchers from the Indian Institute of Science (IISc), Bengaluru, have discovered that the twisted bilayer graphene may possess a new phase that exhibits what is called charge density wave states.
- Twistronics is the study of how the angle (the twist) between layers of two-dimensional materials, such as bilayer graphene, can change their electrical properties.
- Graphene is an allotrope of carbon consisting of a single layer of atoms arranged in a two-dimensional honeycomb lattice.
- This 2-dimensional material comprising a single layer of carbon atoms arranged in a hexagonal lattice. It is the building-block of Graphite.
- Graphene is the world's thinnest, most electrically and thermally conductive material. It is flexible, transparent and incredibly strong.
- Graphene possesses several interesting properties by itself, and, it can be combined with other materials to form useful devices.
- One such material is twisted bilayer graphene.
- Twisted bilayer graphene (TBG) is made by placing two layers of graphene on top of each other such that they are aligned well, and then twisting one layer so that it makes a well-calibrated, known angle with respect to the former.
- When such a twist is given, the lattice shows what is called moire patterns.
- [Moire patterns are wavy fringelike patterns that we see, for example, when two layers of synthetic fabric overlap and move with respect to each other.]
- Adding the layer of tungsten diselenide endowed the material with unique properties and created the charge density wave states.
- Charge density wave states
- Normally in a conductor, the charge carriers (for example electrons) are free to move anywhere in the conductor.
- But here, some areas are restricted and the electrons can move only in the allowed regions.
- Just like there are variations in particle density in a sound wave, these states show a wave-like variation in the charge density.

## 5. Environment & Ecology

### 5.1 Proposed ESZ in Neyyar and Peppara Wildlife Sanctuaries

#### Why in news?

The MoEFCC has issued a draft notification to declare an Eco-Sensitive Zone (ESZ) that will encompass large swathes of areas around the Neyyar and Peppara wildlife sanctuaries in Thiruvananthapuram.

#### What is the significance about Neyyar and Peppara wildlife sanctuaries?

- The Neyyar and Peppara wildlife sanctuaries form a part of the core area of the Agasthyamalai Biosphere Reserve in the Western Ghats.
- There are around 1000 species of flowering plants that belong to 132 families in the protected areas.
- They are known to sustain diverse fauna including 43 mammal species, 233 bird species, 46 reptile species, 13 amphibian species, 27 marine species and a wide variety of butterflies and odonates.
- The endangered Myristica swamps are also endemic to the protected areas.
- Myristica swamps are a type of freshwater swamp forest that have adapted to inundation by way of stilt roots and knee roots. They are found in the Uttara Kannada district of Karnataka State, southern parts of Kerala and in Maharashtra's Sindhudurga district.

#### What is the notification about?

- The draft notification seeks to conserve and protect an area of 70.906 sq km.
- Activities promoted in the ESZ- The eco-friendly activities that will be encouraged include
  - Rain water harvesting
  - Organic farming
  - Cottage industries
  - Use of renewable energy and fuels
  - Agro-forestry
  - Eco-friendly transport
  - Restoration of degraded forests
  - Horticulture and herbal plantation
  - Propagation of environmental awareness
- Activities prohibited in the ESZ- The draft notification chiefly proposes a blanket prohibition on 15 activities including
  - All new and existing commercial mining, stone quarrying and crushing units
  - New industries and expansion of existing polluting industries
  - Setting up for major hydroelectric projects,
  - solid waste disposal sites, large-scale commercial livestock and poultry farms, saw mills, other wood-based industrial units and brick kilns
  - Use, production and storage of hazardous and explosives items, discharge of untreated effluents, s, commercial use of firewood, dumping of solid, plastic and chemical wastes in rivers and land areas, and encroachment of riverbanks

#### Activities strictly regulated in the ESZ

- No constructions of any kind will be permitted within 1 km of the protected areas
- No trees can be felled without prior permission of a competent authority in the State government
- Regulation of
  - collection of non-timber forest produce
  - erection of electrical and communication towers, cable-laying
  - infrastructure development including widening of existing roads and construction of new ones
  - tourism-related activities
  - night-time vehicular movement

- discharge of treated waste water and effluents
- commercial extraction of surface and ground water
- solid waste management
- The local communities will be permitted to continue ongoing agriculture, horticulture, dairy farming and aquaculture under applicable laws.

#### **What are the other provisions of the notification?**

- Zonal Master Plan- The draft notification mandates the preparation of a Zonal Master Plan in consultation with various departments.
- A master plan for tourism will form a component of the Zonal Master Plan.
- Monitoring committee- A monitoring committee chaired by the District Collector will have to be constituted to monitor the ESZ.
- It will comprise the district panchayat president, a representative of a NGO involved in natural conservation, an expert in ecology and environment and a representative of the Kerala State Biodiversity Board.

#### **What are the apprehensions of the local populace?**

- Affects infra development- The restrictions are likely to hinder the ongoing infrastructure development projects including the Hill Highway project that is aimed at improving road connectivity in the high ranges.
- Migration problems- The residents fear such hindrances could stagnate the quality of life and eventually lead to a phased migration from the region.
- Affects title deeds- Numerous families who have been awaiting the disbursement of title deeds for occupied lands feared the notification could affect their hopes.
- Impact on agriculture- Farmers in Amboori where rubber cultivation accounts for nearly 90% of agricultural activities feels the regulations might create difficulties in chopping down trees for replanting.

#### **What lies ahead?**

- Human habitations and agricultural lands around the Thattekad bird sanctuary in Ernakulam were recently excluded from the proposed ESZ on the basis of the State government's proposal that followed widespread protests.
- The MoEFCC has provided 60 days to raise objections or suggestions on the proposals.
- The State government will be provided an opportunity to submit a revised proposal at a later stage.

## **5.2 Adapting Indian Agriculture**

### **Why in news?**

The Working Group III contribution to the Sixth Assessment Report, Climate Change 2022: Mitigation of Climate Change was released recently.

### **What are the IPCC reports?**

- The objective of the IPCC is to provide governments at all levels with scientific information that they can use to develop climate policies.
- It was created in 1988 by the World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP).
- The Assessment Reports, the first of which had come out in 1990, are the most comprehensive evaluations of the state of the earth's climate.
- The first part report centred on the scientific basis of climate change.
- The second tranche of reports for the first time, made regional and sectoral level assessment of climate change impacts on ecosystems, biodiversity, and human communities.

### **What is the WG III report about?**

- The WG III report places climate change firmly in the context of sustainable development, assessing wider risks and co-benefits.



- The report documents and explains recent developments in emission and mitigation efforts.
- It considers emission pathways and corresponding mitigation efforts over the 21st century.
- For the first time, the WG III AR6 report includes a chapter on social aspects of mitigation that covers factors shaping consumption patterns and opportunities to reduce emissions on the demand.
- The report also includes for the first time a chapter dedicated to innovation and technology.

#### **How vulnerable is India's agriculture towards climate change?**

- According to the Global Climate Risk Index 2021, India is among the top ten countries most affected by climate change.
- Several studies suggest that climate change already has evident effects on crop production, with associated consequences for local food supply disruptions and negative impacts on rural incomes and poverty.
- A Report by the Parliamentary Standing Committee on Agriculture, 2017 estimated that climate change related losses are about 4-9 % of the agricultural economy each year, which is an overall GDP loss of 1.5%.
- As nearly 86% of Indian agriculture is small-holder agriculture and a significant part of it is subsistence agriculture, adaptation is an issue of survival.

#### **What activities should be prioritised?**

- Agriculture being a State subject, planning and policy implementation falls within the purview of respective States and local institutions, with the Central government providing the broad policy framework and guidelines.
- It would be important to prioritise activities having both adaptation and mitigation benefits.
- As fragmented and small land size reduces farmers' adaptive capacity to climate change, it is essential to design policies and strategies especially focussing on small and marginal landholders.
- The development of State Action Plan on Climate Change (SAPCC) needs to be dynamic by revising it in lines with the post 2020 NDC goals and the SDGs.
- A pro-active adaptation approach in agriculture is needed, streamlining efforts and resources on climate and disaster resilience for preparedness in coping with disasters.

#### **How should India equip itself to tackle natural disasters?**

- India is a signatory to the Sendai Framework for Disaster Risk Reduction 2015-2030 (Sendai Framework).
- India has well developed institutional arrangements for disaster management at the national, State and district level.
- Adaptation measures pertaining to impact of natural disasters in agriculture and allied sectors need to be embedded in the disaster management plans prepared at the district level.
- It is important to provide the supporting infrastructure including water supply, power and physical connectivity on which agricultural value chain depends.
- Areas affected by floods, hailstorms and drought need to be rebuilt better based on disaster management assessment.
- Mainstreaming of climate considerations across the development programmes as well as in the process of spatial planning are required.
- Adaptation to climate change in the sector requires not only large and continued financial investment, but also in terms of knowledge and human capacity.

### **5.3 IMD Forecasts**

#### **Why in news?**

The India Meteorological Department (IMD) has forecast a 'normal' monsoon for this year, or 99% of the Long Period Average (LPA) of 87 cm.

#### **What is IMD?**

- India Meteorological Department established in 1875, is the National Meteorological Service of the country and the principal government agency in all matters relating to meteorology and allied subjects.

- IMD is under the Ministry of Earth Sciences (MoES).
- The headquarters of IMD was initially in Calcutta but later shifted to Shimla, then to Pune and finally to New Delhi.

### Objectives

- To take meteorological observations and to provide meteorological information for optimum operation of weather-sensitive activities
- To warn against severe weather phenomena like tropical cyclones, norwesters, duststorms, heavy rains and snow, cold and heat waves, etc.,
- To provide meteorological statistics required for agriculture, water resource management, industries, oil exploration and other nation-building activities.
- To conduct and promote research in meteorology and allied disciplines.
- The IMD has a multi-stage monsoon forecast system.

### What is the current forecast about?

- The April forecast is a general indicator and usually has little detail on rain expected during each of the monsoon months, and about its geographical distribution.
- The IMD usually shares this in late May or early June, just around the time the monsoon is imminent over Kerala.
- El Nino- El Nino is a climate pattern that describes the unusual warming of surface waters in the eastern equatorial Pacific Ocean.
- A normal monsoon forecast this year is predicated on the absence of an El Nino.
- Indian Ocean Dipole- Sustained changes in the difference between sea surface temperatures of the tropical western and eastern Indian Ocean is known as the Indian Ocean Dipole.
- During positive event, a sea surface temperature in the western Indian Ocean is warmer relative to the east bringing rainfall to India.
- The Indian Ocean Dipole has been forecasted to be 'neutral' by the IMD which seems unhelpful for the monsoon.
- Definition of the LPA- Long Period Average (LPA) is an indication of the average rainfall over a 50 year interval.
- As per the norms of the World Meteorological Organization(WMO) to which India is a signatory, LPA should be updated every 10 years.
- The LPA was 89 cm (the average monsoon rain from 1951-2000) until 2018, and it was updated to 88 cm (to reflect the average from 1961-2010) and now, the number is 87 cm (to count for the 1971-2020 interval).
- The WMO is an intergovernmental organization that originated from the International Meteorological Organization (IMO). It was established in 1950 and later became the specialised agency of the United Nations. It is headquartered in Geneva with World Meteorological Congress as the supreme body.

### What does the change in LPA indicate?

- While on the surface, it might look like India is losing just a centimetre of rainfall every decade, it must be remembered that this conceals wide shifts in rainfall when computed at the State and district levels as the monsoon rain is highly uneven.
- The IMD explains the loss of a centimetre every decade as part of a natural cycle of the monsoon where 30 years of less rain, or a 'dry' epoch, is followed by 30 years of a 'wet epoch'.
- India began a dry epoch in the 1970-80 decade and it is now in a neutral phase and will enter a wet epoch in 2030-2040.

## 5.4 Delhi Heatwave

### What is the issue?

Delhi-NCR is in the midst of another heatwave, with the maximum temperature at some weather observatories likely to hit 45 degree Celsius.

### What is a heat wave?

- Heat wave is a condition of air temperature which becomes fatal to human body when exposed.
- Quantitatively, it is defined based on the temperature thresholds over a region in terms of actual temperature or its departure from normal.

### Criterion for declaring heat wave

- Heat wave is considered if maximum temperature of a station reaches at least 40 degree C or more for plains and at least 30 degree C or more for hilly regions.
- Based on Departure from Normal
- Heat Wave: Departure from normal is 4.5 degree C to 6.4 degree C
- Severe Heat Wave: Departure from normal is >6.4 degree C
- Based on Actual Maximum Temperature
- Heat Wave: When actual maximum temperature  $\geq 45$  degree C
- Severe Heat Wave: When actual maximum temperature  $\geq 47$  degree C
- If above criteria met at least in 2 stations in a Meteorological sub-division for at least two consecutive days and it declared on the second day.
- For coastal areas- When maximum temperature departure is 4.5 degree C or more from normal, heat wave may be described provided actual maximum temperature is 37 degree C or more.
- Warm night is considered only when maximum temperature remains 40 degree C or more.

### What are the favorable conditions for Heat wave?

- The heat index is the combination of air temperature and relative humidity, it measure of how hot it really feels when relative humidity is factored in with the actual air temperature.
- Transportation / Prevalence of hot dry air over a region (There should be a region of warm dry air and appropriate flow pattern for transporting hot air over the region).
- Absence of moisture in the upper atmosphere (As the presence of moisture restricts the temperature rise).
- The sky should be practically cloudless (To allow maximum insulation over the region).
- Large amplitude anti-cyclonic flow over the area.
- It is occurring mainly during March to June and in some rare cases even in July but peak month of the heat wave over India is May.

### What is the current forecast?

- Heatwaves have killed over 6,500 people in India since 2010.
- The city recorded a high of 43.5 degrees Celsius on April 28 and 29 which was the highest maximum temperature on an April day in Delhi in 12 years.
- The weather department has issued an "orange" alert, warning people of a severe heatwave in many parts of Delhi.
- Power outages compounded the misery of millions of people wilting in a heatwave across India, with experts blaming climate change for an early onset of roasting summer temperatures.
- Many regions also reported falling water supplies.

## 5.5 Perumbakkam Wetland

- The Perumbakkam wetland is a feeding habitat for birds in Chennai, India.
- It is an extension of the Pallikaranai freshwater marsh wetland.
- Also, this wetland provides a peaceful environment for these birds.
- Perumbakkam wetland is home to 132 species including the white-spotted garden skink, Russell's viper, dwarf gourami, chromide, windowpane oyster, mud crab and mullet.

## 5.6 Hattis

- Hatti community of Himachal Pradesh has requested the Union Government for inclusion of their community in the list of Scheduled Tribes.
- The Hattis are a close-knit community who got their name from their tradition of selling homegrown vegetables, crops, meat and wool etc. at small markets called 'haat' in towns.
- The Hattis are cut off from Sirmaur by two rivers called Giri and Tons.
- The two clans of the Hattis have similar traditions, and inter-marriages are commonplace.
- There is a fairly rigid caste system among the Hattis - the Bhat and Khash are the upper castes, while the Badhois are below them.
- Inter-caste marriages have traditionally remained a strict no-no.
- Due to topographical disadvantages, the Hattis living in the Kamrau, Sangrah, and Shilliai areas lag behind in education and employment.
- The Hattis are governed by a traditional council called Khumbli, which like the khaps of Haryana, decide community matters.
- The Khumbli's power has remained unchallenged despite the establishment of the panchayati raj system.

## 5.7 Kwar Hydro Electric Project

- The Cabinet Committee on Economic Affairs chaired by the Prime Minister has approved the investment for 540 Megawatt (MW) Kwar Hydro Electric Project located on river Chenab of Union Territory of Jammu and Kashmir.
- The project will be implemented by M/s. Chenab Valley Power Projects Private Limited (CVPPL).
- [CVPPL is a joint venture company between National Hydroelectric Power Corporation (NHPC) and Jammu & Kashmir State Power Development Corporation (JKSPDC) with equity contribution of 51% and 49% respectively.]
- The Power generated from the Kwar Hydro Electric Project will help in balancing of Grid and will improve the power supply position.

### Chenab River

- The Chenab River in the northwestern India and northeastern and eastern Pakistan is also known as Chandrabhaga River.
- It originates from Baralacha Pass in Himachal Pradesh.
- It is formed by the confluence of two streams, Chandra and Bhaga, in the western (Punjab) Himalayas in Himachal Pradesh.
- It flows west through Jammu and Kashmir between the steep cliffs of the Siwalik Range (south) and the Lesser Himalayas (north).
- Turning southwest, it continues into Pakistan, descending from the uplands into the broad alluvial lowlands of Punjab province.
- After receiving the Jhelum River near Trimmu, the Chenab empties into the Sutlej River, a tributary of the Indus River.

## 5.8 Pranahita River

- The mega river festival dedicated to worshipping the Pranahita river drew to a close on a grand note with hordes of devotees swarming Kaleshwaram.
- Pranahita River is the largest tributary of the Godavari.
- This river acts as border between Telangana and Maharashtra.
- Origin - Thumbidihatti, Asifabad, Telangana.
- It begins at the confluence of 2 rivers - Wardha and Wainganga.
- Outflow - Godavari River near Kaleshwaram
- States - Maharashtra, Telangana

- Kaleshwaram irrigation project, one of the two components of the redesigned Pranahita-Chevella project, was proposed across the Godavari after the tributaries - Pranahita and Indravati.

## 5.9 Attappady

- Prehistoric relics were discovered along the banks of three rivers flowing through Attappady hills.
- Attappady Block came into being in 1962 and the Integrated Tribal Development Project (ITDP) in 1976.
- It situates in the Western Ghats in Kerala and Tamil Nadu.
- Main source of income of scheduled tribes living in this area is from agriculture and allied sectors and collection of minor forest produce.
- Major chunk of minor forest produce collected in Kerala is from Attappady.
- Lack of irrigation and deforestation are the serious constraints to Agricultural Development in this area.
- The main water sources are the river Bhavani, Siruvani and Varagar.
- Along with agricultural activities cattle, rearing is also the main source of income.

## 5.10 Status of India's Coastline

- The Ministry of Earth Sciences informed the Lok Sabha about the status of the coastline of the Indian mainland.
- The National Centre for Coastal Research (NCCR) is monitoring shoreline erosion since 1990 using remote sensing data & GIS mapping techniques.
- [Chennai-based NCCR is an attached office of the Ministry of Earth Sciences (MoES). To know more about the NCCR, click here.]
- About 6,907.18 km long Indian coastline of mainland has been analysed from 1990 to 2018.
- Of the 6,907.18-km-long coastline of the Indian mainland,
- 34% is under varying degrees of erosion,
- 26% is of an accreting nature, and the remaining 40% is in a stable state.
- In terms of percentage, West Bengal, which is located on the eastern coast of the country with a 534.35-km- long coastline, suffered erosion along about 60.5% of the coast over the period from 1990 to 2018.
- This is followed by Kerala on the west coast, which has 592.96 km of coastline and 46.4% of it faced erosion.
- Tamil Nadu, with a coastline of 991.47 km, recorded erosion along 42.7% of it.
- Gujarat, with the longest coastline of 1,945.6 km, recorded erosion along 27.06% of it.
- In the Union Territory of Puducherry, with a 41.66-km-long coastline, about 56.2% of its coast recorded erosion.
- Indian National Centre for Ocean Information Services (INCOIS), an organisation under the MoES, has prepared an atlas of Coastal Vulnerability Index (CVI) maps for the entire coastline of India at a 1:100000 scale.

### Policy on Displacement

- The 15th Finance Commission had recommended the creation of a
- National Disaster Risk Management Fund (NDRMF) and State Disaster Risk Management Fund (SDRMF) comprising a mitigation fund at the national and State levels (NDMF/SDMF) &
- A response fund at the national and state levels for the award period from 2021-22 to 2022-26.
- The Commission has also made specific recommendations for 'Mitigation Measures to Prevent Erosion' under NDMF and 'Resettlement of Displaced People Affected by Erosion' under NDRF.

## 5.11 Coral Reefs & Coral Bleaching

The management authority of Australia's Great Barrier Reef confirmed that the reef is experiencing a mass coral bleaching event.

## Coral reefs

- Coral reefs are the largest living structures on the planet.
- They are large underwater ecosystem composed of the skeletons of colonial marine invertebrates called coral.
- Each coral is called a polyp and thousands of such polyps live together to form a colony, which grows when polyps multiply to make copies of themselves.
- Types - Corals are of two types - hard corals and soft corals.
- Hard corals (hermatypic or 'reef building' corals) extract calcium carbonate from the seawater to build hard, white coral exoskeletons.
- Soft coral polyps, however, borrow their appearance from plants; attach themselves to such skeletons and older skeletons built by their ancestors.
- They also add their own skeletons to the hard structure over the years and these growing multiplying structures gradually form coral reefs.
- Symbiotic relationship - Corals share a symbiotic relationship with single-celled algae called zooxanthellae.
- Zooxanthellae provide the coral with food and nutrients, which they make through photosynthesis, using the sun's light.
- In turn, the corals give the algae a home and key nutrients. The zooxanthellae also give corals their bright colour.
- Significance - Coral reefs support over 25% of marine biodiversity; even as they only take up 1% of the seafloor.
- The marine life supported by reefs further fuels global fishing industries.
- Besides, coral reef systems generate \$2.7 trillion in annual economic value through goods and service trade and tourism.
- Coral reefs also provide protection from storm waves.
- Dead reefs can revive over time if there are enough fish species that can graze off the weeds that settle on dead corals, but it takes almost a decade for the reef to start setting up again.

## Coral Bleaching

- Bleaching happens when corals experience stress in their environment due to changes in temperature, pollution or high levels of ocean acidity.
- Under the stressed conditions, the zooxanthellae start producing reactive oxygen species, which are not beneficial to the corals.
- So, the corals expel the colour-giving zooxanthellae from their polyps, which expose their pale white exoskeleton, giving the corals a bleached appearance.
- This also ends the symbiotic relationship that helps the corals to survive and grow.
- A 2021 study by the UN-supported Global Coral Reef Monitoring Network (GCRMN) showed that 14% of the world's coral on reefs had been lost between 2009 and 2018, with most of the loss attributed to coral bleaching.
- Recovery - Bleached corals can survive depending on the levels of bleaching and the recovery of sea temperatures to normal levels.
- If heat-pollutions subside in time, over a few weeks, the zooxanthellae can come back to the corals and restart the partnership.
- But severe bleaching and prolonged stress in the external environment can lead to coral death.
- Previous events - The first mass bleaching event had occurred in 1998 and the second one in 2002.
- However, in the past decade, mass bleaching occurrences have become more closely spaced in time, with the longest and most damaging bleaching event taking place from 2014 to 2017.
- This is due to the fact that climate change and increased global warming owing to rising carbon emissions and other greenhouse gases have made seas warmer than usual.

## 5.12 Microplastics

- A new study has found Microplastic particles in the blood samples of 17 out of the 22 persons, half of

these were polyethylene terephthalate (PET) plastics.

- Microplastics are tiny bits of various types of plastic found in various places - the oceans, the environment, and now in human blood.
- They are ubiquitous pollutants found almost everywhere on earth.
- The name is used to differentiate them from “macroplastics” such as bottles and bags made of plastic.
- There is no universal agreement on the size that fits this bill.
- However, the U.S. National Oceanic and Atmospheric Administration (NOAA) and the European Chemical Agency define microplastic as less than 5mm in length.
- This new study did not yet clear if these microplastics can cross over from the blood stream to deposit in organs and cause diseases.
- Related Links - Microplastics, Global Treaty on Plastic Pollution, Microplastics in the Atmosphere,

### 5.13 Mumbai and Hyderabad - Tree City of the World

- Mumbai and Hyderabad have been jointly recognised as ‘2021 Tree City of the World’ for their commitment to growing and maintaining urban trees and greenery in building healthy, resilient and happy cities.
- While Mumbai has made the list for the first time, Hyderabad has featured on it for the second consecutive year.
- ‘Tree Cities of the World’ is a programme started by the United Nations’ Food and Agriculture Organisation (UN-FAO) and non-profit organisation Arbor Day Foundation.
- It is an international effort to recognise cities and towns committed to ensuring that their urban forests and trees are properly maintained, sustainably managed, and duly celebrated.
- It provides direction, assistance, and worldwide recognition for a community’s dedication to its urban forest.
- It provides a framework for a healthy, sustainable urban forestry programme in a town or city.
- For 2021, 138 cities have been recognised under the programme.
- A city is recognised as a ‘Tree City’ if it meets five core standards to show its commitment towards caring for its trees and forests.
- To be recognised as a Tree City, a city must have a written statement delegating responsibility for the care of trees within the municipal boundary to a staff member, a city department, or a group of citizens - a Tree Board.
- The city should have in place a law or an official policy to govern the management of forests and trees.
- The city should have a dedicated annual budget for the implementation of the tree management plan.
- To be recognised as a Tree City, it should organise an annual celebration of trees to raise awareness among people and to acknowledge citizens who carried out the tree programme.

### 5.14 Rajamala Eravikulam National Park

- The survival rate of newly born Nilgiri tahrs (up to one year) is found to be the highest at Rajamala in the Eravikulam National Park (ENP) than in other isolated natural habitats such as Silent Valley, Pothady, Munnar, etc.
- Rajamala is among the finest Hill Stations in Idukki, Kerala.
- Rajamala hills houses the Eravikulam National Park.
- The Eravikulam National Park is situated in the Kannan Devan Hills of the southern Western Ghats with an area of 97 sq. km.
- The Eravikulam National Park has the highest density and largest surviving population of Nilgiri tahr, the endangered mountain goat.
- The park is built mainly with the aim of conserving Nilgiri tahr.
- Every twelve years, this place will be carpeted with blue due to the mass flowering of Neelakurinji flowers.

### 5.15 Plan Bee

- The “Plan Bee” of the Indian Railways to keep elephants off the rail tracks seems to have failed to get the desired results with 48 pachyderms and 188 other animals killed by running trains since 2019.
- The Indian Railways came up with the Plan Bee as a way of getting elephants to buzz off from train tracks.
- They use speakers that play the sound of bees to scare the jumbos away.
- The buzzing is played as trains approach vulnerable points and can be heard up to half a mile (600 metres) away.
- The ‘Plan Bee’ has won an award for "best innovative idea" from Indian Railways for regional operator Northeast Frontier Railway (NFR).
- Concept - Elephants have long been known to be frightened by the buzzing of bees and stings.
- Villagers in Kerala have been using "beehive fences" to scare away marauding elephants.
- When elephants touch the fences, bees inside boxes attached to the fences storm out angrily to defend their colonies.
- Threats to Elephants - Increasing human population, habitat destruction, increased frequency of fast trains, and neglect on part of authorities.

### 5.16 Desert National Park

- A green agriculture project, funded by the Food FAO’s Global Environment Facility, will act as a lifeline for the Desert National Park (DNP) Rajasthan with the conservation of critical biodiversity and forest landscapes.
- Desert National Park is an excellent example of the Thar desert's ecosystem.
- It is situated on the western border of India within Jaisalmer & Barmer in Rajasthan.
- It is only place where Rajasthan State Bird (Great Indian Bustard), State animal (Chinkara) and State tree (Khejri) and State flower (Rohida) are found naturally.
- Desert monitors, deadly vipers, spiny-tailed lizards, Krait, and sandfish are the prominent members of the wildlife family.
- In winter, the park hosts an incredible variety of migratory raptors such Himalayan and Eurasian Griffon Vultures, Eastern Imperial Eagle, and the Saker Falcon.
- The Desert National Park also has a collection of fossils of animals and plants of 180 million years old.
- The Park is formed of undulating sand dunes, jagged rocks, dense salt lake bottoms and inter-medial areas.
- Desert National Park (DNP) Timeline:
  - 1980 - UNESCO World Heritage Site
  - 1992 - National Park

### 5.17 Steel Slag Road

- Surat has become the first city in the country to get a processed steel slag (industrial waste) six-lane road.
- Steel Slag Road is a brainchild of the Central Road Research Institute (CRRI), NITI Aayog, and the Council of Scientific and Industrial Research (CSIR).
- This road is built under the ‘Waste to Wealth and Clean India’ initiative.

#### Steel Slag

- Steel Slag is an industrial by-product obtained from the steel manufacturing industry.
- It is generated from a steel furnace burning at around 1,500-1,600 degree centigrade in the form of molten flux material as an impurity.
- Use in Road - The construction cost of the processed steel slag road is 30% cheaper than roads built from natural aggregates.
- The thickness of the road is also 30% lesser than normal ones, while the durability is much longer due to the utilisation of steel slag.



- Utilization of processed steel slag in road construction paves the way for Sustainable use of waste and reduces the reliance on perishable natural aggregates, Reduce GHG emissions and carbon footprint in road construction activity.
- This process is in line with India's commitment to the United Nations Sustainable Development Goal No. 9 for building resilient infrastructure through inclusive and sustainable industrialization & green technologies.
- Other uses - Steel slag can be used as aggregates in concrete to replace natural aggregates, because it has favorable mechanical properties, and high resistance to abrasion and impact.
- It is used to treat acidic water.
- In Agricultural sector, due to its ability to correct soil acidity, it is used as silicate fertilizer that is capable of providing silicon to the plants.

## 5.18 Seaweed

- A Union Minister has said that the work on the seaweed park proposed in Tamil Nadu will commence as soon as the State government allots the land for a special economic zone for seaweed farming.
- "Seaweed" is the common name for countless species of marine plants and algae that grow in the ocean as well as in rivers, lakes, and other water bodies.
- Seaweeds are generally anchored to the sea bottom or other solid structures by rootlike "holdfasts".
- The holdfasts perform the sole function of attachment and do not extract nutrients as do the roots of higher plants.
- Size - Some seaweeds are microscopic, such as the phytoplankton that live suspended in the water column and provide the base for most marine food chains.
- Some are enormous, like the giant kelp that grow in abundant "forests" and tower like underwater redwoods from their roots at the bottom of the sea.
- Most are medium-sized, come in colors of red, green, brown, and black, and randomly wash up on beaches and shorelines just about everywhere.
- Benefits - These fixed and free-floating "weeds" of the sea utterly essential to innumerable marine creatures, both as food and as habitat.
- A number of seaweed species are edible, and many are also of commercial importance to humans.
- Some are used as fertilizers or as sources of polysaccharides.
- Seaweed is chock-full of vitamins, minerals, and fiber, and can be tasty.
- Many types of seaweed contain anti-inflammatory and anti-microbial agents.
- The ancient Romans used them to treat wounds, burns, and rashes.
- Certain seaweeds do possess powerful cancer-fighting agents that will eventually prove effective in the treatment of malignant tumors and leukemia in people.
- The ancient Egyptians may have used them to treat breast cancer.

### Among their many uses in manufacturing, they are

- Effective binding agents (emulsifiers) in such commercial goods as toothpaste and fruit jelly, and
- Popular softeners (emollients) in organic cosmetics and skin-care products.
- Related Links - Seaweed Mission, Pradhan Mantri Matsya Sampada Yojana, New Red Algae Species
- Similar Links - Seagrasses, Dugong or Sea Cow, Coral Reefs & Coral Bleaching

## 5.19 Prevention of Cruelty to Animals Act, 1960

- The Government has recognized that the Prevention of Cruelty to Animals Act, 1960 must be amended to introduce more stringent penalties.
- The Prevention of Cruelty to Animals Act, 1960 was authored by acclaimed dancer and animal lover, Rukmini Devi Arundale.
- This Act aims to prevent the infliction of unnecessary pain or suffering on animals and for that purpose to amend the law relating to the prevention of cruelty to animals.

- As per the provisions of this law, the government of India formed the Animal Welfare Board of India (AWBI).
- The Act defines animals as any living creature other than humans.
- It also discusses different forms of cruelty, exceptions, and killing of a suffering animal in case any cruelty has been committed against it, so as to relieve it from further suffering.
- It also provides the guidelines relating to experimentation on animals for scientific purposes.
- It provides the guidelines relating to exhibition of the performing animals, and offences committed against the performing animals.
- This Act provides for the limitation period of 3 months beyond which no prosecution shall lie for any offences under this Act.

#### Data

- The prevention of cruelty to animals is a state subject.
- The data in this regard is not maintained in the Central Government.
- However, the AWBI is regularly getting information on the cruelty to animals for which the AWBI is writing to the State Governments and local authorities to take necessary action as per the prevailing laws.

### 5.20 Animal Welfare Board of India

- The Animal Welfare Board of India (AWBI) is a statutory advisory body on Animal Welfare Laws and promotes animal welfare in the country.
- It was set up in 1962 under Section IV of the Prevention of Cruelty to Animals Act, 1960.
- Late Smt. Rukmini Devi Arundale pioneered the setting up of the Board, with its Headquarters at Chennai.
- The Board consists of 28 Members. The term of office of Members is for a period of 3 years.
- The jurisdiction of AWBI is throughout the Country.
- The AWBI recognizes the Animal Welfare Organizations (AWOs) including Gaushalas as per the request made by those organizations.
- To know more about Animal Welfare Board of India, click here.

### 5.21 Nilgiri Tahr

- The Nilgiri tahr (*Nilgiritragus hylocrius*) is the only mountain ungulate in southern India amongst the 12 species present in India.
- The Nilgiri tahr is a congener of the Himalayan tahr (*Hemitragus jemlahicus*), found in Kashmir and Bhutan and the Arabian tahr (*Arabitragus jayakari*), found in Oman and United Arab Emirates.
- It is also the state animal of Tamil Nadu.
- It is an endemic species of the Western Ghats.
- The Nilgiri tahr, which used to be found along the entire stretch of Western Ghats, is presently found only in small fragmented pockets.
- Existing populations are under severe stress due to habitat loss and hunting.

IUCN Red List of Threatened Species    Endangered

Wildlife (Protection) Act of India, 1972    Schedule I

### 5.22 Spotted Deer

- A one-year-old male spotted deer was found dead in Ranipet district, Tamil Nadu.
- Spotted deer (*Axis axis*), or Axis Deer or chital, is the most common deer species in Indian forests.
- It lives in grasslands and forests in India and Sri Lanka.
- The deer's golden-rufous coloring is speckled with white spots, and it has a white underbelly.
- Its curved, 3-pronged antlers extend nearly 3 feet and shed each year.
- Spotted deer has a prolonged mating season, as the perpetually warm climate allows females to remain

fertile and to give birth to fawns any time of year.

- Due to these tropical conditions, males do not have synchronized antler cycles.
- Spotted deer most commonly occur in herds of 10 to 50 individuals, with one or two males and a number of females and young.
- They primarily eat grasses and vegetation but will also ingest their shed antlers as a source of nutrients.
- It is the State animal of Telangana.
- IUCN Status - Least Concern.

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## 6. Security issues

### 6.1 Assam-Meghalaya Border Dispute Agreement

#### Why in news?

Assam and Meghalaya have partially resolved a 50-year-old border dispute in six of the 12 sectors.

#### How did the boundary dispute start?

- Meghalaya, carved out of Assam as an autonomous State in 1970, became a full-fledged State in 1972.
- It was based on the Assam Reorganisation (Meghalaya) Act of 1969
- The Meghalaya government refused to accept it because the Act followed the recommendations of a 1951 committee that defined the boundary of Meghalaya.
- Based on the panel's recommendations, areas of the present-day East Jaintia Hills, Ri-Bhoi and West Khasi Hills districts of Meghalaya were transferred to the districts of Assam.
- After claims and counter-claims, the dispute was narrowed down to 12 sectors on the basis of an official claim by Meghalaya in 2011.

#### How did the two governments go about handling the issue?

- In 1983 a joint official committee was formed to address the issue.
- The committee suggested that the Survey of India should re-delineate the boundary with the cooperation of both the States but there was no follow-up action.
- In 1985 an independent panel headed by Justice Y.V. Chandrachud was constituted.
- Meghalaya rejected the report as it was allegedly pro-Assam.
- In 1991 both the governments agreed to jointly demarcate the border with the help of the Survey of India.
- About 100 km of the border was demarcated by the end of 1991, but Meghalaya found the exercise unconstitutional and refused to cooperate.
- In 2011, the Meghalaya Assembly passed a resolution for central intervention and the constitution of a boundary commission.
- The Assam Assembly retaliated with a resolution to oppose the move.
- The Centre made the two governments appoint nodal officers to discuss the boundary dispute.
- In 2019, the Meghalaya government petitioned the Supreme Court to direct the Centre to settle the dispute but the petition was dismissed.

#### What about the current agreement?

- Both States formed three regional committees, one each for a district affected by the disputed sectors.
- The main objective is to end the boundary dispute between the two states in six of the 12 areas along their 885-km boundary.
- The committees, each headed by a cabinet minister, were given "five principles" for approaching the issue which includes historical facts of a disputed sector
- ethnicity
- administrative convenience
- willingness of people
- contiguity of land preferably with natural boundaries such as rivers, streams and rocks
- Of the disputed territory (a little over 36 square kilometres), the two States will get a near equal share, enshrining the sharing principle by adopting a give-and-take approach.
- The agreement was signed by Assam Chief Minister Himanta Biswa Sarma and his Meghalaya counterpart Conrad Sangma, in the presence of Home Minister Amit Shah.
- There is a fear among non-tribal people that they could end up living in a region with no right.

#### What will be the impact of the settlement on other border disputes in North-East?

- Assam, the mother State from which other States were carved out in the northeast, currently has

boundary disputes with Arunachal Pradesh, Mizoram and Nagaland.

- The agreement amplifies cooperative federalism and provides a road map for resolution of other boundary disputes between states.
- It is said that in the next six-seven months, the second phase of resolution would commence for the remaining sites.
- From 2019 to 2022, many achievements in establishing peace in the North East have been seen - NLFT agreement (2019), Bru-Reang agreement (2020), Bodo agreement (2020), Karbi-Anglong agreement (2021), and today's Assam-Meghalaya border agreement.

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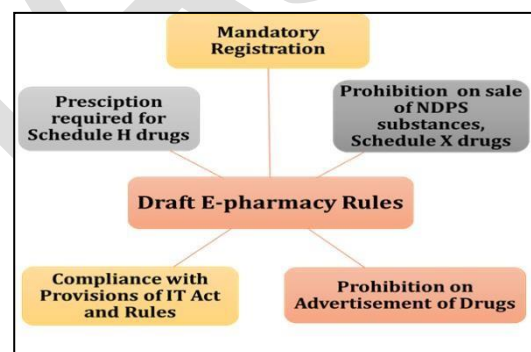
## 7. Social issues

### 7.1 e-Pharmacies: On Regulating Online Sale Of Drugs In India

Union Ministry of Health and Family Welfare (MoH&FW) **pulled up at least twenty companies** including Tata- 1mg, Flipkart, Apollo, PharmEasy, **for selling medicines online**. This happened after the All-India Organisation of Chemists and Druggists (AIOCD), a powerful lobby of over 12 lakh pharmacists, threatened to launch a country- wide agitation if the government didn't act.

#### Legislative Framework For e-Pharmacies In India

- As of now, **no exact rules are in place for E-drug stores in India**, and this is a significant inhibitor to the onlinedrug store market in India.
- At present, E-pharmacies in India follow the ***Drugs and Cosmetics Act 1940, the Drugs and Cosmetics Rules 1945, the Pharmacy Act 1948, and the Indian Medical Act 1956***.
- However, the electronic sale of physician-prescribed drugs from online drug store sites is expressed under the **IT Act, 2000**.
- E-pharmacies are managed by **state drug controllers** and approvals for E-pharmacies should be given by the **Drug Controller General of India (DCGI)**.
- The MoH&FW in **2018** came out with **draft rules** to control the online offer of medications and availability of genuine drugs from certifiable online sites. But, after being sent to a group of ministers, the proposal was immediately put on hold.
- Since then, **multiple court orders** and the 172nd Parliamentary Standing Committee report have called for regulating e- pharmacies.
- **An administrative structure** to oversee/regulate e-pharmacy sector is necessary when antimicrobial resistance (AMR), criminal and risky movement of drugs etc is on the rise.



#### How Are e-Pharmacies Competing With Chemist Shops

- Flushed with billions of dollars of private equity, e-pharmacies started offering hefty discounts on medicines in a bid to garner more market share.
- Companies like PharmEasy are building a supply chain from the ground up by buying out big and small wholesale drug distributors like Ascent Health, Desai Pharma, etc.
- **But this aggressive growth is coming at a cost.** Since 2015, e-pharmacies have recorded losses year-on-year. For example, Tata-1 Mg posted a loss of ₹146 crore in FY22.

#### Is Banning e-Pharmacies A Viable Option?

- The demand for online delivery of drugs is burgeoning. The year 2020 marked a watershed moment for the growth of e-pharmacies as it saw nearly 8.8 million households using home delivery services during lockdown.
- There is a possibility that some of these businesses **will go underground if banned**.

#### What Lies Ahead - A hybrid Model of e-Pharmacies and Brick and Mortar Stores

- In a climate where drug delivery is driven by consumer sentiments, it is futile to stick to any one way of doing business.
- For acute care and emergency, patients still rely on their neighbourhood pharmacy stores. This has led e-pharmacy players to now open capital-intensive brick and mortar stores.
- Stiff competition has forced chemist shops to also offer home delivery options over their own store apps/Whatsapp.
- In an ecosystem that is moving towards a **hybrid mode**, all eyes are on the government which will

have to effectively regulate the new way of doing e-commerce in the drug space.

## 7.2 India's Stand On Same-Sex Marriage

Recently, a Bench led by Chief Justice of India D.Y. Chandrachud referred petitions to legally recognise same-sex marriages to a Constitution Bench of five judges of the Supreme Court.

### Why Does The Community Want This Right

- Even if LGBTQIA+ couples may live together, legally, they are on a slippery slope.
  - In **Navtej Singh Johar case (2018)** homosexuality was **decriminalised**.
- They do not enjoy the rights married couples do.
  - For example, LGBTQIA+ couples cannot adopt children or have a child by surrogacy;
  - They do not have automatic rights to inheritance, maintenance and tax benefits;
  - After a partner passes away, they cannot avail of benefits like pension or compensation.
- Most of all, since marriage is a social institution - that is created by and highly regulated by law - without this social sanction, same-sex couples struggle to make a life together.

### About the case

- The Court has been hearing multiple petitioners' requests for *legal recognition* of same-sex marriages under a **special law**.
- SC took up the case as petitioners claimed that the *non-recognition of same-sex marriage* amounted to discrimination that strikes at the root of dignity and self-fulfillment of LGBTQIA+ couples.
- The petitioners cited the **Special Marriage Act, 1954** and appealed to the Court to extend the right to the LGBTQIA+ community, by making the *marriage between any two persons gender neutral*.
- Special Marriage Act, 1954 provides a civil marriage for couples who cannot marry under their personal law.

### Centre's Stand

- The Centre has opposed same-sex marriage.
- It said that the judicial interference will cause complete havoc with the delicate balance of personal laws and in accepted societal values.
- While filing a counter-affidavit during this hearing, the government said that decriminalisation of Section 377 IPC does not give rise to a claim to seek recognition for same-sex marriage.

### Arguments Forwarded By The Government

- **Notion of Marriage**
  - The notion of marriage itself necessarily and inevitably presupposes a union between two persons of the opposite sex.
  - This definition is socially, culturally and legally ingrained into the very idea and concept of marriage and ought not to be disturbed or diluted by judicial interpretation.
- **Marriage Laws Governed By The Personal Laws/Codified Laws**
  - Parliament has designed and framed the marriage laws in the country to recognise only the union of a man and a woman to be capable of legal sanction, and thereby claim legal and statutory rights and consequences.
- **Reasonable Restriction**
  - Even if such a right is claimed under Article 21, the right can be curtailed by competent legislature on permissible constitutional grounds including legitimate state interest.

### Way Ahead

- The Court is leaning towards granting equal rights, including marriage of same-sex couples, citing the Constitution and changing norms.
- Even if the Court rules in its favour, the march towards equality for the LGBTQIA+ community will be hard.
- Enforcing something like same-sex marriage in a diverse country with well-entrenched traditions will not be easy.
- Rights activists are calling for awareness on sex, gender and constitutional rights from the school level to change things on the ground.

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