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**IAS GYAN**  
PREDICT THE UNPREDICTABLE

# GS-1

## ART & CULTURE

### Kanheri Caves & Its Architecture

#### Context

- On the auspicious day of Buddha Purnima, the Union Minister for Tourism, Culture and Development of the North Eastern Region (DoNER) inaugurated the Kanheri Caves.

#### All about Kanheri Caves and their Architecture

- The Kanheri Caves are a **group of caves and rock-cut monuments** cut into a massive basalt outcrop in the forests of the Sanjay Gandhi National Park, on the former island of Salsette in the western outskirts of Mumbai.
- They **contain Buddhist sculptures and relief carvings, paintings and inscriptions, dating from the 1st century CE to the 10th century CE**. Kanheri comes from the Sanskrit Krishnagiri, which means black mountain.
- The cave complex comprises **one hundred and nine caves**.
- Each cave has a stone plinth** that functioned as a bed. A **congregation hall with huge stone pillars contains a stupa (a Buddhist shrine)**. Rock-cut channels above the caves fed rainwater into cisterns, which provided the complex with water.
- Once the caves were converted to permanent monasteries, their **walls were carved with intricate reliefs of Buddha and the Bodhisattvas**. Kanheri caves were built in the 1st century and had become an important Buddhist settlement on the Konkan coast by the 3rd century CE.
- Most of the **caves were Buddhist viharas, meant for living, studying, and meditation**.
- The larger caves, which functioned as **chaityas, or halls for congregational worship, are lined with intricately carved Buddhist sculptures, reliefs, pillars and rock-cut stupas**. **Avalokiteshwara is the most distinctive figure**.
- The large number of viharas demonstrates there was a well organized establishment of Buddhist monks. This establishment was also **connected with many trade centers, such as the ports of Sopara, Kalyan, Nasik, Paithan and Ujjain**.
- Kanheri was a University center by the time the area was under the rule of the Mauryan and Kushan empires. In the late 10th century, the Buddhist teacher Atisha (980-1054) came to the Krishnagiri Vihara to study Buddhist meditation under Rahulagupta.
- Nearly **51 legible inscriptions and 26 epigraphs are found at Kanheri**, which include inscriptions in **Brahmi, Devanagari and 3 Pahlavi epigraphs**. One of the significant inscriptions mentions the marriage of Satavahana ruler Vashishtiputra Satakarni with the daughter of Rudradaman I.
- With the increase in the royal patronage and mercantile sponsorships, the **interiors of these caves were made more and more decorated**.
- At Kanheri, we find both the Chaityas and Viharas. While creating them, **the elements of wooden construction have been retained**.



<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1825780>

## Lingayatism & Veerashaivism: demand for Separate religion

### Context

- As news spread of the BJP's plans to remove veteran leader B S Yediyurappa from the post of the chief minister of Karnataka, a group of 500 Lingayat seers gathered at the latter's official home in Bengaluru to oppose the replacement of the Lingayat strongman.

### About Lingayatism

- Lingayatism is a **Shaivite Hindu religious** tradition in India.
- The terms Lingayatism and Veerashaivism have been used synonymously, but they are not the same.
- In 12th century the groups splitted up and adherents of this faith are known as Lingayats.

### Origin and Background

- The tradition of Lingayatism is known to have been founded by social reformer and **philosopher Basavanna** in 12th century Karnataka.
- Basavanna's religious movement was **during the reign of King Bijala II**.
- This period in Karnataka was characterized by the **dominance of Brahmanical Hindu values**, a social system based on **caste restrictions and a feudal economy**.
- The Lingayats emerged as a **reactionary force against Hinduism** in the twelfth century.
- While it **rejected most of the broad Hindu traditions, it also assimilated aspects of it**.

### Lingayatism and Bhakti Movement: The link

- The emergence of the Lingayat sect can be located within the larger trend of Bhakti movements that had swept across South India from the 8th century AD onwards.
- The Bhakti tradition was a **social reform movement that developed around Hindu Gods and Goddesses** but split away from the Hindu fold by offering a path to spirituality regardless of their caste and creed.
- In a way, they were movements that took birth within Hinduism but strove to rectify the unjust practices within the tradition.

The Bhakti movement refers to the trend that was brought forward by a number of Hindu saints in medieval Hinduism that sought to bring religious reforms by adopting the method of devotion to achieve salvation. It originated in eighth-century **south India (now Tamil Nadu and Kerala states)**, and spread northwards. The Bhakti movement regionally developed around different gods and goddesses, and some sub-sects were **Vaishnavism (Vishnu), Shaivism (Shiva), Shaktism (Shakti goddesses), and Smartism**. The Bhakti movement began with the **aim of reforming Hinduism against evil practices, the caste system and the dominance of Brahmanas**.

### Philosophy

- Lingayats are followers of Basavanna and the sharana writers, whose philosophy is expressed in **thousands of vachanas**.
- In several vachanas, the sharanas have **rejected the Vedas, shastras, smritis and the Upanishads**.
- They **rebuffed faith in karma based on caste, denied the concept of paap and punya** which was based on karma.
- They **spurned the notion of heaven and hell** as based on paap and punya.
- They **scorned temple and idol worship**.
- The **rejected the phallic linga symbol of Shiva** and opted for ishta linga, which **represents inner conscience**.
- Worship is centred on Shiva as the universal god in the iconographic form of Ishtalinga.
- Lingayatism emphasises **qualified monism**, with philosophical foundations similar to those of the 11th-12th-century South Indian philosopher Ramanuja.
- They declared that **work was worship** and tried to break the barriers of caste by inter-caste dining.
- They fought against **discrimination on the basis of gender and birth**. They **abhorred superstitions**.
- They **ignored Sanskrit** – which was understood by very few – and addressed the people in Kannada.

**Qualified Monism**

It admits plurality. Vishishtadvaita is one of the most popular schools of the **Vedanta school of Hindu philosophy**. Vedanta literally means the **end of the Vedas**. Vishisht Advaita is a non-dualistic school of Vedanta philosophy. It is non-dualism of the qualified whole, in which **Brahman alone exists, but is characterized by multiplicity**. It can be described as **qualified monism or qualified non-dualism or attributive monism**. It is a school of Vedanta philosophy which **believes in all diversity subsuming to an underlying unity**.

**Ramanuja**, the 11–12th century philosopher was the main proponent of Vishishtadvaita philosophy.

**Basavanna and his Contribution**

- Mahatma Basaveshwar was an Indian 12th-century statesman, philosopher, poet, social reformer and Lingayat saint in the Shiva-focussed Bhakti movement during the reign of the **Kalyani Chalukya/Kalachuri dynasty**.
- He spread social awareness through his poetry, popularly **known as Vachanaas**.
- He **rejected gender or social discrimination, superstitions and rituals**.
- But **introduced Ishtalinga necklace**, with an image of the Shiva Linga, to every person regardless of his or her birth, to be a constant reminder of one's bhakti (devotion) to Shiva.
- As the **chief minister of his kingdom**, he introduced new **public institutions such as the Anubhava Mantapa** (or, the "hall of spiritual experience"), which welcomed men and women from all socio-economic backgrounds to discuss spiritual and mundane questions of life, in open.
- Basavanna's **vision of a societal order was one based on human freedom, equality, rationality, and brotherhood**.
- His prime target was the **caste hierarchy which he rejected** with full force.
- In one of his vachanas, Basavanna asserts that **"the birthless has no caste distinctions, no ritual pollution."**
- He **rejected the Hindu Brahmanical ritualism** and its adherence to sacred texts like the Vedas.
- The **Basavarajadevara Ragale** by the **Kannada poet Harihara** (c.1180) is the earliest available account on the life of Basavanna.
- A full account of Basava's life and ideas are narrated in a 13th-century sacred Telugu text, the **Basava Purana** by **Palkuriki Somanatha**.

**Present Status of Lingayatism**

- The community which currently forms 17 per cent of Karnataka's population and 10 percent of Maharashtra's.
- In the 21st century, some Lingayats have sought legal recognition as a religion distinct from Hinduism and Veerashaivas.

**Veerashaiva**

- From broader Veerashaivas, Lingayats splitted in 12<sup>th</sup> Century.
- **Founder** – Panchacharyas; almost about **5500 -6000 years ago**.
- The Panchacharyas are the five Gurus who apparently incarnated directly from Sivalinga and established the Virasaiva religion and Philosophy. Hence they are called as **Lingodbhavas**.
- Veerashaivas are the **followers of the five peethas (religious centres), called pancha peethas**. They are- Kashi mutt, Rameswaram mutt, Ujjaini mutt, Rambhapura mutt and Srishaila mutt.
- These peethas are set up on similar lines to the four peethas set up by Adi Shankara.
- The **Veerashaiva faith is identical to the Brahmanical belief** that they are born from the ears of Brahma.
- This definitely did not form the foundation of Basavanna's thought. Basavanna had rejected all such Brahmanical notions.
- Veerashaivas **rejected Basavanna as the founder of the 'Veerashaiva dharma'** and claimed that the founders of their dharma predated him.
- They consider **Siddhantha Shikhamani** as their holy book.
- They are spread across Karnataka, Kerala, Maharashtra, Andhra Pradesh and Telangana.



## Lingayatism vs Veerashaiva

- The essential difference between the Lingayata dharma and the Veerashaiva is that the latter accepts the Vedic texts and practices like caste and gender discrimination, while Basavanna not only protested these, he offered an alternative dharma.

Practice	Veerashaiva	Lingayat
The founder	Panchacharyas	Basavanna
Religious script	Vedas, Agama, Siddhanta Shikhamani	Vachana literature
Caste and gender equality	No equality. It puts Aradhyas at the top of the ladder, while there is no gender equality	Complete equality of men and women in religious, political and social practices
Worship	The statue of Shiva, and Shiva as envisaged in the Vedas with snake around the neck etc	Shiva (ishta linga) as a formless, timeless entity that resides in each and every life form
Temples and priests	Has a system of temples and priests	Bans temple worship. Worships only ishta linga



## Demand for a Separate Religion:

### Arguments for

#### Scholarly Researches:

- Scholars like M. M. Kalburgi and SM Jaamdar did extensive research into the vachanas or religious-poetic verses written by Basavanna 800 years ago. These scholars have produced evidence to show that the Lingayats were a religious entity separate from the Hindus.

#### Form of Worship:

- The Lingayats are strict monotheists. They enjoin the worship of only one God, namely called Linga (Shiva).
- However, it should be noted that the words 'Linga' here does not mean the Linga which is established in temples, but the universal consciousness qualified by the universal energy (Shakti).

**Supreme Court Observations:**

- In **Ratilal Panachand Gandhi vs The State Of Bombay** - SC held that Religion is that which binds a man with his Creator. Therefore, whatever binds a man to his own conscience and whatever moral and ethical principles regulate the lives of men that alone can constitute religion as understood in the Constitution.

**Constitutional Provision:**

- **Article 25** protects religious freedom as far as individuals are concerned. The right is not only given to the citizens of India but to all persons, and the right is to profess, practice and propagate religion.

**Official Surveys:**

- In **official surveys up to 1930**, Lingayats were identified as "Lingayats", with Veerashaivas being part of Lingayats.

**Philosophy:**

- Lingayat community members argue that it is different from that of Hinduism as it is Gender-neutral, caste-neutral treatment of equality. While Hinduism converted workmanship into castes, Basava reversed the castes into workmanship again.

**Loss of Identity:**

- With Lingayats getting increasingly subsumed within the Veerashaiva and Hindu nomenclature, teachings of Basavanna are losing their distinct place in society. There is concern that for Lingayatism to survive, it must be identified as a separate religion.

**Legal Contradiction:**

- In the Hindu Marriage Act, 1955 and Hindu Succession Act, 1956, Lingayats, Buddhists, Jains and Sikhs are included among Hindus. But Buddhists, Sikhs and Jains were identified by state and central governments as minority religions in 1993, 1963 and 2014 respectively. Only Lingayats remain unrecognised under a separate religious status.

**Arguments against****Fragmentation of Society:**

- Lingayats as a religious minority **would split society further and introduce more cleavages in the socio-economic fabric.**

**Sectarianism:**

- Tahir Mahmood former chair of National Commission for Minorities held that **"Pluralism within the broad Hindu Religion is different from sectarian diversity in dogmatic religions like Islam or Christianity."**

**Just a Sub-division:**

- Prof. Chidananda Murthy, point that ideas of nothingness in the Lingayat tradition derive from the Upanishads and how the ideas of the body draw from the Yoga Sutras.

**Contradictory:**

- Some of the aspects of Hinduism are assimilated in Lingayatism and they ascribe to it. The community's demand was also weakened by its subsumption within the Veerashaiva nomenclature. This happened after large number of Hindu Veerashaivas embraced Lingayatism while continuing to follow Hindu practices.

**Minority Status**

- In 2018 seven-member panel headed by retired judge **Justice Nagamohan Das** recommended to grant religious minority status to "Lingayats and Veerashaiva-Lingayats."

**Benefits of Minority Status**

- **Reservation:** Lingayats will get additional benefits in education and employment on par with minorities.
- **Benefits under Article 25:** These include freedom of conscience and free profession, practice and propagation of religion.

- **Benefits under Article 28:** It includes freedom in terms of attendance at religious instruction or religious worship in certain educational institutions.
- **Section 29, 30:** Section 29, which includes protection of interests of minorities, and section 30, which includes the right of minorities to establish and administer educational institutions, will also be applicable.

### Status

- Karnataka Government accepted the recommendations of **Justice Nagamohan Das Panel**.
- But, the benefits of reservation under the new status will be available only after the Centre accepts the recommendations and also notifies it.

### Final Words

- The Government should evaluate the demands of the communities rationally without politicizing the issue to gain poll prospects.

<https://indianexpress.com/article/political-pulse/seer-corruption-bjp-lingayat-mutts-powerful-force-karnataka-7879971/>

## Bhakti movement and its contributions

### Context

- Prime Minister Narendra Modi said that in the times of slavery during medieval period, it was the Bhakti movement that kept the spirit of India alive and the country managed to protect its identity.

### Bhakti Movement

- The Bhakti movement, was a cultural, social and religious revolution.
- Bhakti in Sanskrit, means “attachment, fondness, homage, faith, love, devotion, worship and is usually used to denote devotion to and love for a personal god.

### Genesis

- Bhakti arose in South India in the 7th to 10th centuries in poems that the Alvars (Vaishnavite) and the Nayanars (Shaivites) composed in Tamil to the gods Vishnu and Shiva, respectively.
- In the 7<sup>th</sup>-8<sup>th</sup> century AD the social fabric of India was torn by all round degradation and cultural distortion and corruption permeated all section of the society, right from the ruling class to the priestly class.
- Various malpractices were committed in the name of religion, which vitiated the social structure included animal and human sacrifices, magical rites, spells, casteism etc.
- The poor and downtrodden people became victims of these ghastly practices.
- It was at this juncture, that Bhakti Movement began in the Tamil that had gradually spread to the rest of India.

### Reasons behind rise of Bhakti Movement in a nutshell

- Evil practices in Hindu Society like
  - ✓ Brahminical Dominance
  - ✓ rigidity of caste system,
  - ✓ irrelevant rituals and religious practices,
  - ✓ blind faiths and social dogmas.
  - ✓ polytheism,
  - ✓ segregation,
  - ✓ severe economic disparity due to casteism, untouchability etc
- **Influence of Sufism**
- **Rival religions like Islam:** The Islamic principles of one God, equality and fraternity of mankind and complete surrender to God appealed to the liberal Hindus.
- **Emergence of Great Reformers:** Hindu liberals like Rmanuja, ChaitanyaMahaprabhu, Kabir, etc emphasized aspects like equality irrespective of caste, creed, and colour, virtues of kindness of heart and mind, devotion to one God (monotheism), freedom from all kinds of ritualism and preaching in the language of the common people.

## Features of the Bhakti Movement:

- Unity of God or one God though known by different names.
- Bhakti, intense love and devotion, the only way to salvation.
- Repetition of the True Name.
- Self-Surrender.
- Condemnation of rituals, ceremonies and blind faith.
- Rejection of idol worship by many saints
- Open- mindedness about deciding religious matters.
- Did not linked themselves with any particular religious creed
- Emphasized on fundamental unity of all religions.
- No distinction of different castes, higher or low
- Need of a guru for guidance advocated by some.
- Preaching through local or regional languages and travelling from place to place for spreading the religious message.

## Sankardeva's philosophy

- Sankardeva propagated a form of Bhakti called eka-sharana-naam-dhrama, and espoused a society based on equality and fraternity, free from caste differences, orthodox Brahmanical rituals and sacrifices.
- His teaching focused on prayer and chanting (naam) instead of idol worship.
- His dharma was based on the four components of deva (god), naam (prayers), bhakats (devotees), and guru (teacher).

## Important Bhakti Movement Saints



## Contribution of women in Bhakti Movement

- **AkkaMahadevi:** She was a poet of Kannada Language. She is known to have considered the god Shiva as her husband. Her mystical poems have notable contribution to Kannada literature.
- **MeeraBai:** MeeraBai a mystical poet and singer known for her songs of devotion to Lord Krishna. Mira is a symbol of a liberated woman who risked all to protect her independence, freedom, and love towards Krishna.
- **Andal:** A well-known South Indian poet and only female among 12 Alwars of TamilNadu.
- **LalDed:** The Muslim poetess from Kashmir LalDed&HabbaKhatun, represented the saint tradition of Bhakti and wrote Vakhs (maxims), which are peerless gems of spiritual experience.



- **Jana Bai:** Janabai was influenced by teachings of Saint Namdev. Her poetry encompasses the discrimination faced by women & sudras. This awakens the sudras and women for their rights.

## Impact of Bhakti Movement

### Social impact:

- Rejection of the caste distinction. People belonging to all “so called classes” began to mix together on the basis of equality.
- It led to the upliftment of people in the lower rungs of the society in fundamental ways.
- They took their meals together from the common kitchen. The movement tried to loosen the bond of caste.
- A spirit of harmony among different sections of society and religion received impetus.
- The evil practice of ‘Sati’ received some set back.
- The status of women got improved.

### Religious impact:

- The movement aroused awakening among the Hindus and Muslims regarding the futility of ritualism and superstitions.
- The feeling of appreciation of the difference between the thought and practices of the two religions emerged.
- The movement encouraged religious toleration.
- It gave birth to a new sect i.e. Sikhism.

## Impetus to Vernacular Languages

- In place of Sanskrit, Arabic and Persian, the Bhakti saints preached through the medium of local languages which could be understood very easily.
- For instance Surdas used ‘Brij’ dialect. GoswamiTulsi Das composed his works in ‘Awadhi’.

## Moral influence

- The movement attempted to infuse a spirit of piety in the daily life of the people.
- It emphasized earning of wealth through hard work and honest means.
- It encouraged the value of social service to the poor and the needy.
- It developed a humanitarian attitude. It pointed out the virtues of contentment and self control.
- It drew attention to the evils of anger, greed and vanity.

## Relevance of Bhakti Movement in today's world

- Bhakti movement, which dates back to the 6th century, reshaped the cultural, social and religious life of India, breaking barriers of caste and gender and it continues to do so when India and the world is grappling with issues like:
  - ✓ **Inter-communal Violence:** Figures at 723 for the year 2017 (NCRB Report). Communal violence rose by 28% from 2014 to 2017.
  - ✓ **Intolerance:** India ranks fourth highest in terms of social hostilities against religion (PEW Report)
  - ✓ **Inequality:** The top 10% of the Indian population holds 77% of the total national wealth- Oxfam Report.
  - ✓ **Casteism**
    - Top 10% upper caste households own 60% wealth - World Inequality Database.
    - According to a report by Human Rights Watch: Discriminatory and cruel, inhuman, and degrading treatment of over 165 million people in India has been justified on the basis of caste.
    - Nine states accounted for 84% of all crimes against Dalits in India in 2019 though they accounted for only 54% of the country's SC population--National Crime Records Bureau.
  - ✓ **Status of women:**
    - India's female labour force participation rate stands distressingly low at 23.4 per cent (2019) as per the World Bank (modelled ILO estimates)
    - The crime rate registered per lakh women population is 62.4 per cent in 2019, up from the 58.8 per cent figure of 2018- NCRB
    - India ranked 108<sup>th</sup> out of 149 countries on Gender Gap Index by World Economic Forum.

## Final Thoughts

- It is clearly evident that the songs and the teachings of the Sufi and the Bhakti saints are relevant even today.
- It can actually act as a healing balm to the suppressed classes.
- It still encourages religious tolerance by promoting the idea of universal brotherhood.
- We as a society are at a juncture even in this 21<sup>st</sup> century where annihilation from the shackles of regressive and redundant social practices like oppression of women, casteism and religious prejudices from the root and cause can be achieved only if we follow the teachings of great people like that of the saints of Bhakti Movement.

<https://timesofindia.indiatimes.com/india/bhakti-movement-kept-spirit-alive-in-times-of-slavery-pm-narendra-modi/articleshow/85854308.cms>

## Puppetry and its status in india

### Context

- Sangeet Natak Akademi, New Delhi, an autonomous body under the Ministry of Culture, organized Putul Utsav, a puppet festival to mark World Puppetry Day on 21st March 2022.

### Puppetry

- Puppetry is an animated visual art form.
- The puppeteer uses his or her skills to makes the puppet, an inanimate object, talk, sing, dance and behave the way humans do.
- It is considered to be one of the oldest forms of storytelling in the country.

### Types of Puppetry

There are four types of puppetry which are discussed below:

1. String Puppets
2. Shadow Puppets
3. Glove Puppets
4. Rod Puppets

### Major Puppetry Traditions of Indian States

#### String Puppets

Putul Nach – Assam  
Gombeyatta – Karnataka  
Kalasutri Bahulya – Maharashtra  
Gopalila Kundhei – Orissa  
Kathputli – Rajasthan  
Bommallattam – Tamil Nadu  
Kathputli – Rajasthan  
Tarer or Sutor Putul – West Bengal

Chamadyache Bahulya – Maharashtra  
Ravanachhaya – Orissa  
Thol Bommallattam – Tamil Nadu

#### Rod Puppets

Putul Nach – West Bengal  
Kathi Kandhe – Orissa  
Yampuri – Bihar

#### Glove Puppet

Oava Jytger – Kerala  
PavaKoothu – Kerala  
Kandei Nach- Odisha  
Bener Putul- West Bengal

#### Shadow Puppets

Tholu Bommallata – Andhra Pradesh  
Togalu Gombeyata – Karnataka  
Tolpavakoothu – Kerala

### Origin of Puppetry

- Earliest reference to the art of puppetry is found in Tamil classic ‘**Silappadikaaram**’ written around the 1st or 2nd century B.C.
- **Natyashastra**, does not mention puppetry. But it does mention “Sutradhar” - meaning the holder of strings.
- Prominently, Puppets came into being in India, **under the rulers of the Vijayanagar Empire**, in 3rd Century A.D.
- It was honed into a theatrical art in Andhra Pradesh. It helped to propagate the works of saints and religious leaders, and also depict stories from the Hindu epics.

- Later, it spread to South East Asia.

### Why is Puppetry dying out in India?

- Lack of devoted audience and financial security.
- Lack of patronage by government and non-governmental organizations.
- Neglect from the governments and the indifference of rich, influential people.
- Slow and tedious dispensation of government grants.
- **Lack of funds and platforms.**
- **Modern day entertainment options** like television, movies and the internet are pushing traditional puppetry towards a slow death.
- **Declining interest among the younger generation** of artiste families because of the poor remuneration it offers.
- Most puppeteers are village-based, poorly educated, and hence **lacking in marketing skills.**
- Lack of upgradation of puppeteers' skills to compete with other forms of popular entertainment in 21<sup>st</sup> century.
- Lack of research in puppetry.
- Iran has three universities dedicated to puppetry and in India we don't even have as many specialized courses, let alone a university.
- Lack of knowledge and language limitation of traditional puppeteers.
- Rising number of individuals who pursue puppetry solely as a passion, while earning their livelihoods from regular jobs.

### Silver lining

#### **Diversification:**

- Puppeteers are themselves learning to branch out into related art forms, or innovate in some way to keep their craft and their incomes alive.
- For example, **Andhra Pradesh's Nimmalakunta puppeteers** are now using the same puppet-making skills to make other leather products like lampshades, door decorations and more to supplement their income.
- In **Rajasthan**, puppets are sold widely as decorative items and are quite popular with tourists.

#### **Modernization:**

- Puppeteers are learning to narrate modern stories and enact political or social satire-filled dramas to attract audiences.
- Important social messages like the education of the girl child and the importance of health and sanitation are also delivered to keep in step with modern tastes and also attract sponsorship from organizations promoting these causes.

#### **Government efforts:**

- The central government sponsors puppetry workshops and has a few schemes to promote puppetry through education programmes and hold puppetry festivals and seminars too.
- Some state governments are also waking up to the problem. For example, the Karnataka Government is showcasing its puppetry traditions in folk art fairs and cultural festivals, especially in Bengaluru.

### Conclusion and Way Ahead

- All the above mentioned efforts are just not adequate.
- Much more needs to be done on a nationwide scale to keep this tradition flourishing and ensure financial security for the artistes.
- Unless they receive financial help from the government, the chance of their survival is bleak.
- **Other steps that can be taken to revive the art are:**
  - improvements in training and infrastructure
  - raising awareness amongst the general public by cultural media, institutions and industries
  - Puppetry can be used for effective communication with farmers on issues relating to agriculture.
  - Courses on Puppetry for skill upgradation. Dedicated Institutions for the artform.
  - Use of puppetry in education and therapy.
  - Narration of modern stories including humorous ones and fun-filled fables.

- Enacting political or social satire-filled dramas to attract audiences.
- Investing on the Research and Development of puppetry to increase its demand in the market by further modernization.
- Internationalization of the artform through dedicated platforms.

<https://www.indiatvnews.com/lifestyle/news/world-puppetry-day-2022-sangeet-natak-akademi-organizes-putul-utsav-on-100-years-of-india-s-freedom-struggle-2022-03-21-765226>

## Hampi and Vijayanagar empire

### Context

- Vice-president of India visited monuments at the UNESCO World Heritage Site of Hampi in Vijayanagara district, Karnataka.

### About Hampi

- Hampi is a **UNESCO World Heritage Site located on the bank of Tungabhadra River in Karnataka.**
- Emperor Ashoka's Rock Edicts suggest this region was part of the Maurya Empire during the 3rd century BCE.
- Hampi was under different dynasties like **Chalukyas, Hoyslas and Vijaynagara empire.**
- It was during the Vijaynagara empire in the 14<sup>th</sup> century under King Krishnadevaraya of Tuluva Dynasty that Hampi flourished and reached unfathomable heights.
- It became the pilgrimage centre of the Hindu religion.
- By 1500 CE, Hampi-Vijayanagara was the world's second-largest medieval-era city after Beijing.
- It was India's richest at that time, attracting traders from Persia and Portugal.
- The Vijayanagara Empire was defeated by a coalition of Muslim sultanates.
- Its capital was conquered, pillaged and destroyed by sultanate armies in 1565, after which Hampi remained in ruins.



### Remarkable sites in Hampi

- Vittala Temple (God Vittala - form of lord Vishnu); Virupaksha Temple (Lord Shiva); Kadalekalu Ganesha statue (14ft); Lakshmi Narasimha statue; Lotus Mahal and Hazara Rama Temple (depicting Ramayana themes).

### Vijaynagara Empire

**Founder** - Harihara and Bukka of the Sangama dynasty in 1336.

**Alteranate Names**- Karnata Empire, and the Kingdom of Bisnagar (called by the Portuguese)

**Ruled till**- 1646. Although its power declined after a major military defeat in the Battle of Talikota in 1565 by the combined armies of the Deccan sultanates.

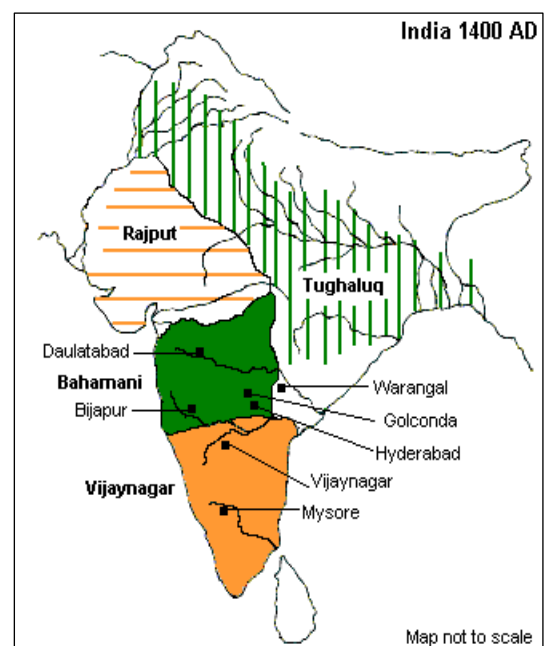
**Surrounds**- Hampi, now a World Heritage Site in Karnataka

**Capital**- Vijayanagara, Penukonda, Chandragiri

**Common languages**- Kannada, Telugu, Sanskrit

**Preceded by**- Hoysala Empire

**Succeeded by**- Kingdom of Mysore





## Sequence of Dynasties in Vijayanagara Empire

1. Sangama dynasty
2. Saluva dynasty
3. Tuluva dynasty
4. Aravidu dynasty

## Administration in Vijaynagara Empire

- The Empire was a Monarchy.
- The vijaynagar Empire gradually developed a centralised administration with all its branches carefully organised.
- The king was the the authority in civil, military as well as judicial affairs and also often intervened to settle social disputes.
- For purpose of administration, the empire was divided into 6 provinces.
- A province was called **Prant, or Rajya**.
- Each province was **under a viceroy or Nayak** who was either a member of the royal family or influential noble of the state.
- Every viceroy enjoyed civil, military and judiciary powers within the province.
- He was required to submit regularly account of the income and expenditure to the central government.

### Council of Ministers

- Though the Brahmanas held high offices in the administration and had considerable influence, the ministers were recruited not only from the rank but also from those of the Kshatriyas and the Vaishyas.
- The office of a minister was sometimes hereditary and sometimes rested on selection.

### Decentralised administration

- The rulers of Vijayanagara adopted the principle of the decentralisation of political power.
- The empire was, divided into provinces prants, districts, 'Nadus', 'Melagrams' and 'grams'. Administration of the villages was autonomous.

### Local Administration

- Each village was a self sufficient unit. The village assembly conducted the administration of the area under its charge- executive, judicial and police, through its **hereditary officers like the senateova or the village accountant, the talara** or the village watchman or the commandant, the **begara or the superintendent** of forced labour and others.
- These village officers were paid by grants of land or a portion of agricultural produce.
- The king maintained a link with the village administration through **his officer called Mahanayakacharya** who exercised a general supervision over it.

### Nayankar system of administration

- Under this system, the ruler assigned a land track to officials in lieu of pay i.e. for maintaining themselves and that of their army from the land track itself.
- These officials or land-lords provided military service to the ruler.

### Sources of Revenue

- Land revenue was the chief source of income. Land revenue known as "**sist**"
- Land was divided into four categories for purposes of assessment, wet land, dry land, orchards and woods.
- So, the Vijaynagar rulers adopted the " principle of differential taxation", that is, levied taxes according to the relative fertility of the lands.
- Usually the share was one sixth of the produce.
- Land revenue could be paid in cash or kind.
- The rates varied according to the type of the crops, soil, method of irrigation, etc.
- Apart from land revenue, other taxes were: irrigation tax, grazing tax and import- export duties on merchandise goods.

**Military organization**

- The army consisted of infantry, cavalry, artillery and camels.
- The rulers of Vijaynagar had a carefully organised military departments called '**Kandachara**', under the control of the Dandanayaka or Dannayaka( commander – in-chief) who was assisted by a staff of minor officials.
- The State maintained a large and efficient army, the numerical strength of which was not , however, uniform all through.
- The rulers of the Vijayanagara empire neglected naval power.
- The rulers recruited Turkish archers in the army.
- The military organisation was rather weak and its primary weakness was artillery.
- Chariots had gone out of use. The efficiency of the huge army was not proportionate to the number of force.

**Orders of the Rulers**

- No written orders were issued by the rulers.
- The royal words were carefully noted down by secretaries, whose record was the sole evidence of the commands issued.

**Judiciary**

- The king as the supreme judge, but there were regular courts and special judicial officers for the administration of justice.
- Sometimes, disputes were settled by the State officials with the co-operation of the local bodies.
- The only law of the land was not the law of the Brahmanas, but was based on traditional regulations and customs strengthened by the constitutional usage of the country, and its observance was strictly enforced.
- Severe punishment was inflicted on guilty persons.
- These penalties were chiefly of four kinds- fines, confiscation of property, ordeals and death.
- Death or mutilation was the punishment of crimes like thefts, adultery and treason.

**Position of Women**

- Women occupied a high position and took an active part in political, social and literary life of the empire.
- They were educated and trained in wrestling, in the use of various weapons of offence and defense, in music and fine arts.
- Some women also received education of high order.
- Nuniz writes that the kings had women astrologers, clerks, accountants, guards and wrestlers

**Social Life**

- The practice of untouchability existed.
- Child marriage, polygamy and sati were prevalent.
- Caste was determined either by individual's occupation or the community they belonged to.

**Economy**

- The economy was dependent on Agriculture.
- The empire's capital city was the main business hub.
- The capital city was noted for its markets dealing in spices, textiles and precious stones.
- Land ownership was important.
- Textiles, mining, metallurgy perfumery, and other several industries existed.
- They had commercial relations with, the islands in the Indian Ocean, Abyssinia, Arabia, Burma, China, Persia, Portugal, South Africa, and The Malay Archipelago.

**Contribution to Architecture and Literature**

- The Hazara Rama temple and Vittalaswamy temple was built during this period.
- Vijayanagara architecture is the combination of Chalukya, Hoysala, Pandya and Chola styles.
- The bronze image of Krishnadevaraya is a masterpiece.
- Sanskrit, Tamil, Telugu and Kannada literature were developed.
- Sayana wrote commentaries on Vedas.

- Krishnadevaraya wrote **Amuktamalyada** in Telugu and **UshaParinayam** and **JambavathiKalyanamin** Sanskrit.
- Field surveys indicate that the entire area was dotted with numerous shrines and small temples which proved that variety of cultures existed and were supported by different communities.

### About Krishnadevaraya

- Krishna Devaraya was the emperor of the Vijayanagara Empire during 1509–1529.
- He was the **third ruler of the Tuluva Dynasty** and is considered to be its greatest ruler.
- He possessed the largest empire in India after the decline of the Delhi Sultanate.
- Krishnadevaraya earned the **titles Kannada Rajya Rama Ramana**, Andhra Bhoja and MooruRayaraGanda (lit, "King of Three Kings").
- He became the dominant ruler of the peninsula of India by defeating the Sultans of Bijapur, Golconda, the Bahmani Sultanate and the Gajapatis of Odisha, and was one of the most powerful Hindu rulers in India.
- The Vijayanagar kingdom reached the pinnacle of its glory during his reign.
- He was successful in all the wars he waged. He defeated the king of Odisha and annexed Vijaywada and Rajmahendri.
- Krishnadeva Raya encouraged trade with the western countries.
- He had a cordial relationship with the Portuguese who had at that time established trade centres on the west coast of India.
- The decline of the Vijayanagar kingdom began with the death of Krishnadeva Raya in 1529.
- The kingdom came to an end in 1565, when Ramrai was defeated at Talikota by the joint efforts of Adilshahi, Nizamshahi, Qutubshahi and Baridshahi. After this, the kingdom broke into small states.
- Portuguese travellers **Domingo Paes** and **FernaoNuniz** also visited the Vijayanagara Empire during his reign.
- The South Indian poet MukuTimmana praised him as the destroyer of the Turks.

### His Art and Literature

- The rule of Krishna Deva Raya was an age of prolific literature in many languages, although it is also known as a **golden age of Telugu literature**.
- Thus, he was not only a great warrior, but was also a playwright and a great patron of learning.
- **Telegu literature flourished under him.**
- Painting, sculpture, dance and music were greatly encouraged by him and his successors.
- Emperor Krishna Deva Raya was fluent in many languages.
- Krishna dev Raya took the title of **Abhinava-Bhoja** and **Sakala-Kala-Bhoja** ("Bhoja of all the arts") in the honour of Parmara emperor Bhoja who was polymath, a master of 64 arts and a military genius.
- The poet MukkuTimma was his great admirer.
- **Ashtadiggajas: A group of eight scholars adorned his court and they were:**
  - I. Allasani Peddanna – the author of Manucharitram, he was also known as Andhra Kavitaipitamaha
  - II. Nandi Thimmana – the author of Parijathapaharanam
  - III. MadayagariMallana
  - IV. Dhurjati
  - V. AyyalarajuRamabhadraKavi
  - VI. PingaliSurana
  - VII. RamarajaBhushana
  - VIII. Tenali Ramakrishna

<https://www.thehindu.com/news/national/karnataka/vice-president-sees-musical-pillars-of-hampi/article36>

# HISTORY

## RAJA RAM MOHAN ROY & HIS CONTRIBUTIONS

### Context

- To commemorate the year-long celebration of the 250<sup>th</sup> Birth Anniversary of Raja Ram Mohan Roy, the Ministry of Culture held an inaugural ceremony under Azadi Ka Amrit Mahotsav.

### About Raja Ram Mohan Roy

- One of the most influential social and religious reformers of the 19th century, Ram Mohan Roy, was **born on May 22, 1772**, in what was then **Bengal Presidency's Radhanagar** in Hooghly district.
- Raja Ram Mohan Roy is considered as the pioneer of modern Indian Renaissance for the remarkable reforms he brought in the 18th and 19th century India.
- The title 'Raja' was bestowed upon him by the Mughal emperor Akbar II, in 1831. Roy visited England as an ambassador of the Mughal King to ensure that Bentick's regulation banning the practice of Sati was not overturned.

### Social reforms

- Born into a prosperous **upper-caste Brahmin family**, Roy grew up within the framework of orthodox caste practices of his time: child marriage, polygamy and dowry were prevalent among the higher castes and he had himself been married more than once in his childhood.
- A polyglot, **Roy knew Bengali and Persian**, but also Arabic, Sanskrit, and later, English. His exposure to the literature and culture of each of these languages bred in him skepticism towards religious dogmas and social strictures.
- Raja Ram Mohan Roy's efforts lead to the passing of Bengal Sati Regulation or Regulation XVII, A. D. 1829. The act prohibited the practice of Sati Dahan in Bengal Province, and any individual caught practicing it would face prosecution.
- Raja Ram Mohan Roy's name is thus etched forever as a true benefactor of women not just for helping abolish the custom of Sati, but also raising his voice against child marriage and polygamy, while demanding equal inheritance rights for women. He was also a great opponent of the rigid caste divisions of his time.

### Educational Contributions

- Ram Mohan Roy was educated in traditional languages like Sanskrit and Persian as well as English literature. He realized that while traditional texts like Vedas, Upanishads and Quran provided him with much reverence for philosophy, his knowledge was lacking in scientific and rational education. He advocated the introduction of an English Education System in the country teaching scientific subjects like Mathematics, Physics, Chemistry and Botany.
- He paved the way to revolutionizing education system in India by establishing Hindu College in 1817 along with David Hare. His efforts to combine true to the roots theological doctrines along with modern rational lessons saw him establish the Anglo-Vedic School in 1822 followed by the Vedanta College in 1826.

### Religious Contributions

- Ram Mohan Roy vehemently opposed the unnecessary ceremonialism and the idolatry advocate by priests. He had studied religious scriptures of different religions and advocated the fact that Hindu Scriptures like Upanishads upheld the concept of monotheism. This began his quest for a religious revolution to introduce the doctrines of ancient Vedic scriptures true to their essence.
- He founded the Atmiya Sabha in 1928. The Atmiya Sabha reorganised itself into the Brahma Sabha, a precursor organisation of the Brahmo Samaj. The primary facets of this new movement were monotheism, independence from the scriptures and renouncing the caste system. Brahmo religious practices were stripped bare of the Hindu ceremonialism and were set up following the Christian or Islamic prayer practices. With time, the Brahma Samaj became a strong progressive force to drive social reforms in Bengal, especially women education.



### Journalistic Contributions

- Ram Mohan Roy was a **staunch supporter of free speech and expression**. He **fought for the rights of vernacular press**. He also brought out a **newspaper in Persian called 'Miratul- Akhbar' (the Mirror of News) and a Bengali weekly called 'Sambad Kaumudi' (the Moon of Intelligence)**.
- In those days, items of news and articles had to be approved by the Government before being published. Ram Mohan protested against this control by arguing that newspapers should be free and that the truth should not be suppressed simply because the government did not like it.

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1827447>

## **Rakhigarhi and Indus valley civilization**

### **Context**

- **DNA samples** collected from two human skeletons unearthed at a **necropolis of a Harappan-era city site** in Haryana have been sent for scientific examination, the outcome of which might tell about the ancestry and food habits of people who lived in the Rakhigarhi region thousands of years ago.
- The skeletons of two women were found a couple of months ago at mound number 7 (named RGR 7 by the Archaeological Survey of India or (ASI), believed to be nearly 5,000 years old. Pots and other artefacts were also found buried next to them in a pit, part of the funerary rituals back in the Harappan Civilisation era.

### **About Harappan Civilisation**

- Indus Valley Civilization is also known as the Harappan Civilization because Harappa was the first site to be excavated in 1921 under the supervision of **Daya Ram Sahni**.
- The known extent of IVC is up to Suktagendor in Baluchistan in the west; Alamgirpur (UP) in the east; Daimabad (Maharashtra) in the South; and Manda (Jammu & Kashmir) in the north.
- Indus Valley Civilization is the home to the largest of the four of its contemporary urban civilizations namely Mesopotamian or Sumerian Civilization, Egyptian Civilization, and Chinese Civilization.
- While IVC is on the banks of Indus, Egyptian Civilization flourished on the banks of the river Nile, Mesopotamian Civilization flourished on the banks of Tigris or Euphrates River and Chinese Civilization flourished on the banks of **Hwang Ho River**.
- Since it belongs to the Bronze/Chalcolithic age, it is also known as the **Bronze Age Civilization**.
- In the 1920s, the excavations were carried out in the Indus Valley regions, where ruins of the old cities were found. The first city to be unearthed was Harappa.
- In 1924, **John Marshall**, the then Director-General of the Department of Archaeology announced the discovery of the Indus Valley Civilization.

### **Features of Harappan Civilisation**

- **Urbanization & Town Planning**
  - Town planning is the **most important and distinguishing feature** of the Harappan Civilization. Hence, it was called an urban civilization.
  - Towns were **divided into parts** namely citadel and lower town. Citadels were occupied by members of the ruling class and the lower town was inhabited by the common people.
  - Another important feature of IVC is the drainage system. Drains were built of burnt bricks and covered by stone lids.
  - Chanhudaro was the only town without a citadel.
- **Agriculture & Economy**
  - They grew wheat and barley on a large scale. Other crops that they grew included pulses, cereals, cotton, dates, melons, pea, sesamum, and mustard.
  - No clear evidence of rice has been found.
  - Harappan people were mostly **peasants** and thus the Harappan civilization was an agro-commercial civilization.
  - Harappans were the **earliest people** to grow cotton.
  - Their most important artistic work is sealed. Seals are made of steatite and they are square.
  - The most **depicted animal is the bull**.
  - Bangle making and shell ornament making were also practised.
  - Land and sea trade was in vogue in Indus Valley Civilization.

- A dockyard has been found at Lothal which is the longest building of the Harappan Civilization.
- **Religion of Harappans**
  - Pashupati seal has been found in Mohenjodaro in which a Yogi has been depicted.
  - The Yogi on the seal is surrounded by buffalo, tiger, elephant, rhinoceros, and deer.
  - Signs of phallic worship have been found.
  - Harappans worshipped the mother Goddess. It is evident from the terracotta figurine recovered from Harappa.
  - A building called **Great Bath** has been found at Mohenjodaro. It was meant for ritual bathing.
  - No evidence of temples has been found in this civilization.
  - Amulets were found in large numbers
- **Script of Harappans**
  - The Harappans knew **the art of writing**.
  - More than 4000 specimens of scripts were found in excavations.
  - The script, however, is not alphabetical but pictographic and it has not been deciphered yet.

### Important Sites of Harappan Civilisation

Site	Location	River Bank
Harappa	Montgomery, Punjab (Pakistan)	Ravi
Mohenjodaro	Larkana, Sindh (Pakistan)	Indus
Suktagerd	Baluchistan (Pakistan)	Dasht
Chanhudaro	Sindh (Pakistan)	Indus
Rangpur	Ahmedabad (India)	Meedar
Kalibangan	Ganganagar (Rajasthan)	Ghaggar
Lothal	Ahmedabad	Sabarmati & Bhogva
Banawali	Hissar (Haryana)	Saraswati
Amri	Sindh and Baluchistan	Indus
Dholavira	Gujarat	Luni

<https://epaper.thehindu.com/Home/ShareArticle?OrgId=GR29PT9KC.1&imageview=0>

## Birsa Munda and his contributions

### Context

- Union Education and Skill Development Minister released a book “Birsa Munda – Janjatiya Nayak”.

### About

- Birsa Munda was an Indian tribal freedom fighter, reformer and religious leader. He was nicknamed as ‘Dharti Abba’ or **Father of the Earth**, by his followers.

### Contribution

<b>Religion</b>	<ul style="list-style-type: none"> <li>• Renounced Christianity and protested against conversion of Tribals by Christian missionaries.</li> <li>• Created a new religion called “<b>Birsait</b>”, which worshipped only one god.</li> <li>• Birsait soon became the popular religion among the <b>Mundas and Oraons</b>.</li> <li>• Preached a strong anti-British sentiment through his religion.</li> </ul>
<b>Reformer</b>	<ul style="list-style-type: none"> <li>• Stressed on the need of the tribals to study their own religion and not forget their cultural roots.</li> <li>• Convinced people to give up superstition, alcohol, theft, lying, murder and begging under his new religion.</li> </ul>

<p><b>Munda Rebellion</b></p>	<p><b>Background</b></p> <ul style="list-style-type: none"> <li>Munda tribals practiced <b>Khuntkatti system</b> (joint holding by tribal lineages).</li> <li>However, British colonial system intensified the transformation of the tribal agrarian system into a feudal state by introducing <b>Zamindari-tenancy system</b>.</li> <li><b>Outsiders (Dikus)</b> were invited by the British to settle on and cultivate the tribal land.</li> <li>Thus, the various tribes, who were the original owners of the land, were left bereft of land and any means of livelihood.</li> </ul> <p><b>'Ulgulan' or the 'Great Tumult' (1899-1900)</b></p> <ul style="list-style-type: none"> <li>Birsa infused in tribals the values to love, respect, support and safeguard their land from outsiders.</li> <li>He used traditional symbols and language to rouse people, urging them to destroy "Ravana" (<b>dikus</b> and the Europeans) and establish a kingdom under his leadership.</li> <li>He mobilised thousands of tribal folk to form guerrilla armies to attack the British Raj.</li> <li>He declared that the reign of Queen Victoria was over and the Munda Raj had begun.</li> <li>He gave orders to the raiyats (tenant farmers) to pay no rents.</li> <li>The people attacked police stations and churches, and raided the property of moneylenders and zamindars. They raised the <b>white flag</b> as a symbol of Birsa Raj.</li> <li>The attacks were launched not only on the moneylender-landlord-mahajan-contractor combine, but directly against the British.</li> <li>The <b>massacre at Dumbri Hill</b> made it a "hill of the dead" when hundreds of tribals lost their lives for the cause of freedom against the modern ammunition of the British.</li> <li>The Great Tumult against Britishers sought to establish Munda Raj and independence.</li> <li>The slogan of the movement was "Abua Raj ete jana, Maharani Raj Tundu Jana" which means "Let the kingdom of queen be ended and our kingdom established".</li> </ul> <p><b>Outcome</b></p> <ul style="list-style-type: none"> <li>The Britishers were forced to abolish the feudal system that plagued the Adivasi lands in Jharkhand and Bihar.</li> <li>Birsa compelled the Britishers to introduce new legislation - the <b>Chota Nagpur Tenancy Act, 1908</b>. This Act prohibited the transfer of tribal land to non-tribal parties.</li> <li>Government recognized Khuntkatti rights and banned Beth Begari (forced labour)</li> </ul>
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### Significance

- Birsa Munda's political awareness and ability to connect with people became the **foundation of later tribal movements in the nineteenth century**.
- He became a **symbol of the anti-feudal, anti-colonial struggle of that time**.
- His influential personality and motivational speeches **encouraged the public to believe in the power of freedom**.
- His revolutionary work not only put **an effective dent in the British rule**, it also **helped mobilise tribals**.
- It is due to him and many other such activists and **tribals in today's India** get inspired to protect their rights.

The Munda people initially spread from Southeast Asia some 4000–3500 years ago, but mixed extensively with local Indian populations. This ethnic group predominantly speaks the Mundari language as their native language, which belongs to **Austroasiatic languages**. The Munda are found in the northern areas of east India concentrated in the states of **Jharkhand, Bihar, Odisha and West Bengal**. The Munda also reside in adjacent areas of Chhattisgarh as well as in portions of Bangladesh. They are one of India's largest scheduled tribes. Munda people in Tripura are also known as Mura.

<https://pib.gov.in/PressReleasePage.aspx?PRID=1813792>

## Paika rebellion of odisha: first war of independence?

### Context

- The 1817 Paika rebellion of Odisha could not be called the first war of Independence.
- But considering it as a beginning of a popular uprising against the British, it would be included as a case study in the Class 8 National Council of Educational Research and Training (NCERT) history textbook, said the Union Culture Minister.

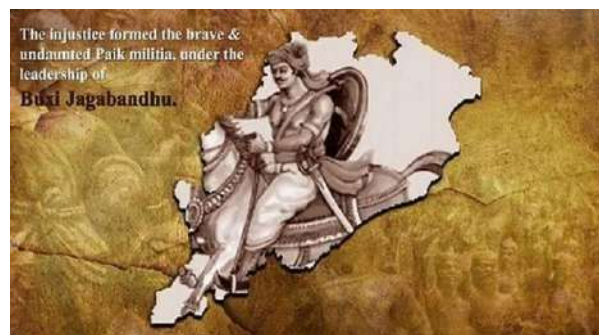
### Who were Paikas?

- The Paikas were **peasant militias of the Gajapati rulers of Odisha** who offered military services to the king.
- They were categorised into the following categories:
  - Praharis were sword-fighting experts.
  - Banuas were excellent matchlock marksmen.
  - Dhenkias were the battlefield archers.
- For the military services they provided to the kingdom of Khurda, they were given rent-free land.

### The rebellion

#### Background

- The British established themselves in Odisha when the East India company dethroned the King of Khurda, **Raja Mukunda Deva in 1803**.
- The following year, in 1804, the king planned a rebellion against the British and roped in the Paikas for the same.
- But the plan was discovered by the British who confiscated his entire territory.
- The Paikas lost their estates when the new colonial establishments and land revenue settlements of the British came into force.



#### The revolt

- The continuous interference in the economy and revenue systems led to **exploitation and oppression of the peasants and farmers** eventually triggering a rebellion against the British.
- A large number of Paikas were mobilised **under the leadership of Bakshi Jagabandhu Bidyadhar**, who then confronted the British on April 2, 1817.
- The Paika Rebellion, also called the Paika Bidroha was an **armed rebellion against Company rule**.
- Government buildings in Banapur were set on fire, policemen killed and the British treasury looted.
- Over the next few months, the revolt continued but was eventually overpowered by the British army.
- Bidyadhar was imprisoned in 1825 and died while still in jail four years later.

### Can it be called the first war of Independence?

#### The demand

- Paika rebellion preceded the Sepoy Mutiny of 1857 by at least 40 years and from this rises the demand for recognising this as India's first war of independence.
- In July 2017, the Odisha government decided to formally ask the Centre to declare the rebellion as the "first war of independence in Indian history". 2017, marked the 200th anniversary of the Paika Rebellion.



### Government's take

- Since the uprisings violently clashed with European colonialists and missionaries on many occasions, their resistance is sometimes seen as the first expression of resistance against colonial rule – and therefore **considered to be "nationalist" in nature.**
- But the fundamental issue that arose with the Paika revolt **was the revenue policy**, which remained unchanged.
- Thus, it cannot be considered the first war of independence – said the Culture Ministry in consultation with the Indian Council of Historical Research (ICHR) under Ministry of Education.
- However, from a historical point of view, it can be said that the Paika Bidroha had set an example for the classes as well as the masses in India to follow later on.
- The Paika rebellion is a landmark in the history of the freedom struggle in India.

<https://indianexpress.com/article/explained/paika-revolution-odisha-demand-explained-7653963/>

## SAMVATSARI AND JAINISM

### Context

- The Prime Minister, Shri Narendra Modi has greeted the people on the occasion of Samvatsari.

### About

- Samvatsari is the last day of **Paryushana Shwetambar sect of Jainism.**
- On this day, Jains forgive and seek forgiveness for their mistakes committed knowingly or unknowingly from all the living beings.
- A yearly, elaborate penitential retreat called "**samvatsari pratikramana**" is performed on this day.
- After the pratikramana, Jains seek forgiveness from all the creatures of the world, including friends and relatives by uttering the phrase – **Micchami Dukkadam or its variants like "Khamau Sa", "Uttam Kshama" or "Khamat Khamna".**
- While Samvatsari and Kshamavaani are typically associated with Shwetambar sect and Digambara respectively, there is no major difference between the two days and both are observed as Forgiveness Days.

### Jainism

- Ancient Religion and its name derives from the word **Jina, meaning 'liberator' or 'victor'**, referring to spiritual rather than material conquest.
- Jains revere a group of **24 liberated souls called Jinas or Tirthankaras** who act as teachers and role models to the faithful.
- Jain Canonical was established at the Council of Valabhi, **presided over by Devardhi** around 454 C.E.
- Jains consider the primary scripture to be the **Tattvartha Sutra**, or Book of Realities, written over eighteen centuries ago by the **monk-scholar Umasvati (also known as Umasvami).**
- Jainism does not accept the authority of the Veda.

### Sects

Jainism has two main variants: Digambar (the naked) and Shvetambar (wearers of white cloths).

### Origin

- The two major sects of Jainism, Digambar and Shvetambar, trace their origin to events that occurred about **two hundred years after the nirvana of Mahāvīr.**
- Bhadrabahu, chief of the Jain monks, foresaw a period of famine and led about 12,000 people to southern India.

Name of Tirthankara	Symbol	Place of Nirvan
1. Lord Rishabha	Bull	Ashtapad(Kailasha)
2. Ajitnath	Elephant	Samet Sikhar
3. Sambhavanath	Horse	Samet Sikhar
4. Abhinandannath	Monkey	Samet Sikhar
5. Sumatinath	Red Goose	Samet Sikhar
6. Padmaprabha	Lotus	Samet Sikhar
7. Suparshvanath	Swastika	Samet Sikhar
8. Chandraprabha	Moon	Samet Sikhar
9. Pushpadanta	Crocodile	Samet Sikhar
10. Sheetalnath	Kalpavriksha	Samet Sikhar
11. Shreyansanath	Rhinoceros	Samet Sikhar
12. Vasupujya	Female buffalo	Champapuri
13. Vimalnath	Pig	Samet Sikhar
14. Anantnath	Porcupine	Samet Sikhar
15. Dharmanath	Vajra	Samet Sikhar
16. Shantinath	Deer	Samet Sikhar
17. Kunthunath	Goat	Samet Sikhar
18. Aranath	Fish	Samet Sikhar
19. Mallinath	Kalasa	Samet Sikhar
20. Munisuvrata	Tortoise	Samet Sikhar
21. Nami Natha	Blue-Water Lily	Samet Sikhar
22. Neminatha	Conch	Mount Girnar
23. Parshva	Snake	Samet Sikhar
24. Mahavira	Lion	Pava Puri

- Twelve years later, they returned to find that the Svetambara sect had arisen.
- The followers of Bhadrabahu came to be known as the Digambar sect.
- There was **no clear division until the 5th century, when the Valabhi council** of 453 resulted in editing and compilation of scriptures of the Svetambar tradition.

### **Difference between Svetambara and Digambara:**

#### **(1) Liberation of Woman:**

- Digambara believes that **women cannot achieve nirvana or liberation directly**. They first have to be reborn as a man for this.
- Svetambara, on the other hand, have a different opinion. According to them, **women are equally capable of achieving liberation as men**. They believe in **Sabastra Mukti**.
- They believe that anybody can achieve salvation, be it a householder or a monk.

#### **(2) Dress Code:**

- Digambara believes that in order to achieve nirvana or liberation, one must **renounce everything including clothes**. Therefore Digambara monks are completely naked.
- Svetambara, on the contrary, believes that **practice of nudity is not essential to attain liberation**. Therefore they wear white clothes.

#### **(3) Possessions:**

- Digambara monks are not allowed to have any kind of possessions.
- They believe that it is necessary to renounce everything to lead the life of a true monk.

However, they usually carry three things with them:

- **Picchi** – broom made up of fallen feathers of a peacock. They use this broom to remove small insects without harming them.
- **Kamandalu** – oblong water pot used for carrying pure and sterilized drinking water.
- **Shastra** – scriptures.

**Svetambara monks are allowed to possess 14 specified things, which include:**

- White clothes
- Rajoharana – broom made up of soft white wool attached to a wooden handle. Using this they remove small insects from their path without harming them.
- Begging bowl
- Books etc.

#### **(4) Idols:**

Svetambara idols of Tirthankars are decorated with jewels, wearing loin cloth with prominent staring eyes. However, Digambara idols are naked, undecorated with downcast eyes.

#### **(5) Scriptures:**

- In Jainism, the discourse delivered by Tirthankaras is known as **ŚhrutJnāna**. It comprises of 11 Angas and 14 Purvas.
- Digambara holds the opinion that original texts of Jainism were lost ago.
- Svetambara believe that they have the original Jain scriptures. However, they also accept that their collection is also incomplete.
- **Tattvartha Sutra** is the most authoritative text in Jainism, accepted by both Svetambara and Digambara.

### **Jain Literature**

Jain literature is classified into two major categories:

#### **1. Agam Literature**

- This consists of original scriptures compiled by **Gandharas and Strut-kevalis**.
- They are written in the **Prakrit language**.

#### **2. Non-agam Literature**

- This consists of **commentary and explanation of Agam literature** and independent works, compiled by elder monks, nuns, and scholars.

- They are written in many languages such as **Prakrit, Sanskrit, Old Marathi, Gujarati, Hindi, Kannad, Tamil, German, and English.**

### Agam Literature

- Lord Mahavir's preaching was methodically compiled by his followers into many texts.
- These texts are collectively known as Agams, the sacred books of the Jain religion.
- Hence, the Jain religion does not have one sacred book like the Bible or Koran, but it has many books compiled by many followers.

There are 41 Sutras, including 11 Angas, 12 Upāngas, five Chedas, five Mūlas, and eight miscellaneous works; a number of Prakirnakas (unclassified works); 12 Niryuktis (commentaries); and the Mahābhāṣya, or great commentary.

### Agam literature is also divided into two groups

- **Ang-agams or Ang-pravista-agams:** These texts contain the direct preaching of Lord Mahavir. They were compiled by **Ganadharas**.
- **Ang-bahya-agams (outside of Ang-agams):** These texts are expansions of Ang-agams. They were compiled by **Srut-kevalis**.

#### 1. Ang-agams

- Lord Mahavir's immediate disciples were known as **Ganadharas**.
- All **Ganadharas possessed perfect knowledge (keval-jnan)**.
- They orally compiled the direct preaching of Lord Mahavir into twelve main texts (sutras). These texts are known as **Ang-agams**.
- Hence the Ang-agams are the **oldest religious scriptures and the back bone of Jain literature**.
- The **twelfth Ang-agam is called Drastivad**. The Drastivad consists of fourteen Purva texts, also known as Purvas or Purva-agams.
- Among Ang-agams, **Purvas were the oldest sacred texts**.
- All Jain sects believe that knowledge of the Purvas (Drastivad) were gradually lost starting two hundred years after Lord Mahavir's nirvan (death).
- However, the subject matter of the Purvas has been referenced by other Jain scriptures and literature.

#### 2. Ang-bahya-agams

- Monks who had knowledge of a **minimum of ten Purvas** were known as **Srut-kevlis**.
- The **Srut-kevlis** wrote many texts (sutras) expanding the subject matter defined in the Ang-agams.
- Collectively these texts are called **Ang-bahya-agams** meaning **outside of Ang-agams**.
- The **different Jain sects accept different numbers of Ang-bahya texts**.
- However the Digambar sect believes that they were also gradually lost starting about two hundred years after Lord Mahavir's Nirvan.

### Classification of Ang-bahya-agams:

- The Svetambar sect has divided Ang-bahya-agams into the following categories:

#### 1. Upang-agams:

- The scriptures which provide further explanation of Ang-agams are called Upang-agams. There are 12 Upang-agams accepted by all Svetamber sects.

#### 2. Chhed-sutras:

- The subject matter described in Chhed-sutras is only for monks and nuns and not for lay people. It **relates to the conduct and behavior of monks and nuns**.

#### 3. Mool-sutras:

- The scriptures which are essential for monks and nuns to study in the earlier stages of their monkhood are called Mool-sutras.

**4. Chulika-sutras or Sutras:**

- The scriptures which enhance or decorate the Ang-agams are known as Chulika-sutras or Sutras.

**5. Prakirna-agams:**

- The scriptures which describe independent or miscellaneous subjects of the Jain religion are known as Prakirna-sutra.

**In a nutshell,****12 Angas (canonical texts of Jainism based on Mahavira's teachings)**

Ācārangasūtra

Sūtrakṛtāṅga

Sthānāṅga

Samavāyāṅga

Vyākhyāprajñapti or Bhagavatisūtra

Jñātrdhārmakathāh

Upāsakadaśāh

Antakṛddāśāh

Anuttaraupapātikadaśāh

Prašnavyākaranani

Vipākāśruta

Drstivāda

**12 Upanga Agams:** Upanga Agamas are explanations to Angas**6 Chedasutras:** These are texts related to behavior of Monks and Nuns.**4 Mūlasūtras:** These are texts which provide a base in the earlier stages of the monkhood**10 Prakīrnakasūtras:** These are texts on Independent or miscellaneous subjects**2 Cūlikasūtras:** These are texts which further enhance or decorate the meaning of Angas.**Theory of Knowledge**

The Jains classify knowledge into **immediate (aparokṣa)** and **mediate (parokṣa)** knowledge.

**Mediate Knowledge**

There are two types of mediate knowledge:

**1. Mati, ordinary cognition based on normal sense perception.**

- This includes remembrance (smṛti); recognition (samjñā, prtyabhiñā); induction based on observation (curita, tarka); and deductive reasoning (abhinibodha, anumāna).
- Mati is sometimes distinguished into three types: perception (upalabdhi), memory (bhāvanā), and understanding (upayoga). Mati is knowledge acquired by means of the senses (indriyas) and the mind (anindriya), and is always preceded by some kind of perception.

**2. Shruta, or Sruti, knowledge derived through signs, symbols or words.**

- Mati gives knowledge by acquaintance; sruti gives knowledge by description. There are four kinds of shruta: association (labdhi), bhavana (attention), understanding (upayoga), and aspects of the meaning of things (naya).

**Immediate Knowledge**

Immediate knowledge is categorized into three types:

1. **Avadhi**, clairvoyance, or direct knowledge of things through time and space.
2. **Manahparyāya**, telepathy, direct knowledge of the thoughts of others.
3. **Kevala**, omniscience unlimited by time or space, perfect knowledge comprehending all substance and their modifications. This knowledge can only be felt and not described, and is possible only for purified souls free from bondage.

These five types of knowledge (2 mediate & 3 immediate) are “**right knowledge.**”

There are also three types of “**wrong knowledge:**”

- doubt (samshaya),
- mistake (viparyaya), and
- wrong knowledge through indifference (anadhyavasaya).

Only one of these eight kinds of knowledge is active at a given moment.

Knowledge of a particular thing is also divided into two types:

- knowledge of a thing as it is (pramāna) and
- knowledge of a thing in its relation to other things (naya).

Naya is the viewpoint from which a statement is made about a thing. It includes partial knowledge about the innumerable aspects of a thing, and judgment based on this partial knowledge.

## Philosophy

### Realistic Pluralism (Anekantavada)

- Jain metaphysics is a realistic and relativistic pluralism.
- Matter (pudgala) and spirit (jiva) are seen as separate and independent realities.
- There are **innumerable material atoms**, and **innumerable individual souls**, and each of these possesses an infinite number of characteristics of its own.
- Every object possesses innumerable positive and negative characteristics.
- The substance (dravya) of a thing possesses all its qualities and modes.
- The permanent and essential qualities of a substance are called attributes (guna), and the changing and accidental qualities are called modes (paryāya).

### Relativity of Knowledge (Syadvada)

- An ordinary person cannot know all the qualities of a particular thing.
- **The nature of reality is indeterminate and infinitely complex**, and human knowledge of it at any given moment is necessarily limited to only certain aspects.
- The infinite aspects of reality are **all relative**; therefore **all judgments are relative, conditional and limited**.
- It is incorrect to say that anything is absolutely true or absolutely untrue.

## Ethics

- Monks and nuns strive to make this birth their last by practicing severe asceticism, while the lay people pursue less rigorous practices, striving to attain rational faith and do good deeds in this birth.
- The Five Vows of the monastics are called Great Vows (mahavratā) and those of the laity are called Small Vows (anu-vratā).
- **The Five Vows are:**
  - Non-violence (ahimsa, or ahimsa)
  - Truth (satya)
  - Non-stealing (asteya)
  - Chastity (brahmacharya)
  - Non-possession or Non-possessiveness (aparigraha)

### Three Jewels of Jainism

- The aim of Jain life is to achieve liberation of the soul.
- This is done by following the three jewels of Jain ethics.
  - Right faith - Samyak darshana
  - Right knowledge - Samyak jnana
  - Right conduct - Samyak charitra

## Holy Sites

There are many Jain tirthas (pilgrimage sites) throughout India since the construction of a temple was thought to contribute to liberation from karma. Also included in the following list are significant sites in other countries.

- **Shravanabelagola**, monumental statue of the Jain saint Gomateshwara in Hassan District, Karnataka
- **Dilwara Temples**, complex of white marble Jain temples on Mount Abu, Rajasthan
- **Ranakpur Temples**, extensive complex of white marble Jain temples in Ranakpur, Rajasthan
- **Palitana**, most visited Jain temple in Gujarat
- **Bawangaja**, a complex of Jain temples and monumental statues in Barwani District, Madhya Pradesh
- **Gwalior's fort, huban, Bihar**, has a series of temples on mountains where the Tirthankaras got KevalGyan
- The **BhagwanAdinathderasar** at Vataman near Ahmedabad



- **Bajrangarh, Atisaya-kshetra** in Guna district in Madhya Pradesh
- **Kundalpur, Siddha-kshetra** having 63 temples, famous for beautiful statue of Bade Baba in Damoh district in Madhya Pradesh
- The **Jain Centre in Leicester, England**, the first Jain temple consecrated in the western world
- **Siddhachalam in Blairstown**, New Jersey, founded in 1983.

#### Do you know?

Jain community makes for **4.5 million or 0.36 percent of the Indian population as per 2011 census**, the sixth community to be designated this status as a "national minority", after Muslims, Christians, Sikhs, Buddhists and Parsis.

## Sardar Vallabhbhai Patel and his contribution in the freedom struggle

### Context

- Recently, the Prime Minister of India and several Union Ministers paid tribute to Sardar Vallabhbhai Patel on his 71st death anniversary.

### About Sardar Vallabhbhai Patel

- Sardar Vallabhbhai Patel was an Indian barrister, politician and one of the leading figures of Indian freedom movement.
- He worked very closely with Mahatma Gandhi and was deeply **influenced by Gandhi's ideology and principles**.

### Contribution

#### Indian National Movement- Overview

- Patel was actively involved in the **Non-Cooperation, Satyagraha and Quit India movements** and was at various points **arrested** by the British.
- When Gandhi was imprisoned in 1923, he led and **organized the Satyagraha movement in Nagpur**.
- He was elected as the **President of the Indian National Congress during the 1931 Karachi session**, at which the Congress passed the historic Karachi Resolution.
- He organised the **peasants of Kheda, Borsad, and Bardoli** in Gujarat in non-violent civil disobedience against oppressive policies imposed by the British Raj. He showed remarkable organizing skills in all the occasions.

#### As Sanitation Commissioner

- In 1917, Sardar Vallabhai Patel was elected in Ahmedabad Municipal Corporation as the Sanitation Commissioner.
- He extended electricity, drainage and sanitation facility to all parts of the city.
- The Municipality was transformed, from being a mere adjunct to the British rule, into a popular body with a will of its own.

#### Social Reformer

- He worked extensively against alcohol consumption, untouchability, caste discrimination and for women emancipation in Gujarat and outside.
- There were calamities like plague in 1917 and famine in 1918, and on both occasions Vallabhbhai did important work to relieve distress.
- He also conducted major educational reforms including fighting for the recognition and payment of teachers.

#### Kheda Satyagraha

- On Gandhi's call, Patel quit his job and joined the movement to fight for exemption of taxes in Kheda Satyagraha.
- Kheda Satyagraha was launched to secure exemption from payment of the land revenue assessment since the crops had failed.

## Non-Cooperation Movement

- Vallabhbhai left his law practice and gave himself up wholly to political and constructive work, touring villages, addressing meetings, organizing picketing of foreign cloth shops and liquor shops.
- He organized bonfires of British goods and propagated wearing of Khadi.

## Bardoli Satyagraha

- In 1925, Bardoli suffered from a serious predicament of a famine and flood. Despite this Bombay Presidency increased the tax rates by 22%.
- Patel initiated the struggle **for complete rejection of taxes**. He organised volunteers, camps and an information network across affected areas.
- In order to take the situation under control the government set up the **Maxwell-Broomfield commission**.
- The revenue was reduced to 6.03% and peasants were returned their confiscated land.
- It was during the struggle and after the victory in Bardoli that Patel was addressed by followers as **"Sardar"**. Soon, he emerged as a national leader.

## Contribution to Constitution Making

- In the Constituent Assembly, he was an active member of the **committees relating to minorities and fundamental rights**.
- During the Committee Stages and the plenary sessions, he **strongly argued against separate electorates**.
- During the framing of India's Constitution, he was the **Home and Information and Broadcasting Minister** in the Interim Government.
- Sardar Patel played a critical role in negotiating with and **integrating the 565 princely states into the Union of India**. Thus, he is hailed as the **"Iron Man of India"**.

## Post Independence India

- As the **first Home Minister and Deputy Prime Minister** of India, he restored law and order and dealt with the rehabilitation of thousands of refugees with great courage and foresight.

## Civil Services

- Sardar Patel, envisioned our civil services to be the **'steel frame' of good governance** of the country.
- He is remembered as the **"patron saint of India's civil servants"** for having established the modern all-India services system.

<https://www.hindustantimes.com/india-news/on-vallabhbhai-patel-s-death-anniversary-tributes-pour-in-for-india-s-unifier-101639536201361.html>

In 2018, "Statue of Unity", a colossal statue of Vallabhbhai Patel was inaugurated. It is the world's tallest statue with a height of 182 metres (597 feet). It is located on **Sadhu Bet island** of the Narmada River, facing the Sardar Sarovar Dam.

## GEOGRAPHY

### Heat waves and its impact

#### Context

- After a prolonged heat-wave gripped Delhi in April due to the absence of western disturbances which are common during the season, May started on a cooler note with rain, thunderstorms, and strong winds providing respite from the heat. This was due to the Moisture-carrying eastern winds under the influence of cyclone Asani brought down the temperature in Delhi.

#### What is a Heat Wave?

- A heat wave is a period of abnormally and uncomfortably hot and usually humid weather.
- According to the World Meteorological, a heat wave is when the daily maximum temperature for more than five consecutive days exceeds the average maximum temperature by 9 degrees Fahrenheit.

#### Heat wave Criteria:

- In India, Heat wave is considered if maximum temperature of a station reaches atleast 40 degree C or more for Plains and at least 30 degree C or more for Hilly regions.

##### a) 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

##### b) 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

##### c) Warm Night

It should be considered only when maximum temperature remains 40 degree C or more. It may be defined based on departures or actual minimum temperatures as follows:

**Warm night:** minimum temperature departure is 4.5 degree C to 6.4 degree C

**Very warm night:** minimum temperature departure is >6.4 degree C

##### d) Criteria for describing Heat Wave for coastal stations

When maximum temperature departure is 4.5 degree C or more from normal, Heat Wave may be declared provided actual maximum temperature is 37 degree C or more.

#### How do heat waves form?

- A heat wave is formed when static high pressure generated in the upper atmosphere over a region for several days up to several weeks.
- This static high pressure generates a hot mass of air, which is stagnant for many days and week, which resulted the trapping of more heat that also reduce the convection currents.
- The high pressure acts as a barrier and forces the mass of air to sink to the surface of the land that prevents heat to rise.
- This hot mass of air accumulates only heat and humidity without any trace of precipitation that causes abnormally high temperatures. It is very often during the summer season, from May to November in the northern hemisphere.
- The seal keeps out convection currents that form clouds and eventually rain clouds, both of which would help the area affected cool off.

### MERCURIAL METER

Some of the new and cross-country benchmarks are listed below. Earlier, they used to vary from state to state

#### HEAT WAVES

Based on departure from normal



**Heat wave:** 4.5°C to 6.4°C above normal maximum

**Severe heat wave:** More than 6.4°C above normal maximum

Based on actual maximum temperature

**Heat wave:** Temperature equal or greater than 45°C

**Severe heat wave:** Equal or greater than 47°C

**Warm night:** (Will apply only when maximum temperature remains 40°C or more) Minimum temperature departure is 4.5°C to 6.4°C

**Very warm night:** Minimum temperature departure is above 6.4°C

#### COLD WAVES

Based on departure from normal



**Cold wave:** 4.5°C to 6.4°C below normal minimum

**Severe cold wave:** Anything more than 6.4°C below normal minimum

Based on actual minimum temperature

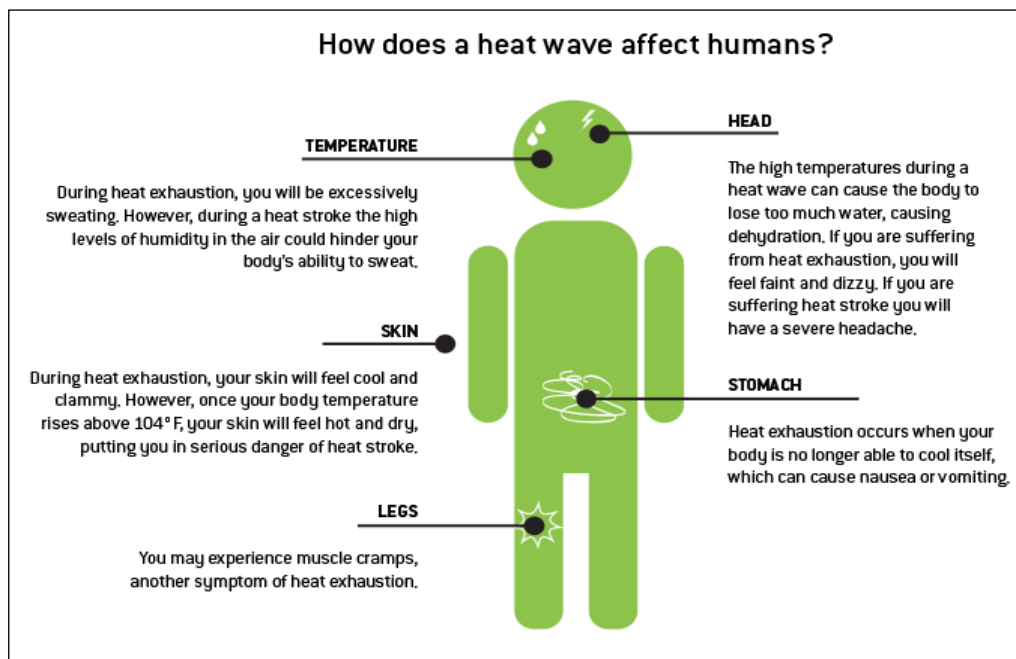
**Cold wave:** Minimum temperature is 4°C or lower

**Severe cold wave:** Minimum temperature is 2°C or lower

**Cold day:** (Applies when minimum temperature is 10°C or lower in plains and 0°C or lower in hilly regions) Maximum temperature departure is minus 4.5°C to minus 6.4°C

**Very cold day:** Maximum temperature departure is greater than minus 6.4°C

- Instead the result is a heat wave that has both high heat and high humidity near the ground.
- These heat waves can last from days to weeks.



## Implications of Heat Waves

### Social impacts

- Extreme heat can lead to heat-related illness and death, particularly in elderly populations, the poor, outdoor workers, and in urban areas.
- Heat waves exacerbate the urban heat island effects, amplifying temperatures in built environments, and resulting in poorer air quality due to the creation of ozone that negatively impacts health.
- Heat-related mortality is expected to be higher in cities, particularly those characterized by high population density, inequalities, limited access to health care, high pollution levels and fewer green spaces.

### Economic impacts

- Multiple areas of the economic sector experience reduced worker productivity during heatwaves, especially agriculture and construction.
- Globally, 2% of total working hours is projected to be lost every year, either because it is too hot to work or because workers have to work at a slower pace.
- Lost productivity from heat stress at work, particularly in developing countries, is expected to be valued at \$4.2 trillion dollars per year by 2030, driving more inequality.
- The agricultural sector, where 940 million people earn their livelihood, is set to be harder hit by hotter temperatures, pushing workers, crops and livestock past their physiological heat and drought tolerances.
- This will result in lost labour, in smaller harvests for farmers, higher prices for consumers, and negative impacts on livelihoods.
- A World Bank report suggests that by 2050, about 600 million Indians will live in places that could experience loss of living standards, which could cost 2.8% of the GDP, stalling efforts to pull large parts of the population out of poverty.
- Increasing energy demand for cooling also comes as an extensive economic cost to residents, businesses, and governments.
- With these extreme heat events, the need for access to cooling should be viewed as a basic necessity – not just for health and productivity reasons but, in some cases, even for survival.

### Ecological impacts

- Heatwaves, without concomitant increases in precipitation, can lead to water shortages and increased stress for plants, particularly in arid regions.
- This has the effect of reducing plant growth, the basis of energy production and the food chain, with an overall drying-out of the landscape.

- For example, the 2003 European heatwave resulted in a 10% loss in glacier mass in Europe, which was five-times more than the average annual loss.
- Similar impacts were reported for the French Alps in 2019.
- Over time, such deep permafrost warming and thawing could cause landslides and rock falls, continuing the negative ecological impacts.

### How long can a heatwave spell last?

- A heatwave spell generally lasts for a minimum of four days.
- On some occasions, it can extend up to seven or ten days.
- The longest recorded heatwave spell, in recent years, was between 18 – 31 May 2015.
- This spell had severely affected parts of West Bengal along with Odisha, Andhra Pradesh, and Telangana.
- A similar spell in 2014 was reported during June 2 – June 11.

### Does all of India experience heat wave conditions?

- No. Heatwaves are common over the Core Heatwave Zone (CHZ) – Rajasthan, Punjab, Haryana, Chandigarh, Delhi, West Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Orissa, Vidarbha in Maharashtra, parts of Gangetic West Bengal, Coastal Andhra Pradesh and Telangana, as categorised by India Meteorological Department.
- Several recent studies indicate that CHZ experience more than six heatwave days per year during these four months.
- Many places in the northwest and cities along southeastern coast report eight heatwave days per season.
- However, the regions in the extreme north, northeast and southwestern India are lesser prone to heatwaves.

#### MoES Report

The “Assessment of Climate Change over the Indian Region” Report prepared by the Union Ministry of Earth Sciences has cautioned that by the end of 2100, the “frequency of summer [April–June] heat waves over India is projected to be three to four times higher” and the “average duration of heatwave events is also projected to approximately double.”

The impact of heatwave stress is expected across India but particularly over the densely populated Indo-Gangetic river basin.

#### IPCC Report

According to The Intergovernmental Panel on Climate Change (IPCC Special Report on Oceans and Cryosphere in a Changing Climate) India will witness marine heat waves, extreme El Niños, and extremely severe cyclones in response to increasing carbon emissions due to continued burning of fossil fuels

### Heatwave levels

- Heatwave warning levels and the vigilance required are assigned colours – Yellow (level 2), Orange (level 3) and Red (level 4).
- These heatwave warning levels are forecast based on weather forecasts, complemented to a frequency analysis of 30 years of data on mortality rate with weather indicators.
- The information provided by health services are also a part of the forecasts.



### Evaluating Heat Action Plans

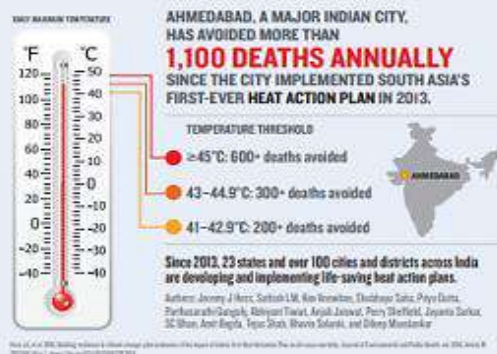
As recent study found that Ahmedabad, one of India's largest cities, avoided an estimated 1,190 deaths a year after implementing the country's first heat action plan (or "HAP") in 2013. This plan included a heat wave early warning system, public outreach to explain heat-health risks, and trainings aimed at health professionals who diagnose and treat heat-related illnesses.

The study, "Building resilience to climate change: pilot evaluation of the impact of India's first heat action plan on all-cause mortality" jointly authored by public health and municipal authorities in India, academic environmental health researchers in the United States, and NRDC, was published in the peer-reviewed scientific journal of Environmental and Public Health (JEPH).<sup>7</sup>

By comparing citywide summertime death rates before and after the HAP was launched, researchers found that:

- The HAP was associated with a reduced death rate on hot days. Ahmedabad, a major Indian city, avoided more than 1100 deaths each year after it implemented the region's first-ever Heat Action Plan in 2013.
- The biggest decrease in death rates was on the hottest days. Mortality rates on the hottest days (at or above 45°C (113°F) daily maximum temperature) dropped by 27% after the HAP was implemented, relative to pre-HAP years.
- While very hot days were still dangerous, the risks were much lower post-HAP. Before the HAP, death rates more than doubled on days when the maximum temperature reached 47°C (116°F), compared to rates at 40°C (104°F). After the HAP was implemented, death rates were only 25% higher on days when maximum temperatures reached 47°C (116°F) compared to death rates at 40°C (104°F).

Extreme heat warnings, a key part of Ahmedabad's HAP, were associated with decreased summertime all-cause mortality rates, with the largest declines at the highest temperatures.



<https://epaper.thehindu.com/Home/ShareArticle?OrgId=GGO9Q4KKH.1&imageview=0>

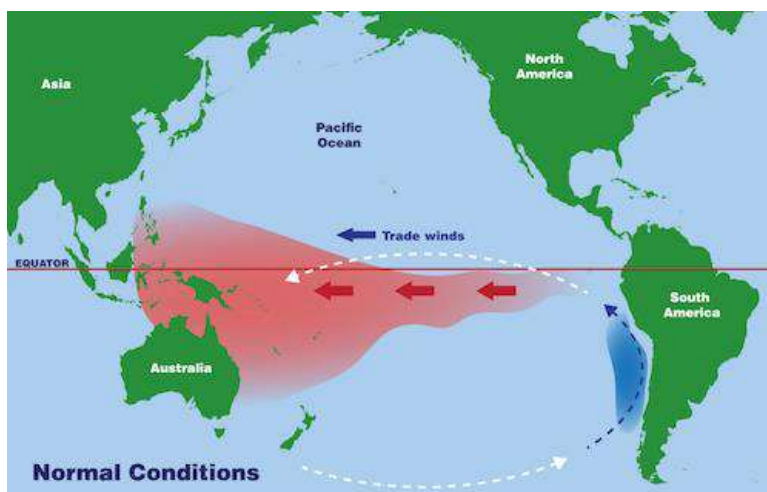
## LA NIÑA, EL NIÑO AND THEIR IMPACT

### Context

- This year, La Nina caused worsening and perhaps the longest spell of heat-waves from March to April in north, west and Central India.

### Background

- During normal conditions in the Pacific Ocean, trade winds blow west along the equator, taking warm water from South America towards Asia. To replace that warm water, cold water rises from the depths — a process called upwelling. El Niño and La Niña are two opposing climate patterns that break these normal conditions. This phenomenon is called El Niño-Southern Oscillation (ENSO) cycle.
- El Niño and La Niña can both have global impacts on weather, wildfires, ecosystems, and economies. The monsoon climate of the Indian subcontinent also gets affected.



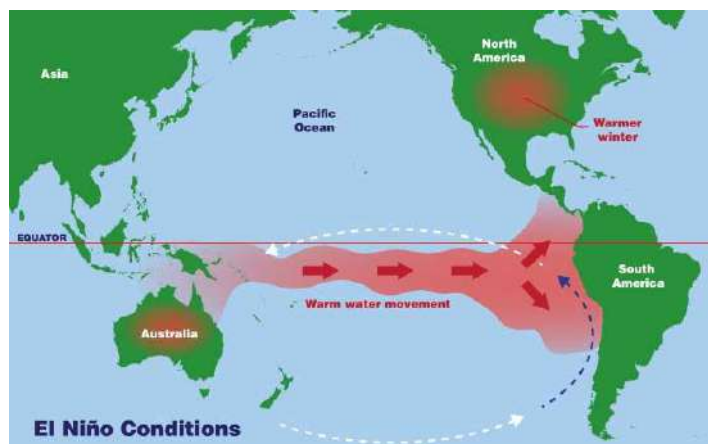
### Decoding El Niño

- El Niño is a climate pattern that describes the unusual warming of surface waters in the eastern tropical Pacific Ocean.
- During El Niño, trade winds weaken. Warm water is pushed back east, toward the west coast of the Americas. Off the coast of South America, the thermocline sinks. The cold deep water no longer upwells into the surface layer of the ocean.

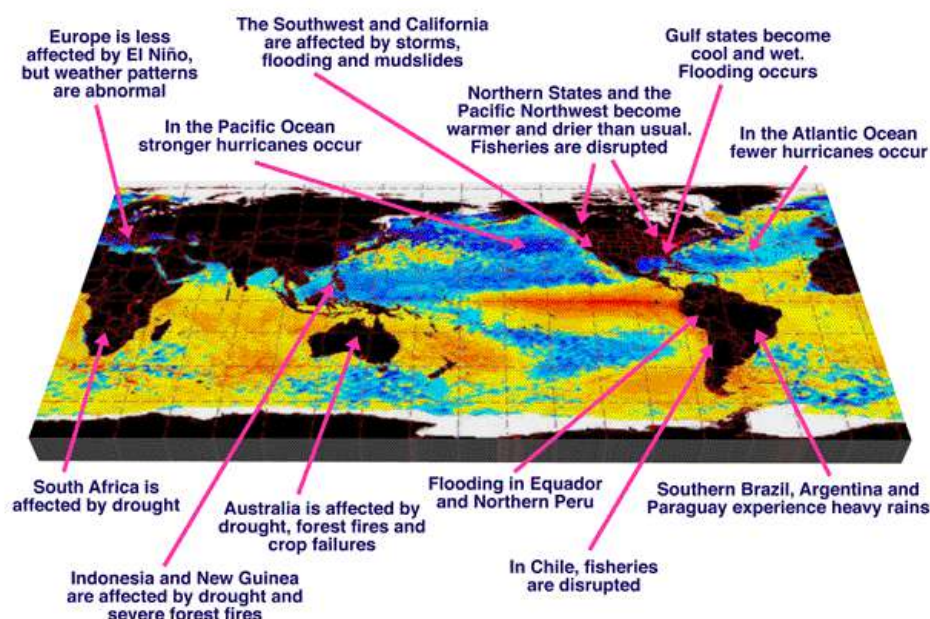
- The source of nutrients is cut off, which has a **subsequent effect on fishing stocks off South America.**
- Nearby, over the eastern tropical Pacific, warm surface water evaporates. This results in more rainfall than usual there.
- Conversely, on the other side of the Pacific, **Indonesia and neighboring countries are drier than usual during an El Niño.**

### Impact of LA Nina on India

- El Nino during winter causes warm conditions over the Indian subcontinent and during summer, it leads to **dry conditions and deficient monsoon.** India experienced deficient rainfall during El Nino years 2002 and 2009.
- Crops like Paddy, Maize, Groundnut, Guar, Castor, Tur, Moong and Bajra suffer due to El Nino.



### The Global Impact of El Niño

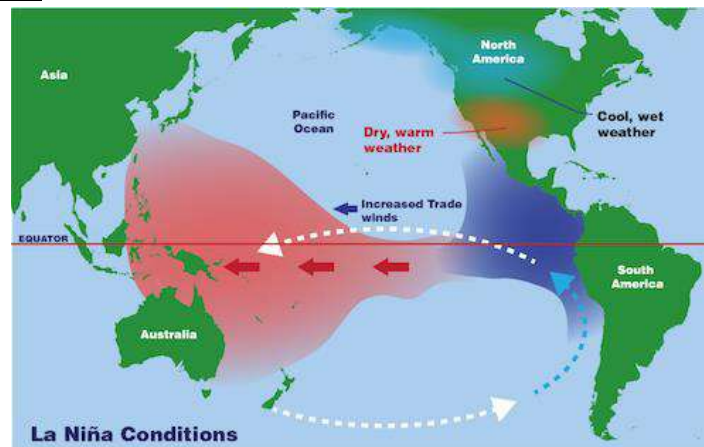


### Decoding La Niña

- La Niña **has the opposite effect of El Niño.** During La Niña events, **trade winds are even stronger than usual**, pushing more warm water toward Asia.
- Also known as 'El Viejo' or cold event, El Niña is observed when the **water temperature in the Eastern Pacific gets comparatively colder than normal, as a consequence of which, there is a strong high pressure over the eastern equatorial Pacific.** The difference in pressure between Eastern Pacific and Western Pacific/Asia causes a moisture-laden wind movement from East to West Pacific and Asia.
- These cold waters in the Pacific push the jet stream northward. This tends to lead to **drought in the southern U.S. and heavy rains and flooding in the Pacific Northwest and Canada.**
- Off the west coast of the Americas, upwelling increases, bringing cold, nutrient-rich water to the surface. Since, La Niña blows all of this warm water to the western Pacific **places like Indonesia and Australia get much more convectional rain than usual.**



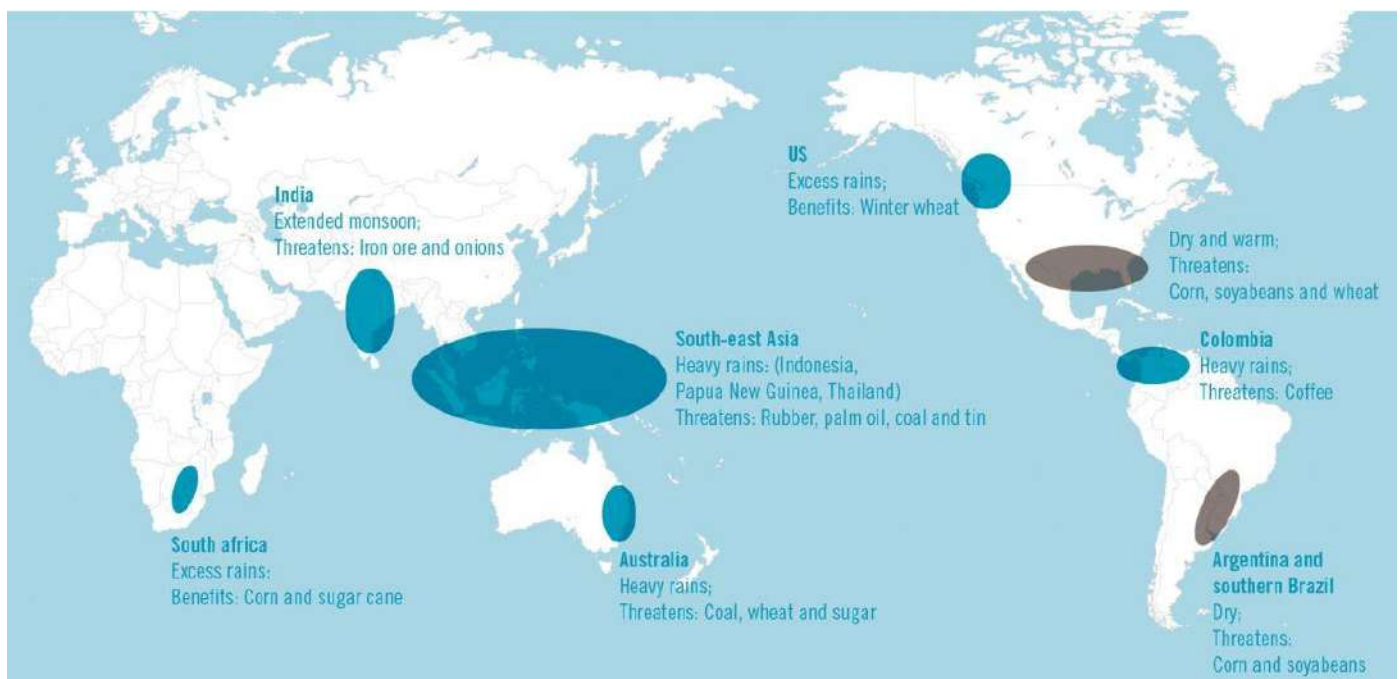
- In a nutshell, La Nina causes drought in the South American countries of Peru and Ecuador, heavy floods in Australia, high temperatures in Western Pacific, Indian Ocean, off the Somalian coast and a comparatively better monsoon rains in India.



Generally, El Nino and La Nina occur every 4 -5 years. El Nino is more frequent than La Nina.

### Impact of LA Nina on India

- La Niña is responsible for bringing cold air from Siberia and South China to the Indian subcontinent, which results in a north-south low-pressure system when it interacts with the tropical heating conditions here. The cold conditions associated with these troughs can envelope the southern parts of India as well and can extend till Tamil Nadu. However, they do not affect Northeast India.
- The north-south pressure pattern that sets up over India influences the trade winds that bring rains to India.
- In the winter months, the La Nina causes a very cold wave-like jet stream to flow across Afghanistan, Iran and the Hindu Kush mountains. These strong and cold winds impact the degree of cold in India.
- La Nina results in better than normal monsoon in India.



### Anomaly witnessed this year

- La Nina **makes the summer monsoon wetter and the winter colder**. This year, however, the La Nina is being blamed for worsening perhaps the longest spell of heatwaves from March to April in north, west and Central India.
- **Reason:** Usually, land temperatures over India begin rising in March, and they are usually punctuated by western disturbances, or moisture from the Mediterranean region that fall as rain over north and western India. For these currents to make it as far as India, they need a significant difference in temperature between Europe and the latitudes over India. Due to La Nina, this temperature difference was absent and so the western disturbances that came to India was weak and there was hardly any rain.

<https://www.thehindu.com/sci-tech/is-la-nina-a-fair-weather-friend-of-our-country/article65391162.ece>

## Increasing trend of cyclones in Arabian Sea

### Context

- An analysis of past data of cyclones by IMD over the North Indian Ocean (Bay of Bengal and Arabian Sea) during the period 1891–2020 indicates that the frequency of extremely severe cyclonic storms has increased in recent few years over the Arabian Sea since 1990, and remained the same over the Bay of Bengal.
- The highest loss of lives occurred during Cyclones Tautkae, 2021, (118 deaths).

### The usual trend: India's east coast is a magnet for cyclones

- Though both are located in the **same latitude band and receive the same amount of solar radiation** from the Sun, the Bay of Bengal is much warmer than the Arabian Sea and many more storms brew over the bay.

### Reasons:

#### 1. **Oceanic circulation and heat removal:**

- The winds over the Arabian Sea are stronger because of the presence of the **mountains of East Africa**. These strong winds force a much more vigorous oceanic circulation and the heat received at the surface is transported into the deeper ocean.
- The winds over the Bay of Bengal, in contrast, are more sluggish and the bay is unable to remove the heat received at the surface. Hot water temperature is the basic criteria for the development and intensification of cyclones. The average temperature in the Bay of Bengal around the year is high - about 28 degrees.

#### 2. **Sea surface temperature:**

- The bay receives more rainfall; it also receives more freshwater from the large rivers, especially the Ganga and the Brahmaputra, that empty into it.
- This freshens the surface of the BOB and stabilizes the water column, making it more difficult for the winds to mix the warm, stable surface layer with the cooler waters below.
- In the Arabian Sea, there is no such stabilizing effect. As a consequence, the mixing with the cooler waters below is more vigorous. Since a sea surface temperature of about 28°C is necessary for convection to take place in the atmosphere, this condition is satisfied in the Bay of Bengal but not in much of the Arabian Sea.

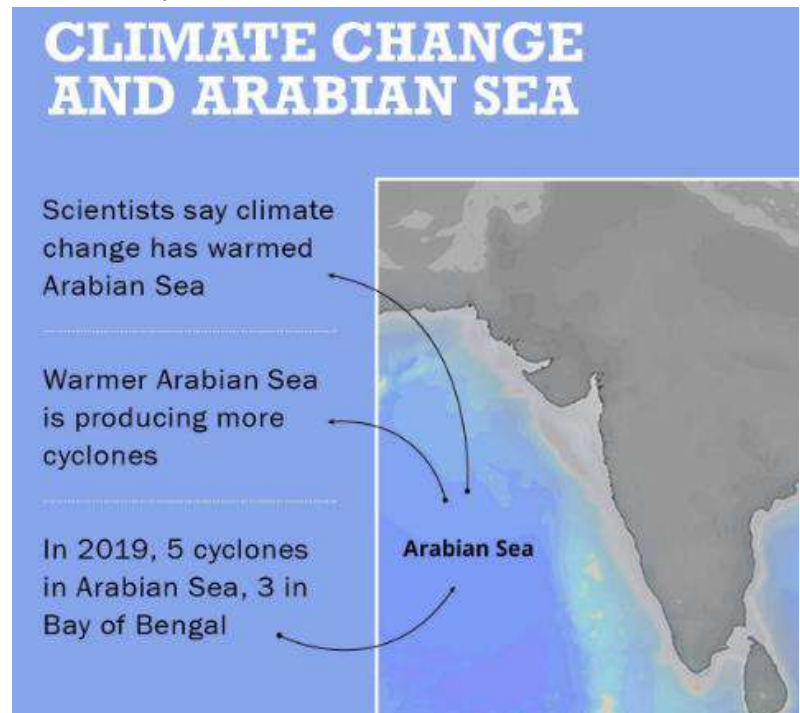
- 3. **Pacific Ocean:** Pacific Ocean is a hot bed for cyclonic activities and hence typhoons originating in the Pacific ocean influences the cyclones in Bay of Bengal. This is not the case in Arabian Sea.

- 4. **Salinity:** The Arabian Sea is saltier than the Bay of Bengal. As a result, it easily gets heated up and evaporates faster. And the rate of evaporation is way higher than the rate of precipitation due to lack of supply of fresh water in Arabian Sea.

- 5. **Movement:** According to IMD cyclones originating in Arabian Sea move northwest. So they actually move away from Indian mainland.

### Why has Arabian Sea turned into a cyclone hotspot in the recent past?

- According to the India Meteorological Department, the frequency and intensity of cyclonic activity in the Arabian Sea was the highest it had been in over a century, in 2019.
- According to the Intergovernmental Panel on Climate Change (IPCC), a United Nations body, the sea surface temperature of the Arabian Sea is rising.
- Rising sea surface temperatures (SST) in the Arabian Sea are contributing to the formation of an increased number of cyclones.
- Scientists attribute the increased frequency of cyclones in the Arabian Sea to climate change.
- Climate scientist Hiroyuki Murakami in his study found that 64 per cent of cyclones in the Arabian Sea in recent years were caused by climate change.
- SST in the Arabian Sea rose by a staggering 0.36 degrees Celsius, compared with the baselines temperatures between 1981 and 2010.
- The increase in temperature is in the zone of 1.2-1.4 degree Celsius.
- Heat works as food for cyclones. The temperature in the Bay of Bengal usually remains above 28 degrees Celsius.
- The Arabian Sea, in contrast, used to have a temperature 1-2 degree Celsius lower than that in the Bay of Bengal.
- Now, the rise in temperature in the Arabian Sea has pushed it in the 30 to 31-degree Celsius zone off the India's west coast.



### What are Tropical Cyclones?

- Cyclones that develop in the regions **between the Tropic of Capricorn and Tropic of Cancer** are called tropical cyclones.
- Tropical cyclones are intense circular storms that **originate over warm tropical oceans**.
- They rotate in anti-clockwise direction in the Northern Hemisphere and in a clockwise direction in the Southern Hemisphere.
- They are characterized by **low atmospheric pressure, high winds, and heavy rain**.
- Drawing **energy from the sea surface** a tropical cyclones maintains its strength as long as it remains over warm water.

**Note:** Extra tropical cyclones occur in temperate zones and high latitude regions, though they are known to originate in the Polar Regions.

## Atlantic meridional overturning circulation (amoc)

### In News

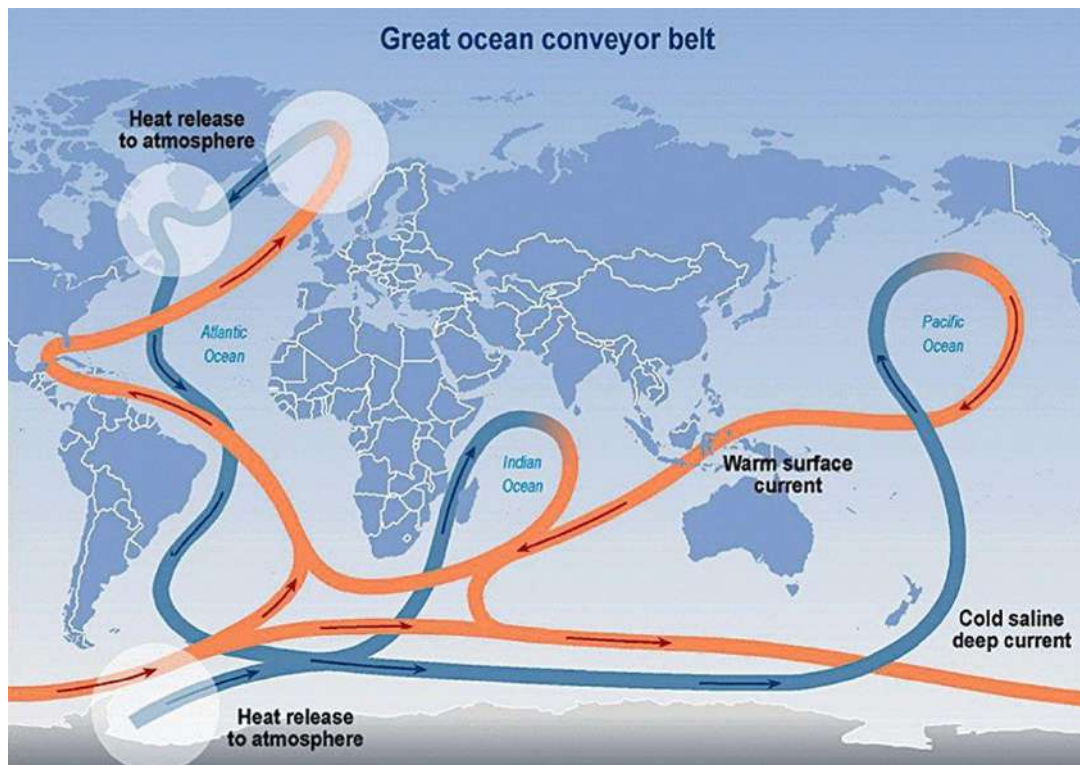
- A study published in Nature Climate Change notes that the Atlantic Meridional Overturning Circulation (AMOC), is losing its stability. According to the IPCC's Report (AR6) released on August 9, it is very likely that AMOC will decline over the 21st century. AMOC is at its weakest in over a millennium. The team studied the evolution of AMOC over the past 1600 years.

### What is AMOC?

- The AMOC is a large system of ocean currents.
- It is the Atlantic branch of the ocean conveyor belt or Thermohaline circulation (THC), and distributes heat and nutrients throughout the world's ocean basins.



- AMOC carries warm surface waters from the tropics towards the Northern Hemisphere, where it cools and sinks.
- It then returns to the tropics and then to the South Atlantic as a bottom current.
- From there it is distributed to all ocean basins via the Antarctic circumpolar current.



### Why is the AMOC slowing down?

- Global warming can cause a weakening of the major ocean systems of the world.
- Last month researchers noted that a part of the Arctic's ice called "Last Ice Area" has also melted.
- The freshwater from the melting ice reduces the salinity and density of the water.
- Now, the water is unable to sink as it used to and weakens the AMOC flow.
- A 2019 study suggested that the Indian Ocean may also be helping the slowing down of AMOC.
- As the Indian Ocean warms faster and faster, it generates additional precipitation.
- With so much precipitation in the Indian Ocean, there will be less precipitation in the Atlantic Ocean, leading to higher salinity in the waters of the tropical portion of the Atlantic.
- This saltier water in the Atlantic, as it comes north via AMOC, will get cold much quicker than usual and sink faster.
- This would act as a jump start for AMOC, intensifying the circulation.
- If we continue to drive global warming, the Gulf Stream System will weaken further – by 34 to 45 percent by 2100 according to the latest generation of climate models.

### What happens if AMOC collapses?

- Gulf Stream, a part of the AMOC, is a warm current responsible for mild climate at the Eastern coast of North America as well as Europe. Without a proper AMOC and Gulf Stream, Europe will be very cold.
- Modelling studies have shown that an AMOC shutdown would cool the northern hemisphere and decrease rainfall over Europe. It can also have an effect on the El Nino.
- AMOC collapse brings about large, markedly different climate responses:
  - a prominent cooling over the northern North Atlantic and neighbouring areas,
  - sea ice increases over the Greenland-Iceland-Norwegian seas and to the south of Greenland, and
  - a significant southward rain-belt migration over the tropical Atlantic.
- Freshwater from melting Greenland ice sheets and the Arctic region can make circulation weaker as it is not as dense as saltwater and doesn't sink to the bottom.

<https://indianexpress.com/article/explained/explained-atlantic-ocean-current-system-slowing-implications-7445388/>

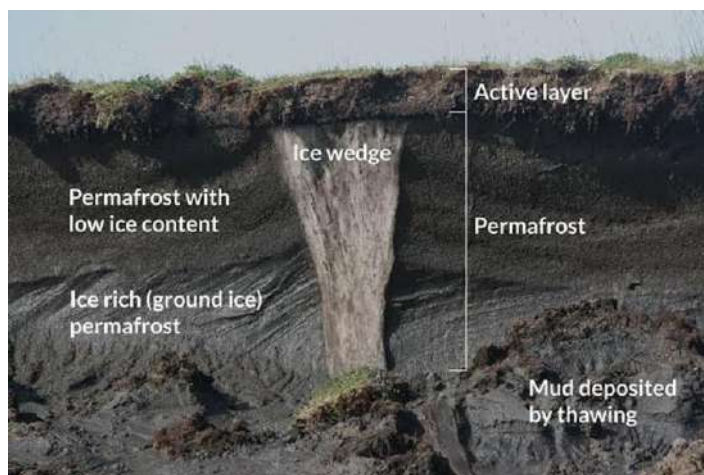
## Thawing of permafrost

### Context

- The latest IPCC report has warned that increasing global warming will result in reductions in Arctic permafrost and the thawing of the ground is expected to release greenhouse gases like methane and carbon dioxide.

### What is Permafrost?

- Permafrost is any ground that remains completely frozen—32°F (0°C) or colder—for at least two years straight.
- These permanently frozen grounds are most common in regions with high mountains and in Earth's higher latitudes—near the North and South Poles.
- Permafrost covers large regions of the Earth. Almost a quarter of the land area in the Northern Hemisphere has permafrost underneath.
- Although the ground is frozen, permafrost regions are not always covered in snow.
- Permafrost is made of a combination of soil, rocks and sand that are held together by ice. The soil and ice in permafrost stay frozen all year long.
- Near the surface, permafrost soils also contain large quantities of organic carbon—a material leftover from dead plants that couldn't decompose, or rot away, due to the cold. Lower permafrost layers contain soils made mostly of minerals.
- A layer of soil on top of permafrost does not stay frozen all year. This layer, called the active layer, thaws during the warm summer months and freezes again in the fall.
- In colder regions, the ground rarely thaws—even in the summer.
- There, the active layer is very thin—only 4 to 6 inches (10 to 15 centimeters).
- In warmer permafrost regions, the active layer can be several meters thick.



### Thawing of Permafrost

- When surface air temperatures rise, below-ground temperatures do, too, thawing permafrost along the way.
- While global warming is increasing temperatures around the world, the Arctic is warming twice as fast as anywhere else—and faster than it has in the past 3 million years.
- Scientists estimate there is now 10 percent less frozen ground in the northern hemisphere than there was in the early 1900s.
- One recent study suggests that with every additional 1.8°F (1°C) of warming, an additional 1.5 million square miles of permafrost could eventually disappear.
- Even if we meet the climate targets laid out during the 2015 Paris climate talks, the world may still lose more than 2.5 million square miles of frozen turf.

### Impacts of Permafrost Thawing

#### The loss of greenhouse gas stores

- When plants and animals die, the microbes that decompose their bodies release carbon dioxide, methane, and other global warming gases into the air.
- A deep freeze effectively hits the pause button on that process and preserves organisms and the gases they would otherwise emit underground.
- When frozen soil thaws, the microbial decomposition of those organic materials—and the release of greenhouse gases—starts anew.

### Crumbling infrastructure

- About 35 million people live in a permafrost zone, in towns and cities built on top of what was once considered permanently frozen ground.
- But as that solid ground softens, the infrastructure these communities rely on grows increasingly unstable.
- In the northwest of Canada, now we have a short section of the road where it has been necessary to chill the ground to make the foundation of the road colder than it is, in order to preserve the permafrost.

### Altered landscapes

- Thawing permafrost alters natural ecosystems in many ways.
- It can create **thermokarsts**, often characterized by “drunken forests”.
- It can make soil – once frozen solid – more vulnerable to landslides and erosion, particularly along coasts.
- It can alter the flow of rivers and streams, degrade water quality and impact aquatic wildlife.
- Wetlands also deteriorate along with permafrost, as the water sinks further underground without a frozen buffer to keep it in place.
- This can create drier terrain more susceptible to wildfires, which expose even more permafrost to warming.
- The loss of permafrost will contribute to sea level rise.

### Risk of diseases

- Just as permafrost locks in carbon and other greenhouse gases, it can also trap – and preserve – ancient microbes. Some bacteria and viruses lie dormant for thousands of years in permafrost’s cold, dark confines before waking up when the ground warms.
- A 2016 anthrax outbreak in Siberia, linked to a decades-old reindeer carcass infected with the bacteria and exposed by thawed permafrost, demonstrated the potential threat.

### Steps to stop permafrost from Thawing

- Reducing carbon footprint
- Investing in energy-efficient products
- To follow a 1.5°C-consistent pathway, the world will need to decrease fossil fuel production by roughly 6 per cent per year between 2020 and 2030.
- Global CO2 emissions need to be reduced by 45% over the next decade, and that they fall to zero after 2050.
- By supporting climate-friendly businesses, legislation, and policies, we can help preserve the world’s permafrost and avert a vicious cycle of an ever-warming planet.

<https://indianexpress.com/article/explained/permafrost-pandemic-arctic-global-warming-7506557/>

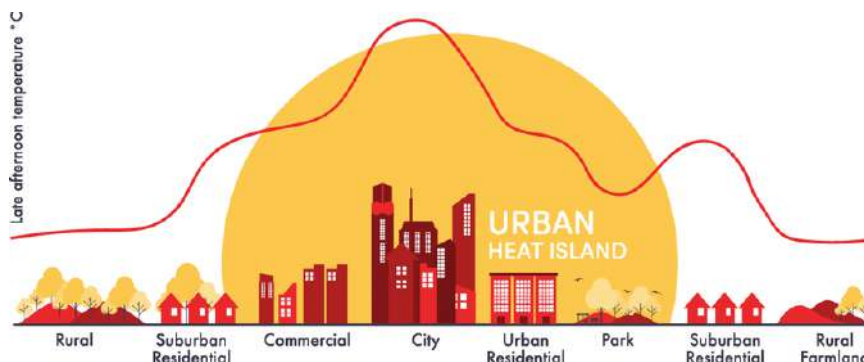
## Urban heat island

### Context

- Several parts of the country are reeling under heat wave conditions. Cities, are a lot hotter than rural areas. This is due to a phenomenon called an **“urban heat island”**.

### What is an urban heat island?

- An urban heat island is a local and temporary phenomenon experienced when certain pockets within a city experience higher heat load than surrounding or neighboring areas on the same day.
- Temperature difference between urban & less-developed areas has to do with how well the surfaces in each environment absorb & hold heat.



- The variations are mainly due to heat remaining trapped within locations that often resemble concrete jungles. For example, a greener locality like Pashan in Pune often records cooler temperatures than urban areas like Shivajinagar, Chinchwad or Magarpatta. The temperature variation can range between 3 to 5 degrees Celsius.

### The role of Green Cover

- Rural areas have relatively larger green cover in the form of plantations, farmlands, forests and trees as compared to urban spaces. This green cover plays a major role in regulating heat in its surroundings.
- Transpiration is a natural way of heat regulation. This is the scientific process of roots absorbing water from the soil, storing it in the leaves and stems of plants, before processing it and releasing it in the form of water vapour.
- On the contrary, urban areas lack sufficient green cover or gardens and are often developed with high-rise buildings, roads, parking spaces, pavements and transit routes for public transport. As a result, heat regulation is either completely absent or man-made.
- Black or any dark colored object absorbs all wavelengths of light and converts them to heat, while white reflects it.
- Cities have buildings constructed with glass, bricks, cement & concrete – dark-colored materials. Thus, they attract and absorb higher heat content. Thus forms temporary islands within cities where the heat remains trapped. These are urban heat islands that record higher day temperatures than other localities.

### What has NASA said on urban heat islands in India?

- NASA recently pointed out heat islands in urban parts of Delhi, where temperatures were far higher than nearby agricultural lands.
- NASA's Ecosystem Spaceborne Thermal Radiometer Experiment (Ecostress) captured an covering an area of about 12,350 square kilometres, which showed a large red patch around Delhi and smaller red patches around neighboring cities of Sonipat, Panipat, Jind and Bhiwani. These red patches the heat islands, while the rural areas around the cities witnessing lower temperatures.

#### Eco Stress

Ecostress is an instrument with a radiometer which was sent onto the International Space Station in 2018. It can measure temperatures on the ground, as opposed to the air temperature. Ground temperatures are likely to be higher during the day than air temperatures and almost the same during the night. Primarily, Ecostress is tasked with measuring the temperature of plants and understanding their water requirements and the impact of the climate on them.

### How can urban heat islands be reduced?

- The main way to cut heat load within urban areas is increasing the green cover; filling open spaces with trees and plants.
- Other ways of heat mitigation include appropriate choice of construction materials, promoting terrace and kitchen gardens, and painting white or light colours on terraces wherever possible to reflect heat.

<https://indianexpress.com/article/explained/everyday-explainers/india-heatwave-urban-heat-islands-explained-7921454/>

## Controlling wildfires

### Context

- Wildfires are predicted to worsen in the coming years and decades, the United Nations Environment Programme (UNEP) has warned in its annual Frontiers report.



## Wildfire

- A wildfire is an **unplanned fire that burns in a natural area such as a forest or grassland.**
- Wildfires are often caused by human activity or a natural phenomenon such as lightning, and they can happen at any time or anywhere.

## Findings of the UNEP Report

### More dangerous now

- Wildfires are a natural phenomenon, but are becoming **more dangerous and affecting larger areas due to climate change and human activities.**
- **Change in land-use and land management practices** are also responsible for the increasing risks of wildfires.

### Rising GHGs- a catalyst

- The trends towards more dangerous fire-weather conditions are likely to increase due to rising concentrations of atmospheric greenhouse gases and the attendant escalation of wildfire risk factors.

### Wild land-urban interface

- There has been a rapid expansion of cities towards forest areas in many regions in recent decades. This wild land-urban interface is the area where wildfire risks are most pronounced.

### Deforestation and Forest Fragmentation

- Wildfires seldom spread to humid tropical forests in the past.
- But these forests are now more vulnerable due to deforestation and forest fragmentation.

### Extreme weather events

- Extreme weather events such as hotter temperatures and more droughts are leading to longer fire seasons.

### Impact on Savannah Ecosystem

- Savannah or the mixed woodland-grassland ecosystem accounted for 77 per cent of the total 13 million individual fires (lasting for 4-5 days) which occurred globally between 2003 and 2016.
- This has affected over one-fourth of species in the Savannah ecosystem.

### Total area burnt

- Between 2002 and 2016, an average of about 423 million hectares or 4.23 million square km of the earth's land surface was burnt every year. This is equivalent to an area around size of the entire European Union.

### Impact on Africa

- 67 per cent of the annual global area burned by all types of fires, including wildfires, was on the African continent. In 2021 too, Africa was the most affected region due to wildfires.

### Situation in the coming years

- UNEP has projected that the **number of wildfires is likely to increase by up to 14 per cent by 2030.**
- It is projected to **spike by 33 per cent by 2050.** It would rise by 52 per cent by 2100.

### Failing targets and SDGs

- An increase in damaging wildfires may reverse or **delay progress towards achieving the United Nations Sustainable Development Goals (SDGs), Paris Agreement and Sendai targets.**

## Future Trend and Impact

### Lightning Wildfire Feedback Loop

- With rising forest fires, the world is very likely to see more frequent incidences of lightning.
- Lightning strikes are projected to increase in frequency in some parts of the world as the climate changes.
- Thus, Climate change can prompt extreme wildfires, generating lightning that can ignite other fires, far beyond the fire front and creating a **so-called hazardous feedback loop.**
- Lightning ignition is the predominant driver of massive wildfires in the boreal forests of North America and northern Siberia.



### **Thunderstorms and Wildfires**

- Fire-induced thunderstorms are a new danger posed by rising wildfires.
- In recent decades, such thunderstorms have been reported very frequently in Australia, Europe and North America.
- These thunderstorms contribute to more dangerous conditions for fires on the ground.
- Lightning from these storms will also lead to additional blazes in far-away locations.

### **Wildfire and Pollution**

- Wildfires are also responsible for air pollution. There is a link between impact of wildfire-related pollution and human deaths.

### **Environment**

- Black carbon and other pollutants generated from wildfires can contaminate water sources, speed up glacier melt, trigger landslides and turn rainforests into carbon sinks.

### **Exacerbates impact**

- Long-term effects on human health extend beyond those fighting wildfires, or the evacuated, or those who have lost homes, and exacerbate impacts among those with pre-existing illness, women, children, the elderly, and the poor.

### **Recommendations made by the UNEP Report**

- Appreciating and **adopting indigenous fire management techniques**.
- Focus on **long-range weather forecasting**.
- **Focus on remote-sensing capabilities** such as satellites, ground-based radar, lightning detection as well as data handling.
- Wildfire prevention, response and management calls for **improved planning and policies** coupled with practices.
- It is important to **enhance fire-fighting capabilities and strengthen community resilience**-building programmes.
- A **preventive approach, rather than reactive approach** by engaging vulnerable groups, will help adapt to the wildfires.
- **Greater investment** in reducing wildfire risks.
- **Integrated wildfire management** is the key to adapting to current and future changes in global wildfire risk.
- There is a **need to invest more in fire risk reduction, work with local communities and strengthen global commitment** to fight climate change.
- Achieving and sustaining adaptive land and fire management requires a combination of **policies, a legal framework and incentives** that encourage appropriate land and fire use.
- UNEP has called for **strengthening international and regional cooperation on wildfires**.
- **Development of an international standard for wildfire management** has also been recommended. This will facilitate international cooperation and help all wildfire-prone countries build capacity for both domestic application and international assistance.
- UNEP's Fire Ready Formula can help in achieving these goals.

### **UNEP's Fire Ready Formula**

- The United Nations Environment Programme (UNEP) called on global governments to adopt a new 'Fire Ready Formula,' as it warned that incidences of wildfires would rise in the future.

New "Fire Ready Formula" focuses on planning and prevention		
Serial No	Budget item	Percentage share of the total on wildfire management recommended
1	Planning	1 %
2	Prevention	32 %
3	Preparedness	13 %
4	Response	34 %
5	Recovery	20 %

Source: UNEP report

### Details

- The new formula envisages that 66 per cent of spending be devoted to planning, prevention, preparedness and recovery.
- The remaining 34 per cent can be spent on response.

### Trivia

#### According to Forest Survey Report 2021

- 35.46% of the forest cover in India is prone to forest fires.
- Out of this, 2.81 % is extremely prone, 7.85% is very highly prone and 11.51 % is highly prone.
- The highest numbers of fires were detected in Odisha, Madhya Pradesh and Chhattisgarh.

<https://www.downtoearth.org.in/news/natural-disasters/unep-s-fire-ready-formula-invest-more-in-preventing-wildfires-81669>

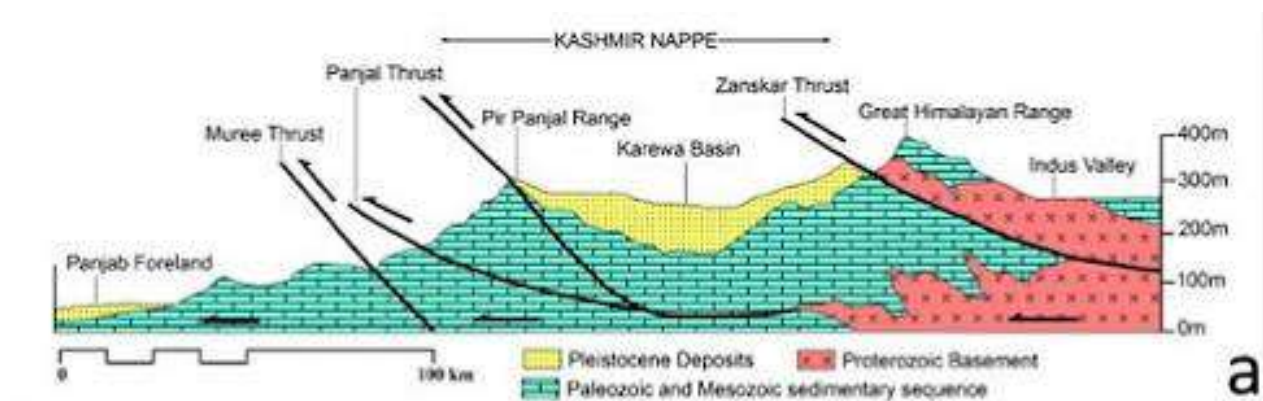
## Karewas and their significance

### Context

- Kashmir's highly fertile alluvial soil deposits called 'karewas' are being excavated to be used in construction for development of Kashmir.

### About Karewa

- The word Karewa in Kashmiri dialect means, "elevated table-land."
- Karewas are **lacustrine deposits (deposits in lake) in the Valley of Kashmir and in Bhadarwah Valley of the Jammu Division.** These are the flat topped mounds that border the Kashmir Valley on all sides.



## Formation

- Karewas were formed during the **Pleistocene Period (1 million years ago)**, when the entire Valley of Kashmir was under water.
- Due to the rise of Pirpanjal, the drainage was impounded and a lake of about 5000 sq. km area was developed and thus a basin was formed.
- Subsequently, the lake was drained through Bramulla gorge. The deposits left in the process are known as karewas. The **thickness of karewas is about 1400 m**.

## Importance of Karewas

### Agricultural importance

- Most of the cultivated fields** in the Kashmir Valley are situated on the Karewa sediments.
- These plateaus are 13,000-18,000 metre-thick **deposits of alluvial soil and sediments like sandstone and mudstone**. This makes them **ideal for cultivation of saffron, almonds, apples and several other cash crops**.
- Kashmir saffron**, which received a Geographical Indication (GI) tag in 2020 for its longer and thicker stigmas, deep-red colour, high aroma and bitter flavour, is grown on these karewas.
- Note:** Kashmir saffron is the **only saffron in the world grown at an altitude of 1,600 m to 1,800 m AMSL** (above mean sea level), which adds to its uniqueness and differentiates it from other saffron varieties available the world over.

### Archaeological importance

- Karewa sediments **hold fossils and remnants of many human civilisations and habitations**.
- They are characterized with **fossils of mammals and at places by peat**.

### Source of livelihood

- Most of the karewas are owned by individuals who use them for **farming and grazing**, some belong to the government.

## Historical destruction of Karewas

- Between 1995 and 2005, massive portions of karewas in Pulwama, Budgam and Baramulla districts were razed to the ground for Qazigund-Baramulla rail line. The Srinagar airport is built on the Damodar karewa in Budgam.

## Impact

### Flood

- The destruction of the karewas has led to the enormous accumulation of silt in the Jhelum river, which makes it prone to flooding.

### Permanent loss

- Once destroyed, the karewas can never be restored because of its **topography and physiology**. As this area is predominated by mountain ranges that are made up of **hard rocks**.

### Saffron Cultivation

- The saffron cultivation done on thousands of hectares of the Karewa land especially in Pampore, Samboora, Parigam, Wanpora, Kaisermulla, Sarai Khampora, Kuzweira, Kultreh and a number of other villages in Pulwama and Budgam has come down drastically already.
- Further excavation could be lethal to one of the best qualities of saffron in the world.

### Loss of Biodiversity

- The karewas are home to unique biodiversity. The famous **almond orchids are best grown in the soils of karewas**.
- Their destruction results in the loss of such a unique biodiversity of Kashmir.

### Violating laws

Residents allege that the government's decision to allow clay mining is illegal as it violates "The Jammu and Kashmir Land Revenue Act, 1996" and "The Jammu and Kashmir Minor Mineral (Storage, Transportation of Minerals and Prevention of Illegal Mining) Rules, 2016".

## Final Thought

- The Govt. should ensure no soil excavation is done around Karewas for construction.
- The government should immediately desilt the Wular lake and its flood plain channel and the muck should be used for developmental projects.

<https://www.downtoearth.org.in/news/environment/heritage-erased-how-the-kashmir-valley-s-ancient-mound-formations-are-being-levelled-81683>



## Drought in numbers, 2022 report

### Context

- Drought in Numbers, 2022 report has revealed that many parts of India fall under the list of regions that are vulnerable to drought globally.

### Drought

- Drought is a prolonged dry period in the natural climate cycle that can occur anywhere in the world. It is a slow-onset disaster characterized by the lack of precipitation, resulting in a water shortage. Drought can have a serious impact on health, agriculture, economies, energy and the environment.

### The Report

- Drought in Numbers, 2022 report is presented by the United Nations Convention to Combat Desertification (UNCCD).
- The Drought in Numbers report is a collection of data on the effects of droughts on our ecosystem and how they can be mitigated through efficient planning for the future.
- The report also helps inform negotiations surrounding key decisions by the UNCCD's 197 member parties at the 15th Conference of Parties (COP15).
- Drought, land restoration, and related aspects such as land rights, gender equality and youth empowerment are among the top considerations at COP15.

### What is COP15?

UNCCD's COP15 focuses on desertification, land degradation, and drought, with the theme for the conference being "Land. Life. Legacy: From scarcity to prosperity." The conference has brought together government representatives, private sector members, and civil society stakeholders to ensure that land continues to benefit present and future generations.

It proposes to tackle "the interconnected challenges of land degradation, climate change, and biodiversity loss" as we are into the UN Decade on Ecosystem Restoration (2021-2030).

The UNCCD's 197 parties, which include 196 member States as well as the European Union, are expected to brainstorm sustainable ideas to further land restoration and drought resilience, focusing on "future-proofing land use." The UNCCD envisions restoring one billion hectares of degraded land by 2030, creating a land degradation-neutral world.








## Highlights of the Report

- The report has revealed that many parts of India fall under the list of regions that are vulnerable to drought globally.
- It also stated that **India's GDP reduced by 2 to 5% between 1998 and 2017 due to severe droughts** in the country.
- Between 2020 and 2022, 23 countries have faced drought emergencies.** According to the report, climate change alone will cause 129 countries to experience an increase in drought exposure in the next few decades.
- More than a billion people around the world were affected by drought in 2000-19,** making it the second-worst disaster after flooding. Africa was the worst hit, with 134 droughts, of which 70 occurred in East Africa.
- According to the report, **if global warming reaches 3°C by 2100, drought losses could be five times higher than today's levels.** The largest increase in drought losses is projected in the Mediterranean and the Atlantic regions of Europe.
- Australia's megadrought in 2019-2020 contributed to "megafires"** resulting in one of the most extensive losses of habitat for threatened species. About three billion animals were killed or displaced in the Australian wildfires. 84% of all terrestrial ecosystems are threatened by changing and intensifying wildfires.
- The impact of drought is, however, not uniform across genders. Research shows that **women and girls in emerging and developing countries suffer more in terms of education levels, nutrition, health, sanitation, and safety as a result of droughts.**
- The burden of water collection also disproportionately falls on women (72%) and girls (9%). The report notes that **they may spend up to 40% of their caloric intake fetching water.**
- In 2022, over 2.3 billion people are facing water stress. Almost 160 million children are exposed to severe and prolonged droughts.

## Why is India vulnerable to droughts?

A number of factors make India susceptible to droughts such as:

- Yearly, seasonal and regional variations in rainfall in spite of high average annual rainfall.
- A short span of fewer than 100 days during the south-west monsoon.
- Loss of water during heavy rains as surface runoff.
- Less rainfall over 33 percent of the cropped area in the country.
- Over-exploitation of groundwater resources and poor conservation and storage mechanisms for surface water leading to inadequate water availability in times of scanty rainfall.
- Steady decline in per capita water availability for humans and animals even in non-drought years.
- Rapid deforestation, urbanization and climate change that has been leading to erratic rainfall patterns.
- Limited irrigation coverage leading to excessive dependence of agriculture on rainfall.
- Faulty cropping patterns and over emphasis on water guzzling crops.

FIVE TYPES OF DROUGHT	
<b>1 METEOROLOGICAL</b> drought refers to an extended period of dry weather patterns.	
<b>2 HYDROLOGICAL</b> drought refers to low water supply in our rivers, lakes, aquifers, and other reservoirs that often follows meteorological drought.	
<b>3 AGRICULTURAL</b> drought occurs when a water shortage significantly damages or destroys agricultural crops.	
<b>4 ECOLOGICAL</b> drought is the most recently defined type of drought and refers to widespread ecological damage caused by the lack of soil moisture.	
<b>5 SOCIOECONOMIC</b> drought refers to when a water shortage affects the supply and demand of drought commodities, such as water, food grains, and fish.	

## Statistics

- As high as **68 percent of the cropped area in India is vulnerable to droughts** of which 33 percent is classified as '**chronically drought-prone**' comprising desert and semiarid regions that receive less than 750 mm mean annual rainfall.
- Thirty-five percent area receives 750 mm to 1125 mm rainfall and is classified as 'drought-prone' that is confined to the arid, semi-arid and sub-humid regions of peninsular and western India. **Rajasthan, Gujarat,**

Odisha and some north-eastern states like Nagaland are under severe to exceptional drought like conditions.

- 18 meteorological and 16 hydrological droughts occurred in India in the time span of 1870 to 2018.
- Over a fifth of India's land area (21.06 per cent) is facing drought-like conditions, according to recent data released by Drought Early Warning System (DEWS), a real-time drought-monitoring platform.
- The 21.06 per cent area is under different degrees of drought – ranging from abnormally dry to exceptionally dry. While 1.63 per cent area and 1.73 per cent land is under 'extreme dry' and 'exceptional dry' conditions, 2.17 per cent is under 'severe' dry conditions. As much as 8.15 per cent is under 'moderate' dry conditions. Around 7.38 per cent land is 'abnormally' dry.

### Institutional structures to deal with droughts in the country

- The Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW) under the Ministry of Agriculture and Farmers Welfare is the apex body that formulates policies and institutional structures for drought management at the national and state levels.
- The department has a Drought Management Cell (DMC) that gathers information from various sources, monitors drought conditions, issues advisories, coordinates with central government and state government ministries and other concerned agencies to mitigate the effects of drought.

### Mitigating Droughts

- Drought and poverty are interconnected with millions of very poor people living in drought-prone areas. Considering the spread and impact of the problem, drought mitigation requires careful attention at policy level and effective action on ground.
- Examples of important mitigations measures include: Water harvesting, protecting water sources against contamination, developing water sources – such as micro dams, ponds and wells, use of reserve sources of groundwater and water rationing/allocation. Restoring pastures and balancing land and water resources.

<b>Drought mitigation measures</b>	<b>Institutional measures</b>			
	<ul style="list-style-type: none"><li>• Drought risk management plan</li><li>• Internal coordination and external collaboration</li><li>• Public communication</li></ul>			
	<b>Water supply side measures</b>			
	<ul style="list-style-type: none"><li>• Maximize existing water supply</li><li>• Temporary permit increase</li><li>• Partnership with neighboring water utilities</li></ul>			
	<b>Institutional measures</b>			
	<ul style="list-style-type: none"><li>• Public education outreach for water saving</li><li>• Water conservation by behavior changes or water efficient equipment</li><li>• Water restriction on nonessential water use</li></ul>			
	<b>Water supply increase</b>			
	Existing supplies	New supplies	Complex supplies	
	<ul style="list-style-type: none"><li>– Surface storage</li><li>– Subsurface storage</li><li>– Interbasin transfer</li><li>– Water conservation</li></ul>	<ul style="list-style-type: none"><li>– Emergency use of lakes</li><li>– Saltwater conversion</li><li>– Fossil waters</li><li>– Weather modification</li></ul>	<ul style="list-style-type: none"><li>– Conveyance grids</li><li>– Conjunctive water use</li><li>– Snow and ice management</li></ul>	
	<b>Water demand reduction</b>			
Active strategies	Reactive strategies			
<ul style="list-style-type: none"><li>– Legal restriction and public pressures</li><li>– Economic incentives</li></ul>	<ul style="list-style-type: none"><li>– User recycling systems</li><li>– User production adjustments</li></ul>			
<b>Drought impact minimization</b>				
Forecasting	Risk sharing	Damages reduction		
<ul style="list-style-type: none"><li>– Forecast and warning</li><li>– Follow-up forecast and warning</li></ul>	<ul style="list-style-type: none"><li>– Insurance</li><li>– Individual protection</li><li>– Disaster aid</li></ul>	<ul style="list-style-type: none"><li>– Drought resistant crops</li><li>– Agricultural techniques adjustment</li><li>– Urban vegetation adjustment</li></ul>		

<https://www.thehindu.com/sci-tech/energy-and-environment/explained-the-un-report-that-highlights-indias-vulnerability-to-drought/article65413260.ece>

## Flood plain zoning policy

### Context

- Only a few states had enacted National Floodplains Zoning Policy. Floodplain delineation and demarcation are yet to be undertaken by the States – Ministry of Jal Shakti said in Rajya Sabha.

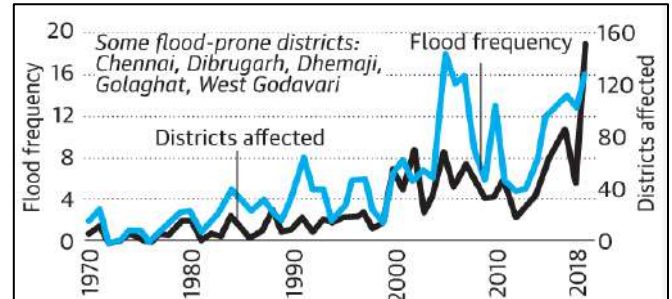
### Background: Status of Floods in India

#### NDRF Report

- 40 million hectares (10% of the land mass) in India is prone to floods.
- On an average every year, 7.5 million hectares of land is affected, 1600 lives are lost and more than Rs. 1,800 crores is incurred.

#### Statistics

- Between 1970 and 2004, 3 floods occurred per year on an average. However, between 2005 and 2019, the yearly average rose to 11. 19 districts were affected annually on an average until 2005. After 2005, the number jumped to 55.
- 2017 analysis suggests that 4.48 million Indians are exposed to riverine floods, the highest in the world.

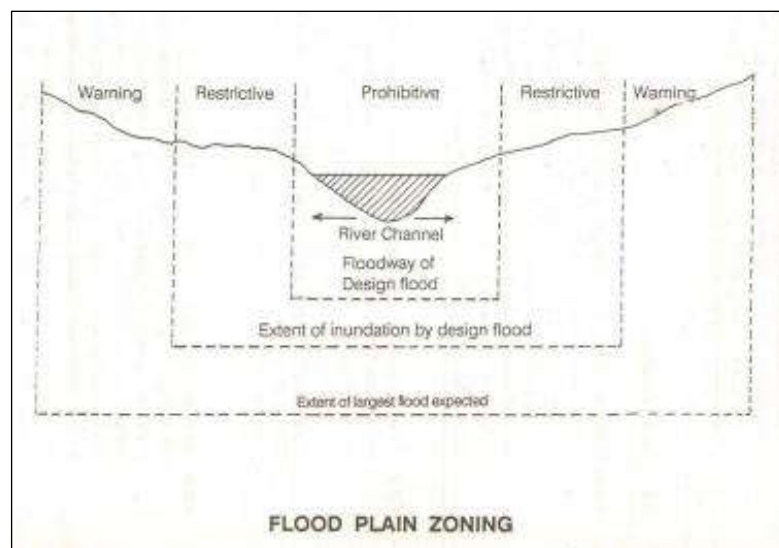


### Floodplains

- Floodplains are land areas adjacent to rivers and streams that are subject to recurring inundation and floods.
- Floodplains are therefore "flood-prone" and are hazardous to development activities if the vulnerability of those activities exceeds an acceptable level.

### Flood-plain zoning

- Flood-plain zoning measures aim at **demarcating zones or areas likely to be affected by floods of different magnitude or frequencies and probability levels. It is hazard mapping to be precise.**
- After demarcation it is important to **specify the types of permissible developments/constructions in these zones**, so that whenever floods actually occur, the damage can be minimized.
- Flood Plain Zoning has been **recognized by NDMA as an effective non-structural measure for flood management.**



## Steps taken in this regard

### Ministry of Water Resources

- In 1975 it had issued a draft Model Bill on floodplains and asked the states to frame legislation.

### Rashtriya Barh Aayog and CWC

- Rashtriya Barh Aayog (1980) recommended that flood plain management should be undertaken and legislation should be enacted.
- Accordingly, Central Water Commission (CWC) prepared guidelines for flood plain zoning and a model bill in 1975 was circulated.
- Only the states of **Manipur, Rajasthan, Uttarakhand and erstwhile State of Jammu & Kashmir** had enacted the legislation. And even in these states, implementation is virtually absent.

### Flood Risk Maps

- To help the States to properly demarcate the flood prone areas, CWC through Survey of India, initiated preparation of flood risk maps.

### NDMA Guidelines

- NDMA suggested that areas that are likely to be affected by floods in a frequency of 10 years should be reserved for green areas like parks, gardens etc and concrete structures should not be allowed there.

### National Water Policy of 2012

- Formulated by the Ministry of Water Resources, it specified preparation of digital elevation models and frequency-based Flood inundation maps. But Morphological studies of rivers have not been done.

### National Mission for Clean Ganga

- NMCG has advised all states in Ganga basin for demarcation, delineation and notification of river flood plains and removal of encroachment from river bed/floodplain of the river Ganga and its tributaries in adherence to the River Ganga (Rejuvenation, Protection and Management) Authorities Order, 2016.

### Ministry of Jal Shakti

- Ministry of Jal Shakti has continuously impressed upon the States the need to adopt flood plain zoning approach. However, delineation and demarcation of flood plains is yet to be undertaken.

### NGT orders

- The tribunal, in **Manoj Mishra Vs Union of India** 2015 case relating to the issue of Yamuna and Ganga rivers had ordered demarcation of the floodplains and directed that floodplain zoning should be taken with the reference of flood once in 25 years.
- In 2017, the NGT in **MC Mehta Vs Union of India** case had also talked about categorisation of different floodplain zones into zones like No Development Zone, Regulated Zone and a Free Zone for Development while hearing the issues related to the Ganga river.

### 2016 Draft River Regulation Zone Rules

- The rules proposed demarcation of active floodplains, high flood lines, and high to low impact zones, and then limiting development within these zones. MoEFCC circulated the rules.

*The ground-level implementation of these had always remained far from adequate.*

## Implementation Challenges

### Reluctance of States

- The land on riverbanks and even waters are state subject. **Water:** Entry 17 of List II (State List); **Land:** entry 18 of List II.
- Rules and guidelines have been opposed by many states, because of the political and practical challenges.



Maharashtra deleted its River Regulation Zone policy in 2015 – a decision now being protested by residents near the Ulhas River – and decided to build a new airport in Navi Mumbai on low-lying land.

### **Livelihood Destabilization**

- There are concerns about existing habitations and economic activities on riverbanks being destabilised.
- Population pressure and want of alternative livelihood systems are other roadblocks.

### **Lack of clarity in terms of Constitutional provisions**

- Flood control and mitigation are not directly mentioned in any of the three legislative lists of Seventh Schedule.

### **Impact**

- NDMA observe that “the reluctance of states to enact zoning has **led to increase in encroachment on floodplains, sometimes authorised and duly approved by planning authorities**”.
- Floodplain encroachments had been a **prime reason for the floods in Kerala and Pune** - State and Central Pollution Control Board Report.
- Reckless construction over wetlands, floodplains, or riverbeds – natural features that absorb and mitigate heavy rainfall or a river’s overflow – **caused + aggravated the floods in Mumbai in 2005 and 2017, Uttarakhand in 2013, Srinagar in 2014, Chennai in 2015 and Kerala in 2018.**

### **International Guidelines and Examples**

#### **UN Guidelines**

- UN guidelines on flood management **call for “wise use” of floodplains**. They suggest wetlands, agriculture and green reserves along water courses that will not only act as buffers against flood but nurse fisheries and enable storage and recharge of groundwater. In less risky zones, **building codes would be needed to reduce flood damage to homes.**

#### **World Meteorological Organisation Guidelines**

- The WMO promotes integrated flood management that includes land use planning in its arsenal of anti-flood measures.

#### **Flood management in US**

- US, has long managed floods through hazard mapping and public insurance – cover is mandatory for mortgages in 100-year flood zones.

#### **Europe**

- In Europe, a 2007 directive is encouraging countries to expand beyond the traditional flood control of dams and dykes to include more natural measures, including **restoring floodplains to “give rivers more space”.**
- In European countries and the United States **insurance firms charge a higher premium on flood insurance for people living closer to the floodplains** and lesser for those living away from the vulnerable sites.

### **Need of the hour**

- **Going beyond the centre-state jurisdiction issues** and opting for a river basin approach in implementing flood plain zoning - Observer Research Foundation (ORF) 2020 Study.
- **Stringent legislation** to govern the Indian river floodplains. Concrete law protecting it from encroachment.
- A **long-term plan that goes beyond piecemeal measures** like building embankments and dredging to control floods.
- **An integrated basin management plan** that brings all the river-basin sharing countries as well Indian states on board.
- Compensating those displaced, their rehabilitation and enabling alternate sources of livelihood – a complex, long-term but sustainable management requires **strong political will.**

- **Local community participation** can help overcome some of the challenges. So will **flood hazard mapping and publication**. Example: Builders can be forced to publicize the flood risk rating of their projects along with carpet area and parking.
- **Amendment of laws for allowing higher insurance premiums for properties lying within floodplains**, to reflect the risks of living in such vulnerable areas.

### Final Thoughts

- Preserving natural land use – forests, river banks, wetlands – is often painted as antithetical to development. This is a false dichotomy that is not only outdated but dangerous in an age of extreme weather.
- Climate change is showing us the economic costs of ignoring the environment, the limits to our ability to bind and control nature, and the advantages of working with natural systems rather than against them.

<https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1805812>

## SOCIETY

### Poverty in India

#### Context

- Extreme poverty in India has declined according to a paper of the World Bank titled as: 'Poverty has declined over the last decade But Not As Much As Previously Thought.'

#### Extreme Poverty

- Extreme poverty, deep poverty, abject poverty, absolute poverty, destitution, or penury, is the most severe type of poverty.
- World Bank defines 'living in extreme poverty' in India as living on \$1.9 or less in purchasing power parity (PPP) terms.

#### Key Findings of the recent report by World Bank

##### Extreme Poverty levels

- Extreme poverty in India has **declined by 12.3 percentage points from 2011 to 2019.**
- It has declined to 10.2 per cent in 2019, from a 22.5 per cent in 2011.

##### Rural vs Urban Poverty

- Reduction in abject poverty in rural areas is more pronounced than in urban areas.
- Rural extreme poverty dropped by 14.7 percentage points during this period, while urban deep poverty fell by 7.9 percentage points.

##### More Poverty reduction in later years

- In the first half of the decade, extreme poverty declined to 19.1%. The remaining 9.1% drop was achieved in the later years, between 2015 and 2019.
- Extreme poverty dropped by 3.2% points between 2017 and 2018 alone, which was the fastest rate in over two decades.

##### Consumption inequality

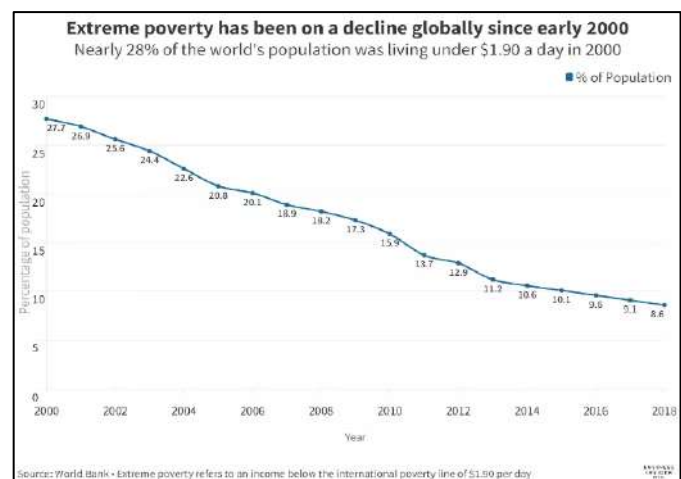
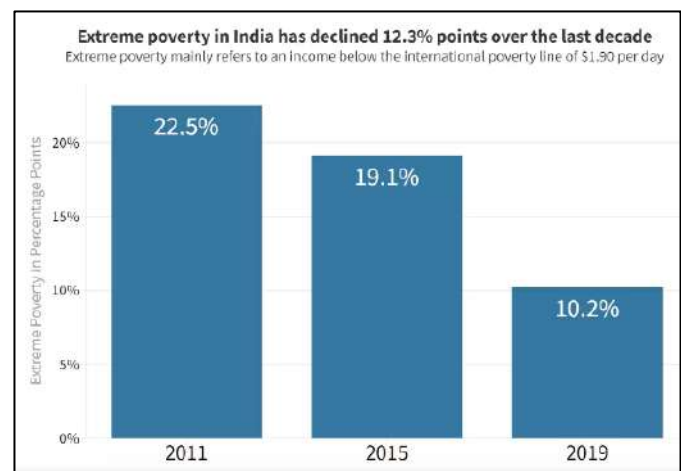
- Consumption inequality in India has moderated after 2011, with almost no change between 2015 and 2019.

##### Real Income of Farmers

- Farmers with small landholding sizes have experienced higher income growth. Real incomes for farmers with the smallest landholdings have grown by 10 per cent in annualized terms between 2013 and 2019.

##### Marginal increase in Poverty during Demonetization

- Poverty marginally increased for a brief period at least twice in the last decade. This was around the demonetization of the Indian currency in 2016 and the economic slowdown after that.
- Urban poverty rose by 2 percentage points in 2016 (coinciding with the demonetization event) and rural poverty rose by 10 basis points in 2019 (coinciding with a slowdown in the economy).



## Survey used to measure Poverty by World Bank

- The paper used the Consumer Pyramids Household Survey (CPHS) – an annual survey conducted by the Centre for Monitoring the Indian Economy (CMIE). It provides estimates of how poverty and inequality in India have evolved since 2011.
- Consumer Pyramids Household Survey, produced by the Centre for Monitoring Indian Economy (CMIE), is the world's largest household panel survey, a continuous survey of more than 174,000 households in India.
- CPHS revisits its entire sample in three four-month waves each year, permitting longitudinal analysis starting in January 2014. Overall, CPHS aims to get a sense of the economic well-being of households in India and changes in their well-being over time.
- The CPHS is more recent, has wide coverage, and collects comprehensive data from Indian household living conditions.

## CPHS Vs NSS: The better measure

- Consumer Pyramids Household Survey (CPHS) adopts a measure of consumption that is different from the one used in the National Service Scheme (NSS).
- NSS uses a sample design that has been flagged for undercounting the very poor and the very rich. Both of these differences have important impacts on poverty estimates for India.
- But CPHS approach represents nationally representative surveys such as the Periodic Labour Force Survey (PLFS) and the National Family Health Survey (NFHS). CPHS consumption shows the evolution of poverty in India from 2011 to 2019.
- The CPHS is already being used by scholars to measure poverty in India. For instance, the National Bureau of Economic Research (NBER) – a USA based research organization – uses CPHS survey to estimate changes in poverty and inequality during recent COVID years.

## Recent IMF Report

- International Monetary Fund (IMF) recently mentioned that India has almost eradicated extreme poverty.
- India has brought down its consumption inequality to its lowest level in the last four decades. These consumption inequalities were dealt with state-provided food handouts.
- The IMF report highlighted that less than 1% of the Indian population is living under extreme poverty.

## Role of India's Food Subsidy Program

- Food ration schemes were "instrumental" in ensuring that extreme poverty did not rise during the pandemic and remain steady, the IMF study found.
- The social safety net provided by the expansion of India's food subsidy program absorbed a major part of the pandemic shock. Food handouts curbed poverty by acting like "cash transfers".
- Real (inflation-adjusted) inequality, as measured by the Gini coefficient, stands at 0.294. This is now very close to its lowest level 0.284 observed in 1993-94. The Gini coefficient ranges from 0 to 1, with 0 representing perfect equality and 1 representing perfect inequality.

## State of Poverty in India: A general analysis

- Unemployment had reached a 45-year high in 2017-18, as revealed by NSO's Periodic Labour Force Survey (PLFS).
- Two-thirds of people in India live in poverty: 68.8% of the Indian population lives on less than \$2 a day.
- Over 30% even have less than \$1.25 per day available - they are considered extremely poor.
- This makes the Indian subcontinent one of the poorest countries in the world; women and children, the weakest members of Indian society, suffer most.

THE HINDU

**Relative and absolute poverty rose after 2012**

Tracking poverty in India from 2005 to 2020

Incidence of Poverty		As per NSS CES data		As per PLFS data
		2004-05	2011-12	2019-20
Poverty Head Count Ratio (%)	Rural	41.8	25.7	30.5
	Urban	25.7	13.7	15.5
	<b>Total</b>	<b>37.2</b>	<b>21.9</b>	<b>25.9</b>
Number of poor (Million)	Rural	325.8	216.7	270
	Urban	81.4	53.1	71
	<b>Total</b>	<b>407.2</b>	<b>269.8</b>	<b>348</b>
Tendulkar Poverty Line (MPCE in ₹) All India	Rural	₹446.68	₹816	₹1,217.96
	Urban	₹578.8	₹1,000	₹1,467

Image Source- The Hindu Newspaper Editorial page(4 August 2021)



- India is the second most populous country after China with about 1.2 billion people and is the seventh largest country in the world with an area of 3,287,000 km<sup>2</sup>.
- The highly contrasted country has enjoyed growth rates of up to 10% over many years and is one of the largest economies in the world, with a gross domestic product (GDP) of 1,644 billion US dollars.
- But only a small percentage of the Indian population has benefited from this impressive economic boom so far, as the majority of people in India are still living in abject poverty.
- According to a recently released Oxfam Report, income of 84 percent of households in the country declined in 2021.
- India is the **third largest number of billionaires in the world after China and the United States**, with more billionaires than France, Sweden and Switzerland combined.
- In 2021, the total wealth of 100 of India's wealthiest people reached a record high of Rs 57.3 Lakh Crore (\$ 775 billion). In the same year, the bottom 50 percent of the population accounted for only 6 percent of national wealth. Oxfam described **inequality as economic violence, adding that lack of access to health care, gender-based violence, hunger and climate change kill 21,000 people each day.**
- According to data from the National Sample Survey (NSS) (201718), the out-of-pocket cost (OOPE) of private hospitals is about 6 times that of inpatient treatment in public hospitals and 2 to 3 times that of outpatient treatment. **India's average OOPE is 62.67 percent, while the world average is 18.12 percent.**



### Reasons behind Poverty in India

- Illiteracy and lack of quality education:** Despite more than 15 million graduates being produced every year, there are no jobs available for them due to lack of quality of education. Most of these graduates are studying outdated educational syllabus and hence cannot be productively employed anywhere.
- Vicious trap of poverty:** Prevalence of massive malnourishment, stunting and wasting amongst children which negatively impact their physical and mental potential pushing them deeper into the vicious trap of poverty for the rest of their lives.
- Sub-standard health outcomes:** More than 60% of the household incomes in many families is devoted towards health expenditure. This out of pocket expenditure on healthcare is one of the biggest pulling factor for poverty.
- Administrative Bottleneck:** Certain government policies that favour one sector over the other. Also there is lack of rule of law and enforcement of laws such as the Minimum Wages Act.
- Income Inequality:** According to the Oxfam, the top 10% of the Indian population holds 77% of the total national wealth. 73% of the wealth generated in 2017 went to the richest 1%, while 67 million Indians who comprise the poorest half of the population saw only a 1% increase in their wealth.
- Discrimination:** Discrimination and poverty go hand in hand. Discrimination can both cause poverty and be a hurdle in alleviating poverty. Ex: Discrimination against women, SC, ST, Disabled, Old age people etc is one of the major causes of poverty among them.
- Nature of job:** Approximately 56% of the total working population is in the agricultural sector. Which is marked by poor landholding, low productivity and disguised unemployment?
- The issue of low employment growth within industrial and service sectors has contributed to stagnant or declining standards of living.
- Inadequate public infrastructure:** Lack of accessibility to primary health care centres, quality public schools, research institutions, roads, waterways, rural markets, etc. act complementary for the rise and sustenance of poverty in India.
- Poor policy structure:** Given the vicious cycle of poverty, government hand-holding is needed to support those above poverty lines to prevent them from slipping below the line.

## **Consequences of Poverty**

### **The high infant mortality**

- 4 million children die each year in India before their fifth birthday.
- In addition to Nigeria, Pakistan, the Democratic Republic of the Congo and China, India is one of the countries with the highest child mortality rates.
- Pneumonia, malaria and diarrheal diseases as well as chronic malnutrition are the most frequent causes of death.

### **Malnutrition - not even a bowl of rice a day**

- India is one of the world's top countries when it comes to malnutrition: More than 200 million people don't have sufficient access to food, including 61 million children. 7.8 million infants were found to have a birth weight of less than 2.5 kilograms - alarming figures for a country commonly referred to as the emerging market.

### **Child labour - no time to play and learn**

- Although child labour for children under the age of 14 in India is prohibited by law, according to official figures, 12.5 million children between the ages of 5 and 14 are working.
- Aid agencies assume that in reality, there are many more estimating that 65 million children between 6 and 14 years do not go to school.
- Instead, in order to secure survival, it is believed that Indian children contribute to the livelihood of their families; they work in the field, in factories, in quarries, in private households and in prostitution.

### **Lack of education - no opportunities without education**

- According to UNICEF, about 25% of children in India have no access to education.
- The number of children excluded from school is higher among girls than boys. Although women and men are treated equally under Indian law, girls and women, especially in the lower social caste, are considered inferior and are oppressed by their fathers, brothers and husbands.
- Without education, the chance of finding a living wage from employment in India is virtually hopeless.

### **Child marriage - the early end of childhood**

- According to an investigation by the medical journal The Lancet, 44.5% of girls are still married in India before they are of legal age.
- Due to poverty, many parents encourage early marriages for their daughters in hopes of better lives for them.

### **Effects on Society**

- The occurrence of violence and crime is geographically coincident. Due to unemployment and marginalization, poor people often indulge in wrong practices such as prostitution, theft, and criminal activities to earn money.
- Coupled with lack of education and properly formed moral conscience, a poverty ridden society is more affected to violence by its people against its own people from a sense of deep-seated discontent and rage.
- Homelessness affects child health, women safety and overall increase in criminal tendencies. Lack of money is a major cause of stress among the middle-class and the poor and leads to decline in productivity of individuals.
- Large families fail to meet the monetary needs of the members and children as young as 5 years are made to start earning in order to contribute to the family income.
- Terrorist organizations offer poverty-ridden families money in exchange for a member's participation in their activities which induces a sense of accomplishment among the youth.

### **Effect on Economy**

- Poverty is a direct index indicating success of the economy of the country. The number of people living under the poverty threshold indicates whether the economy is powerful enough to generate adequate jobs and comforts for its people. Schemes providing subsidies for the poor of the country again impose a drain on the economy.

## Way Ahead

- **Growth of population at the current rate should be checked** by implementation of policies and awareness promoting birth control.
- All efforts should be made to **increase the employment opportunities in the country**, either by inviting more foreign investments or by encouraging self-employment schemes.
- Measures should be taken to **bridge the immense gap that remains in distribution in wealth among different levels of the society**. A 99% one off windfall tax on the wealth gains of the 10 wealthiest men in Covid19 alone will generate \$ 812 billion.
- Certain Indian states are more poverty stricken than others like Odisha and the North East states. Government should seek to **encourage investment in these states by offering special concessions on taxes**.
- Primary needs of people for attaining a satisfactory quality of life like food items, clean drinking water should be available more readily.
- **Improvement of the Subsidy rates on commodities and Public Distribution system** should be made.
- **Free high school education and an increased number of functioning health centers** should be provided by the government.
- At household level, the subsidized food grains have enabled people to meet food requirements but there is no certainty of income, particularly during pandemic time. But **Poverty is not just a measure of hunger**. There is a need for **Universal Income Support**. **Economic Survey 2016-17** has suggested replacing all current cash transfers with universal basic income. The survey wants UBI to replace and not supplement the existing social welfare, anti-poverty schemes like MGNREGA, PMJSY etc.
- **Investments in human capital and public goods** have significant positive impacts on private-sector productivity, with estimated rates of return ranging from 15 percent to upwards of 45 percent. The enhanced productivity of human beings or human capital contributes substantially not only towards increasing labor productivity but also stimulates innovations and creates ability to absorb new technologies.

*India has been tagged as a very consistent 'developing nation' and this difference between developing and developed will be achieved only when problems like poverty and hunger are eradicated.*

<https://www.thehindu.com/sci-tech/health/mumbai-confirms-omicrons-xe-recombinant-variant-union-health-ministry-denies-it/article65296308.ece>

## Unity in diversity

### Context:

- Recently, Union Minister commented that Oneness is the biggest strength of Indian culture and it was this aspect that made it capable for us to become a 'vishwa guru' or world teacher.

### Types of Diversity in India:

- **Linguistic diversity:** Languages spoken in India belong to several language families, the major ones being the Indo-Aryan languages spoken by 75% of Indians and the Dravidian languages spoken by 20% of Indians.
- **Racial diversity:** 1931 census classified India's racial diversity in the following groups- The Negrito, The Proto-Australoid, The Mongoloid, The Mediterranean, The Western Brachycephals and the Nordic.
- **Caste diversity:** India is a country of castes. The term caste has been used to refer to both varna as well as jati. Varna is the four-fold division of society according to functional differentiation.
- **Cultural Diversity:** Different religion, castes, regions follow their own tradition and culture. Thus, there is variation in art, architecture, dance forms, theatre forms, music etc.

### Threats to Unity:

- **Communalism:** the rising majoritarian tendencies such as call for a 'Hindu rashtra', cow vigilantism, love jihad claims against inter-religion marriages threaten the secular fabric of Indian society
- **Regionalism:** the demands of new states and even secession based on language (gorkhaland, Dravidnaad), religion (khalistan), ethnicity (nagaland) continue to mar the unity and integrity of nation
- **Linguism:** perceived threats to the local language and recent attempts the Five Hindu on non-willing sections have in the past led to movements like Dravidian movement and can be seen in recent times as well such as Gorkhaland and Bodoland movements

- **Casteism:** caste oppression had continued for long time with scant attempts to challenge it until recently. With the opportunities provided by increasing literacy rate and economic reforms and excessive politicisation, caste identities are becoming more pronounced than before. While some use it to challenge the oppression they have faced (Bhimu-koregaon), others use it to claim benefits of reservation (Jat, Patidar, Maratha)
- **Racism:** discrimination against people of North-east, people of south in northern states and vice versa threatens a whole section of the society, dissipating discrimination into division
- **Separatist movements:** The ongoing separatist movements in J&K and North-East along with Naxalism have for long and continue to pose significant risks to India's unity.

### Source of Unity:

- **Institution of pilgrimage :** The Golden Temple in Amritsar, the dargah of Khwaja Moinuddin Chisti in Ajmer, the Sabarimala Temple in Kerala and the Church of Mother Velankanni in Tamil Nadu is visited by people of all faiths.
- **Democracy :** The value of democracy among Indians was instilled during the freedom struggle.
- **Economic and Social Opportunities:** Urban centres across the country like New Delhi, Gurugram, Mumbai, Hyderabad, Bengaluru and Chennai amongst others provide upward mobility for a large number of people.
- **Government services :** The All India Services, Central Services and the Armed Forces enable people from across the nation to work in different parts of the country. They work to further the national interests of the country.
- **Sports and Cinema :** It is a well-known fact that Sports unites everyone. When sportspersons don the Indian jersey, they play for India and are cheered by all Indians, not only in India but also abroad.
- **Value system:** Mahatma Gandhi supported non-violence with all his heart. In all of the marches and protests there were people of many different races and cultures and dialects. This has created an alloy where the qualities of each element remain distinct yet at the same time strengthen the qualities of the other thereby making a durable product.

## Urban planning

### Context

- The Finance Minister (FM) emphasised the importance of urban development, saying that by the time India celebrates its 100th Independence Day, roughly half of the population will be living in cities.

### Causes of Urbanisation

- **Industrial revolution:** Presence of industries in the urban area provided for the pull factors and made people to migrate to urban area.
- **Education Facilities:** Urban area provides for the better educational facilities causing people to migrate.
- **Health facilities:** Better health facilities especially the tertiary care in the urban area creates an incentive for people to stay in urban environment.
- **Poor infrastructural facilities in rural areas:** Rural areas lack good infrastructural facilities and are poorly connected which make people to migrate.
- **Investment:** Urban areas are engine of economic growth and attracts heavy investment which creates job opportunity for the unemployed people.

### Challenges of Urbanization in developing countries

- **Housing:** The growing cost of houses comparison to the income of the urban middle class, has made it impossible for majority of lower income groups to afford the houses.
- **Safe drinking water:** The 2011 Census figure shows that still many households in urban areas consume water from unsafe sources such as tanks, pond and lake, river and canal and spring.
- **Sanitation:** The poor sanitation condition is another gloomy feature in urban areas and particularly in slums and unauthorized colonies of urban areas.
- **Poverty:** Roughly a third of the urban population today lives below the poverty line. There are glaring disparities between haves and have-nots in urban areas.
- **Health Conditions:** The health condition of urban poor in some areas are even more adverse compared to rural areas. As many as 20 million children in the developing countries are dying consequent to drinking water.



- **Issue of employment:** It is generally observed that the literate and semi-literate migrants are absorbed with minimal works, carrying lower wage and more hour of work.
- **Urban Transport issue:** The challenge is to provide a well-integrated and environmental friendly transport facility. Traffic congestion and environmental pollution has reached unprecedented level in many metropolitan cities.
- **Urban Crime:** The mega cities are facing increased criminal activities on account of unchecked migration, illegal settlements and diverse sociocultural disparities, organized groups, gangsters.
- **Urban slums:** Life in the slum is quite miserable devoid of sanitation, poor quality of housing, unsafe drinking water and deficiencies of the other infrastructure. Almost 33% population stays in urban slums.

### Government Schemes for urban development

- **Smart City Mission:** Government has launched to develop 100 cities as smart cities to develop future ready cities. These city would integrate basic amenities with the technology to provide affordable quality of life to urban citizens.
- **Amrut:** The mission aims to provide basic amenities in the 500 urban cities.
- **Metro Development:** In order to provide good transport connectivity, government is developing metro for providing connectivity within the urban area.
- **Pradhan Mantri Awas Yojana (PMAY) (Urban) or Housing for All:** It aims to promote affordable housing for the citizens staying in the urban area by providing subsidy on the home loans.
- **Swachh Bharat Mission - Urban (SBM - U):** It aims to provide liquid water treatment, make urban area open defecation free.

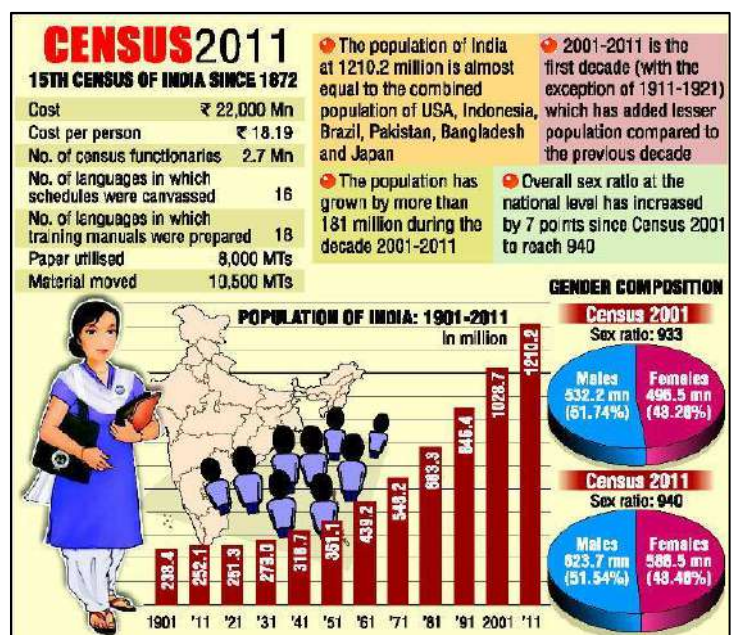
## Caste-based census

### Context

The Chief Minister of Bihar has announced that the state-level caste-based census will start soon in the State.

### About Census in India

- Census in India was started in 1872 under British Viceroy Lord Mayo, but the first complete census was taken in 1881 under Lord Ripon.
- Since 1881, the Census has been undertaken every 10 years; in 2011 the Census of India was conducted for the 15th time.
- The Census of India was conducted by the Registrar General and Census Commissioner of India under the Ministry of Home Affairs.
- All the censuses since 1951 were conducted under the 1948 Census of India Act. The last census was held in 2011.



### About Caste Census

- The Socio-Economic and Caste Census 2011 (SECC) was conducted for the 2011 Census of India.
- The SECC 2011 was conducted in all states and union territories of India.
- SECC 2011 was also the first paperless census in India conducted on hand-held electronic devices by the government in 640 districts.
- The Rural development ministry has used the SECC data in its programmes such as MGNREGA, National Food Security Act, and the DeenDayal Upadhyaya Grameen Kaushalya Yojana. SECC 2011 data will also be used to identify beneficiaries.
- SECC 2011 was the first caste-based census since the 1931 Census of India.

- SECC 2011 was not conducted under the 1948 Census of India Act, which made information disclosure voluntary for citizens, and not a mandatory disclosure.
- SECC 2011 has three census components which were conducted by three separate authorities, but under the overall coordination of the Department of Rural Development in the Government of India:
  - Census in Rural Areas has been conducted by the Department of Rural Development.
  - Census in Urban areas is under the administrative jurisdiction of the Ministry of Housing and Urban Poverty Alleviation.
  - Caste Census is under the administrative control of the Ministry of Home Affairs: Registrar General and Census Commissioner of India.

### Arguments in favour of Conducting Caste Census

- Those at the lower levels of the Social System are not just disadvantaged socially but also economically, therefore it is important to identify them to ensure their welfare.
- Caste data will promote independent research into the question of who does and does not need affirmative action.
- The faith of our citizens cannot be restored until credible exercises of data collection are undertaken regarding caste.
- A caste census, which will generate exhaustive data will allow policymakers to develop better policies, and implementation strategies, and will also enable a more rational debate on sensitive issues.
- The Justice Rohini committee was appointed in 2017 to look into the sub-categorization of the OBC communities; however, in the absence of data, there can be no data bank or any proper sub-categorization.
- All commissions have had to depend on data from the last caste census conducted in 1931. Therefore, the data has to be updated.
- India needs to be bold and decisive in tackling caste questions through data and statistics in the way the US does to tackle race issues, by collecting data around race, class, language, and inter-race marriages, among other metrics.

### Argument against conducting caste census

- The data will suffer in respect of “completeness and accuracy”, as Caste data collected in the Socio-Economic and Caste Census (SECC) of 2011 is “unusable” for official purposes as they are far from accurate and also misleading.
- Many people may not register themselves in the census to hide their caste identity.
- It is too late now to add caste to the Census 2021, as the Planning and preparations for the census exercise started almost four years earlier and the preparations for Census 2021 are almost done.
- This could further divide Indian society. The government had said that the total number of castes surveyed in 1931 was 4,147, while the SECC 2021 figures show that there are more than 46 lakh castes in India.
- Earlier attempts failed as the entire exercise was corrupted because the enumerators had used different spellings for the same castes. In many cases, the respondents had refused to reveal their castes.

### Way forward

- In democratic Societies there is nothing to legally stop a Person from the most deprived Class and Caste from reaching the highest Position, but these legal rights also need socio-economic support from the government as affirmative action.
- Governments need to take effective affirmative action based on strong data to ensure the socio-economic development of marginalized people living at the bottom of the social hierarchy.
- People also need to understand that our Sources of knowledge about the past and especially the ancient Past are inadequate. It is difficult to be very certain about what things were like at that time, or the reasons why some institutions and Practices came to be established. But even if we knew all this, just because something happened in the Past or is Part of our tradition, it is not necessarily right or wrong forever.
- Every age has to think afresh about such questions and Come to its own Collective decision about its Social institutions.

<https://epaper.thehindu.com/Home/ShareArticle?OrgId=GMJ9SHVIE.1&imageview=0>

## GS-2

### Marital rape

#### Context

- The Delhi High Court granted the Centre two weeks to clear its stand on the demands for criminalizing marital rape.

#### Marital Rape

- Marital rape can be defined as any unwanted sexual intercourse or penetration obtained by force, threat of force without wife's consent.

#### Indian legislation on rape

##### Section 375

- The definition of rape codified in Section 375 of the Indian Penal Code [IPC] includes all forms of sexual assault involving non-consensual intercourse with a woman.

##### [Exception 2 (Section 375)]

- However, Exception 2 to Section 375 exempts unwilling sexual intercourse between a husband and wife over fifteen years of age from Section 375's definition of rape and thus immunizes such acts from prosecution.
- Thus, in India, marital rape exists de facto but not de jure.

##### Section 376

- Section 376 of IPC provides punishment for rape.
- According to this Section, the rapist should be punished with imprisonment of not be less than 7 years but which may extend to life or for a term extending up to 10 years and shall also be liable to fine.

As per Indian Penal Code, the instances where husband can be criminally prosecuted for an offence of marital rape are as under:

- When the wife is between 12-15 years of age, offence punishable with imprisonment upto 2 years of fine, or both.
- When the wife is below 12 years of age, offence punishable with imprisonment of not be less than 7 years and may extend to life /10 years and shall also be liable to fine.
- Rape of a judicially separated wife, offence punishable with imprisonment up to 2 years and fine.
- Rape of wife of above 15 years in age is not punishable.

**Note:** Marital Rape in all other cases is not considered as rape as they fall under exceptions.

#### History of the anomaly of marital rape

- 18th century English law had a set of rules where the wife was considered being dependent on her husband, incapable of independent existence.
- Husband and wife were marked as one entity, and all the rights of the wife (including her sexual rights) were subsumed by those of her husband.
- Exception 2 of section 375 was a result of these blanket rules that arose in 18th century English law.

*It is strange to presume that this still applies to modern day India in the 21st century where women are independent citizens under law. India is one of the thirty-six countries that still have not criminalized marital rape. The Supreme Court and various High Courts are currently working on various writ petitions challenging the legality of marital rape.*

## Observations made by Court and Committees

### Justice Verma Committee report

- Justice Verma Committee report (2013) had recommended removal of exception of marital rape.
- The report underscored the fact that marital rape immunity had been withdrawn in most foreign jurisdictions.
- According to the Report, the relationship between the accused and the complainant is **not relevant to the inquiry into whether the complainant consented to the sexual activity.**

### Kerala High Court Observations

- Marital rape is a good ground to claim divorce. The law not recognizing marital rape under penal law does not inhibit the court from recognizing the same as a form of cruelty to grant divorce.
- Right to respect for his or her physical and mental integrity encompass bodily integrity, any disrespect or violation of bodily integrity is a violation of individual autonomy.

### Law Commission Report

- In the 42nd Report by the Law Commission, it was recommended that criminal liability should be attached to the intercourse of a man with his minor wife.
- However, the committee refused the recommendation stating that husband cannot be guilty of raping his wife of whatever age since sex is a parcel of marriage.

### State of Maharashtra v Madhukar Narayan Mardikar

- In State of Maharashtra v Madhukar Narayan Mardikar, SC referred to the right to privacy over one's body.
- It was decided that a prostitute had the right to refuse sexual intercourse.
- What is sad to know that all stranger rapes have been criminalized and all females, other than wives, have been given the right to privacy over their bodies.

### Independent Thought vs Union of India

- A girl between 15 and 18 years of age who is married could be a victim of "aggravated penetrative sexual assault under The Protection of Children from Sexual Offences (POCSO) Act, 2012 but she cannot be a victim of rape under the IPC" if she is raped by her husband since the IPC does not recognize such an assault as rape. It is **contrary to the provisions of POCSO Act.**
- It read down Exception 2 to Section 375, IPC as being violative of Article 14 and 21 of Indian Constitution.
- Supreme Court further observed, "Marriage is not institutional but personal – nothing can destroy the 'institution' of marriage except a statute that makes marriage illegal and punishable. In this context, marital rape can be taken out of the exception.

### Delhi High Court observations (recent)

- The Delhi High Court recently observed said that while **there can be no compromise with women's right to sexual autonomy and any act of rape has to be punished.**
- The court questioned as to why the exception from the offence of rape granted to a married couple had remained in the legislature for several years.
- This exception remained in spite of the **wide scope of Section 375 of Indian Penal Code which included even a single act of "unwilling sex" as rape.**

## Provisions under Indian Constitution

### Part III

- Part (iii) of Indian Constitution guarantees all the citizens of India irrespective of their caste, race, sex, religion, place of birth etc. certain fundamental rights
- Rape laws in India are violative of Article 14 and 21 of Indian Constitution.

### Violation of Article 14

- Article 14 provides for equality before law and equal protection of laws.
- Exception 2 to Section 375 clearly discriminates between married women above the age of 15 and below the age of 15.
- Section 375 IPC takes away women's right of choice and indeed effectively deprives her of bodily autonomy and her personhood.



### Violative of Article 21

- Article 21 of the Constitution guarantees protection of life and personal liberty. Right to live in Human Dignity.
- In **Bhodhisathwa Gautam v Subhra Chakraborty**, SC held that Rape is a crime against basic human rights and fundamental right. A married woman too has the right to live in human dignity, right to privacy and rights over her own body. Marriage can in no way take away these rights.

### Right to Sexual Privacy

- In Justice **K.S Puttaswamy v Union of India** held the right to privacy as a fundamental right and includes decisional privacy reflected by an ability to make intimate decisions primarily consisting of one's sexual or procreative nature and decisions in respect of intimate relations.

*The marital rape exception is an insult to the constitutional goals of individual autonomy, dignity and of gender equality enshrined in fundamental rights such as Article 21 (the right to life) and Article 14 (the right to equality).*

## **Criminalization of marital rape**

### Arguments against Criminalization

- **Burden on legal system:** Due to near impossibility of proving marital rape, its criminalization would only serve as an increased burden to the already overburdened legal system.
- **Misuse:** Dissatisfied, angry, vengeful wives might charge their innocent husbands with the offence of marital rape.
- **Implied consent:** There is an implied consent to have sexual intercourse when a woman marries a man.
- **Destroys marital institution:** Marital rape laws would destroy many marriages by preventing any possible reconciliation.

### Arguments for Criminalization

- **Rate of prevalence:** A study conducted by the Joint Women Programme, an NGO found that one out of seven married women had been raped by their husband at least once. They do not report these rapes because law does not support them.
- **Deterrent effect:** It may be showed that criminalization of marital rape, serves to recognize rape in marriage as a criminal offence and would have a deterrent effect on prospective rapists husbands.
- **Judicial capacity:** Women foisting malicious charges, it may be noted that if proving a claim of rape in marriage is hard, proving a fabricated claim will be even more difficult.
- **Marriage can't be sanction to rape:** Expression of love through sexual intimacy is not the same as forced sex.
- **Preservation of marriage-a vague argument:** A marriage in which the husband rapes his wife is already destroyed. Withholding justice and denying equal protection for preserving marriages can be an improper goal of law.
- **Deep rooted Patriarchy:** In *Joseph Shine v. Union of India (2018)*, the Supreme Court held that the offence of adultery was unconstitutional because it was founded on the principle that a woman is her husband's property after marriage. The marital rape exception betrays a similar patriarchal belief: that upon marriage, a wife's right to personal and sexual autonomy, bodily integrity and human dignity are surrendered. Her husband is her sexual master and his right to rape her is legally protected.

## **Suggestions for Reform**

- Marital Rape **should be recognized by Parliament as an offence under the Indian Penal Code.**
- The punishment for marital rape should be the same as the one prescribed for rape under Section 376 of the Indian Penal Code.
- The fact that the parties are married should not make the sentence lighter.
- It should not be a defense to the charge that the wife did not fight back and resisted forcefully or screamed and shouted.
- The wife should have an option of decree of divorce if the charge of marital rape is proved against her husband.
- Corresponding charges in the matrimonial laws should be made.

## Conclusion

- The continuous exemption of marital rape from the purview of criminal law sustains the assumption of the wife as exclusive property of the husband.
- The immediate need is criminalization of marital rape under the Indian Penal Code.
- There is also a **need to educate the masses about this crime**, as the real objective of criminalizing marital rape can only be achieved if the society acknowledges and challenges the prevailing myth that rape by one's spouse is inconsequential.

**ALSO READ:** <https://www.iasgyan.in/blogs/the-ethical-and-moral-issues-in-marry-your-rapist-convention>

<https://epaper.thehindu.com/Home/ShareArticle?OrgId=GHB9H9AS5.1&imageview=0>

## Communal hatred

### Context

The Supreme Court of India has directed the states to take strict actions against communal hate speech/violence.

### Communal Hatred/Violence

- It is the **result of an attitude that sees one's group as the only legitimate group, with other groups being seen as inferior, illegitimate and opposed.**
- It is generally related to religion, but **there is no relationship between faith/religion and Communalism.**
  - A Communalist may or may not be a religious person, and Religious believers may or may not be Communalists.
  - The key factor is the attitude towards those who believe in other kinds of identities, including other religion-based identities.
- **One of the features of Communalism is its Claim that religious identity overrides everything else.** Whether one is poor or rich, whatever one's occupation, Caste or Political beliefs, it is religion alone that Counts. All Hindus are the same as are all Muslims, Sikhs and So on.
  - This rules out the Possibility that Hindus, Muslims and Christians who belong to Kerala, for example, may have as much or more in common with each other than with their Co-religionists from Kashmir, Gujarat or Nagaland.
  - **Landless agricultural labourers may have a lot in common even if they belong to different religions and regions.**
- **The core Ideology is that people who follow the same religion have Common Interests** i.e. they have the Same Political, Economic and Social interests.
  - In a multi-religious society like India, these Common interests of one religion are dissimilar and divergent from the Interests of the follower of another religion.
- Communalism is an ideology on which Communal Politics is based.
  - **Communal violence is the result of Communal ideology.**

### Evolution of Communalism in Indian Society

- Ancient India was united and no Such Communal feelings were there. People lived peacefully together, People respect each other's culture and tradition.
  - Ex; Ashoka followed religious tolerance and focussed mainly on Dhamma, **he never imposed his faith on the masses.**
- **Akbar during the Medieval Period presented a real model of Secular practices**, Abolishing the Jizya tax and Starting Din-I- ilahi and IbadatKhana.
  - The same **respect for Different Cultures and traditions was practised in several kingdoms** throughout India, because of which there was peace and harmony.
- Few rulers like Aurangzeb were least tolerant of other religious practices. But, **such motives were guided purely by their greed for Power and Wealth.**
  - These rulers and actions by them like imposing Jizya, destructing temples, forced Conversions, etc. Promoted feeling of Communal differences in India, but it never became a barrier to the Peaceful Coexistence.

- **Communalism in India is the output of modern politics**, which has its roots in the Partition of Bengal in 1905, the Separate electorate under the Government of India Act, 1909, and the Partition of India in 1947.
  - The feeling of Communalism has deepened in the Indian Society and resulted in Social Tension.

### Concerns

- **Every religious community has faced this violence** to a greater or lesser degree, although the Proportionate impact is far more traumatic for minority Communities.
- **Many from the younger generation lack the Right Information/Knowledge, and fake messages, Insensitive or irresponsible News channel debates and social media posts influence their thinking and divert them in the wrong direction.**
  - Unemployment and Poverty also play an important role in promoting the maniac of Communalism.
- **Social media has become infamous for the Spread of Communal hatred.** It provides an almost instant transfer of Provoking material.
- **Real Sufferers are the Poor**, they lose their house, their near and dear ones, their lives, their livelihood, etc.
  - Sometimes Children will lose their Parents.
- Threat to the Indian Constitutional values, which Promotes Secularism and religious tolerance.
- **Threat to the unity and integrity of the Nation.**
- It promotes only the feeling of hatred, dividing the Society into Communal lines.
- It is a barrier to socioeconomic development.
- It is against the rule of law, against human rights.
- **Covered by International Media, giving India a bad image and can hurt tourism and also a foreign investment.**
- It takes many years for the People and the affected regions to come out of the traumas of Such violence, having a deep impact on their mental and psychological health.
  - Whole life, they live in fear and feel emotionally broken and insecure.

### Steps need to be taken

- **Disputes and conflicts are common in a diverse society**, as every group has different interests and sometimes their interest goes against the interest of other groups. No matter how much Government and people try to avoid this situation, we have to face it because it is bound to happen.
  - Therefore we must **focus on building a mechanism through which we could solve it peacefully and democratically** so that every person in the society feels safe and secure under the prevailing social structure.
- A group or committee with the representative of every diverse group will ensure that the grievances of the people would be **addressed through a democratic process of debate and discussion.**
- **Organising Cultural programs and celebrating festivals together** would help people to understand the culture of different groups and this would promote respect for other's cultures and also develop tolerance among different groups.
- **Education is the best tool to deal with this issue**, as today's children are future citizens, so we should introduce the learning of Kindness, compassion, empathy, teamwork, unity, diversity, culture, etc at the school and college level.
  - Only an **Inclusive and liberal education system** would ensure the value of tolerance and democracy in our society.
- Focus needed on social/attitudinal change.
- **Strengthening administration and governance to ensure public confidence in state institutions.**
- Holding Social media platforms accountable.
- **Identify districts, sub-divisions and villages** where instances of Communal hate speech/violence have been reported in the recent past.
- **Broadcast on radio, television and other media platforms** about the serious consequences of Communal hate speech/violence.

## Way Forward

- Each of us has to make a **balance between our own religious beliefs/Community and National interests**.
- Need to **promote Rationality and Scientific temper** in the decision-making process.
- Leaders of all Communities must come forward to **create an atmosphere of Unity and Harmony**.
- Need to work towards **eradicating the socio-economic problem** of unemployment, illiteracy and poverty without any making any discrimination.
- We need to remember that we also have a **long tradition of religious Pluralism and Peaceful Co-existence in the past**. This is prominent in the devotional Songs and Poetry of the Bhakti and Sufi movements.
- Intolerant citizens violating the freedoms of fellow citizens have no right to be 'Indians' as it goes against the Core values and ethos of India, **Core Indian values and ethos have no place for intolerance due to which all the major religions of the world are flourishing in India**.

<https://www.thehindu.com/news/national/dharam-sansad-events-you-are-bound-to-take-action-against-communal-hate-supreme-court-tells-uttarakhand-himachal-pradesh/article65356292.ece>

## Secularism

### Context

Recently **many West Asian nations have criticized the communal statements made by some Indian politicians**, the whole issue has started a debate over secularism and religious tolerance in India.

### Secularism

- It is a **Principle-based on the Separation of Government Institutions from religious institutions**.
- It **Promotes freedom within religions and Promotes equality between religions**, as well as within religions.
  - It Prevents domination by any Religious Group.
- The Core value of Secularism is that **'a State must not be run by the heads of any Particular religion, States Should have no formal, legal alliance with any religion'**.
  - A State must be committed to the Principles and Goals of Peace, Religious freedom, and freedom from discrimination and exclusions, also inter-religious and intra-religious equality.

### The western model of Secularism

- **State and religion have a Separate Sphere of their own**, Mutual exclusion of State and Religion.
- State cannot aid any Religious Institutions.
- State cannot hinder the activities of religious communities as long as they are within the limits set up by the law.
- Religion is a private matter, not a matter of State Policy or law.
- This model interprets freedom and equality in an individualist manner.
  - Liberty is the liberty of an individual. Equality is the equality between individuals.
- There is **little Scope for Community based rights or minority rights**.
- **Drawbacks of the Western Model**
  - Issues of Inter-religious equality are often neglected.
  - Minority rights Neglected.
  - This model leaves no Scope for the idea of the State Supported religious reforms.

### Mahatma Gandhi's Views on Secularism

- **Religion is a Personal matter** which should have no Place in Politics.
- Religion is the Personal affair of each individual. It must not be mixed up with Politics or National affairs.

### The Indian model of Secularism

- **Indian Secularism is based on Nehru's view** of "Equal Protection by the State to all Religion".
- Constitution makers wanted a Secular State to be one that **"Protects all Religions but does not favor one at the expense of others and does not itself adopt any religion as the State Religion."**
- Indian Secularism does not mean the Separation of religion from State. Instead, Secularism in India means a State that is Neutral to all Religious groups.



- Indian Secularism was the **result of an Interaction between diverse groups and people** in Indian Society and the ideas that came from the West.
- **Features of Indian Secularism**
  - Secularism is the core Philosophy of the Indian constitution, and the Preamble reflects this Philosophy "WE THE PEOPLE OF INDIA".
  - Indian Secularism deals with the Religious freedom of individuals and also with the religious freedom of Communities i.e.
  - It supported religious Reform.
  - Indian Constitution grants all religious minorities, the right to establish and maintain their educational institutions.
  - The state and its institutions must recognize and accept all religions, and respect diversity.
- **The term 'Secular' was not initially mentioned in the original Indian Constitution, but the Constitution has always been Secular.**
  - 42nd Amendment added the word 'Secular' in the Preamble.
  - Secularism is the Basic Structure of the Constitution.

### Concerns

- Rising incidence of **Communalism (Communal violence)**.
- The **politicization of Caste and Religion**.
- Rise of fundamentalism.
- Indian Secularism is also criticized for being Anti-religious.

### How can we deal with different kinds of disputes or conflicts in our society?

- India is a land of diversity, where citizens are divided among religions, cultures, castes, classes, communities, languages, regions, etc.
- **Disputes and conflicts are common in a diverse society**, as every group has different interests and sometimes their interest goes against the interest of other groups.
  - No matter how much Government and people try to avoid this situation, we have to face it because it is bound to happen.
  - Therefore we must **focus on building a mechanism through which we could solve it peacefully and democratically** so that every person in the society feels safe and secure under the prevailing social structure.
- **A group or committee with the representative of every diverse group** will ensure that the grievances of the people would be addressed through a democratic process of debate and discussion.
- **Organizing Cultural programs and celebrating festivals together** would help people to understand the culture of different groups and this would promote respect for other's cultures and also develop tolerance among different groups.
- **Education is the best tool** to deal with this issue, as today's children are future citizens, so we should introduce the learning of Kindness, compassion, empathy, teamwork, unity, diversity, culture, etc at the school and college level.
- Only an **Inclusive and liberal education system** would ensure the value of tolerance and democracy in our society.

<https://epaper.thehindu.com/Home/ShareArticle?OrgId=GOC9TD36C.1&imageview=0>

# GOVERNANCE, CONSTITUTION & POLITY

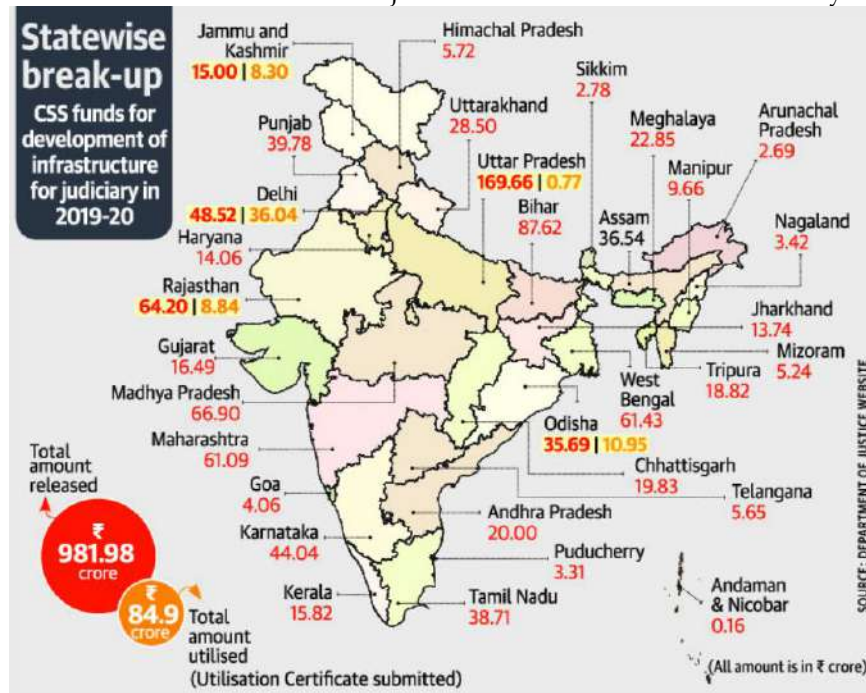
## Judicial Infrastructure

### Context

- Recently, the **Chief Justice of India (CJI)** in the **11th Chief Justice-Chief Ministers conference** flagged certain issues concerning inadequate representation or gender equality, deficient infrastructure, shortage of administrative staff and huge vacancies of judges.
- Among them, the prominent issue is the **deficient infrastructure** which needs to be addressed immediately.

### Funds Utilization

- The underutilisation of funds seems to be the major reason for infrastructure deficiency in the judiciary.



- From the above figure, we can observe that the judicial infrastructure has not kept pace with the sheer number of litigations instituted every year.
- Of a total of Rs.981.98 crore sanctioned in 2019-20 under the Centrally Sponsored Scheme (CSS) to the States and Union Territories for the development of infrastructure in the courts, **only Rs.84.9 crore was utilized** by a combined five States, rendering the remaining 91.36% funds unused.
- This underutilisation of funds is not an anomaly induced by the COVID-19 pandemic. The issue has been plaguing the Indian judiciary for nearly three decades since the CSS was introduced in 1993-94.

### Judicial Infrastructure

Sanctioned Strength of Judicial Officers	No. of Court Halls available	No. of Court Halls under construction	No. of Residential Units available	No. of Residential Units under construction
24291	20115	2423	17705	1857

- Apart from these, 26% of the court complexes do not have separate **ladies' toilets** and 16% do not have gents toilets.
- Only 32% of the courtrooms have separate **record rooms**.
- Only 51% of the court complexes have a **library**.

- Only 5% of the complexes have basic **medical facilities**.
- Only 27% of the courtrooms have a **computer** placed on the judge's dais with the videoconferencing facility.

### Why such Infrastructure lag?

- The CJI highlighted that the improvement and maintenance of judicial infrastructure are still being carried out in an **ad-hoc and unplanned manner**.
- The infrastructure problems in the judiciary must be seen in the context of the **lack of specific budgeting** for the judicial branch, which is a standard practice in most democracies. Even after more than seven decades of independence, the budgetary allocations, including states, are still below 1 per cent of the GDP.
- States do not come forward with their **share of funds** and consequently, money allocated under the scheme is often left unspent with them and lapses.
- Most district judges, who head trial courts, also do not vigorously pursue development projects due to **short-term appointments** and **transferable jobs** among others.

### Way Forward

- The proposed **National Judicial Infrastructure Corporation (NJIC)** by CJI will act as a coordinating agency to speed up the pending works.
  - The NJIC will include the CJI, judges of the Supreme Court, and high courts, finance secretaries of the Centre and states concerns can quickly **end bureaucratic hurdles** and challenges of coordination amongst multiple bodies.
  - The proposed body is intended to **monitor and address the issues of delay** in land allotment, funds diversion for non-judicial purposes, and evasion of responsibilities by the high courts and trial courts, amongst others.
- The need for **financial autonomy** of the judiciary and the creation of the National Judicial Infrastructure Authority of India (NJIAI) will work as a central agency with a degree of autonomy.

## Mediation Bill

### Context

- The **Chief Justice of India (CJI)**, N.V. Ramana, while speaking at the **India-Singapore Mediation Summit** in July 2021 said that mediation should be made mandatory as the first step in dispute resolution and that a law should be framed in this regard.
- In India, mediation finds legitimacy in some specific laws such as the Code of Civil Procedure, 1908, the Arbitration and Conciliation Act, 1996, the Companies Act, 2013, the Commercial Courts Act, 2015, and the Consumer Protection Act, 2019, **there is no standalone legislation as yet**.

### The Mediation Bill, 2021

- The Mediation Bill, 2021, introduced in Parliament in December 2021, seeks to **promote and facilitate mediation**, especially institutional mediation, for the **resolution of disputes**, commercial or otherwise, enforce mediated settlement agreements, provide for a body for the registration of mediators, to **encourage community mediation** and also to make online mediation as acceptable and cost-effective process and for matters connected therewith or incidental thereto.
- The Bill requires persons to try to **settle civil or commercial disputes** through mediation before even approaching any court or tribunal. A party may withdraw from mediation after two mediation sessions. The mediation process should be completed within 180 days, which may be extended by another 180 days by the parties.
- The bill ensures the setting up of the **Mediation Council of India**. Its functions will include registering mediators and recognising mediation service providers and mediation institutes (which train and certify mediators).
- The bill also **lists disputes** that are not fit for mediation (like those involving criminal prosecution, or affecting the rights of third parties). The central government may amend this list.
- If the parties are agreed, they may **appoint any person as a mediator**. If not, they may apply to a mediation service provider to appoint a person from its panel of mediators.
- Agreements resulting from mediation will be binding and enforceable in the same manner as court judgments.

## Key features of the bill

- **Pre-litigation mediation:** Parties must attempt to settle civil or commercial disputes by mediation before approaching any court or certain tribunals. Even if they fail to reach a settlement through pre-litigation mediation, the court or tribunal may refer the parties to mediation if they request the same.
- **Disputes not fit for mediation:** The Bill contains the list of disputes which are not fit or not feasible for mediation. The central government may also amend this list. These include disputes:
  - relating to claims against minors or persons of unsound mind
  - involving criminal prosecution, and
  - affecting the rights of third parties.
- **Applicability:** The Bill will apply to mediations conducted in India:
  - involving only domestic parties
  - involving at least one foreign party and relating to a commercial dispute (i.e., international mediation),
  - if the mediation agreement states that mediation will be as per this Bill. If the central or state government is a party, the Bill will apply to (a) commercial disputes, and (b) other disputes as notified.
- **Mediation process:** Mediation proceedings will be confidential, and must be completed within 180 days (may be extended by 180 days by the parties). A party may withdraw from mediation after two sessions. Court annexed mediation must be conducted as per the rules framed by the Supreme Court or High Courts.
- **Mediators:** Mediators may be appointed by:
  - the parties by agreement, or
  - a mediation service provider (an institution administering mediation).
  - They must disclose any conflict of interest that may raise doubts about their independence. Parties may then choose to replace the mediator.
- **Mediation Council of India:** The central government will establish the Mediation Council of India. This Council will consist of a chairperson, two full-time members (with experience in mediation or ADR), three ex-officio members (including the Law Secretary, and the Expenditure Secretary), and a part-time member from an industry body. Functions of the Council include
  - registration of mediators, and
  - recognising mediation service providers and mediation institutes (which train, educate, and certify mediators).
- **Mediated settlement agreement:** Agreements resulting from mediation (other than community mediation) will be final, binding, and enforceable in the same manner as court judgments. They may be challenged on grounds of
  - Fraud, corruption, impersonation, or relating to disputes not fit for mediation.
- **Community mediation:** Community mediation may be attempted to resolve disputes likely to affect the peace and harmony amongst residents of a locality. It will be conducted by a panel of three mediators (may include persons of standing in the community, and representatives of resident welfare associations).

## Significance of the Bill

- The proposed law primarily intends to resolve civil and commercial disputes through mediation, it has ample scope to relieve some of the **pressure on law enforcement agencies**.
- If any **local dispute** has the potential to create a law-and-order situation, and result in the registration of a criminal case or cases, those could be avoided through community mediation.
- There are certain provisions in the Bill which may help in **improving the law-and-order situation** in a locality and/or encourage the compounding of criminal offences.
  - First, **Section 7** of the Bill says that **courts will be competent to refer any dispute to mediation** relating to compoundable offences or matrimonial offences connected with or arising out of civil proceedings between the parties.
  - Second, **Section 44** of the Bill provides for 'any dispute likely to affect peace, harmony and tranquillity amongst the residents or families of any area or locality, to be settled through **community mediation**. Any settlement so arrived at, however, shall not be enforceable as a judgment or decree of a civil court.
  - Third, the provisions of the Act shall **not have an overriding effect**, inter alia, on the Maintenance and Welfare of Parents and Senior Citizen Act, 2007 and the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act, 2013.



## Issues and analysis

- The **number of offences** which can be compounded may also be increased — particularly property offences.
- Keeping in view the recommendations of the Law Commission in its 243rd report, Section 498A of the Indian Penal Code, relating to cruelty by the husband or his relatives, can also be made compoundable. It may have far-reaching consequences in resolving matrimonial disputes.
- Mediation is a **voluntary** and cost-effective dispute resolution process. Mandating is contrary to its nature. Further, mandating pre-litigation mediation would require the availability of sufficient trained mediators.
- The Bill unwisely treats **international mediation** when conducted in India as a domestic mediation and the settlement under the latter is given the status of a judgment or decree of a court.
- There is a long list of **disputes such as fraud** which should not be mediated.

## Mediation Council of India

- The Bill provides that the central government will establish the Mediation Council of India. **Functions** of the Council include
  - registering mediators,
  - recognising mediation service providers (institutions administering mediations) and mediation institutes (providing training, education, and certification of mediators),
  - grading mediation service providers, and
  - laying down standards for the professional conduct of mediators, mediation service providers, and mediation institutes. We discuss two issues with the Council.

Mediation, being the cheapest and simplest option available to the public at large, can be described as a tool of social justice. Separate legislation for mediation and rules will indubitably address most concerns around the mediation process and pave the way for making mediation the first-stop dispute resolution method for domestic and cross-border disputes. In addition to the reforms discussed above, a great deal of shift in the mindset of stakeholders, awareness about the process, and redefining our approach to mediation is essential for the growth and sustainability of the mediation practice in India.

## Armed Forces (Special) Powers Act (AFSPA)

### Context

- In a historic move, the **Government of India** after decades decided to considerably **limit the territory** of the Armed Forces Special Powers Act (AFSPA) of 1958 in the **Northeast**.
- The centre declared that it would withdraw completely from 23 Assam regions, as well as parts from seven Nagaland districts, six Manipur districts, and one Assam district. AFSPA will continue to operate in sections of these 3 states, along with parts of Arunachal Pradesh and Jammu & Kashmir, once the judgement is published in the gazette.

### AFSPA of 1958

- The Armed Forces Special Powers Act (AFSPA) grants the military broad powers to preserve civil order in "**disturbed areas**."
- If armed troops feel an individual or a group of individuals infringing the law, they can **restrict a gathering** of 5 or more people in a certain region, use force, or even open fire after providing due caution.
- The military can **only detain a person without a warrant**, enter or inspect premises without a permit, and restrict the ownership of weapons if it has "**reasonable suspicion**."
- Any individual placed under arrest must be **handed over to the local police station's** official in charge, together with a document outlining the circumstances of the detention.
- After a territory or portions of it are deemed "disturbed" under Section 3, the Central Government or the Governor of that state may enforce AFSPA on the state or sections of
- In regions where there's been a **significant amount of militancy**, AFSPA has been deployed. The Act has also granted **security staff** engaged in such operations **complete immunity** i.e., no prosecution or legal action can be taken against them without the Centre's prior sanction.
- The British passed this Law in its original version in response to the **Quit India campaign in 1942**. The then Indian Prime Minister Jawaharlal Nehru opted to keep the Law after Independence, which had been introduced as an ordinance and subsequently recognised as an Act in 1958.

### Why is the act controversial?

- The act's main **point of contention** is the authority it gives to military personnel to act in "disturbed" areas.
- **Section 4** of the act asserts that members of the military – commissioned officers, warrant officers, non-commissioned officers, or any other individual of equivalent status – are permitted to shoot or use force, even to cause death i.e., **shoot on sight** – "if they are of perception" that it is essential to sustaining civil order after providing proper notice in the event that prohibitory instructions in the region are disobeyed.
- It also provides for the **detention of a suspect without a warrant** and the use of force against someone who has committed "a cognizable conduct or against whom there is a clear suspicion that he has undertaken or is about to conduct a cognizable offence."
- The 5-member Jeevan Reddy Panel, which the Government appointed in 2004 to assess the contents of the AFSPA in India's northeastern states, suggested that the legislation be repealed in its totality. AFSPA was also called by the panel a "**hate symbol, tyranny, and a tool of high-handedness.**"
- In a 114-page report released in 2013, a **Supreme Court panel** led by Justice Santosh Hegde concluded that AFSPA "**failed to confront insurgency** and that the military forces were engaging in egregious **human rights abuses** by functioning behind the protection of the constitutional provision."

### Why was AFSPA imposed on the Northeast?

- When the **Naga nationalist project** started in the 1950s with the formation of the **Naga National Council** – the forerunner to the NSCN – Assam authorities allegedly resorted to violence to suppress it. As an armed rebellion grew in Nagaland, Parliament passed the AFSPA, which was then applied across the entire region.
- It was implemented in the **3 Naga-dominated regions** of Senapati, Tamenglong, and Ukhrul, where the NNC was prominent, in Manipur in 1958.
- Then in the 1960s, it was enforced in the Kuki-Zomi-dominated Churachandpur division of Manipur, which was within the control of the **Mizo insurgent campaign**, and it was expanded to the entire state in 1979 after parties in the Meitei-dominated Imphal Valley launched an armed insurrection.
- As **secessionist and nationalist activities** grew in other Northeastern states, AFSPA reportedly expanded and implemented.

### Human rights issues:

- One of the numerous characteristics of AFSPA that raises humanitarian concerns is that it contains clauses that enable for rare circumstances in which **accused troops** might be prosecuted in court.
- As previously noted, AFSPA has fostered an atmosphere of impunity, allowing armed units and governments to utterly disregard human rights and fundamental freedoms of law.
- Human rights breaches under AFSPA include personnel committing **sexual abuse**, the use of **human shields** on army vehicles, the fabrication of **fake confrontations**, and reports of disappearances while in jail.

### The way forward

- The **government should consider** the imposition and lifting of AFSPA and should abide by the guidelines set out by the Supreme Court, Jeevan Reddy Commission, and the National Human Rights Commission (NHRC).
- **Local people** are the ones who suffer the most, their **grievances** should be **redressed** as the status quo is no longer an acceptable solution.
- Need to establish **coordination** and **cooperation** among security forces and the governments both at the state and central level for fast-tracking of cases and prosecuting the guilty.

## IAS (Cadre) Rules

### Context

- Recently, the Central Government has proposed amendments to the IAS (Cadre) Rules in order to exercise greater **control in the central deputation** of IAS officials.
- The proposal has become the centre of tussles between the Centre and the States.

### What is the current rule on deputation?

- The central deputation in the Indian Administrative Service (IAS) is covered under the Rule-6 (1) of the **IAS (Cadre) Rules-1954**, inserted in May 1969.
  - It states that “a cadre officer may, in **concurrence of the State Governments** concerned and the Central Government, will be deputed for service under the Central Government or another State Government or under a company, association or body of individuals, that are whether incorporated or not, which is wholly or substantially **owned or controlled by the Central Government or by another State Government**. Provided that in case of any disagreement, the matter shall be decided by the Central Government and the State Government or State Governments concerned shall give effect to the decision of the Central Government.”

### What are the proposed amendments?

- The proposed amendments will enable the Union government to seek the services of an Indian Administrative Service (IAS), Indian Police Service (IPS) and Indian Forest Service (IFoS) officer posted in a State **without the State government's consent**.
- The Centre will also be able to **relieve an officer from their cadre** if the State government does not give effect to the Central government's decision within the specified time.
- In case of disagreement, the matter shall be decided by the central government and the state government or state governments concerned shall give effect to the decision of the central government “within a specified time”.
- Services of an IAS officer with specific domain expertise may be required for any important time-bound flagship programme or project.

### The issue with the proposed amendments

- The contemplated changes have grave **implications for the independence**, security and morale of IAS officers.
- Several states have perceived the proposed amendments as the **infringement of the right** to deploy IAS officers as they deem best. This is especially when the cutting edge of policy implementation is mostly at the State level.
- States prefer officers of the **State Civil Services** to handle as many posts as possible for better administration. In the course of time, the IAS will lose its sheen, and the best and the brightest candidates will no longer opt for the IAS.
- In **S.R. Bommai vs Union of India** (1994), the Supreme Court held that “States have an independent constitutional existence and they have as important a role to play in the political, social, educational and cultural life of the people as the Union. They are neither satellites nor the agents of the Centre”.

### Way forward

- Instead of imposing restrictive provisions to usurp the power of the States, the Union government can “**positively reconstruct the working/service conditions** for All India Service officers through a transparent empanelment process and by ensuring professional space and independence” so that the officers could opt for deputation to the Union government “voluntarily without any need for coercive rules.
- Need to develop **coherence between Centre and State** governments periodically.
- **Mandatory leave** for officials working in sensitive posts like financial institutions, etc (RBI's rule of mandatory leave).

In a federal country like India, it is inevitable that the differences and disputes would arise between the Centre and the States. However, all such quarrels should be resolved in the spirit of cooperative federalism and keeping the larger national interest in mind.

## All India Judicial Service

### Context

- With recent reports, the Centre government is attempting to set up an All India Judicial Services (AIJS) along the lines of IAS and IPS for **central recruitment of officers of the lower judiciary**.
- The idea of centralised recruitment of judges has been debated in legal circles for decades and remains contentious.

### What is the proposed AIJS?

- The AIJS is considered a reform push to centralise the recruitment of judges at both the level of additional district judges and district judges for all states.
- The recruitment will be on the lines as the Union Public Service Commission conducts a central recruitment process and assigns successful candidates to cadres, judges of the lower judiciary are proposed to be recruited centrally and assigned to states.

### How district judges are currently recruited?

- The district judges are appointed as per the procedure mentioned in **Articles 233 and 234** of the Constitution.
- The candidates are selected through the **Provincial Civil Service (Judicial) exam** commonly referred to as the judicial services exam. The selection process is conducted by the **State Public Service Commission** and the concerned **High Court (HC)**.

### Why AIJS is proposed?

- The idea was first mooted in the **Law Commission's 1958 'Reports on Reforms on Judicial Administration'**.
- The main reason is the **backlog of cases** (3.8 crores) in the lower judiciary comprising district and subordinated courts (total of 4.4 crores cases pending across the Indian judiciary).
- There are more than **5,000 vacancies** in the lower judiciary out of the total sanctioned strength of more than 22,000 judges.
- The AIJS will not only ensure the filling of vacancies faster but also address structural issues such as varying pay, remuneration across states and issues of **social inclusion** by enabling suitable representation to marginalised and deprived sections of society.

### How will it work?

- **Article 312** of the Constitution which already deals with 'All-India Services', may provide for the creation of one or more all-India services, including all-India judicial services.
- Article 312 also gives power to **Rajya Sabha** (by resolution supported by not less than two-thirds of the members present and voting) for the addition or subtraction in all-India service along with the format of the selection process.

### Judiciary's view on AIJS

- In 1992, the **Supreme Court in All India Judges' Assn. (1) v. Union of India** directed the Centre to set up an AIJS. In a 1993 review of the judgment, however, the court left the Centre at liberty to take the initiative on the issue.
- In 2017, the Supreme Court took **suo motu cognizance** of the issue of appointment of district judges, and mooted a "Central Selection Mechanism".
- Senior advocate Arvind Datar, who was appointed amicus curiae by the court, circulated a concept note to all states in which he recommended conducting a **common examination instead of separate state exams**.
- Based on the **merit list**, High Courts would then hold interviews and appoint judges. Datar submitted that this would not change the constitutional framework or take away the powers of the states or High Courts.

### Issues related to the creation of AIJS

- **Opinion:** It has been observed that there has been a **divergence of opinion among the state governments and the high courts** regarding the formation of AIJS.
- While some state governments and high courts favoured the proposal, some were not in favour of the creation of AIJS while some others wanted changes in the proposal formulated by the central government.



- **Federalism:** Several states raised concerns that the centralised recruitment will take away their power and is against the **principle of federalism**. This is the main contention of several states, which have also argued that central recruitment would not be able to address the unique concerns that individual states may have.
- **Communication:** **Language and representation** are also highlighted by states, as of now the business in court is conducted in regional languages which could be affected by central recruitment.
- **Dilution:** A central test could give the executive a foot in the door for the appointment of district judges, and **dilute the say that High Courts** have in the process.
- **Core issue:** Several legal experts have argued that the creation of AIJS will not address the **structural issues** plaguing the lower judiciary.
- **Merit:** Experts argue that increasing pay across the board and ensuring that a fraction of High Court judges is picked from the lower judiciary, may help better than a central exam to attract quality talent.

## Empower City Governments

### Context

- The **Reserve Bank of India (RBI)** in its recently released report. “**State Finances Study of Budgets of 2021-22**” highlighted the work of local government in India is playing a frontline role in combating the pandemic by implementing containment strategies, and healthcare has increased stress on their finances and forced them to cut down expenditures.

### Local Government in India

- **Municipalities:**
  - The municipal bodies have a long history in India. **Presidency Town of Madras** was the first such Municipal Corporation set-up in 1688.
  - After independence, the formation of local bodies was originally not part of the Constitution. It was added by the Parliament by enacting the **74th Constitution Amendment Act of 1992**.
  - States and Union Territories (UT) have also set up **State Election Commission** to conduct the election of municipal bodies.
- **Panchayat:**
  - The **73rd Constitution Amendment Act of 1992** has provided to set up **Gram Sabha** at a village level for its administration.
  - This led to the formation of **Panchayat** at the village level and intermediate level.
  - The tenure of the Panchayat was fixed for five years and the election was to be conducted by the State Election Commission.
- The RBI report also highlighted the need to empower the local bodies financially through higher resource availability.

### Challenges in Local Bodies

- **Financial crunch:** The **source of income** is quite inadequate for a few local bodies in India, especially at the village level. Most of the income-generating taxes are levied by the union and state governments, hence, the taxes collected by the urban local bodies are not sufficient to cover the expenses of the service being provided.
- **Unplanned:** Many urban local bodies have failed to cope with the increasing needs of the population, both qualitatively and quantitatively. This situation has worsened with the influx of rural migrants in search of employment. The **ill planning** by the municipalities presents unprecedented problems like water scarcity, traffic congestion, poor sanitation, road potholes, etc.
- **Control:** Although the Constitutional amendments of 1992 ensured autonomy in functioning, in reality, there is an excessive **State government control** in its functioning. This legislative, administrative, judicial and financial control over local bodies has diverted the principles of self-governance.
- **Effectiveness:** The inadequate finances have failed to fulfil the state government’s obligatory functions. **Basic amenities** like water, sanitation, upkeep of roads, housing, transport etc. have not been maintained properly showing the ineffectiveness of local bodies.
- **Overreach:** The local bodies are dominated by **multiple agencies** like the state transport corporation, state electricity board, water supply department, etc. are under the direct jurisdiction of the state government. Their functions often overlap and this system of dual control diluted the responsibility of each.

- **Personnel:** The local bodies are run by **undisciplined and untrained** employees and officials. Among these, there are several segments of the personnel system. The lower level, generally are a separate personnel system but, at the higher level, there are 'deputations', integrated and unified personnel systems as well as a separate system of staff.

### Way ahead

- The role of the **State Finance Commission** should be strengthened for effective devolution of finances from State government to local governments. Another viewpoint here is that the finance should be allocated directly from the Union government to avoid any misuse of power by the state government.
- The **academic institutes** have often shown interest in innovations in public administration. The local bodies may use their practical knowledge to collaborate with the universities and research institutes to find the best possible solution.
- For better transport, a **special purpose vehicle** (SPV) with the participation of public agencies should be set up. Such SPVs can also be helpful in improving basic amenities.
- Review **municipal bonds'** interest rates to make them more attractive market-based financial instruments. The government can also consider including municipal bonds in the list of eligible investments for the Employee Provident Fund Organisation.

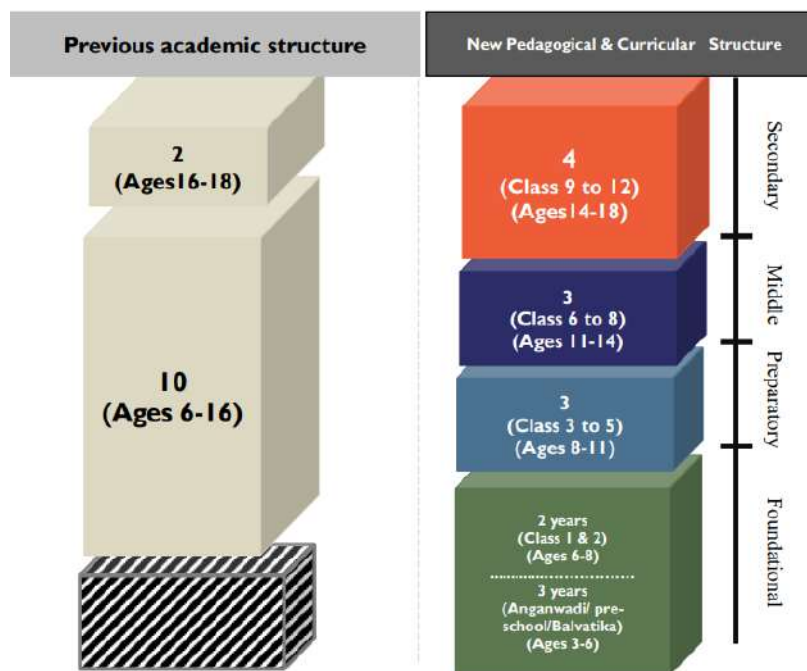
As per the population projections, the level of urbanisation will be different in various states. Indian policymakers should recognise these differences and plan accordingly. A constitutional amendment will be required for the strict implementation of the financial allocation and also address the separate administrative functions.

## SOCIAL JUSTICE

### National Education Policy (NEP)

#### Context

- This National Education Policy 2020 is the **first education policy of the 21st century** and aims to address the many growing developmental imperatives of our country.
- This Policy proposes the **revision and revamping of all aspects of the education structure**, including its regulation and governance, to create a new system that is aligned with the aspirational goals of 21st-century education, including Sustainable Development Goal - 4 (SDG-4), while building upon India's traditions and value systems.



#### Fundamental Principles of NEP

- Recognizing, identifying, and fostering the **unique capabilities of each student**, by sensitizing teachers as well as parents to promote each student's holistic development in both academic and non-academic spheres;
- According the highest priority to achieving **Foundational Literacy and Numeracy** by all students by Grade 3;
- Flexibility, so that learners have the ability to choose their **learning trajectories** and programmes, and thereby choose their own paths in life according to their talents and interests;
- No hard separations** between arts and sciences, between curricular and extracurricular activities, between vocational and academic streams, etc. in order to eliminate harmful hierarchies among, and silos between different areas of learning;
- Multidisciplinarity** and a **holistic education** across the sciences, social sciences, arts, humanities, and sports for a multidisciplinary world in order to ensure the unity and integrity of all knowledge;
- Emphasis on **conceptual understanding** rather than rote learning and learning-for-exams;
- Creativity and **critical thinking** to encourage logical decision-making and innovation;
- Ethics** and **human & Constitutional values** like empathy, respect for others, cleanliness, courtesy, democratic spirit, spirit of service, respect for public property, scientific temper, liberty, responsibility, pluralism, equality, and justice;
- Promoting multilingualism and the **power of language** in teaching and learning;
- Life skills** such as communication, cooperation, teamwork, and resilience;
- Focus on **regular formative assessment** for learning rather than the summative assessment that encourages today's 'coaching culture';
- Extensive **use of technology in teaching and learning**, removing language barriers, increasing access for Divyang students, and educational planning and management;
- Respect for diversity** and respect for the local context in all curriculum, pedagogy, and policy, always keeping in mind that education is a concurrent subject;

- Full **equity and inclusion** as the cornerstone of all educational decisions to ensure that all students are able to thrive in the education system;
- **Synergy in curriculum** across all levels of education from early childhood care and education to school education to higher education;
- **Teachers and faculty as the heart of the learning process** – their recruitment, continuous professional development, positive working environments and service conditions;
- A 'light but tight' regulatory framework to ensure **integrity, transparency, and resource efficiency** of the educational system through audit and public disclosure while encouraging innovation and out-of-the-box ideas through autonomy, good governance, and empowerment;
- Outstanding research as a **corequisite** for outstanding education and development;
- Continuous **review of progress** based on sustained research and regular assessment by educational experts;
- A **rootedness and pride** in India, and its rich, diverse, ancient and modern culture and knowledge systems and traditions;
- Education is a public service; **access to quality education** must be considered a basic right of every child;
- **Substantial investment** in a strong, vibrant public education system as well as the encouragement and facilitation of true philanthropic private and community participation.

### There are several prerequisite NEP to move forward

- **Robust institutional mechanism** to support the NEP.
- **Capacity building** is required along with creating enthusiasm among **stakeholders**.
- All stakeholders should have **ownership and understanding** of the concepts.
- Directorates of education have to be strengthened.
- Need to move school and staff from fixed to **growth mindsets** to make sense of the new change.
- There is a requirement for **effective strategies** to physically equip teachers and students with better tools in the classroom, gadgets and internet access.
- Due to its **experimental nature** it cannot be brought online.
- Need to research evaluation and documentation along with **coordination and convergence** of the policy and programmes connected with it.
- Also need to **sensitize parents** about NEP.

Prime Minister Narendra Modi, highlighted that the NEP will help our children to realize their hopes, aspirations and dreams to get them future-ready. NEP is about learning through observation, listening, exploring, experimenting and asking questions, all of which require interest, motivation, engagement and a need for children to understand why they are learning.

## Universal Health Care (UHC)

### Context

- The COVID-19 crisis has revived the issue that is oddly slow to come to life in India - Universal Health Care (UHC).

### What is UHC?

- The basic idea of UHC is that no one should be deprived of quality health care for the lack of ability to pay.
- It has even been largely realised in many countries, not only the richer ones (minus the United States) but also a growing number of other countries such as Brazil, China, Sri Lanka and Thailand.
- UHC is a means to promote the human right to health. Universal health coverage has been included in the new Sustainable Development Goals adopted by the United Nations.
- The United Nations Sustainable Development Goals that all UN Member States have agreed to try to achieve Universal Health Coverage by 2030. This includes financial risk protection, access to quality essential healthcare services and access to safe, effective, quality and affordable essential medicines and vaccines for all.



## Approach to UHC

- The UHC typically relies on two basic approaches:
  - First, health care is provided as a free public service. This **socialist approach** has worked not only in communist countries such as Cuba but also in the capitalist world such as the United Kingdom.
  - Second, another approach allows private as well as public provision of health care, but the costs are mostly borne by the **social insurance funds**, not the patient, so the result is similar: everyone has access to quality health care.
- Social insurance is very different from a private insurance market. The simplest variant is one where insurance is compulsory and universal, financed mainly from general taxation, and run by a single non-profit agency in the public interest.
  - For example, a single-payer system in Canada, Australia and Taiwan. This system makes it easier for the state to bargain for a good price from healthcare providers.
- However, some countries have adopted other models of social insurance, for instance, **multiple non-profit insurance funds** instead of a single player, for eg: **Germany**.

## Challenges in implementing UHC in India

- In the absence of public health centres dedicated not only to primary health care but also to preventive work, there is a danger of patients rushing to expensive hospitals every other day.
  - This would make the system wasteful and expensive. As it is, containing costs is a major challenge with social insurance, because patients and healthcare providers have a joint interest in expensive care – one to get better, the other to earn.
- Another challenge with social insurance is to regulate private health-care providers. The private party run for profit in compromising the well-being of the patient.
- Various **social issues** like, high disease prevalence, issues of gender equality, unregulated and fragmented health-care delivery system, non-availability of adequate skilled human resource, vast social determinants of health, inadequate finances, lack of inter-sectoral coordination, etc. are also considered as challenge in implementing UHC in India.
- The low level of **financial protection**, as offering the same set of quality services to the entire population economically not feasible for a developing country like India.

## Way forward

- There is a need to envisage a framework for UHC that would build primarily on health care as a public service and develop a chance to converge toward **National Health Service (NHS)** in due course.
- The idea of **healthcare as an optional public service (HOPS)** under which everyone would have a **legal right** to receive free, quality healthcare in a public institution. HOPS will likely to bring equality as the public sector provides a growing range of health services. If quality health care is available for free in the public sector, most patients will have little reason to go to the private sector.
- The government of India should emphasise on strengthening **primary health centres (PHCs)** to promote preventive care and stop crowding of secondary and tertiary level care.
- The development of **generic medicines** is another area where there is a need of research & development (R&D) to further develop low cost medicines.
- Professional ethics among health workers and a **robust health system** with efficient management and adequate resources will help country strengthen its roadmap for UHC.

## Hindi Imposition

### Context

- The **Union Home Minister** Amit Shah in his recent statement said the Hindi should replace English as the **link language**. The Government's work or communication between State & State government and Centre & State governments should be increasingly in Hindi under the name of One Nation One language.

## Constitutional Provisions

The Constitution contains the following provisions in respect of the official language of the Union:

- Hindi written in **Devanagari script** is to be the official language of the Union. But, the form of numerals to be used for the official purposes of the Union has to be the international form of Indian numerals and not the Devanagari form of numerals.
- However, for a period of fifteen years from the commencement of the Constitution (i.e., from 1950 to 1965), the **English language** would continue to be used for all the **official purposes** of the Union for which it was being used before 1950.
- Even after fifteen years, the Parliament may provide for the **continued use** of English language for the specified purposes.
- At the end of five years, and again at the end of ten years, from the commencement of the Constitution, the **president should appoint a commission** to make recommendations with regard to the progressive use of the Hindi language, restrictions on the use of the English language and other related issues.
- A committee of Parliament is to be constituted to examine the recommendations of the commission and to report its views on them to the president.
- The Parliament enacted the **Official Languages Act in 1963**. The act provides for the continued use of English (even after 1965), in addition to Hindi, for all official purposes of the Union and also for the transaction of business in Parliament.
- Notably, this act enables the use of English indefinitely (without any time-limit). Further, this act was amended in 1967 to make the use of English, in addition to Hindi, compulsory in certain cases.

## Issue in considering Hindi as official language

- Hindi is the **mother tongue** of some 50% of our population; the percentage has been growing due to the ineffectiveness of population control measures in much of North India. It is not, however, the mother tongue for the rest of the country.
- By considering Hindi as an official language will work against the efficiency of the **governance**. For example, obliging a Keralite bureaucrat in Delhi to read and write file notations in Hindi to be submitted to a superior officer from Odisha will not be feasible for both the officials
- Many people from **south of India and north-east** alike are developing ease and familiarity with Hindi because it is a language in which they are entertained. But it would become so only because Indians freely and voluntarily adopt it, not because it has been forced upon them through legislation.
- Such policies go against the principle of cultural diversity of India.

## Way forward

- Need to reconsider the **three-language policy**. This formula was envisaged by Kothari Commission whose objective was to increase language diversity by introducing Hindi in non-Hindi speaking States at an early and non-Hindi language in Hindi-speaking States.
- A language cannot be imposed or repealed from a country like India. Thus, the Government should focus more fostering national unity in the name of language by creating a **common market** in one language.
- Policies should be formulated to give boost to Indian cultural diversity. By adopting a tolerant policy towards culture the government should show the this richness to people of India.

## CUET Mandate

### Context

- The University Grants Commission (UGC) made it mandatory for Universities to admit students in their undergraduate programmes solely on the merit scores of **Central University Entrance Test (CUET)** from 2022-23 academic year.
- The **National Testing Agency (NTA)** of the Ministry of Education will be the implementing agency to conduct test under CUET.

## About UGC

- The University Grant Commission (UGC), is a **Statutory Body** of Government of India, Ministry of Education, Department of Higher Education, constituted under the University Grants Commission Act, 1956 (3 of 1956), vested with **two responsibilities**: that of providing funds and that of coordination, determination and maintenance of standards in institutions of higher education
- The UGC's mandate includes:
  - Promoting and coordinating university education.
  - Determining and maintaining standards of teaching, examination and research in universities.
  - Framing regulations on minimum standards of education.
  - Monitoring developments in the field of collegiate and university education; disbursing grants to the universities and colleges.
  - Serving as a vital link between the Union and state governments and institutions of higher learning.
  - Advising the Central and State governments on the measures necessary for improvement of university education.

## Arguments for CUET

- The reputed Indian institutes like Indian Institutes of Technology (IIT), National Institutes of Technology (NIT), Indian Institutes of Information Technology (IIIT) and Indian Institute of Management (IIM) and medical institutes are already admitting students on the basis of single common entrance examination.
  - Since, these **institutions of national importance** (INIs) have set an example of admitting students on the basis of merit, the CUET mandate increase other institutes standards and quality.
- Many experts raised concerns that a common entrance test may undermine the importance of board examinations and which will distract students.
  - Many universities admit students on the basis of their entrance tests. Hence, the CUET mandate may find to be **favourable for students** to widen their academic choices and would also save cost, hassle and inconvenience of attempting different states test.
- Many universities are failing to have a **leak-proof examinations**. Thus, NTA will maintain the autonomy, competence, credibility and expertise in conducting such examinations.
- The large central universities were criticised for admitting students on the basis of board marks for **fixing cut-offs** at very high-level. The CUET mandate will ensure the equal opportunity for students on the basis of merit.

## Arguments against

- The world-class universities does not insist upon the idea of admitting students solely on the basis of common entrance test. Instead, they respect the idea of **academic autonomy**.
- The National Education Policy (NEP) 2020 maintained that the academics in India should follow **diversity and university autonomy** while conducting any common entrance test. The CUET mandate will leave universities and colleges depend upon NTA assessments for admitting students.
- Out of total, only 5.08% **enrolment in higher education** accounts for centrally-funded universities and the remainder 94.92% are in self-financed and State universities. Hence, for mere 6% of the total enrollment the government has announced such policy.
- As per Tamil Nadu Chief Minister, M.K. Stalin, the CUET mandate will be considered as an attempt to **centralise higher education admissions**. This will sideline the state education and will undermine the state school boards as well the diversity in learning.

## Way forward

- The best possible method should be evolved through discussions, deliberations and in **consultation with the stakeholders**. It would have been appreciated, if the UGC have taken the universities into confidence and given due consideration to their concerns.
- As the UGC making the CUET mandatory for admission in higher educational institutions across the country, it must realise that the higher education is in the **concurrent list** and thus, it requires a joint responsibility of the Union and State governments.

- The regulatory reforms, in particular the establishment of the **Higher Education Commission of India (HECI)**, as prescribed by the NEP 2020, need to be expedited, as there has been consultative mechanism in the form of the General Education Council (GEC), for the speedy and better implementation of the NEP.

## Quota and Data

### Context

- The Supreme Court has quashed the Tamil Nadu Special Reservation Act of 2021, also known as **Vanniyar quota law** on the ground that it was not based on updated quantifiable data.

### About the Act

- The Act had envisaged the distribution of the 20% quota for **Most Backward Classes (MBC)** and **De-notified Communities (DNCs)** in education and public employment by assigning **10.5% to Vanniyars** or the **Vanniyakula Kshatriya community**, 7% for 25 MBCs and 68 DNCs, and 2.5% for the remaining 22 MBCs.
- The Vanniyakula Kshatriya reservation by the Tamil Nadu state was given under the **Most Backward Classes and Denotified Communities Act, 2021**.
- The Supreme Court upheld **Madras High Court** order quashing Tamil Nadu law ("2021 Act"), the Court held that the State had the **legislative competence** to make sub-classifications among the backward classes.

### Why the apex court quashed the law?

- With respect to the issue of caste being the determinant for internal reservation, the Bench was of the view that **caste can be a starting point** for providing internal reservation, but the State Government must justify that it was reasonable and show that caste was **not the sole basis for classification**.
- The apex court noted that the State Government was not justifying the base of sub-classification on the letter of Justice Thanikachalam, Chairman of the Tamil Nadu Backward Classes Commission, which relied on the **Janarthanam Commission Report** wherein the data was antiquated and based on population.
  - Even the members of the Commission, apart from the Chairman, were also not in favour of recommending internal reservation, in the **absence of the updated caste-based data**.
- The court held that the sub-classification was not backed by the relevant quantifiable data. Hence, the 2021 Act **violative Articles 14, 15 and 16 of the Constitution** of India.
- Also, there must be pertinent, contemporaneous data. 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.
- Upholding the HC judgement, a bench of Justices L Nageswara Rao and B R Gavai said it is of the opinion that the law failed to provide any substantial basis to treat Vanniyar as a separate group compared to others among other MBCs. Thus, the 2021 Act is **ultra vires** the Constitution.

## Academic Bank of Credit (ABC)

### Context

- The Centre Government has brought all recognised higher education institutions, irrespective of their accreditation or rankings, **under the ambit** of the Academic Bank of Credit (ABC).
- The ABC will enable **students to switch** between institutions and multiple entries and exits from the ongoing programme.

### About Academic Bank of Credit (ABC)

- The ABC framework is a part of National Education Policy (NEP) 2020, and will allow higher education institutions to maintain a digital repository of credits earned by students.
- Academic Bank of Credits has been established on the lines of the National Academic Depository (NAD), in the sense, NAD is the backbone of ABC, where the students' academic data are held and academic awards are stored (i.e. storehouse of academic awards).



## Key features of ABC

- The Academic Bank will be **accountable** for opening, validating, and closing the academic accounts of students. A unique ID & password will be created from under ABC where the students can log in at any given point to check their earned credits.
- It will **carry out tasks** such as credit accumulation, credit verification, credit transfer or even redemption for students.
- The courses include the **online and distance mode** offered by the government and institutes. Some of the them include National Schemes such as - NPTEL, SWAYAM, V-LAB. Thus, the ABC will cover several types of courses including distance learning to help students of every possible stream.
- When a student pursues any course and clears exams, **credits will be automatically awarded** to them. Institutions need to fill out the details and upload the deposits in the students' Academic Credit Bank's account on the digital portal.
- The **validity** of such academic credits will be up to **seven years** and students can redeem these credits. Hence, students will have to rejoin within seven years.
- The credits can be redeemed and students can seek admission directly in the second year at any university.
- Increases the **student's freedom** in choosing their courses and academics. Enables the student to drop out in any year and then **exchange the credits** earned so far with a certificate/diploma if they are eligible.
- They can **redeem the credits and rejoin the same** or any other institute in the future and continue their education. The institutes cannot keep the students in the courses against their will to earn money.

## Expected impact of ABC on educational system

- The UGC expects a positive impact that will be brought via the practice of the ABC in the upcoming years. Higher educational institutions (HEIs) who participate in the scheme will be highly benefited due to the smooth management of credits.
- The inter-disciplinary & **multi-disciplinary approach** is the need of the hour. With the Academic Credit Bank, HEIs will be able to help students learn subjects of their choice and become "**skill-oriented**" graduates.

## Legal Marriage Age of Women

### Context

- The **Parliamentary standing committee** examining the proposed amendment to the law of raising the legal age of marriage for women from 18 to 21 years has been **given extension** to submit its report.
- Earlier, the Cabinet decided to raise the legal age of marriage of women based on the recommendations of a panel led by **Jaya Jaitly**.

### The objective increasing marriage age

- The committee's recommendation is not based on the rationale of population control as India's total fertility is already declining but it aims to increase **women empowerment** and **gender equality**.
- The access to education and livelihood for the women must be enhanced and simultaneously for the law to be effective.

### Opposition to the recommendation

- The laws to prevent child marriages are not much effective:
  - There has been a marginal decline in the child marriages from 27% in 2015-16 to 23% in 2019-20, according to National Family Health Survey (NFHS) 5.
  - The marriage age at 18 was set in 1978, but child marriage started to decline only in the 1990s, when the government stressed **primary education of the girl child** and took measures to **reduce poverty**.
  - The experts said girls being taken out of school to be married off is a reasoning blown out of proportion; often the girl child drops out after primary school simply because she has **no access to higher education**, and is then married off.
- The criminalisation of a large number of marriages:
  - While 23% of marriages involve brides under age 18, far more marriages take place under age 21.
  - The **median age** at first marriage for women aged 20-49 increased to 19 years in 2015-16 from 17.2 years in 2005-06, but remained under 21 years.

### Who will be affected with the proposed legislation?

- 70% of the early marriages take place in deprived communities such as SCs and STs, and the said law will simply **push these marriages underground** instead of preventing them.
  - According to NFHS 4 (2015-16), the median age at first marriage for women aged 25-49 is higher among the social categories of Others (19.5 years), OBC (18.5), ST (18.4) and SC (18.1).
- The **rural women will be affected more** than urban women. According to NFHS 4, the median age at first marriage (age 25-49) for urban women (19.8) is 1.7 years more than that for rural women (18.1).

## Caste Census

### Context

- In an affidavit filed in the Supreme Court in September 2021, the Union Government categorically **ruled out** conducting a **Socio-Economic Caste Census (SECC)**.

### About Caste census

- Caste census means inclusion of **caste-wise tabulation** of India's population in the Census exercise, which is a decennial count of the Indian population.
- From 1951 to 2011, every census in India has published the population of Scheduled Castes and Scheduled Tribes, comprising the **Dalits and the Adivasis**, along with the gamut of data including religions, languages, socio-economic status, etc.
- It, however, has **never counted OBC's**, the lower and intermediate castes, which according to the Mandal commission make up around 52 per cent of the country's population. All castes other than Scheduled Castes and Scheduled Tribes are counted under the general category. This is where the demand for caste census comes from.

### What is the status of the data collected under the SECC-2011?

- In its affidavit, the Government acknowledges that the SECC-2011's caste data of 130 crore Indians have been with the **Ministry of Social Justice and Empowerment** for five years.
  - Due to flaws in the data, it was decided to form an **Expert Committee** headed by the then Vice Chairman of the NITI Aayog, Arvind Panagariya.
  - But since other members of the Committee were not named, **the Committee never met**, and as a result, no action was taken on the raw data to collate it into publishable findings.
- The flaws in the data stem primarily from the fact that no registry of castes was prepared before conducting the 2011 caste census. With no consistent way to aggregate or segregate same or similar castes with variant spellings, the number of caste categories ballooned.
  - **In Maharashtra**, for instance, the existing SC, ST and OBC categories as per Government records are only 494. But the 2011 caste census yielded 4,28,677 castes. While the State's population was 10.3 crore, about 1.17 crore were found to be of '**no caste**'. Also, 99% of the castes enumerated had a population of less than 100 persons.
  - At the **national level**, whereas the total number of castes as per the last caste census of 1931 was 4,147, the SECC-2011 showed the presence of 46 lakh different castes. Since the total number cannot be "exponentially high to this extent", the Government has said that this entire data set is flawed and the census unreliable, rendering it unusable for the purposes of reservations and policy.

### Why will castes not be counted along with the regular 2021 census?

- The Government of India has given following reasons:
  - The **difference in caste categories in different lists**. The Central list contained 2,479 OBC castes, there were 3,150 OBC castes as per the lists of all the States and Union Territories taken together.
  - There are **thousands of castes** as the people use their clan/gotra, sub-caste and caste names interchangeably.
  - The **enumerators are part-timers** with 6-7 days training and "not an investigator or verifier", hence, it would be difficult to meaningfully tabulate and classify caste returns.
  - The preparatory work for a census starts three to four years earlier. The census of 2021 has already been delayed due to the pandemic, thus, the **questionnaires have already been finalised** and field test.

- Unlike in the case of SCs/STs, there is **no constitutional mandate** for the Registrar General and Census Commissioner, India to provide the census figures of OBCs/BCCs.
- The 2014 Supreme Court judgment setting aside two orders of the Madras High Court directing the Centre to conduct a caste census. As per this SC judgment, what information to collect in a census is a policy decision of the Government, and while the court may find a certain policy untenable, it was **“legally impermissible” for the court to dictate** to the Government what policy it ought to follow.

# INTERNATIONAL RELATIONS

## Russia-Ukraine Crisis

### Context

- **Russia's massive troop deployment** near the Ukraine border has raised the geopolitical temperature with the **United States warning** of "severe consequences" if Moscow carries out any military action in Ukraine.

### Why did Russia Deploy Military Troops?

- At the **heart of the current crisis** between Russia and Ukraine is **NATO** (North Atlantic Treaty Organization) – a group of 30 countries including the US, UK, France, and Germany.
- **Ukraine wants to join** this group of which the United States, the arch-rival of Russia, is a part. NATO, too, is open to making Ukraine its member, which has **irked Moscow** big time.
- Russia doesn't want NATO to allow Ukraine to become its member as it will expand the grouping's footprint to its border. The other big reason is that a member country of NATO will be eligible for collective support by all members in case of any external attack.
- As per the **principle of collective defence**, NATO considers an attack against one or several of its members as an attack against all. This is the principle of collective defence, which is enshrined in Article 5 of the Washington Treaty.
- Russia, therefore, is demanding the West pull NATO forces out of eastern Europe and never expand into Ukraine. Deputy Foreign Minister Sergei Ryabkov has said that for Russia, it's mandatory to ensure Ukraine never, ever becomes a member of NATO.
- These above reasons forced Russia to conduct a '**special military operation**' in Ukraine.

### Russia's stake in the region

- With the goal of **demilitarization and deNazification**, Russia is aiming to establish its economic and cultural relations in the region. Therefore, Russia has planned to control areas where it has core interests:
  - The **liberation of Donbas** was Russia's unconditional priority as it is the traditional industrial region that has historical ties with Russia.
  - **Luhansk and Donbas oblasts** (province) were declared sovereign states before the invasion.
  - Whereas, **Donetsk** including Mariupol will help Russia to establish a land bridge from the Russian mainland to Crimea along the Sea of Azov.
- And by controlling **Mariupol**, Russia will achieve its second, de-Nazification as the region is also the headquarters of the Azov Battalion, the neo-Nazi group that had been integrated into the Ukrainian armed forces.
  - **Russian Commander**, Maj Den Rustam Minnekayev, indicated that Russia aspires to control the whole of Ukraine's east and south which would turn Ukraine into a landlocked country.

### Sanctions on Russia

- The Russian economy was expected to contract this year; however, **the sanctions had a limited impact** on the Russian economy for multiple reasons:
  - The western response to the ongoing war has **bolstered Mr Putin's standing** in Russia as 82% of Russians approve of his presidency.
  - The sanctions led to an **increase in all commodity prices** and as a major **exporter of oil and gas**, the Russian currency proved to be one of the best-performing currencies this year.
  - With Russian blockade of Ukraine's seaports is threatening a surge in prices and hence could hamper the global supply and food security. **Countries outside of Western alliances** (including European countries) are reaching out to Russia for a solution. Hence, the west was never able to isolate Russia.



### India's stance

- India's Permanent Representative to the UN **T.S. Tirumurti** called for restraint and **diplomatic dialogue**.
- India called for de-escalation of tensions and aimed towards securing **long-term peace** and stability in the region and beyond.
- India remained abstained on almost 10 resolutions condemning or are critical of Russia in past and yet again **India abstained** from Russia's United Nations (UN) Human Rights Commission suspension resolution.
- India has taken a subtle **pro-Moscow position** on the question of Russian attacks against Ukraine.

### Why such a stance?

- As per ongoing issues in India's neighborhood it needs both east as well as west.
- India's major **problem is China**, for which it has to maintain a good relationship with the west. In the Indo-Pacific region, India needs its American and western partners to keep a check on China.
- India also **needs Russian assistance** to manage its continental difficulties in Afghanistan.
- There is an **emerging dualism** in contemporary Indian strategic Weltanschauung:
  - the predicament of a continental space that is reeling under immense pressure from **China, Pakistan and Taliban-led Afghanistan** adding to its strategic claustrophobia; and,
  - the emergence of a **maritime sphere** which presents an opportunity to break out of the same.

### China factor

- China sees the Ukraine war as an opportunity to construct an **anti-American world order** by forging some regional unity.
- The U.S. withdrawal from Afghanistan, its current focus on Russia and Ukraine, the further **weakening of Russia, and Beijing's proactive outreach** to the region with money and muscle will eventually lead to the end of Indian primacy in the region and the rise of a China-centric Asian geopolitical order.
- The longer the war lasts, the closer China and Russia could become, which certainly does not help India.
- The more severe the US.-Russia rivalry becomes, the less focus there would be on the Indo-Pacific and China, which is where India's interests lie.

### Way forward

- India will need to keep in mind its **long-term objectives** even during the delicate balancing that it is doing today.
- Ideally, in the longer run, India would like to have **both the West and Russia on its side**. But given how this war is unfolding and how Beijing is making its moves, India may indeed find it harder than ever to manage the growing contradictions between the West and Russia.
- Geopolitical choices are rarely black and white, nor are they always readily available. Sometimes, therefore, **states must proactively try to shape** the environment to generate new options.
- India will make caveated statements and will not be pressured by either party. In that sense, **India's indirect support to the Russian position** is not a product of Russian pressure but the result of a desire to safeguard its own interests.

## India-UAE

### Context

- India and UAE has recently signed a **Comprehensive Economic Partnership Agreement (CEPA)** - a **free trade agreement (FTA)** via virtual summit.

### Types of trade agreements

- **Early Harvest Scheme:** It is a precursor to an FTA/CECA/CEPA between two trading partners. At this stage, the negotiating countries identify certain products for tariff liberalization pending the conclusion of actual FTA negotiations. An Early Harvest Scheme is thus a step towards enhanced engagement and confidence building.
- **Framework agreement:** It primarily defines the scope and provisions of orientation of the potential agreement between the trading partners. It provides for some new area of discussions and set the period for future liberalisation. India has previously signed framework agreements with the ASEAN, Japan etc.

- **Comprehensive Economic Cooperation Agreement:** CECA generally covers negotiation on trade tariff and TQR rates only. It is not as comprehensive as CEPA. India has signed CECA with Malaysia.
- **Comprehensive Economic Partnership Agreement:** Partnership agreement or cooperation agreement are more comprehensive than an FTA. CECA/CEPA also looks into the regulatory aspect of trade and encompasses an agreement covering the regulatory issues. CECA has the widest coverage. CEPA covers negotiation on the trade in services and investment, and other areas of economic partnership. It may even consider negotiation on areas such as trade facilitation and customs cooperation, competition, and IPR. India has signed CEPAs with South Korea and Japan.
- **Preferential Trade Agreement:** In this type of agreement, two or more partners give preferential right of entry to certain products. This is done by reducing duties on an agreed number of tariff lines. Here a positive list is maintained i.e. the list of the products on which the two partners have agreed to provide preferential access. Tariff may even be reduced to zero for some products even in a PTA. India signed a PTA with Afghanistan.
- **Free Trade Agreement:** A free trade agreement is an agreement in which two or more countries agree to provide preferential trade terms, tariff concession etc. to the partner country. Here a negative list of products and services is maintained by the negotiating countries on which the terms of FTA are not applicable hence it is more comprehensive than preferential trade agreement. India has negotiated FTA with many countries e.g. Sri Lanka and various trading blocs as well e.g. ASEAN.

### About India-UAE CEPA

- The landmark CEPA signed between India and UAE will give a major boost to **bilateral relations** and **economic cooperation** between the two nations.
- One of the main aims of the CEPA is to increase bilateral **non-oil merchandise trade** to USD 100 billion in the next five years.
- Few significant benefits for India are as follows:
  - **Access to MENA region:** The CEPA will establish India's trade relations with the Middle East and North Africa (MENA) region. This agreement will ease similar agreements with other **Gulf Cooperation Council (GCC)** countries like Saudi Arabia, Qatar, Kuwait, Oman and Bahrain.
  - **Boost to exports:** Under CEPA, around 90% of the products exported and 80% of lines of trade from India and to the UAE will attract zero duty, a significant benefit for Indian exports facing increased competition. The zero-duty access for Indian products to the UAE is expected to expand over 5-10 years to 97 percent of UAE tariff lines, or 99% of Indian exports by value.
  - **Investment:** The CEPA is expected to accelerate FDI inflow from the UAE into India
  - **Job creation:** This agreement will create additional jobs and improve the working environment for the large Indian workforce working in the UAE. It is likely to generate one million jobs in various labour-intensive businesses.
  - **Ease of doing Business:** The CEPA provides for automatic registration and marketing authorisation of Indian generic medicines in 90 days upon their approval in developed countries.
  - **Comprehensive partnership in several areas**
    - **Cultural cooperation:** The CEPA sets up the foundation of an India-UAE Cultural Council to promote cross-cultural exchanges, cultural projects, exhibitions, and dialogue between thought leaders.
    - **Energy partnership:** The UAE is one of India's key energy providers and has shown its commitment to meeting India's energy demand.
    - **Hydrogen:** India and the UAE have agreed to establish a joint Hydrogen Taskforce to help scale up technologies, with a special focus on the production of Green Hydrogen.
    - **Skills cooperation:** Both nations agreed to work together to ensure that the UAE labour market skill needs from India are met through workforce access to training programs aligned to market needs and to address the changing needs for the future of work.
    - **Food security,** health cooperation, education and cooperation in international affairs, and defence and security are other areas.
- **Country of origin:** To prevent the abuse of treaty the CEPA has a strict clause of country of origin rules that will prevent products from other countries moving via the CEPA route.

## Veto Initiative

### Context

- In a major effort to reform the use of veto in the **United Nations Security Council (UNSC)** the General Assembly adopted a resolution to bring in the requirement of justification in case 'veto power' is used in UNSC.

### About UNSC

- The Security Council has primary responsibility for the maintenance of **international peace and security**. It has 15 Members, and each Member has one vote. Under the Charter of the United Nations, all Member States are obligated to comply with Council decisions.
- Additionally, it has five permanent member known as **P5 Countries** composed of China, France, Russia, USA and UK. These five members have right to veto or to say no to any substantive resolution passed in UNSC.
- As per Article 27 of the **UN Charter** the power of veto is held by permanent members only. Thus, this power is also referred to as the **principle of great unanimity**.

### What is 'veto initiative'?

- This initiative was launched in 2020 by **Liechtenstein** to ensure that when the Council reaches a dead end on taking action in a crisis or other critical global problem through using the veto that those responsible for blocking progress are held to account in the 193-member Assembly.
- The proposal is popular because it does not require UN reform and instead places the emphasis on strict fulfillment of the Charter's envisaged role for the Assembly.

### India's stand

- India's Deputy Permanent Representative R. Ravindra held that either the power of veto 'as a **matter of principle**' should be abolished and 'as a **matter of justice**' should be extended to new permanent members so long as it exist.
- India also reflected that the mechanisms for enabling the member of the UNGA to convene on an 'emergency basis' are **already in place** to take action in case of stalemate in UNSC. Hence, this new resolution seems unnecessary or ineffective.

## CAATSA Waiver for India

### Context

- The US House of Representatives voted for a legislative amendment in favour of granting a **waiver to India** against the punitive **Countering American Adversaries Through Sanctions Act (CAATSA)** sanctions for its purchase of the S-400 missile defence system from Russia.

### About CAATSA

- The CAATSA is a federal law of the US government through which they can impose sanctions on countries having significant transactions with **Iran, North Korea and Russia**.
- The law is been in force since 2017 which entails **economic & financial penalties** for any nation that transacts with Russia for arms and weapons.
- After Iran and North Korea, Russia came into the ambit of the law after it annexed Crimea in 2014 and its alleged meddling in the 2016 US presidential elections. **Turkey** is already under the CAATSA sanctions for its purchase of S-400 missiles from Russia.

### About S-400

- The S-400 is considered one of the most advanced and potent air defence systems. The S-400 Triumph can **counter almost all sorts of aerial attacks**, including drones, missiles, rockets and even fighter jets.
- Russia has been deploying S-400 since 1993 and began testing in 1999-2000 and deployed in 2007.
- The system is equipped with **four types of missiles**: short-range up to 40 km; medium-range up to 120 km; long-range 48N6 up to 250 km, and very-long-range 40N6E up to 400 km.

- The missile system is capable of **detecting aerial threats**, calculating the trajectory of threats, and firing missiles to counter them.
- India has bought them to protect against attacks by missiles, or fighter jets from **China or Pakistan** and at present there is no alternative system capable of serving its long-range air defence requirements.

### Significance of this waiver for India

- India has far long maintained that its foreign policy is based on its **national interest**. Even during the Russia-Ukraine, India continued its oil procurement from Russia amid criticism from its Western partners. India has already explained that India must have such a defence system given its hostile neighbourhood.
- The CAATSA waiver by the US House of Representatives **vindicates India's position** and also indicates that the US is concerned about the threats China poses to India. Therefore, with the given waiver, India would be able to defend itself in a hostile neighbourhood where the Chinese could take the advantage of the stalemate in the Ukraine conflict to try some new type of aggression.
- The waiver has given a strategic signal especially to China and Pakistan, that India is considered a very important **strategic partner of the US** and the West. The US being the world's most powerful country with its huge military and economic might is standing squarely with India in facing the threats for a long time across the LAC.

## India-Australia

### Context

- India and Australia signed an **Economic Cooperation and Trade Agreement (ECTA)**.
- The ECTA is expected to increase trade between the two sides to \$45-50 billion over five years, from the current estimate of \$27 billion, and create over 10 lakh additional job opportunities.

### Features of Ind-Aus ECTA

- The ECTA is guided by a Preamble and is divided into multiple sections that will govern what is hoped to be the **most expansive bilateral trade** since the two countries established diplomatic ties before India attained independence.
- It has a section on goods exports, and lays out clearly "**Rules of Origin**" that are aimed at creating anti-dumping measures.
- There are also sections that are aimed at providing **remedies** and mechanisms for resolving trade disputes.
- This is the **first trade deal** signed by India that has a **compulsory review mechanism** after 15 years of implementation.

### Prospect for India

- India will get access to Australian **agricultural produce** like potatoes, lentils and meat products. India will also receive machinery for processing food.
- A **Joint Dialogue** for wide-range of alcoholic and non-alcoholic drinks including Australian beer and wine with partnership from industry and government representatives to ensure cooperation and benefit for both the countries.
- India will get '**preferential access**' to all labour-intensive sectors' of export items from India such as gems and jewellery, textiles, leather, footwear, furniture, food, engineering products, medical devices and automobiles. India will also allow Australia to export raw materials under preferential terms like coal and mineral ores.
- Wide range of commitments from Australia in around 135 sub-sectors and Most Favoured Nation in 120 sub-sectors which cover key areas of the Indian services sector like IT, ITES, business services, health, education and audio-visual services.
- **Indian chefs and yoga teachers** will get specific entry quotas into Australia, while Indian students in Australia will be able to secure work visas for periods ranging from 18 months to four years on a 'reciprocal' basis.
- Students completing a diploma Down Under will be considered for an 18-month work visa; and those completing their undergraduate may get two years and those with a Ph.D. may be considered for a four-year visa.
- India and Australia have agreed to enable **fast-track approval** for patented, generic and biosimilar medicines.



- Under Article 13.5, both parties have agreed to hold consultations — and make “every effort” to find a solution — **in case of disputes** that may emerge in the course of trade in goods or services.
- The **rules of origin** ensures that waste material will not be exported by either side unless they contribute to the production of any of the items listed in the ECTA.

## I2U2 Summit

### Context

- Prime Minister Narendra Modi addresses the ‘**I2U2 Summit**’ via video conference with other leaders from US, Israel and UAE.

### About I2U2

- I2U2 stands for **India, Israel, the UAE, and the US**, and was also referred to as the ‘**West Asian Quad**’ by Ahmed Albanna, Ambassador of the UAE to India.
- It aims to discuss “common areas of mutual interest, to strengthen the economic partnership in trade and investment in our respective regions and beyond”.
- **Six areas of cooperation** have been identified by the countries mutually, and the aim is to encourage joint investments in water, energy, transportation, space, health, and food security.

### Why is it called ‘West Asian Quad’?

- The newly formed alliance will boost US efforts to **contain Chinese influence** in Asia and the Middle East on the similar lines of Quadrilateral Security Dialogue (QUAD).
- However, the Indo-Pacific Quad was primarily focused on defence and security, the West Asia Quad seems to focus more on **economic cooperation**, and not **security cooperation**.

### India’s interest

- **India is a massive market** and a producer of high-tech and highly demanded goods as well, the four countries can work together on several areas, including technology, trade, climate, and Covid-19.
- Since India enjoys friendly relations with the countries in the region, as well as deep cultural and historical links and vibrant economic ties, it can be called a ‘**natural partner**’ for the US in its efforts to revitalise its alliances in the region.
- For the UAE, apart from being an oil importer, India, owing to its **massive IT industries**, is a source of diversification and modernisation.
- On a similar note, **Indo-Israeli** relations are flourishing currently with **defence relations** being the underpinning of this growing strategic convergence.
- The grouping will help India in positioning itself as a reliable, strategic and developmental partner in the West Asian region.
- With a focus on **clean energy**, the grouping has announced a 300 megawatt (MW) hybrid renewable energy project in Gujarat, supplemented by a battery energy storage system. The energy project will also include greater opportunities for public-private sector cooperation.
- Another initiative announced in India pertains to **food security**. A series of integrated food parks will be developed across India with \$2 billion in UAE funding that will incorporate state-of-the-art climate-smart technologies to reduce food waste and spoilage and conserve fresh water.
- The recently announced initiative will bring a big technological boost, help maximise crop yields, tackle food insecurity, and enhance India’s capabilities even further.

## India-Sri Lanka

### Context

- Prime Minister Narendra Modi in a recent press conference held that **India will continue to stand with the people of Sri Lanka**

### Sri Lanka's Economic Crisis

- The root cause of the crisis lie in the **economic mismanagement** by successive governments in Sri Lanka. This mismanagement led to creation of **twin deficit** i.e, budget shortfall alongside a current deficit.
- The crisis accelerated by **deep tax cuts** that were enacted months before the **COVID-19 pandemic**, which had deep impact on country's finance.
- With the country's lucrative **tourism industry and foreign workers' remittances sapped by the pandemic**, **credit rating agencies moved to downgrade Sri Lanka** and effectively locked it out of international capital markets.
- Sri Lanka's debt management programme, which depended on accessing those markets, derailed and **foreign exchange reserves plummeted by almost 70 per cent** in two years.
- The Rajapaksa government's **decision to ban all chemical fertilisers in 2021**, a move that was later reversed, also hit the country's farm sector and triggered a drop in the critical rice crop.
- As of February, **the country was left with only \$2.31 billion in its reserves** but faces **debt repayments of around \$4 billion in 2022**, including a \$1 billion international sovereign bond (ISB) maturing in July.

### India-Sri Lanka Relations

- A **diesel shipment under a \$500 million credit line signed with India**. Sri Lanka and India have signed a **\$1 billion credit line for importing essentials**, including food and medicine, and the **Rajapaksa government has sought at least another \$1 billion from New Delhi**.
- **India and Sri Lanka have a legacy** of intellectual, cultural, religious and linguistic interaction and the relationship between the two countries are more than 2500 years old.
- In recent years, significant progress in the implementation of developmental assistance projects for **Internally Displaced Persons (IDPs)** and disadvantaged sections of the population in Sri Lanka has helped further cement the bonds of friendship.
- India and Sri Lanka enjoy a **vibrant and growing economic and commercial partnership**, which has witnessed considerable expansion over the years.
- **11 Lines of credit (LOC) have been extended to Sri Lanka** by the **Export-Import Bank of India** in the last 15 years.

## QUAD Summit

### Context

- Prime Minister **Narendra Modi** participated in the second in-person QUAD summit held in **Tokyo** along with his Japanese and Australian counterparts and US President Joe Biden.

### About QUAD

- The occurrence of a **Tsunami in the Indian Ocean** led to the formation of India, Japan, Australia, and the US to build an informal alliance for collaborating on disaster relief efforts.
- **In 2007**, The Prime Minister of Japan, Shinzo Abe, **formalised** it into the Quadrilateral Security Dialogue or the Quad.
- After facing a threat from China in 2017, the Quad expanded its objectives by creating a mechanism that determined to establish a **rules-based international order**.
- But in 2008, Australia left the group, whereas in 2020, the trio India-US-Japan did their first joint Malabar naval exercise by including Australia again.
- QUAD plays a significant role for India in **countering Chinese influence**, combating post covid diplomacy, providing security in the Indian ocean, and achieving a rule-based multipolar world.
- The objective behind the QUAD group is the initiative for strategic and significant sea routes in the Indo-Pacific region to be free from any influence.

### Highlights of the summit

- The members retreated their stance for a **free open and inclusive Indo-Pacific region**.
- They maintained to **uphold the sovereignty** of the nations and emphasized **peaceful resolution** of any dispute across the world.
- They **exchange their perspective on development and the ongoing conflict in Europe** and also discussed QUAD collaboration and its vision.
- The QUAD also pushed for **physical as well as digital infrastructure** with a total fund of \$50 billion for the next five years.
- From the security point of view, **New Maritime Surveillance and Monitoring** in the Indo-Pacific region seeks collaboration from ASEAN and other island nations in the region.
- Prime minister **Narendra Modi** highlighted India's consistent and principled position on the need for cessation of hostilities, resumption of dialogue and diplomacy.
- He also emphasized the importance of delivering on **QUAD's positive and constructive agenda** and showing **tangible benefits for the region**.

### QUAD's relevance

- The recent QUAD summit has **huge significance across the world** in the backdrop of the ongoing war in Europe.
  - As **India has maintained a neutral stance** since the start of the war, the western democracies were rattling about this.
  - The Indo-Pacific region is a real theatre of concern, as the Ukraine war in Europe is considered as a region whereas any change in the **Indo-Pacific region has worldwide repercussions**.
- Tangible benefits in the region would mean with the announcement of the **Indo-Pacific Economic Framework, push for infrastructure, and maritime security**, the QUAD is proposing a **multi-dimensional partnership** on par with China.
  - It is not just a military alliance. The **QUAD is giving alternatives to countries in the region** whose vulnerabilities have been exposed due to the pandemic and the Russia-Ukraine war.
  - In alternative to China, the **QUAD is proposing a set of projects** like increasing connectivity in the region, increasing trade and industrialization, green energy initiatives, disaster-resilient mechanisms and infrastructure.
  - Such are set to increase collaboration of various countries in the Indo-Pacific region.
- Prime minister Narendra Modi made it clear that it should be free and open Indo-Pacific by highlighting that no one should alter the status quo by force or take unilateral actions, which China has been attempting with Taiwan.
- From a **security aspect**, the member launched the **Indo-Pacific Partnership for maritime Domain Awareness (IPMDA)**, which will track 'dark shipping', illegal fishing and unregulated fishing.
  - It has also collaborated in **cyber-security** which has an important aspect of the future.
  - The member will securely store or share information with the help of collaboration in cyber-security.
- From the **diplomacy aspect**, the QUAD is considered an important partnership, this **was the 4<sup>th</sup> summit in a matter of two years**.
  - Because of a lot of **disruption and challenges** across the world due to pandemics and war, the QUAD emphasized the **need to work together to maintain peace and stability**.
  - The QUAD wants to **increase diplomacy by investing in infrastructure**, climate change adaptation and mitigation and **addressing the concerns and vulnerabilities of Indo-Pacific islands**.
- There is **no ambiguity in the QUAD agenda**, it has a clear strategy i.e., **against militarization** in disputed areas and **maritime militia**. The need of the hour is **coordination in security and economic aspect**.

## GS-3

# INDIAN ECONOMY

### OECD TAX PROPOSALS

#### In News

- The OECD/G20 Inclusive Framework Tax Deal proposes two main elements – Pillar One, which calls **for the redistribution of profits generated by the largest companies to the domicile markets** where they make their sales instead of simply where they are headquartered
- Pillar two **establishes a global minimum effective tax rate of 15%** determined on a country-by-country basis.

#### Global Minimum tax

- Countries would **change their tax laws so that if their company's profits go untaxed or lightly taxed offshore, the company would face an additional, top-up tax** back home to bring its rate up to the minimum.
- That would **remove the incentive for companies to shift profits to low-tax countries**, so the thinking goes because if those companies escape taxes abroad, they would have to pay it at home anyway.
- And the **minimum would weaken the motivation for countries to enact rock-bottom tax rates** to attract companies in the first place.

#### Size of the Problem

- From 1985 to 2018, the global average corporate tax rate fell from 49% to 24%.
- And by 2000-2018, US companies booked half of all foreign profits in just seven low-tax jurisdictions: Bermuda, the Cayman Islands, Ireland, Luxembourg, the Netherlands, Singapore and Switzerland.
- The global **minimum would end a destructive —race to the bottom—** in international taxation.

#### Impact on Ordinary People

- As the tax load on corporate revenue has declined, the **overall tax burden has tended to shift to wages and labour — in other words, from generally affluent shareholders to ordinary workers.**
- Another reason to care: According to the OECD, large companies that operate across borders enjoy an **unfair competitive advantage by capitalizing on international tax avoidance strategies that aren't available to local-only companies.**

#### The philosophy behind the proposals

- Pillar One will **ensure a fairer distribution of profits and taxing rights among countries concerning the largest MNEs**, including digital companies.
- It would **re-allocate some taxing rights over MNEs from their home countries to the markets where they have business activities and earn profits**, regardless of whether firms have a physical presence there.
- Pillar Two seeks to **put a floor on competition over corporate income tax, through the introduction of a global minimum corporate tax rate** that countries can use to protect their tax bases.
- the two-pillar **package will provide much-needed support to governments needing to raise necessary revenues to repair their budgets and their balance sheets** while investing in essential public services, and infrastructure.
- These are the **measures necessary to help optimise the strength and the quality of the post-COVID recovery.**

#### Benefits for India

- This announcement **marks the culmination of hectic international negotiations** since the Base Erosion and Profit Sharing (BEPS) 2015 reports.
- India had **strongly advocated greater taxing rights to source or market jurisdictions—a stand shared by most developing countries**—given that new-age MNEs have figured out the basis to limit their global tax incidence through innovative tax structures and invisible presence due to digital technologies.
- Given the insights Indian policy-makers have gained from participating in these deliberations, it is **expected that the law-makers will unveil a refined and nuanced direct taxation law.**



## Challenges with India

- The complexity is writ large with the international tax community and leading experts being equally sceptical about the pragmatic success of these proposals.
- Furthermore, its application requires real-time information sharing and conjoint implementation by tax authorities across the globe. Only time will prove if such shared tax assessment can be achieved in practice, despite the policy level alignment of the participating countries.
- **Uncertainty on the process and outcome await the Indian** tax authorities and businesses covered under these pillars.
- **Concerns remain on the limited 'scope' of these pillars.** By design, the two pillars cover a small class of taxpayers—MNEs which have a global turnover above 20 billion euros and net profitability above 10% for Pillar One.
- Accepting the **two-pillar solution is a trade-off, of taxing the big to spare the poor.** This sounds wise on a progressive- taxation scale and horizontal equity ideal but may not be fair since it is not necessary that the biggest MNEs earn from India and it also discounts the possibility of taxing the smaller MNEs who earn big from India.

## Indian Stand

- India joined OECD members in endorsing the global tax reform – in principle – on July 1 and has committed to working
  - towards the deal's final approval.
- Some significant issues including share of profit allocation and scope of subject to tax rules, remain open and need to be addressed.
- Further, the technical details of the proposal will be worked out in the coming months and a consensus agreement is expected by October 2021.
- The principles underlying the solution vindicate India's stand for a greater share of profits for the markets, consideration of demand-side factors in profit allocation, the need to seriously address the issue of cross-border profit shifting and the need for the subject to tax rules to stop treaty shopping.

## About Base Erosion and Profit shifting

- Base erosion and profit shifting refer to the phenomenon where companies shift their profits to other tax jurisdictions, which usually have lower rates, thereby eroding the tax base in India.
- BEPS is of major significance for developing countries due to their heavy reliance on corporate income tax, particularly from multinational enterprises. Estimates since 2013 conservatively indicate annual losses of anywhere from 4 to 10 per cent of global corporate income tax revenues, or \$100-\$240 billion annually.

## RICE FORTIFICATION

### In News

- Telangana has installed blending machines to produce fortified boiled rice out of paddy.

### Details

- Maximum rice mills in Telangana have installed rice blending machines to produce fortified boiled rice out of paddy.
- The mills in Telangana have started to install rice blending machines, as the Food Corporation of India had agreed to buy fortified boiled rice.
  - Recently the Food Corporation of India (FCI) refused to buy boiled rice this year as they have surplus stocks at godowns.

### Rice Fortification

- Rice fortification is a process of adding micronutrients to normal rice using a technological process.
- The fortified rice adds micronutrients such as iron, folic acid and Vitamin D' B 12 to the normal rice.
- The rice fortification is the 5th product after salt, oils, milk and wheat which are targeted for fortification by the union government by 2024.
- It will improve people's immunity levels, ensure intake of a balanced diet, and remove malnutrition among people, especially children.

- It will be included in mid-day meals for school children and the Public Distribution System (PDS).
- It will increase the number of essential micronutrients in food, which will help in improving the nutritional quality of food and also promote public health benefits by minimizing health risks.
- **According to FSSAI guidelines; 1 kg of fortified rice would contain:**
  - Iron (28 mg-42.5 mg).
  - Folic acid (75-125 microgram).
  - Vitamin B-12 (0.75-1.25 microgram).
  - Zinc (10 mg-15 mg).
  - Vitamin A (500-750 microgram).
  - Vitamin B-1 (1 mg-1.5 mg).
  - Vitamin B-2 (1.25 mg-1.75 mg).
  - Vitamin B-3 (12.5 mg-20 mg).
  - Vitamin B-6 (1.5 mg-2.5 mg).
- The cooking of fortified rice does not require any special method. It needs to be cleaned and washed in the normal way before cooking. After cooking, fortified rice maintains the same micronutrient levels as it had before cooking.
- According to the FSSI notification, Fortified rice will be packed in jute bags with the logo ('+F').

### Way Forward

- India has a **very high level of malnutrition among women and children**. According to the official data, every second woman in the country is anaemic and every 3rd child is stunted.
- Fortification of food is believed to be one of the **most appropriate methods to fight against malnutrition**.
- Rice is one of India's important staple foods; it is consumed by about two-thirds of the population.
- Per capita, rice consumption in India stands at 6.8 kg per month. Therefore, fortifying rice with micronutrients is a **good option to supplement the diet of the poor and remove the evil of malnutrition**.

## JUTE INDUSTRY

### In News

- Recently, the Calcutta High Court directed the Jute Commissioner to review the rate of raw jute if the notified rate cannot be adhered to.
- The jute industry of West Bengal is facing a major crisis and impacting the livelihoods of thousands of workers and farmers.
- The sector directly employs **about 70 lakh workers in the country and sustains over 40 lakh farm families**.
- With 70 of the 93 (2016 data) mills in India, West Bengal is the hub of India's jute industry, valued at around Rs 10,000 crore. Several mills are on the verge of closing.

### Issue

- The issue is the **procurement of raw jute at a higher cost but the final output is being sold at higher rates**.
- The government procures raw jute from farmers at a fixed Minimum Support Price (MSP) which is Rs 4,750 per quintal for the financial year 2022-23.
- This reaches the mill at Rs. 7,200 per quintal, that is, Rs. 700 more than the Rs. 6,500 per quintal cap for the final product.
- The **jute mills do not procure raw material directly from the farmers** because the mills are far from farmers and the process of procurement takes time.
  - No single farmer produces enough to meet the entire demand of a mill. Thus, the middlemen or traders procure raw jute from multiple farmers and then trade it to the mills.

### Impact

- As the jute sector provides direct employment to 3.70 lakh workers in the country and supports the livelihood of around 40 lakh farm families, the closure of the mills is a direct blow to workers and indirectly, to the farmers whose production is used in the mills.
  - **West Bengal, Bihar and Assam account for almost 99% of India's total production.**

## India's Jute Industry

- India is the world's biggest producer of jute, followed by Bangladesh. Jute is primarily grown in West Bengal, Odisha, Assam, Meghalaya, Tripura and Andhra Pradesh.
- The jute industry in India is 150 years old. There are about 79 jute mills in the country, of which about 60 are in West Bengal along both the banks of river Hooghly.
- Jute production is a labour-intensive industry. It employs about two lakh workers in West Bengal alone and 4 lakh workers across the country.

## Jute as a crop and its benefits

- Jute is the only crop where earnings begin to trickle in way before the final harvest. The seeds are **planted between April and May and harvested between July and August**.
- **The outer layer of the stem produces the fibre that goes into making jute products.** But the leaves can be cooked, the **inner woody stems can be used to manufacture paper and the roots**, which are left in the ground after harvest, improve the yield of subsequent crops.
- Compared to rice, **jute requires very little water and fertiliser**. It is largely pest-resistant, and its rapid growth spurt ensures that weeds don't stand a chance.
- Jute is the **second most abundant natural fibre in the world**. It has **high tensile strength, acoustic and thermal insulation, breathability, low extensibility**, ease of blending with both synthetic and natural fibres, and antistatic properties.
- Jute can be used: for insulation (replacing glass wool), geotextiles, activated carbon powder, wall coverings, flooring, garments, rugs, ropes, gunny bags, handicrafts, curtains, and carpet backings, paper, sandals, carry bags, and furniture.
- A 'Golden Fibre Revolution' has long been called for by various committees, but the jute industry is in dire need of basic reforms

## Climatic Requirements

- **Temperatures ranging from more than 25 °C** and relative humidity of 70%–90% are favourable for successful Jute cultivation.
- **Jute requires 160–200 cm of rainfall yearly** with extra needed during the sowing period. River basins, alluvial or loamy soils with a pH range between 4.8 and 5.8 are best for jute cultivation.
- **Constant rain or water-logging is harmful.**

## Problems of Jute Industry in India

- **The emergence of substitute goods against gunny bags and loss of demand for jute goods both at home and abroad:** Indian jute goods have been losing ground in the world market primarily due to keen competition from synthetic substitutes and also supplies from Bangladesh and China.
- **Effects of Partition:** Due to Partition in 1947, the erstwhile best quality jute-producing areas went to the then East Pakistan (now Bangladesh) while the jute mills were mainly concentrated in the Indian Territory.
  - Bangladesh received 82% of the good quality jute growing tract India retained 95% of the mills. The resultant acute shortage of raw jute forced some of the mills to close down.
- **Low Yield Per Acre:** India produces a very low quantity of jute per unit of land. In Bangladesh, the average yield per hectare is 1.62 tonnes. It is only 1.3 tonnes per hectare in India. The corresponding figure for jute production in China is 1.78 tonnes per hectare. In Taiwan, it is 2 tonnes per hectare.
- **Outmoded Mills and Machinery:** Most of these jute mills were established some 100 or 150 years back. Naturally, most of these mills are having backdated machinery.
  - The output of these machines is very low compared to the modern sophisticated machines. Because of the use of these for more than a century, productive capacity has gradually declined.
- **Low Demand:** Not many people are aware of plastic alternatives like jute. Besides, the misconception that cotton bags are more durable, presentable and nature friendly has resulted in very few people using jute products.

## Steps by the Government

- **Nationalization of 'sick' Jute mills:** The National Jute Manufacture Corporation Limited (NJMC) under the Ministry of Textiles has taken over the management of sick Jute mills.
- Under the **Jute Packaging Materials (Compulsory Use in Packing Commodities) Act 1987 (JPMA)**, the government is required to consider and provide for the compulsory use of jute packaging materials for supply.
  - Under unusual circumstances, the central government can allow the use of plastic bags as an alternative for up to 30% of the total requirement for food grains.
- Whenever the market price of raw jute falls below a certain level, **the Jute Corporation of India (JCI) procures raw jute at a Minimum Support Price (MSP)**, fixed based on the recommendation of the Commission for Agricultural Cost and Prices (CACP), from jute, growers to safeguard their interest.
- **Incentive Scheme for Acquisition of Plants and Machinery (ISAPM):** The government of India launched ISAPM for Jute Industry and Jute Diversified Products Manufacturing Units in 2013.
- The **National Jute Board** implements various schemes for market development, workers' welfare and promotion of diversification and exports.

## Way Forward

- Under the Jute Packaging Act, the percentage of reservation of packaging of foodgrain and sugar into jute bags is reviewed every year. Currently, 100% food grains and 20 % sugar are mandated to be packed in jute bags. There is a **need to restore it to 100% for both**.
- **India can cater to global demand** but for that two things are needed: upgrading the skills of the people...to produce different types of products and **upgrading the machinery**.
- Jute needs to **diversify its offering into non-packaging segments** because it has tremendous potential and uses apart from packaging.
- Jute-based lifestyle **products can be produced on a large scale and then sold online across e-commerce companies** in India and even exported to neighbouring countries. It will help the ailing industry and support the rural economy and empower women
- There is a need for **training centres and skills upgrades** for increased productivity and improved jute products.
- Since 2011, no major wage revision had been undertaken in the jute industry. **Implementation of the Minimum Wages Act** is the need of the hour.
- **All stakeholders, including governments, industry bodies, media, and the jute mill associations, have to work in tandem** to revive the industry and create public awareness about the use of jute products.

## ECONOMIC COOPERATION AND TRADE AGREEMENT (ECTA)

### In News

- PM Narendra Modi and his counterpart in Canberra Scott Morrison have signed an **Economic Cooperation and Trade Agreement (ECTA)**.

### Background

- The negotiations for the agreement were formally re-launched in September 2021. It was concluded on a **fast-track basis by the end of March 2022**.
- Australia is the 17th largest trading partner of India.
- **India is also Australia's 9th largest trading partner.**
- The bilateral relations have been **excellent throughout and underwent transformative evolution** in recent years.

## Economic Cooperation and Trade Agreement

- It is the **first Free Trade Agreement** signed by India with a major developed country in a decade.
- The area covered under this agreement are:
  - Trade in Goods, Rules of Origin.
  - Trade in Services.
  - Technical Barriers to Trade.
  - Sanitary and Phytosanitary Measures.
  - Dispute settlement and Movement of Natural Persons.
  - Telecom and Customs Procedures.
  - Pharmaceutical products and cooperation in other areas.
- The agreement provides an **institutional mechanism** which **encourages and improves trade**.
- It **covers the tariff lines** between the two countries.
- On all of Australia's tariff lines, India will be given **preferred market access**.
- This includes all **labour-intensive export sectors** that India is interested in, such as **gems and jewellery, leather, textiles, footwear, and furniture**.
- India, on the other hand, will give **Australia preferential access** to more than **70% of its tariff lines, including lines of export interest to Australia that are largely raw commodities and intermediaries, such as coal, mineral ores, and wines**.
- Under the deal, **Indian STEM (Science, Technology, Engineering, and Mathematics)** graduates will be given extended post-study employment visas.
- Australia will also launch a **programme to grant visas to young Indians** who want to spend their vacations working in the country.

## Significance of the agreement

- **96 % of Indian exports** to Australia will be duty-free, including shipments from vital industries like **engineering items, gems and jewellery, textiles, apparel, and leather**.
- According to the government, bilateral trade in products and services would expand to **USD 45-50 billion over the next five years, up from USD 27 billion**, and over **one million employees** will be created in India.
- Around **85% of Australian exports**, including coal, sheep meat, and wool, will have duty-free access to the Indian market, as well as lower-duty access to **Australian wines, almonds, lentils, and select fruits**.

## Way Forward

- Deepening India-Australia ties are based on **shared values, interests, geography, and goals, and collaboration and coordination** between the two countries have gained traction in recent years.
- India and Australia share a **vision of an Indo-Pacific region** that is **free, open, inclusive, and rules-based**, with cooperative maritime use based on international law, including the **United Nations Convention on the Law of the Sea (UNCLOS)**, and peaceful dispute resolution rather than unilateral or coercive actions.
- By considerably increasing bilateral trade in **products and services, creating new employment opportunities, enhancing living standards, and promoting the general welfare of the two peoples**, the India-Australia ECTA will improve the two countries' already deep, close, and strategic connections.

## MINIMUM SUPPORT PRICE (MSP)

### Context

- Farmers are demanding a legal guarantee that all farmers will receive remunerative prices for all their crops.

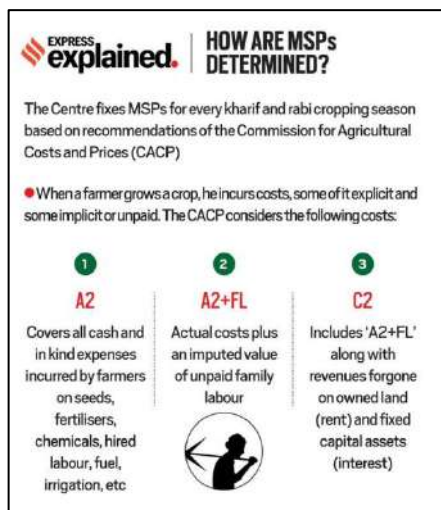
### What is MSP?

- The minimum support price (MSP) is an agricultural product price, set by the Government of India to purchase directly from the farmer. This is **not enforceable by law**.
- This rate is to safeguard the farmer to a minimum profit for the harvest if the open market has a lesser price than the cost incurred.



## Details

- The government of India announces Minimum Support Prices (MSP) for **23 major agricultural commodities** of Fair Average Quality (FAQ) each year in both Crop seasons.
- It does so after taking into account the **recommendations of the Commission for Agricultural Costs and Prices (CACP)**.
- The purpose of MSP is to make sure farmers do not face huge losses because of these crops, and that they recover at least 50% of what they invested in cultivating them.



## Procurement

- The procurement at MSP is being done by **Central and State Agencies under various schemes of Government**.
- Procurement centres are opened by respective **State Government Agencies and Central Nodal Agencies like NAFED, FCI etc.**
- This is done after taking into account the production, marketable surplus, convenience of farmers and availability of other logistics/infrastructure such as storage and transportation etc.

## Current Status

- The MSP comes as a relief to many farmers.
- The trouble with MSP is that while it is touted as an all-important factor for farmers promising an instant rise in their income and stability, it also has many drawbacks in implementation.
- Also, at present, there is no legal guarantee vested on MSP roughly one-third of the rice and wheat produced is bought by government agencies at MSP, mostly in the northern states, and the balance is procured by other buyers.
- Very often farmers are pushed to sell below MSP. The minimum rate cannot be forced on the buyer since it is just an indicative/desired price and not a mandatory one.
- The farmer unions are seeking a law that would make MSP mandatory so that the buyer cannot evade it.

## The rationale behind MSP/Legalizing MSP

- Assured Pay:** It is a one-price policy guaranteeing assured pay, which directly influences farmers' pockets.
- Economically prudent measure:** While liberalisation and free market policies may work in other (industrial) sectors, the agriculture sector has a huge population of poor farmers who do not get adequate remuneration for the effort they put in to cultivate crops. Agriculture accounts for a substantial portion of the nation's GDP and employs hundreds of crores of people. Hence, providing pricing support is an economically prudent measure and not just a sop.
- Counters Food Inflation:** Organizations like SamyuktKisanMorchahave noted that to counter food inflation, the poor can be offered subsidised food — that making the food producer settle for lower prices just to tame inflation is unfair. Subsidies and price support for farmers is **not a 'poor nation' practice**, it is being done the world over.
- Secures the vulnerable farmer:** It considers various factors when fixing the price and does not leave the farmer at the mercy of the market.

- **Enhances Food Security:** Procurement for the public distribution system and buffer stock for food security come from this policy.
- **Influences market price positively:** It has a heavy influence on market prices and also helps the farmer grow production and match up with other sectors in terms of income.

### Cons of MSP/legalizing MSP

- **No long-term solution:** Hiking the MSP without investing in infrastructure is just a short-term play. While it does deliver immediate results, long-term developments to back it up are also important.
- **The burden on the exchequer:** If MSP is legalised through an Act of Parliament, the government would have to make sure each of the 23 crops is purchased fully at the prescribed rate. There is also the cost of developing new facilities that would be needed to store and transport the food grains thus procured.
- **Revenue Diversion:** All the revenue will be diverted toward this and there will be no money left with the government to develop and maintain essential things like roads, bridges and so on.
- **Demand to cover other items:** The move would open Pandora's box. If MSP is made legal for the 23 crops, soon, other farmers will also come up with the demand for their crops such as fruits and vegetables.
- **Market Inflation:** Too much of a hike on MSP either paves way for inflationary effects on the economy, with a rise in prices of food grains and vegetables, or loss to government treasury if it decides to sell at a lower price as compared to the higher MSP it bought at.
- **The disparity in access:** MSP is a nationwide single-price policy. However, the actual cost for production varies from place to place, more severely so in areas lacking irrigation facilities and infrastructure. Thus, not all farmers have equal benefits.
- **Falling Market price:** Market prices should ideally never be below MSP. If they fall below the MSP, in concept, the farmer can always sell it to the government, which will then resell it or store it as a buffer. However, practically this does not always happen. The market value in many cases does fall below MSP due to a lack of infrastructure and procurement apparatus on the government's end.
- **Gaps in implementation:** MSP is notified for 23 crops, but effectively ensured only for two-three crops.
- **Not a panacea:** MSP while still being significant is not the only go-to solution for solving all farmer woes.

### Final Thoughts

- **Rope in private players:** To implement the MSP, the government can insist that private players also adhere to the regime, akin to the current procedure in sugarcane procurement.
- **Sell to private players:** Alternatively, it can procure the 23 crops at MSP and then sell them to private players. State-run firms such as Food Corporation of India (FCI), National Agricultural Cooperative Marketing Federation of India (Nafed) and Cotton Corporation of India (CCI) can be roped in for this.
- **Direct income transfers:** Public procurement needs to continue for staple cereals, but farmers of non-staple food crops need to be provided with direct income transfers. These are fiscally prudent, obviate the need for physical procurement and storage by the government, do not distort current production, and also provide a basic income to farmers. These will also address the main concern over the recent farm laws related to the vulnerability of small and marginal farmers and may help these farmers to avoid distress sales.

### MS Swaminathan Commission Recommendation

#### MSP enforcement:

- The Swaminathan Report at many places notes that enforcement of MSP throughout the country is essential for imparting dynamism to agriculture.
- It recommends this safety net to safeguard the interests of the crops, people and regions which are likely to be affected by the process of globalization.

#### MSP Formula

- C2+50 % is the core of the reports of the National Commission on Farmers.
- The Comprehensive cost (cost C2) includes imputed costs of family labour and rent of owned land, as also the imputed interest on owned capital.
- The National Commission on Farmers has recommended a 50 % margin over C2.
- **Deficiency price payment:** The Govt. can also go for the alternative of 'deficiency price payment' without requiring the government to purchase undesirable quantities and undesirable commodities. Deficiency price payment must be part of the difference between the actual price received by farmers and the MSP.

- **Example:** The Madhya Pradesh government has launched a 'Price Deficiency Payment' scheme for the farmers called 'BhavantarBhugtanYojana' (BBY) in 2017.

## FREE TRADE AGREEMENT

### Context

- The Government of India is planning to review all the Free Trade Agreements.

### About Free Trade Agreement

- A Free Trade Agreement is an agreement between countries to reduce or eliminate trade barriers. Trade barriers include tariff barriers like taxes and non-tariff barriers like regulatory laws.
- Trade barriers include tariff barriers like taxes and non-tariff barriers like regulatory laws.

### Reasons behind FTA

- By eliminating tariffs and some non-tariff barriers, FTA partners get easier market access to one another's countries.
- Exporters prefer FTAs to multilateral trade liberalization because they get preferential treatment over non-FTA member country competitors.
- Possibility of increased foreign investment from outside the FTA.



### Advantages of India-UAE FTA

- FTA will help in enhancing the bilateral trade and investment flows.
- This agreement will also assist in post-Covid economic recovery and future economic growth of both countries.
- It will create new job opportunities, boost living standards, and improve the general welfare of the people of both countries.

### Criticism of FTA

- India's exports to FTA countries have not outperformed overall export growth or exports to the rest of the world.
- FTAs have led to increased imports and exports, although the former has been greater.
- FTAs have had a bigger impact on metals on the importing side and textiles on the exporting side. The utilization rate of FTAs by exporters in India is very low (between 5 and 25%).
- Diversification of India's export basket is more responsible for India's export surge than RTAs.
- Bilateral trade increased post signing of all the above FTAs
- As imports from Korea, Japan and ASEAN have shot up after the respective agreements came into force, India's trade deficit with these countries has increased since then. Only exports to Sri Lanka have increased much more than imports into India from Sri Lanka.
- The overall trade deficit with ASEAN, Korea and Japan doubled. Quality of trade has also deteriorated under India ASEAN FTA.
- In 2005, 98% of Sri Lankan exports availed the FTA route. This has declined to about 50% in recent years. On the other hand, only 13% of India's exports are routed through FTA.

### Way Forward

- Review and assess its existing FTAs in terms of benefits to various stakeholders and changing trade patterns, before signing new ones.
- Negotiate bilateral FTAs with countries where trade complementarities and margin of preference are high.
- Reducing compliance costs and administrative delays are extremely critical to increasing the utilization rate of FTAs.
- Proper safety and quality standards should be set to avoid dumping lower-quality hazardous goods into the Indian market. Circumvention of rules of origin should be strictly dealt with by the authorities.

## GRAIN EXPORTS

### In News

- The **World Trade Organization** is looking at fixing laws that make it **harder for India to export food grains to other countries due to the Russia-Ukraine conflict**.

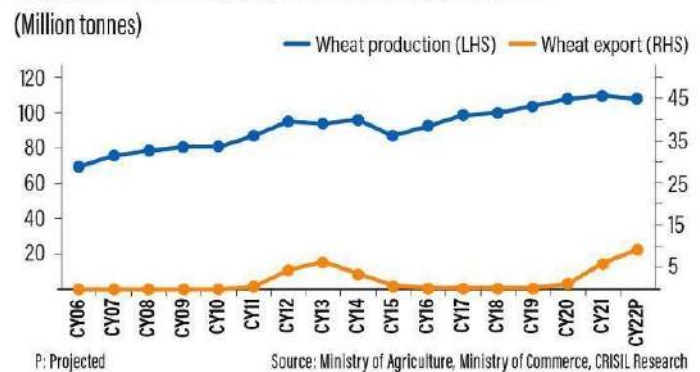
### What are the constraints?

- The WTO regulations make it difficult for a government to export grains from official inventories that were purchased at a set price (the minimum support price in India's instance) rather than market rates.
- The WTO regulation has no bearing on private traders who buy wheat from farmers at market prices.
- Wheat shipments from both nations, **which account for more than a fifth of world supply, have been badly hampered by Russia's military incursion in Ukraine**.
- There are still concerns that **poor transportation and logistics** may prevent the Indian economy from reaching its full market potential.
- Certain customers are **leery of buying wheat from India because of impurities in some of its products**. The grain's quality decides whether it can be utilised to make meals.
- In recent years**, the industry has struggled with profitability, making it all the more important for India to seize this opportunity.
- The ongoing supply shortage has driven global wheat prices to new highs**.
- With little to no chance of de-escalation in the short to medium term, **the supply situation is unlikely to improve anytime soon, placing wheat-importing countries in a bind**.
- As India's inventories are depleted by exports, grain prices may rise by 8 to 10% year over year.
- Due to high heat and inappropriate fertiliser and pesticide application, crop productivity has decreased and grain size has reduced in the states of Punjab, Haryana, and Uttar Pradesh**.
- Inadequate port infrastructure to meet rising demand, as well as greater freight prices might be stumbling blocks.

### What do the statistics say?

- Agriculture provides a living for almost half of India's people, and it contributes to roughly 20% of the country's GDP.
- According to World Bank data, **Russia was the world's largest wheat exporter, with Ukraine coming in fifth**.
- Despite being the world's second-largest wheat producer, India only accounted for 0.5 % of wheat exports in 2020.
- The country's wheat supply for the year is expected to be 147 million tonnes, with 105 million tonnes used domestically**.
- If WTO rules allow it, India has offered to send grains to other nations experiencing food shortages.

### INDIA'S WHEAT PRODUCTION AND EXPORT DATA



### How will it help India?

- The exports of food grains such as wheat, as well as the likelihood of manufactured goods being transported to places where supply had grown unstable, were **among the possibilities**.
- India has reached out to more than 20 nations about selling wheat, **to export a record 15 million tonnes this year**.
- Given the profitable export markets, **there is already evidence of increasing wheat purchases by individual dealers**.
- While worldwide wheat prices have risen, **India's wheat prices are still competitive**.
- In recent years, India has mostly supplied wheat to Bangladesh, which receives over half of India's shipments, the United Arab Emirates, and Sri Lanka.
- New export opportunities are emerging, and some countries, notably Turkey and Lebanon, have the potential to become important development markets for India**.



## RIISING OIL PRICES AND STAGFLATION

### Context

- With oil imports from Russia banned by the US and being phased out by the UK, crude prices are set to rise, particularly in the US and Europe and also the prices of edible oil are going to rise to create a problem for India.

### Global oil market

- There are three large players in the global oil market: the US; 18% -19% (highest share in global output), Russia; 12%, and Saudi Arabia; 12%.
- Together, these three control almost 45% of all oil.
- Russia is the world's second-largest producer of oil as well as the second-largest exporter.

### What is the main reason for an increase in oil prices?

- The most immediate trigger for the spike is the decision by the USA to ban the purchase of Russian oil in response to the invasion of Ukraine.
- Russia is the world's second-largest oil producer and, as such, if its oil is kept out of the market because of sanctions, it will not only lead to prices spiking but also mean they will stay that way for long.

### How will India be affected due to Rising Oil Prices?

- While India is not directly involved in the conflict, it will be badly affected if oil prices move higher and stay that way.
- India imports more than 84% of its total oil demand and increases in oil prices are going to increase our import bill further widening the Current Account Deficit.
- The rise in crude oil prices will lead to an increase in the prices of Petrol & Diesel if the government doesn't cut its taxes.
- Higher petro & diesel prices will further increase inflation and raise the general price level (due to an increase in transportation costs). A 10% increase in crude oil prices raises wholesale inflation by 0.9% and retail inflation by 0.5%.
- Higher inflation would rob Indians of their purchasing power, thus bringing down their overall demand.
- Private consumer demand is the biggest driver of growth in India, accounting for more than 55% of India's total GDP.

### Other options

- Emergency:** Strategic reserves are good enough only for emergencies.
- Supplies from countries such as Venezuela and Iran:
  - Venezuela has the world's largest oil reserves but producing oil requires more than just reserves.
  - The country's oil-producing apparatus is in disrepair partly due to the government's mismanagement but also because of harsh US sanctions.
  - Oil-producing companies are in debt and most don't even have good quality drilling equipment.
- Iran will not increase output unless it gets the nuclear deal with the US.
- Production can be scaled up but it will take time, money and effort.

Since individual production levels are quite low, several countries will have to come together and still they may not come anywhere close to matching the levels that Russia produces.

### What is 'stagflation'?

- Stagflation is an economic phenomenon marked by a combination of recession and high inflation. An economy is said to be in stagflation when the country's GDP (Gross Domestic Product) is growing at a slow rate, even as inflation is rising.
- But until the 1970s, stagflation was believed to be quite an improbable scenario as a slowing economy usually prevents high inflation by quelling demand. However, subsequent events have struck a blow to this notion.
- For instance, in the year 1973, during the oil shock, global economies witnessed sharp setbacks on the back of spiralling oil prices.
- This led to an upward spiral in inflation as higher fuel costs fed into transportation costs and ultimately resulted in higher-priced goods and services. Inflation kept rising even as people were being laid off.



- Similarly, stagflation could occur if loose monetary policies or stimulus measures fail to lift an economy out of a slowdown, even as its stock price rises.

### How is the global economy being threatened?

- While the expansive financial sanctions imposed on Russia by the U.S. and its western allies have sent the value of the rouble plunging by more than 60% against the dollar since the start of the conflict, the war-led disruptions to supply and the sanctions have sent the prices of several key commodities soaring: from wheat and corn, to metals including nickel and aluminium, and, most crucially, crude oil and gas.
- Brent crude futures surged to a high not seen since July 2008, and are currently about 29% higher than before the invasion began on February 24.
- The price of natural gas has also risen sharply in Europe amid concerns that supplies from Russia could be hit either on account of European nations agreeing to a U.S. proposal to shut the tap on Russian energy exports or by retaliatory sanctions by Moscow. Russia supplies Europe with about 40% of its gas requirements, roughly a quarter of its oil and almost half its coal needs, and an embargo on energy supplies from Russia could send already high electricity costs in the countries comprising the eurozone skyrocketing. That in turn would hit consumers, as well as businesses and factories, forcing them to either raise prices or possibly even temporarily shut operations.

### Is there a threat of stagflation in India due to Rising Oil Prices?

- It cannot be denied that if oil prices stay high and for long, the inflation situation will worsen considerably and this would be coming after two years of already raised prices and reduced incomes.
- The other requirement is stalling growth and one of the indicators is unemployment. India is facing the most acute unemployment crisis it has seen in the past five decades
- So, yes, unlikely as it may be, it can be argued that we could be looking at stagflation shortly.

## INLAND WATERWAYS

### Context

- India has offered Bangladesh the use of our inland waterways system up to Varanasi, which can help in trade using the India- Nepal connectivity.

### Background

- The Inland Waterways Authority of India (Iwai) came into existence on the 27th of October 1986 for the development and regulation of inland waterways for shipping and navigation purposes.



- The Authority primarily undertakes projects for the development and maintenance of IWT infrastructure on national waterways through grants received from the Ministry of Shipping.

## Details

- Large rivers and backwaters provide around 14,500 kilometres of inland waterways in India where only 3,700 kilometres of these are accessible to mechanised boats.
- India has a long coastline of around 7,516 kilometres along which lie 12 major and 181 medium and small ports.
- Navigable waterways are more fuel-efficient, environment-friendly and cost-effective modes of transport.
- The country has increased the modal share of cargo from 0.5% to 2% and has witnessed 19 per cent year-on-year growth in cargo volumes over the last five years.

## Advantages of Inland waterways

1. **Cheapest means of transport**
  - Rivers form a natural highway which does not require any further cost for construction or maintenance.
  - The cost of construction and maintenance of the canals is also meagre and they are used, not only for transport but also for irrigation purposes. Moreover, the cost of operation of inland water transport is very low.
  - Therefore, it is the cheapest mode of transport for carrying goods from one place to another.
2. **Energy-efficiency:** Waterways are a fuel-efficient and environment-friendly mode of transportation. The mechanised boats and steamers also consume much lesser fuel and do not pollute the surrounding
3. **Easy transport of bulky goods::** Waterway can carry much larger quantities of heavy and bulky goods such as coal, and, timber, etc
4. **Less/no friction:** Since the boats and steamers flow in the direction of water the friction force is less as compared to roads and railways.
5. **Environmental-friendly:** The boats and steamers consume much less fuel and do not pollute the surrounding.
6. **Low maintenance cost:** 30% lower than the railways and 60% lower than the road.

## Initiatives are taken by the Government to promote Inland waterways

1. **Jal Marg Vikas Project for capacity Augmentation of NW-1** (Project Cost: 4633.81 cr.): Construction of Multimodal Terminals, Construction of Lock gate, Enhancement of Least Available Depth (LAD)
2. **Development of Eastern Grid:** Connectivity with Bangladesh, Nepal, Bhutan and North Eastern States 10 Protocol Routes covering 2650 Km and 13 Port of Call in each country, 600 vessels on IBP routes, 3600 voyages
3. **E- Initiatives- CAR-D and PANI & IBP Portals:** For collection Compilation of Cargo data, dissemination of National Waterway infrastructure and issue inward/ outward permission to ply on IBP routes respectively
4. **National Waterways Act, 2016:** Under this act, Parliament has declared 111 National Waterways which cover a total length of 20300 Km and are spread across 24 States.
5. **Sagarmala Program:** Promote port-led development through 14,500 km of potentially navigable waterways
6. **Arth Ganga** for holistic and sustainable development of National Waterways-1 for freight, passenger movement and recreation purposes.
7. **Gati Shakti National Master Plan:** It will incorporate the existing infrastructure schemes of different departments and state governments like Bharatmala, Sagarmala, inland waterways, UDAN etc.

## Conclusion

- The inland waterways are cost-effective, fuel-efficient, and safe and secure modes of transportation for goods and passengers. Going forward, the Government's initiatives must be implemented efficiently to realise the full potential of Inland water transport.

## UPI123PAY

### Context

- Recently, the Reserve Bank of India launched a new Unified Payments Interface (UPI) payments solution for feature phone Users dubbed 'UPI123Pay'.

### Details

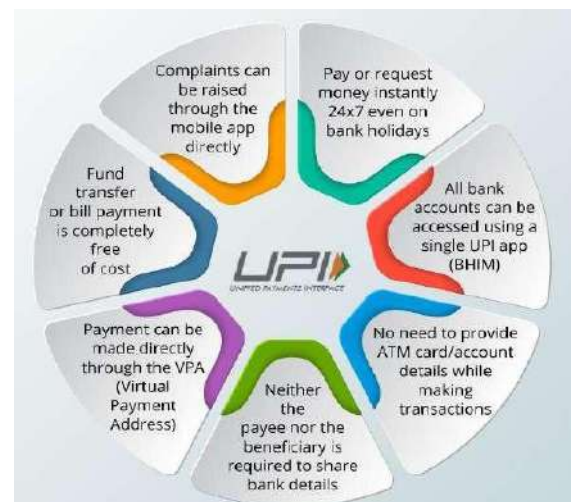
- The new UPI-based service is designed to bring the digital payments platform closer to a significant number of feature phone mobile subscribers in the country, which is estimated to be more than 40 crores.
- The new UPI payments system offers users four options to make payments without internet connectivity:
  - Interactive Voice Response (IVR),
  - App-based functionality,
  - Missed call facility and
  - Proximity sound-based payments.

### What are these facilities?

- Using the IVR option, users would be required to initiate a secured call from their feature phones to a predetermined IVR number and complete UPI on-boarding formalities to be able to start making financial transactions like money transfer, mobile recharge, repayment, and balance check, among others.
- The missed call facility will allow users to access their bank account and perform routine transactions such as receiving, transferring funds, regular purchases, bill payments, etc., by giving a missed call on the number displayed at the merchant outlet. The customer will receive an incoming call to authenticate the transaction by entering UPI PIN.
- They could also install an app on their feature phone through which several UPI functions, available on smartphones, will be available on their feature phone, except the scan and pay feature which is currently not available.
- Finally, they could utilise the proximity sound-based payments option, which uses sound waves to enable contactless, offline, and proximity data communication on any device.

### What is UPI?

- Unified Payments Interface (UPI) is a system that powers multiple bank accounts into a single mobile application (of any participating bank), merging several banking features, seamless fund routing and merchant payments into one hood.
- It also caters to the —Peer to Peer| collect request which can be scheduled and paid as per requirement and convenience.
- Each Bank provides its own UPI App for mobile platforms.



## PRIVATISATION OF RAILWAY TRANSPORT

### Context

- On July 1, 2020, the Indian Railways launched the formal process of inviting private parties to run trains on the Indian railway system.
- Hopes of large participation were belied as there were no bids for nine clusters and only two bids for three clusters.
- Even for these three clusters, the only serious bid was by Indian Railways' (IR) own company IRCTC, which in effect negated the basic objectives of bringing in private capital.

## Background

- In 2015, the expert panel chaired by Bibek Debroy constituted by the Ministry of Railways a year earlier, recommended that the way forward for the railways was —liberalization and not privatization’ to allow the entry of new operators —to encourage growth and improve services.
- It also made it clear that a regulatory mechanism was a prerequisite to promoting healthy competition and protecting the interests of all stakeholders.

## Need for the Privatization

### Betterment of Infrastructure

- Given this, a strong argument in favour of privatization is that it will lead to better infrastructure which in turn would lead to improved safety, reduction in travel time, etc.

### Improved Quality of Services

- Indian Railway services are marred by issues like lack of punctuality, mismanagement in the form of stinking washrooms, lack of water supply and dirty platforms.
- Privatization may solve these issues, as the move would foster competition and hence lead to overall betterment in the quality of services.

### Technology Infusion

- The privatization will also help in accommodating the latest technology in railways coaches, safety and travelling experience. Thereby, it may help Indian Railways to become a world-class network.

### Failure in attracting private capital

- This is an outcome of the lack of alignment of the interests of IR and the concessioners.
- IR **wants the capital and technology without giving up control**, while the concessioner wants a far more equal relationship to be moderated by a regulator.
- IR has imposed **constraints that prevent efficient decisions and adopted an organizational design** that does not take into account the characteristics and associated risks that will determine outcomes and investment decisions.
- The biggest dampener is the **lumpiness of investment before a single passenger can be carried. Train sets have to be purchased without really knowing** how much traffic the service will be able to attract in the face of rising competition from airlines.
- The other big dampener is the absence of a regulator for resolving disputes. The proposed independent engineer is far from satisfactory.

## Way Forward

- The central issue is **how to align the three interests: India’s need to be capable of designing and manufacturing state-of-the-art rolling stock**, IR’s need for private capital participation and private capital’s necessity of earning a profit.
- Government should establish a company that leases rolling stock not only to concessioners but also to IR. This will also enable reducing the concession period from 35 years to a more reasonable 10-15 years, bringing in competition.
- **Government must undertake an investment of large sums of money and the involvement of universities, research institutes and national laboratories.** For example, for developing high-speed train technology, the Chinese involved 25 national first-class key universities, 11 first-class research institutes, and 51 national-level laboratories for research, development and production.
- There is a **need to reduce the period of the concession to around 15 years**, establish a regulator and moderate charges like the amount for the maintenance of tracks and stations.

## INDUSTRY 4.0 AND MSME

### Context

- Adopting Industry 4.0 technologies would make MSMEs more efficient and competitive.

### Background

- The term „**Industry 4.0**“ was coined by the German government in 2011.
- Additive manufacturing, the Internet of Things, Cyber-Physical Systems, Augmented Reality/Virtual Reality and data analytics are some of the technologies associated with Industry 4.0.



- Micro, Small and Medium Enterprises (MSMEs) are expected to become the **backbone of India as the economy grows larger**, which lacks basic focus in the direction of Industry 4.0.
- MSMEs form more than **95% of the industries in India**, produce more than **45% of the total manufacturing output and employ more than 40% of the workforce**.
- According to the **Economic Survey 2020-21**, over **6 crore MSMEs** employ more than 11 crore people and contribute roughly 30% of the GDP and half of the country's exports.
- MSMEs are also ancillaries to larger enterprises, leading to a seamless supply chain integration. As a result, making MSMEs more efficient will be advantageous for the whole economy.

### Industry 4.0

- Industry 4.0 is the digital transformation of manufacturing/production and related industries and value creation processes.
- Industry 4.0 is used interchangeably with the fourth industrial revolution and represents a new stage in the organization and control of the industrial value chain.
- Cyber-physical systems form the basis of Industry 4.0 (e.g., 'smart machines').
- They use modern control systems, have embedded software systems and dispose of an Internet address to connect and be addressed via IoT (the Internet of Things).
- Industry 4.0 refers to the intelligent networking of machines and processes for the industry with the help of information and communication technology.
- Industry 4.0 is often used interchangeably with the notion of the fourth industrial revolution. It is characterized by, among others
  - Even more automation than in the third industrial revolution.
  - The bridging of the physical and digital world through cyber-physical systems, enabled by Industrial IoT
  - A shift from a central industrial control system to one where smart products define the production steps,
  - Closed-loop data models and control systems
  - Personalization/customization of products.

### Challenges faced

- MSMEs face challenges when it comes to adopting new technologies **such as Industry 4.0**.
- They lack awareness regarding **Industry 4.0 and its benefits**.
- They consider such technologies disruptive and have the potential to demolish their existing system.
- Industry 4.0 believes in improving the existing system.
- Scientific literature provides **evidence of sensors and WiFi networks** being integrated with old machines like lathes and mills to improve their performance.
- MSMEs will need to make major financial investments to adopt **Industry 4.0**.
- Investing in the **right set of technologies** will need experts and consultants as well.
- For any new technology to be adopted, an organisation requires a positive **organisational culture and the support of people**.
- MSMEs need to believe in the advantages that **Industry 4.0 technologies** can offer.
- The frameworks and steps that can assist MSMEs in adopting Industry 4.0 technologies have been missing.
- In this regard, MSMEs need to understand the data they are producing from all their operational activities.
- Based on such data, their readiness can be evaluated.
- Finally, **MSMEs** should develop their vision of **Industry 4.0 technologies** that they want to adopt and identify the relevant tools and practices they need for such a tailored vision.

### Micro, Small and Medium Enterprises Classification 2020

Size of the Enterprise	Investment and Annual Turnover
Micro	Investment less than Rs. 1 crore Turnover less than Rs. 5 crore
Small	Investment less than Rs. 10 crore Turnover up to Rs. 50 crore
Medium	Investment less than Rs. 20 crore Turnover up to Rs. 100 crore



## Importance of MSMEs to the Indian Economy

- **Employment:** It is the second largest employment generating sector after agriculture. It employs around 120 million persons in India.
- **Contribution to GDP:** With around 36.1 million units throughout the geographical expanse of the country, MSMEs contribute around 6.11% of the manufacturing GDP and 24.63% of the GDP from service activities.
- MSME ministry has set a target to up its contribution to GDP to 50% by 2025 as India becomes a \$5 trillion economy.
- **Exports:** It contributes around 45% of the overall exports from India.
- **Inclusive growth:** MSMEs promote inclusive growth by providing employment opportunities in rural areas, especially to people belonging to weaker sections of society.
  - For example, Khadi and Village industries require low per capita investment and employ a large number of women in rural areas.
- **Financial inclusion:** Small industries and retail businesses in tier-II and tier-III cities create opportunities for people to use banking services and products.
- **Promote innovation:** It provides an opportunity for budding entrepreneurs to build creative products boosting business competition and fueling growth.

## VEHICLES SCRAPPAGE POLICY

### Context

- Recently, the Union Government launched the vehicle scrappage policy.

### About the Policy

- All automobiles over a certain age should be off the roads in the interest of better pollution control and safety, which new vehicles ensure.
- Commercial vehicles over 15 years old and personal vehicles over 20 years old are marked for scrapping — it doesn't matter if they run on diesel or petrol — if they fail an automated fitness test.
- These will be deregistered; the owner can choose to scrap them but cannot use them on the road.

### Implementation of these policies

- The **government has come out with rules and specifications on what kind of** Automated Fitness Centres should come up and who can set them up.
- It has also come up with how the scrapping yards should be.
- It will give India Inc time to come up with an ecosystem wherein testing and subsequent scrapping can happen organically without the consumer-facing duress.
- That is why mandatory testing of heavy commercial vehicles will start in April 2023, and that of other categories of vehicles — **personal vehicles, for instance** — will start, in a phased manner, in June 2024.

### Targeted Vehicles

- India has 51 lakh light motor vehicles that are more than 20 years old and 34 lakh over 15 years old.
- Around 17 lakh medium and heavy commercial vehicles are older than 15 years without valid fitness certificates, according to data from the Ministry of Road Transport and Highways.

### Benefits of the Policy

- The resultant **ecosystem can attract investment worth Rs 10,000 crore and create 35,000 new jobs.**
- It will help in creating a viable circular economy and bring value to all stakeholders while being environmentally responsible.
- It will enhance the safety of users and passengers both.
- A scrappage **policy has been followed by a boost in demand in the auto manufacturing sector**, especially in Europe and the US.
- This has also been a tool to **deal with the economic slowdown in the manufacturing sector and consumption** due to the recession.
- Besides, there are **spelt-out benefits vis-à-vis the environment** since newer cars come with better emission standards and better fuel efficiency.

### Benefits to the individual

- The government envisages **that the scrappage certificate will entitle the owner with something extra, such as a tax rebate, sops, and a discount on the new car.**
- The certificate is tradable, which means it can be used by anyone and not necessarily by the owner of the scrapped vehicle.

### About Fitness Centre

- Automated Fitness Centres will have tracks and equipment suitable to test for various criteria such as **emission norms, braking and other parameters**, without human intervention.
- The Ministry has **requested states to consider providing land for free** for these centres.
- Market demand **will drive the number and concentration of fitness centres** in urban areas.

### About Circular Economy

- A circular economy depends on the reuse, sharing, repair, refurbishment, remanufacturing and recycling of resources to create a closed-loop system, minimising the use of resources, generation of waste, pollution and carbon emissions.
- When a car is scrapped, apart from metals including iron and steel, many other parts may emerge that can be refurbished and ploughed back into use. Recycled steel from scrap, even seats and plastic parts has value in the scrap economy.
- In a circular economy, products, materials, equipment and infrastructure are kept in use for longer, thus improving productivity.

## Price support v/s Income support

### Context

- Although the farmers' agitation that lasted over one year was finally called-off, their demand for a law guaranteeing minimum support prices (MSP) for crops is continuing.

### Background

- The Centre has been announcing MSP for crops every year for two seasons-Kharif and rabi since 1965, based on the recommendation of the Commission for Agricultural Costs and Prices (CACP).
- Initially, it was announced only for wheat and paddy. Over the years, more crops were added.
- The MSP is currently offered for 23 crops.
- Historically, the MSP is determined based on the cost of cultivation, input prices, supply and demand of crops, the price level in world markets, etc.
- Since 2018, the MSP has been fixed based on the cost A2+FL plus 50 % formula as recommended by the MS Swaminathan Committee.

### Issues with legalising MSP

- It will cost annually about Rs. 17-lakh crore for purchasing the 23 mandated crops.
- there will be a demand to include other crops, particularly fruits and vegetables, whose current production is about 320 million tonnes. Dairy farmers may also demand an MSP for milk and other products.
- Moreover, it will mostly benefit farmers owning over 2 hectares of land.

### Further problems with MSP

- The issue of legalising the MSP arises mainly because of the exploitation by middlemen and private traders.
- The SAS data of 2018-19 suggests that the awareness about MSP-based procurement is poor. This might be higher among marginal and small farmers, who constitute 86 per cent of all farmers. As a result, private traders and middlemen exploit farmers by setting lower prices.
- Per SAS data of 2018-19, the number of farmer households that sold their crops to procurement agencies is only around 5 per cent in most crops

### Price Support system MSPs:

- It is the price offered by the government to procure the farmers' produce during the season.
- The objective behind MSP is to provide a fair return to efficient farmers and to protect the consumer's interests by keeping the prices of food and other agricultural commodities at reasonable levels.
- The government has announced that the MSP for the majority of the Kharif crops and rabi crops, will be fixed at 1.5 times the cost of production. This is based upon the A2+FL cost (which is the actual paid-out cost plus the imputed value of family labour).
- The increment in the MSP by 1.5 times could have an impact on the consumer price index (CPI) inflation.
- If the government agrees to settle on a 1.5xC2 cost (which is the comprehensive cost including the imputed rent and the interest on owned land and capital), the inflationary impact could be significantly huge, which might even breach the RBI's CPI target of 5% by more than 200 bps.

### Price compensation scheme (PCS)

- MSP is available for limited crops, therefore, the government has developed an institutional mechanism to compensate for the difference in price where the market price is less than MSP, such as the Bhavantar Bhugtan Yojana (BBY) adopted by the government of Madhya Pradesh.
- The main positive under BBY is the price support given to the farmers.
- Case study: the total arrival of soybeans at Madhya Pradesh mandis increased by 150% but the price declined by only 10%. But on the other hand, the BBY scheme in MP could benefit only 23% of production,
- Hence, doubt arises as to how it will benefit the majority of farmers at an all-India level.
- The total financial costs of running up BBY/PCS at the national level are estimated to be at levels ranging from Rs 56,518 crore to Rs 1.69 trillion annually depending upon the price.
- There is also an issue of manipulation done by traders and lower-level mandi officials to depress both prices and inflate the production figures.

### Way Forward

- In the short term, instead of either price or income working in isolation, India needs to adopt both price and income support to work together for farmers.
- A hybrid of the two schemes that are 1.5 times MSP and PCS will be a suitable approach.
- For the cereals, which are largely procured by both the Central and the state governments, we should continue with the procurement at the MSP which is 1.5 times the cost of production.
- Crops like the groundnut, sesamum, niger-seed, and soybean should also be brought under the 1.5 times MSP scheme as these are procured to a limited extent with less than 10% of the total production, which also varies from state to state.
- The **agriculture investment support scheme**, which is easy to implement and is without leakages, has to be avoided because it would be a huge fiscal burden.
- The long-term solution to the farmer's distress could be to improve the supply chain, establish agro-processing zones and create better agri-logistic platforms.
- The losses in efficiency may far exceed the price or income support that the government intends to extend to the farmers. Therefore, we should think rationally now, and support farmers through less distortionary policies by intermixing both practices which will go a long way in bringing back the rural economy from the distress.

## ASSET MONETIZATION

### Context

- The **right to collect tolls on existing highways would be offered for 30 years or so to private investors in return** for an upfront payment.
- Oil and gas pipelines would similarly be leased to private players as would seaports and airports.
- Assets proposed for monetization include airports, terminals in seaports, railway lines, railway stations, stadiums, warehouses and a host of other government assets with unutilized potential.

## About the Programme

- At its core, the **idea is to lease out Brownfield projects, proceeds from which can be used to finance Greenfield projects.**
- The ownership of the **assets monetized, though, will remain with the government, with the private players taking** on the operational risk.
- While **roads, railways and power account for around 65 per cent of the proceeds of the programme, the list of assets** detailed is spread across sectors such as telecom, aviation, mining and warehousing, suggesting a more wide-ranging programme.

## The benefit of the Programme

- Asset monetization, based on the **philosophy of Creation through Monetization, is aimed at tapping private sector investment for new infrastructure creation.**
- This is necessary **for creating employment opportunities, thereby enabling high economic growth and seamlessly integrating** the rural and semi-urban areas for overall public welfare.
- The strategic objective of the programme is to **unlock the value of investments in brownfield public sector assets by tapping institutional and long-term patient capital,** which can thereafter be leveraged for further public investments.
- NMP is envisaged to serve **as a medium-term roadmap for identifying potential monetization-ready projects, across various infrastructure sectors.**
- The NMP is aimed at **creating a systematic and transparent mechanism for public authorities to monitor the performance of the initiative and for investors to plan their future activities.**
- Asset Monetization needs to be viewed not just as a funding mechanism, but as an overall **paradigm shift in infrastructure operations, augmentation and maintenance considering the private sector's resource efficiencies and its ability to dynamically** adapt to the evolving global and economic reality.
- New models like Infrastructure Investment Trusts & Real Estate Investment Trusts will enable not just financial and strategic investors but also common people to participate in this asset class thereby opening new avenues for investment.

## A framework of the Asset Monetization Programme

- Monetization through disinvestment and monetization of non-core assets have not **been included in the NMP. Further, currently, only assets of central government line ministries and CPSEs in infrastructure sectors** have been included.
- The process of **coordination and collation of asset pipelines from states is currently ongoing and the same is envisaged** to be included in due course.
- This includes the selection of de-risked and brownfield assets with a stable revenue generation profile with the overall transaction structured around revenue rights.



## Estimated Potential

- The period for NMP has been decided to be co-terminus with the balance period under National Infrastructure Pipeline (NIP).
- The aggregate asset pipeline under NMP over the four years, FY 2022-2025, is indicatively valued at Rs 6.0 lakh crore.
- The estimated value corresponds to ~14% of the proposed outlay for the Centre under NIP (Rs 43 lakh crore).
- The sectors included are roads, ports, airports, railways, warehousing, gas & product pipeline, power generation and transmission, mining, telecom, stadium, hospitality and housing.
- In terms of annual phasing by value, 15% of assets with an indicative value of Rs 0.88 lakh crore are envisaged to be rolled out in the current financial year (FY 2021-22).

## Criticisms

- Leasing was not the best option because the outright sale would bring in greater value and avoid the ticklish questions of asset stripping and maintenance of the leased assets.
- Leased assets would not be properly maintained. After all, no one washes a hired car.
- Whether monetization is intended to substitute the skill and efficiency of the private sector for the supposed lethargy of government control.
- The move would bring a greater concentration of power in the hands of the private sector are not relevant.
- When the private sector bids for these projects, they would probably require institutional finance for at least part of their outlay and this would result in a —crowding out of other investments.

## Way Around

- The agreement to lease could contain clauses that mandate the return of assets in the same condition in which they were offered, normal wear and tear excepted.
- If leasing out a government asset brings improved efficiency in management that would be an additional bonus.
- Every time the government cedes some ground by opening sectors hitherto reserved exclusively for itself, it runs this risk. This has not prevented them from allowing private operators to operate freight trains or terminals in seaports.
- Public sector undertakings (PSUs) raise funds from banks and even the National Highways Authority of India (NHAI) resorts to public funding. We do not ban PSUs or the NHAI from raising funds in the market.
- Necessary checks can easily be built into the offer documents that will ensure that the scheme does not create or reinforce monopolies of any sort.

# AGRICULTURAL DEBT

## Context

- Over 50 per cent of agricultural households in the country were in debt with an average outstanding loan per household at Rs 74,121 in 2019, says a survey conducted by National Statistical Office (NSO).

## Details

- The survey **Situation Assessment of Agricultural Households and Land Holdings of Households in Rural India, 2019** released by the Ministry of Programme Implementation and Statistics — points out that only 69.6 per cent of the outstanding loans were taken from institutional sources like banks, cooperative societies and government agencies, while 20.5 per cent of loans were from professional moneylenders.
- Of the total loan, 57.5 per cent was taken for agricultural purposes.
- The national average outstanding loan was the **highest in Andhra Pradesh** at Rs 2.45 lakh and the **lowest in Nagaland** at Rs 1,750.
- The survey defines an agricultural household as one receiving more than Rs 4,000 as the value of produce from Agri activities (e.g., cultivation of field crops, horticultural crops, fodder crops, plantation, animal husbandry, poultry, fishery, piggery, bee-keeping, vermiculture, sericulture, etc.) and having at least one member self-employed in agriculture either in principal status or in subsidiary status during the last 365 days.

## Why farmers are in distress?

### Past Indebtedness

- The root cause is past indebtedness. Rural debt is not only universal but hereditary.
- Ancestral debt is honoured in India and every villager considers it to be his sacred duty to repay the debt of his father.

### Poverty

- Another cause of rural indebtedness is widespread poverty. With low income, farmers cannot save much.
- Thus, in case of an eventuality such as crop failure due to natural calamities like floods, or failure of monsoons, the farmer has to borrow — and often at a very high rate of interest.



**Insurance fails to serve**

- The Pradhan Mantri Fasal Bima Yojana was launched to provide insurance and financial support to farmers in the event of failure of any crops due to natural calamities, pests and diseases.
- It was also meant to stabilise the income of farmers and ensure they remain in farming.
- But the scheme has seen lower enrolments due to a string of factors, including high premiums and a lack of innovation by insurance firms.

**Collapsing farm prices**

- Prices have collapsed for farm commodities.
- Low international prices have meant exports have been hit while imports have hurt prices at home.
- According to a Niti Aayog paper, on average, farmers do not realise remunerative prices due to the limited reach of the minimum support prices (MSP) and an agricultural marketing system that delivers only a small fraction of the final price to the actual farmer.

**Land Improvement**

- Since land is the most important income-earning asset the farmers have a strong desire to make necessary improvements to the land. With little or, no savings farmers have to borrow to finance the cost of such improvements. Consequently, they **fall into** a debt trap.

**Social and Other Obligations**

- Farmers also fall in debt because they have to discharge certain social obligations irrespective of their means and resources. They have to observe religious and social functions.
- They also borrow to meet consumption needs.

**Moneylenders**

- They not only charge excessive interest but maintain false accounts.
- When the amount of debt gets accumulated over several years the farmer finds it difficult to repay it and is forced to surrender his land to the moneylender.
- This is the plight of the rural masses in India even today.

**Bottlenecks in Institutional finance**

- Institutional finance is subject to complicated formalities and rigid repayment conditions.
- The moneylender's methods are such as to confiscate all the resources of the debtor.
- The cooperative societies do a lot of favouritism and give loans mostly for short-term production purposes. Medium and long-term institutional finance is grossly inadequate compared to needs.

**Irrigation takes a hit**

- Irrigation is crucial for the farm sector, where large tracts of land still depend on monsoon rains.
- Experts say several factors, including bureaucratic delays and slow implementation by states, have hurt progress for this crucial input.

**Marketing is ignored**

- According to a NITI Aayog, farm sector development has ignored the potential of marketing.
- Archaic laws still hobble the sector.
- Access of farmers to well-developed markets remains an issue although several initiatives have been launched to develop an electronic marketplace.
- Reforms to the APMC Act have been slow and most states have dragged their feet on it.
- Experts suggest an entity such as the GST Council to bring together states and the Centre to jointly take decisions to reform the sector and provide better access to markets for farmers.
- According to the Organisation for Economic Cooperation and Development (OECD), the combination of market regulations and infrastructure deficiencies leads to a price depressing effect on the sector.

**Modern tech missing**

- The introduction of the latest technology has been limited due to several reasons.
- Access to modern technology could act boost to productivity through an improved variety of seeds, farm

implements and farming technology.

- According to a Niti Aayog, there has been no real technological breakthrough in recent times.

### Fragmented supply chains

- Large gaps in storage, cold chains and limited connectivity have added to the woes of farmers.
- It has also added to the significant post-harvest losses of fruit and vegetables, estimated at 4% to 16% of the total output, according to the OECD.

### Lack of food processing clusters

- This has meant that there are little few incentives for farmers to diversify.
- According to an OECD, the share of high-value sectors in food processing is low with fruit, vegetable and meat products accounting for 5% and 8% of the total value of output compared to cereal-based products at 21% and oilseeds at 18%.

### Delayed FCI reforms

- Shanta Kumar Committee had recommended that FCI hand over all procurement operations of wheat, paddy and rice to states that have gained sufficient experience in this regard and have created a reasonable infrastructure for procurement.
- These states are Andhra Pradesh, Chhattisgarh, Haryana, and Madhya Pradesh.
- It had suggested a complete overhaul of FCI and recommended that farmers be given direct cash subsidy (of about Rs 7000/ha) and the fertiliser sector deregulated.
- The panel had said direct cash subsidy to farmers will go a long way to help those who take loans from money lenders at exorbitant interest rates to buy fertilisers or other inputs, thus relieving some distress in the agrarian sector.
- FCI should outsource its stocking operations to various agencies such as Central Warehousing Corporation (CWC), State Warehousing Corporation (SWC), and Private Sector under the Private Entrepreneur Guarantee (PEG) scheme.

### Low productivity

- According to OECD data, 85% of operational land holdings are less than 2 hectares and account for 45% of the total cropped area.
- Only 5% of farmers work on land holding larger than 4 hectares, according to the Agricultural Census, 2016. Productivity lags other Asian economies such as China, Vietnam and Thailand and average yields are low compared to other global producers.
- Wheat and rice yields are nearly 3 times lower than world yields while those for mango, banana, onion or potato are between 2 and 7 times lower than the highest yields achieved globally, according to the OECD.

### Farmers' Suicide

- Indebtedness and farmers' suicide are closely linked. The vicious cycle of debt has aggravated the agrarian crisis leading to an increase in the number of farmers' suicide.
- According to the "National Crime Records Bureau's (NCRB) Report "Accidental Deaths and Suicides in India 2015", a total of 8007 cultivators/farmers committed suicide in 2015.

### Initiatives are taken to reduce the debt burden of farmers

- For the development of agriculture and the welfare of farmers of the country, the Government in DAC&FW is implementing various Central Sector/ Centrally Sponsored Schemes, which include:
  1. RashtriyaKrishiVikasYojana (RKVY)
  2. National Food Security Mission (NFSM)
  3. National Agriculture Market (e-NAM)
  4. National Mission For Sustainable Agriculture (NMSA)
- **Pradhan MantriFasalBimaYojana (PMFBY)** provides a comprehensive insurance cover against failure of insured crops due to non-preventable natural risks, thus providing financial support to farmers suffering crop loss/ damage arising out of unforeseen events; stabilizing the income of farmers to ensure their continuance in farming, and encouraging them to adopt innovative and modern agricultural practices.
- **Pradhan MantriKisanSAMmanNidhi (PM-KISAN)** Scheme has been implemented to provide assured

income support to all farmers, irrespective of the size of their land holdings subject to the exclusion factor. Under this scheme, direct income support of Rs. 6,000 per year will be transferred directly into the bank accounts of beneficiary farmers, in three equal instalments of Rs.2,000 each.

- To bring small, marginal, tenant farmers, oral lessees, etc. into the fold of institutional credit, **Joint Liability Groups (JLGs)** have been promoted by banks.
- Intending to ensure the availability of agriculture credit at a reduced interest rate of 7% p.a. to the farmers, the Government of India in the Department of Agriculture Cooperation and Farmers' Welfare (DAC&FW) implements an **Interest Subvention Scheme** for short-term crop loans up to Rs. 3.00 lakh.
- The Scheme provides interest subvention of 2% per annum to Banks on the use of their resources. Besides, an additional 3% incentive is given to the farmers for prompt repayment of the loan, thereby reducing the effective rate of interest to 4%.
- To enhance coverage of small and marginal farmers in the formal credit system, RBI has decided to raise the limit for **collateral-free agriculture loans** from Rs. 1 lakh to Rs. 1.6 lakh.
- The **requirement of a 'no due' certificate** has also been dispensed with for small loans up to Rs.50,000/- to small and marginal farmers, sharecroppers and the like and, instead, only a self-declaration from the borrower is required.
- The Union Cabinet 2020 approved a new pan-India Central Sector Scheme called **Agriculture Infrastructure Fund**.
- The scheme shall provide a medium - long-term debt financing facility for investment in viable projects for post-harvest management Infrastructure and community farming assets through interest subvention and financial support.
- The benefit of the interest subvention scheme has been extended to small and marginal farmers having **Kisan Credit Card** for a further period up to six months post-harvest on the same rate as available to crop loan against negotiable warehouse receipt.
- **Farm Loan Waiver:** The waivers are primarily meant to discourage suicides by farmers due to widespread indebtedness.

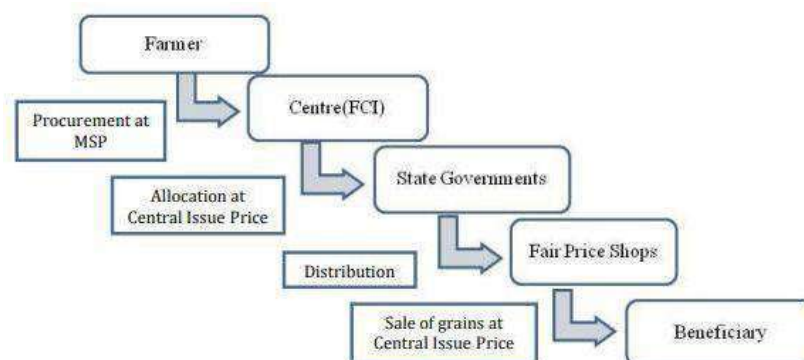
## Conclusion

- Indebtedness in one form or another has been in existence for centuries.
- Measures like loan waivers can provide only temporary relief, but long-term solutions are needed to solve farmers' woes.
- There is a pressing need for implementing **Shanta Kumar Committee recommendations**.
- A transparent liquidation policy is the need of the hour, which should automatically kick in when FCI is faced with surplus stocks than buffer norms.
- Greater flexibility to FCI with business orientation to operate in OMSS and export markets is needed.

## PUBLIC DISTRIBUTION SYSTEM (PDS)

### Context

- The Economic Survey rightly flagged the issue of a growing food subsidy bill which is becoming unmanageably large.



## Status of Food Subsidy

- Food subsidy, coupled with the drawal of food grains by States from the central pool under various schemes, has been on a perpetual growth trajectory.
- During 2016-17 to 2019-20, the subsidy amount, clubbed with loans taken by the Food Corporation of India (FCI) under the National Small Savings Fund (NSSF) towards food subsidy, was in the range of Rs. 1.65-lakh crore to Rs. 2.2-lakh crore.
- In future, the annual subsidy bill of the Centre is expected to be about Rs. 2.5-lakh crore.

## Reason for High Subsidy

### High drawal rate:

- During the three years, the number of food grains drawn by States (annually) hovered around 60 million tonnes to 66 million tonnes.
- Compared to the allocation, the rate of drawal was 91% to 95%.
- As the National Food Security Act (NFSA) enhanced entitlements (covering two-thirds of the country's population), this naturally pushed up the States' drawal.

### Issue prices:

- Central Issue Price (CIP) has remained at Rs. 2 per kg for wheat and Rs. 3 per kg for rice for years, though the NFSA, even in 2013, envisaged a price revision after three years.

## Comparison with other mechanisms

Mechanism	Advantages	Disadvantages
PDS	<ul style="list-style-type: none"> <li>Insulates beneficiaries from inflation and price volatility</li> <li>Ensures entitlement is used for food grains only</li> <li>Well-developed network of FPS ensures access to food grains even in remote areas</li> </ul>	<ul style="list-style-type: none"> <li>Low offtake of food grains from each household</li> <li>High leakage and diversion of subsidised food grain</li> <li>Adulteration of food grain</li> <li>Lack of viability of FPS due to low margins</li> </ul>
Cash transfers	<ul style="list-style-type: none"> <li>Cash in the hands of poor increases their choices</li> <li>Cash may relieve financial constraints faced by the poor, make it possible to form thrift societies and access credit</li> <li>Administrative costs of cash transfer programmes may be significantly lesser than that of other schemes</li> <li>Potential for making electronic transfer</li> </ul>	<ul style="list-style-type: none"> <li>Cash can be used to buy non-food items</li> <li>May expose recipients to price volatility and inflation</li> <li>There is poor access to banks and post offices in some areas</li> </ul>
Food coupons	<ul style="list-style-type: none"> <li>Household is given the freedom to choose where it buys food</li> <li>Increases incentive for competitive prices and assured quality of food grains among PDS stores</li> <li>Ration shops get full price for food grains from the poor; no incentive to turn the poor away</li> </ul>	<ul style="list-style-type: none"> <li>Food coupons are not indexed for inflation; may expose recipients to inflation</li> <li>Difficult to administer; there have known to be delays in issuing food coupons and reimbursing shops</li> </ul>

## Way Forward

- In this context, it is time the Centre had a relook at the overall food subsidy system including the pricing mechanism.
- Give Up Option:**
  - It should revisit NFSA norms and coverage. An official committee in January 2015 called for decreasing the quantum of coverage under the law, from the present 67% to around 40%. For all ration cardholders drawing food grains, a "give-up" option, as done in the case of cooking gas cylinders, can be made available.
  - Even though States have been allowed to frame criteria for the identification of PHH cardholders, the Centre can nudge them into pruning the number of such beneficiaries.
- Slab System:**
  - As for the prices, the existing arrangement of flat rates should be replaced with a slab system. Barring the needy, other beneficiaries can be made to pay a little more for a higher quantum of food grains.
  - The rates at which these beneficiaries have to be charged can be arrived at by the Centre and the States through consultations.



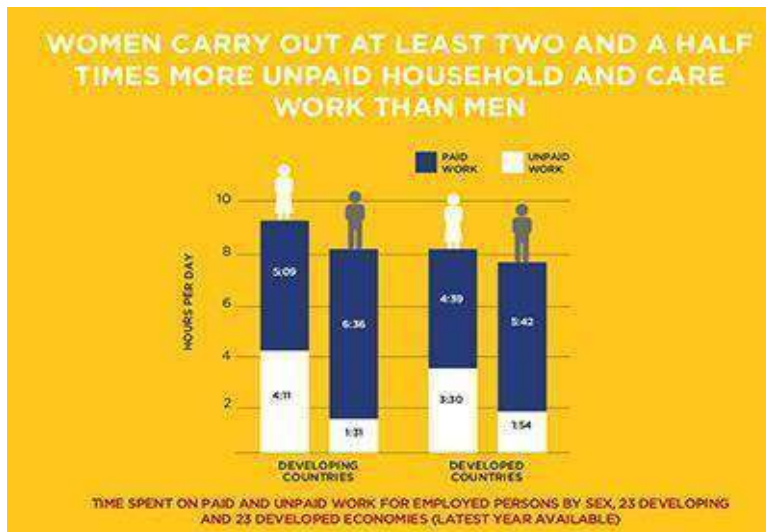
## UNPAID WORK

### Context

- Women everywhere carry a disproportionately higher burden of unpaid work, namely, unpaid domestic services as well as unpaid care of children, the old and the disabled for their respective households.
- Though this work contributes to overall well-being at the household level and collectively at the national level, it is invisible in the national database and particularly in national policies.

### Unpaid Work

- This work is **repetitive, boring and frequently drudgery** — a 24-hour job without remuneration, promotions or retirement benefits.
- It **restricts opportunities for women** in the economy and life. Women do this job not necessarily because they like it or are efficient in it, but because it is **imposed on them by patriarchal norms**, which are the roots of all-pervasive gender inequalities.
- This unequal division of unpaid work between women and men is **unfair and unjust and it deprives women of equal opportunities** as men.



### Unpaid Work in National Accounts: Pro

- By incorporating the value of unpaid work in the national accounts, they would much more **realistically reflect the real growth and welfare of a nation** and make comparisons between different points in time and between different countries more valid.
- It would also **provide more accurate measures of the effects of the business cycle**, capital accumulation in private households and the distribution of real income among individuals or households.
- It would **unveil the shifts between government-financed services and unpaid family care** that occur as a consequence of increases or reductions in the public budget.
- Incorporating **subsistence agriculture** would throw light on an important element of the process of development and **highlight the need for investments in this sector**.

### Unpaid Work in National Accounts: Con

- Unpaid activities as such fall outside the relevant production boundary, because they **cannot be separately identified as activities in an economic sense** (involving the choice to use scarce resources for one or more alternate purposes).
- Imputed income **does not have the same significance as monetary income**, because it does not give the consumer freedom to choose what goods or services he or she can spend now or later; the imputed income from unpaid work is **bound to the output of the unpaid production process itself**.
- There are more practical arguments like **difficulties of measuring and valuing unpaid work** are most widely cited.

### The issue with monetising unpaid work

- For political parties to recognise this work is a positive development, and the demand for wages for housewives has emerged from this concern. However, its **implementation may create problems such as affordability of the government and calculation of the amounts**.
- Women may **not be eager to enter the labour market**. More important, these wages may confirm unpaid work as **women's work only**, which would deny opportunities to women in the wider world.
- Payment of **pension to old women (60+ years)** may be a **better idea** to compensate them for their unpaid work.



### What the government could do

- What governments could do is **recognise this unpaid work in the national database** by a sound time-use survey and use the data in national policies.
- Also, they could relieve women's burden of unpaid work by **improving technology** (e.g. better fuel for cooking), **better infrastructure** (e.g. water at the doorstep), and **shifting some unpaid work to the mainstream economy** (e.g. childcare, care of the disabled, and care of the chronically sick), and by **making basic services** (e.g. health and transportation) accessible to women.
- Also, they could **redistribute the work between men and women** by providing different **incentives and disincentives to men** (e.g. mandatory training of men in housework, childcare, etc.) and **financial incentives for sharing housework**.

### Unpaid work and the economy

- What is critical is to understand the linkages between **unpaid work and the economy**.
- The household produces **goods and services for its members**, and if GDP is a **measure of the total production and consumption** of the economy, it has to incorporate this work by accepting the household as a sector of the economy.
- At the macro level, **unpaid work subsidises the private sector** by providing it with a generation of workers (human capital) and taking care of the wear and tear of labour who are family members.
- The private sector would have **paid much higher wages and earned lower profits** in the absence of unpaid work.
- Unpaid work also subsidises the government by taking care of the old, sick and disabled.
- Unpaid work is a privately provided public good which is critical for the sustenance of the mainstream economy. This work, therefore, **needs to be integrated with the mainstream economy and policies**.
- It will be up to public policies then to improve the productivity of unpaid workers, reduce their burden, and tap their potential in development, as the household could also be an important economic sector.

### Conclusion

- By excluding this work from the economy, macroeconomics shows a **clear male bias**. There is an urgent need to expand the purview of economics not only for gender justice but mainly for moving towards realistic economics.

## DIGITAL LENDING

### Context

- A Reserve Bank of India (RBI) Working Group (WG) on **digital lending, including lending through online platforms and mobile apps, has recommended separate legislation** to oversee such lending as well as a nodal agency to vet the Digital Lending Apps.

### Further Details

- It has also **mooted a Self-Regulatory Organization for participants** in the digital lending ecosystem.
- It has **proposed the development of certain baseline technology standards and compliance with those standards as a pre-condition** for offering digital lending solutions.
- It has also suggested that **disbursement of loans be made directly into the bank accounts of borrowers** and servicing of loans be done only through the bank accounts of the digital lenders.
- **All data collection must require the prior consent of borrowers** and come 'with verifiable audit trails' and the data itself ought to be stored locally.
- The report's thrust has been **on enhancing customer protection and making the digital lending ecosystem safe and sound while encouraging innovation**.

### Key Proposals by the Committee

- Digital lending apps **should be subjected to a verification process by a nodal agency** to be set up in consultation with stakeholders.
- The working group **proposed the setting up of a Self-Regulatory Organization (SRO)** covering the participants in the digital lending ecosystem.

- Disbursement of loans should be directly into the bank accounts of **borrowers**.
- Maintenance of a 'negative list' of lending service providers by the proposed SRO.

### About Digital lending

- Digital lending is **the process of availing credit online**.
- Its **increased popularity amongst new-age lenders can be attributed to expanding smartphone penetration, credit range flexibility**, and speedy online transactions.
- Transactions are happening over the internet being **replaced by Fintech's credit-based payment products, such as Buy Now Pay Later (BNPL) or Convert to EMI Products**.
- These companies utilize their customer's financial and transactional data to underwrite digital loans over an API-driven approach, thereby substantially lowering the time required to gain personal or payday loans.

### Data on Digital lending

- The RBI says lending through digital mode relative to physical mode is still at a nascent stage in the case of banks (Rs 1.12 lakh crore via digital mode against Rs 53.08 lakh crore through the physical mode).

### Role of Digital Lending

- **Financial Inclusion:** Digital lending is a powerful tool that can be used for financial inclusion. With innovations underway, digital lending has enabled many Financial Service Providers a way to offer much better products to the masses at a much faster rate which is even more cost-efficient.
- **Quality of Financial Services:** Digital lending can prove to be a tool acting towards the growth of higher quality financial services to underserved businesses and people.
- **Credit to MSME:** Digital lending is mostly preferred by those who are generally not able to avail of any credit through formal sources of finance, like banks. The online lending platforms have gained massive popularity among MSMEs post-Covid as they were unable to secure finance through the traditional lending institutions and thus had to go towards digital lending.
- **Ease for Credit:** The quick turnaround time and onboarding, easy KYC, as well as disbursement within minutes have attracted the cash-crunched MSMEs towards these digital routes to secure credit.

### Associated Challenges

- A digital lending ecosystem is still evolving and presents a patchy picture.
- They charge excessive rates of interest and additional hidden charges.
- They adopt unacceptable and high-handed recovery methods.
- They misuse agreements to access data on mobile phones of borrowers.

### Way Forward

- The Committee proposal must be incorporated and made into separate law.
- Since India is on the verge of a digital lending revolution and making sure that this **lending is done responsibly only can ensure the success of this revolution**.
- Thus, Digital lenders **should proactively develop and commit to a code of conduct that outlines the principles of integrity**, transparency and consumer protection, with clear standards of disclosure and grievance redressal.
- Moreover, **an agency can be created** that tracks all digital loans and consumer/lender credit history.

## CENTRAL BANK DIGITAL CURRENCIES

### Context

- Uncertainty over the legal status of crypto-currencies is unnerving Indian investors who, according to unofficial estimates, hold around \$1.5 billion (Rs 10,000 crore) in digital currencies. The government, which plans a law to ban private digital currencies, favours a digital currency backed by the Reserve Bank of India.

### About Central Bank Digital Currencies

- Central bank digital currencies (CBDCs) are essentially the **digital version of cash**.
- Like cash, they are issued by and have their value **guaranteed by central banks**.

- An Indian CBDC would be denominated in rupees, with one digital rupee having the same value as a one-rupee coin.
- These digital currencies are the **latest innovation in payments technology** and could change the way financial transactions are done.
- People will be able to exchange currency with each other digitally in real-time using mobile phones, computers, smart watches, bar code scanning, and so on.

### Digital Currency vs Traditional Payment Options

- Digital payment systems like **credit cards, debit cards, or mobile payment methods** operate quite differently from digital currencies.
- Traditional digital payment methods are carried out by **exchanging a certain amount of money** held in an account for goods or services.
- Such exchanges of traditional forms of money **do not happen in real-time**; instead, such transactions are tallied and settled after a period ranging from a few minutes to a few days.
- In contrast, exchanging digital currency involves a near **real-time settlement process**, as CBDCs are not a mere representation of physical money stored elsewhere but a complete replacement for currency notes.

### State-Managed Digital Currencies vs Private Cryptocurrencies

- Private cryptocurrencies are **issued by private players** and are **not backed by a central bank**, so unlike CBDCs, there are **no tangible assets backing their value**.
- Bitcoin and its peer currencies are only available in fixed quantities, so their **price depends solely on supply and demand**. This makes **private cryptocurrencies an extremely volatile asset**.
- The supply and value of a CBDC are carefully decided and managed by a trusted entity like a central bank, which takes into consideration financial and monetary stability. This makes CBDCs a safer and less volatile asset.
- One of the big draws of private cryptocurrencies is that they can be traded anonymously.

### Why are Central Banks interested in digital currencies?

- **Efficiency:** As CBDCs could enable low-cost, instantaneous payments, they could help process transactions and exchanges more quickly, boosting a country's productivity and technological progress.
- **Financial Inclusion:** CBDCs could conceivably provide better access to financial services as people may not need to have a bank account to use them. CBDCs can also be used offline without any internet connection. Transactions can be done with various means.
- **Preventing corruption and illicit activities:** CBDCs could allow governments to keep track of every unit of its currency in circulation. If successful, that would reduce money laundering, tax evasion, black market transactions, and embezzlement.
- **Monetary Policy:** CBDCs could be considered programmable money. In theory, central banks would be able to algorithmically adjust the supply of CBDCs based on interest rates and other key macroeconomic indicators.
- CBDCs could give central banks direct control of the money supply, thereby making the economy more responsive to changes in interest rates.

### Potential Risks and Limitations of State-Managed Digital Currencies

- The introduction of CBDCs could **significantly alter and disrupt existing domestic and international payment systems**.
- Given the advantages of low costs, faster transactions, and offline capabilities CBDCs offer, it is likely that **consumers will prefer CBDCs to existing digital payment options** like credit and debit cards and mobile wallets.
- It is crucial for countries to **first gauge the impact of CBDCs carefully and create an enabling ecosystem before launching them**.
- Due to **money laundering concerns** that arise from anonymous transactions, it is unlikely that any government-managed CBDC will be **completely anonymous**.

## India's Stance

- The recent 2021 Crypto-currency and Regulation of Official Digital Currency Bill is a step toward developing India's CBDC.
- However, it only establishes a basic legislative framework for digital currencies – there are no details about the design plans and implementation process, and the bill also plans to ban all crypto-currencies and other unregulated digital currencies.
- As the Reserve Bank of India and other central banks around the world grapple with the emergence of digital currencies, they must carefully determine the impact and functionality of CBDCs in their countries to develop a safe and efficient model.

## PM Gati Shakti National Master Plan

### Context

- The PM Gati Shakti - National Master Plan was announced last year to break departmental silos and bring in more holistic and integrated planning and execution of projects to address the issues of multi-modal and last-mile connectivities.

### Details

- A digital platform to bring 16 Ministries including Railways and Roadways together for integrated planning and coordinated implementation of infrastructure connectivity projects.
- The multi-modal connectivity will provide integrated and seamless connectivity for the movement of people, goods and services from one mode of transport to another.
- It will facilitate the last mile connectivity of infrastructure and also reduce travel time for people.

### Aim

- To give a new direction to the development of modern infrastructure through planning, implementation and monitoring and cutting down on time and cost overruns of projects.

### Significance of the scheme

- PM Gati Shakti will incorporate the infrastructure schemes of various Ministries and State Governments like Bharatmala, Sagarmala, inland waterways, dry/land ports, UDAN etc.
- Economic Zones like textile clusters, pharmaceutical clusters, defence corridors, electronic parks, industrial corridors, fishing clusters, and Agri zones will be covered to improve connectivity &
- make Indian businesses more competitive.
- It will also leverage technology extensively including spatial planning tools with ISRO (Indian Space Research Organisation) imagery developed by BiSAG-N (Bhaskaracharya National Institute for Space Applications and Geoinformatics).

### PM Gati Shakti is based on six pillars

- **Comprehensiveness:** It will include all the existing and planned initiatives of various Ministries and Departments with one centralised portal.
- **Prioritisation:** Through this, different Departments will be able to prioritise their projects through cross-sectoral interactions.
- **Optimization:** The National Master Plan will assist different ministries in planning for projects after the identification of critical gaps.
- **Synchronisation:** PM Gati Shakti will help in synchronising the activities of each department, as well as of different layers of governance, holistically by ensuring coordination of work between them.
- **Analytical:** The plan will provide the entire data in one place with GIS-based spatial planning and analytical tools having 200+ layers, enabling better visibility to the executing agency.
- **Dynamic:** All Ministries and Departments will now be able to visualise, review and monitor the progress of cross-sectoral projects, through the GIS platform, as the satellite imagery will give on-ground progress periodically and the progress of the projects will be updated regularly on the portal.

# REGULATION OF CRYPTOCURRENCY

## Context

- Recently, the **Prime Minister of India** chaired a meeting regarding the **management of the cryptocurrency sector**. Citing the unregulated nature of the **crypto market**, he called for taking **progressive and forward-looking steps**.

## About the Cryptocurrency

- A **cryptocurrency is a form of digital asset based on a network** that is distributed across a large number of computers.
- Cryptocurrencies typically use decentralized control as opposed** to centralized digital currency and central banking systems.
- Blockchains, which are organizational methods for ensuring the integrity of transactional data, are an essential component of many cryptocurrencies.

## Benefits of Cryptocurrency

- Autonomy:** Digital currencies allow users more autonomy over their own money than fiat currencies do, at least in theory. Users can control how they spend their money without dealing with an intermediary authority like a bank or government.
- Discretion:** Bitcoin purchases are discrete. Unless a user voluntarily publishes his Bitcoin transactions, his purchases are never associated with his identity, much like cash-only purchases, and cannot easily be traced back to him.
- Peer-to-Peer Focus:** The bitcoin payment system is purely peer-to-peer, meaning that users can send and receive payments to or from anyone on the network around the world without requiring approval from any external source or authority.
- Elimination of Banking fees:** bitcoin users are not subject to the litany of traditional banking fees associated with fiat currencies. This means no account maintenance or minimum balance fees, no overdraft charges and no returned deposit fees, among many others.
- Accessibility:** bitcoin is theoretically available to populations of users without access to traditional banking systems, credit cards and other methods of payment.

## Challenges with Cryptocurrency

- Can be used for illegal transactions – Since the privacy and security of cryptocurrency transactions are high, **it's hard for the government** to track down any user by their wallet address or keep tabs on their data.
- Decentralized but still operated by some organizations** – **The cryptocurrencies are known for their feature of being decentralized**. But, the flow and amount of some currencies in the market are still controlled by their creators and some organizations. These holders can manipulate the coin for large swings in its price.
- Adverse Effects of mining on the environment** – Mining cryptocurrencies requires a lot of computational power and electricity input, making it highly energy-intensive.
- Security Risk:** Bitcoin exchanges are digital and therefore vulnerable to hackers, operational glitches, and malware.
- Decentralised Control:** Given the essentially decentralized control approach associated with cryptocurrencies like Bitcoin as against the traditional centralized digital currency and centralized banking systems, they render government monetary policies ineffective.

## Indian stand on cryptocurrency

- The **Ministry of Corporate Affairs (MCA)** has made it mandatory for companies to disclose crypto trading/investments during the financial year.
- The Centre has assured crypto stakeholders that there won't be a blanket ban on digital currencies and that it's still formulating its full opinion on the matter. Finance minister Nirmala Sitharaman has said the Centre was open to experimentation with new technologies and is not closing its minds to them.
- India does not have a regulatory framework to govern cryptocurrencies as of now. The government constituted an Inter-Ministerial Committee (IMC) on November 2, 2017, to study virtual currencies.



## Way Forward

- **Learning from international experience:** The U.K. has classified cryptocurrency as property and this has paved the way for cryptocurrencies to be encompassed within a regulated legal framework in the country's economy. The U.K. has sought to regulate the functioning of crypto-businesses while still imposing some restrictions to protect the interests of investors.
- **There is a need for a balanced regulation of the cryptocurrency which could allow private individuals the freedom to harness** a powerful new technology like blockchain technology-based digital currency with appropriate regulatory standards.

## Conclusion

- The government should use this as an opportunity to allow private individuals the freedom to harness a powerful new technology with appropriate regulatory standards.

# AFFORDABLE HEALTH CARE SECTOR

## Context

- Recently, India marked the Jan Aushadhi Diwas 2022. The theme of the occasion was “Jan Aushadhi-Jan Upyogi”.
- Jan Aushadhi week is celebrated to generate awareness about the usage of generic medicines and the benefits of Jan Aushadhi Pariyojana.

## Healthcare in India

- According to the World Health Organization (WHO), **India ranks 184 out of 191 countries in health spending**. (The US spends over 16% of its total GDP on healthcare, while Japan, Canada, Germany etc. spend over 10% of their GDP on healthcare).
- **India's existing spending is only 1.6 % of GDP**. National Health Policy 2017 aims to increase the health budget to 2.5%.
- India currently **imports nearly 80 % of all medical devices**.

## Problems faced by healthcare in India

- **The dominance of the expensive private sector:** The private sector provides for 58% of the hospitals and 81% of the doctors in India. The public sector provides healthcare at little or no cost, but is considered to be **inconsistent, of indifferent quality, inaccessible and not the first choice** unless private insurance cannot be afforded.
- **Cost of healthcare:** Nearly 75% of healthcare spending comes from household wallets. India's out-of-pocket expenditure on healthcare is more than 60 per cent – NITI AAYOG and this is the major cause of poverty.
- **Patented Drugs over Generic drugs:** Patented drugs have taken over generic drugs in India even though India is the world's largest provider of generic drugs. This is due to **privatization, market competition and profit hunger in the pharmaceutical industry**. Lack of awareness results in burning a hole in the pockets of individuals for maintaining essential health hygiene.
- **Lack of Infrastructure:** The shortage of physicians, nurses, and hospitals contributes to the inefficient infrastructure. Also, Health care infrastructure is heavily **skewed in favour of urban areas**.
- **Lack of Access:** India has 1.4 beds per 1,000 people, 1 doctor per 1,445 people, and 1.7 nurses per 1,000 people. India had 7 physicians per 1,00,000 people in 2017 (in contrast to 98 in Pakistan, 100 in Sri Lanka and 241 in Japan). About **one-third population of our country is devoid of health insurance**.
- **Corruption:** States retain control over the spending and distribution of resources. While this can motivate states to make their citizens' well-being a priority, **corruption, and inability to cooperate have resulted in a national health system that is inconsistent**.

## Government's steps toward affordable healthcare

- **Pradhan Mantri Bhartiya Janaushadhi Pariyojna (PMBJP) 2015:** PMBJP aims to make quality generic medicines available to everyone at affordable rates. The objective is to minimize medical expenses out of pocket. More than 8,000 janaushadhi Kendra have been operationalised across India. These centres offer 1,451 generic drugs and 240 surgical items at an affordable price. Medicines and surgical equipment have a larger share in healthcare. Making them reach the common mass of our society solves a major issue in healthcare. This makes „Jan Aushadhi“ a Jan-upyogi (useful for the mass).
- **National Nutrition Mission:** Its primary objective is to ensure nutritional status in a timely manner among children 0-6 years of age, adolescent and anaemic girls, pregnant women and lactating mothers.
- **Mission Indradhanush:** It aims to protect children up to 2 years of age and pregnant women from diseases that can be cured by low-cost, timely vaccinations. Tuberculosis, poliomyelitis, hepatitis B, diphtheria, pertussis, tetanus and measles are among the targeted diseases.
- **Ayushman Bharat Yojana:** A national public health insurance fund to provide cashless secondary and tertiary care treatment from the empanelled public and private hospitals providing coverage to more than 10 crore poor and vulnerable beneficiary families.

## Way Ahead

- **Increase in public spending:** An increase in public spending to 3% of GDP can **decrease the OOPE from 65% to 30% of overall healthcare spending**. The life expectancy in a country correlates positively with per capita public health expenditure.
- **Infrastructure:** Private hospitals charge much higher than government hospitals for treatment of the same ailment and higher charges do not assure better quality. The **health infrastructure of the country needs to be ramped up on war footing**.
- **Revamping PMBJP for affordable medicines:** There is a need to **increase the outreach of Janaushadhi Kendra**. For this, an **increase in the healthcare budget for infrastructure and financial support is required**. In addition, **public-private partnership models for generic drugs** should be used to increase the competitive participation of more private players and expand the outreach. **Training and development of pharmaceutical staff** will also be required in the expansion of Janaushadhi Kendra.
- **Awareness Generation:** To **spread awareness about PMBJP** and Janaushadhi Kendra, **collaboration with local hospitals, clinics and doctors** is required. Apart from typical advertisement campaigns, this is a very effective way to **build the trust of locals in the efficacy of generic drugs**. Patients believe in the doctor's prescription, not in the added description.
- **Research and development of drugs:** To fight against inflation and maintain the affordable prices of generic drugs, **supply-side intervention** is required. This primarily includes **research and development of drugs to bring the efficacy of generic drugs to par with that of patented drugs, at less cost**. Efficiency in production, storage and supply chain would also help in slashing the input cost and thereby, maintain affordable prices without compromising the stakeholders' profit interest.
- **The health of a nation depends critically on its citizens having access to an equitable, affordable and accountable healthcare system. Affordable and accessible Healthcare is every citizen's right. Health is not just a choice of individuals but a necessity of the nation.**

## BLUE ECONOMY

### Context

- The government of India's Vision of New India by 2030 announced in February 2019 highlighted the Blue Economy as the sixth dimension of its vision. He said, Rs. 150 Cr has been provisioned during 2021-22 under Deep Ocean Mission.

### About Blue Economy

- The concept was introduced by Gunter Pauli in his 2010 book- —The Blue Economy: 10 years, 100 innovations, 100 million jobs.
- It is the sustainable use of ocean resources for economic growth, improved livelihoods and jobs, and ocean ecosystem health.
- It advocates the greening of ocean development strategies for higher productivity and conservation of ocean health.

### What is the blue economy?

- India's blue economy is understood as a subset of the national economy comprising an entire ocean resources system and human-made economic infrastructure in marine, maritime, and onshore coastal zones within the country's legal jurisdiction.
- It aids the production of goods and services that have clear linkages with economic growth, environmental sustainability, and national security.
- The blue economy is a vast socio-economic opportunity for coastal nations like India to utilise ocean resources for societal benefit responsibly.

### It comprises

- **Renewable Energy:** Sustainable marine energy can play a vital role in social and economic development.
- **Fisheries:** Sustainable fisheries can generate more revenue, and more fish and help restore fish stocks.
- **Maritime Transport:** Over 80% of international goods traded are transported by sea.
- **Tourism:** Ocean and coastal tourism can bring jobs and economic growth.
- **Climate Change:** Oceans are an important carbon sink (blue carbon) and help mitigate climate change.
- **Waste Management:** Better waste management on land can help oceans recover.
- Blue Economy emphasises on integration of the development of the ocean economy with social inclusion, and environmental sustainability, combined with innovative business models.

### Need for Blue Economy

- Oceans cover three-quarters of the Earth's surface, contain 97% of the Earth's water, and represent 99% of the living area on the planet.
- Oceans protect biodiversity, keep the planet cool, and absorb about 30% of global CO<sub>2</sub> emissions.
- At least 3-5% of global GDP is derived from oceans.
- Blue economy, through sustainable use of oceans, has great potential for boosting economic growth by providing opportunities for income generation and jobs etc.
- It can support food security, and diversification to address new resources for energy, new drugs, valuable chemicals, protein food, deep sea minerals, security etc.
- It is the next sunrise sector.
- Sunrise Sector is a sector that is expanding rapidly and is expected to be increasingly important in the future.

### Significance

- With a coastline of nearly 7.5 thousand kilometres, India has a unique maritime position. Nine of its 29 states are coastal, and the nation's geography includes 1,382 islands. There are nearly 199 ports, including 12 major ports that handle approximately 1,400 million tons of cargo each year.
- Moreover, India's Exclusive Economic Zone of over 2 million square kilometres has a bounty of living and non-living resources with significant recoverable resources such as crude oil and natural gas.
- Also, the coastal economy sustains over 4 million fisherfolk and coastal communities. With these vast maritime interests, the blue economy occupies a vital potential position in India's economic growth.
- It could well be the next multiplier of GDP and well-being, provided sustainability and socioeconomic welfare

are kept centre-stage. Therefore, India's draft blue economy policy is envisaged as a crucial framework for unlocking the country's potential for economic growth and welfare.

- SDG 14 seeks to conserve and sustainably use the oceans, seas and marine resources for sustainable development. With a draft blue economy policy framework of its own, India is now all set to harness the vast potential of its ocean resources.

### Salient features of the Draft Blue Economy policy for India

- The MoES prepared the draft blue economy policy framework in line with the Government of India's Vision of New India by 2030.
- It highlighted the blue economy as one of the ten core dimensions for national growth. The draft policy framework emphasises policies across several key sectors to achieve the holistic growth of India's economy. The document recognises the following seven thematic areas -
  - National accounting framework for the blue economy and ocean governance.
  - Coastal marine spatial planning and tourism.
  - Marine fisheries, aquaculture, and fish processing.
  - Manufacturing, emerging industries, trade, technology, services, and skill development.
  - Logistics, infrastructure and shipping, including trans-shipments.

Coastal and deep-sea mining and offshore energy.

- Security, strategic dimensions, and international engagement.

## BAD BANKS

### Context

- Leading banks have made a pitch for setting up an Asset Reconstruction Company specifically to deal with collections and recovery of farm loans.

### Need of the Asset Reconstruction Company

- At present, there is **not a unified mechanism to tackle Non-Performing Assets (NPAs)** in the farm sector.
- There is **not a single law that deals with the enforcement of mortgages created on agricultural land.**
- **Agriculture being a state subject**, the recovery laws – wherever agricultural land is offered as collateral – vary from state to state.
- **The agriculture market is scattered in India**, and different banks have to make efforts to capture and connect to these markets.
- **Enforcement of provisions on mortgaged farmland is generally done through the Revenue Recovery Act of states**, and the Recovery of Debt and Bankruptcy Act, of 1993, among other state-specific regulations. These are often time-consuming and in some states revenue recovery laws covering bank loans have not been enacted.

### Agricultural Debt

- As per data from the **‘Situation Assessment of Agricultural Households and Land Holdings of Households in Rural India, 2019**, even as the **percentage of agricultural households indebted has come down from 52% in 2013 to 50.2% in 2019**, the average debt has jumped by more than 57% from Rs 47,000 in 2013 to Rs 74,121 in 2019.
- The survey data **shows that 69.6 % of the outstanding loans by agricultural households were taken** from institutional sources such as banks, cooperative societies, and other government agencies.
- The survey is conducted by the National Statistical Office (NSO).

### About Bad Bank

- It's an entity where all the **bad loans from all the banks can be parked – thus, relieving the commercial banks of their “stressed assets”** and allowing them to focus on resuming normal banking operations, especially lending.
- While commercial banks resume lending, the so-called bad bank, or a bank of bad loans, would try to sell these “assets” in the market.
- The bad bank structure will assist in the consolidation of debt, currently fragmented across various lenders,

thus leading to faster, single-point decision making, including through Insolvency and Bankruptcy Code (IBC) processes.

### Positives

- A bank will **get rid of all its toxic assets, which were eating up** its profits, in one quick move.
- When the **recovery money is paid back**, it will further improve the bank's position. Meanwhile, it can start lending again.
- The decision is in keeping with the government's commitment to reduce non-performing assets (NPAs) of **public sector banks (PSBs)** through the four "R" strategies; Recognition, Resolution, Recapitalisation and Reform.
- Since the **guarantee is in a form of contingent liability**, it will not lead to immediate cash outflow and therefore is unlikely to impact the fiscal position in near future. **It will boost economic growth.**
- It will **incentivise quicker action on resolving stressed assets, thereby** helping in better value realization.
- The five-year **limit will encourage banks to not drag the process, adding that** NARCL has already been incorporated as a company.

### Challenges

- The plan of **bailing out commercial banks will collapse if** the bad bank is unable to sell such impaired assets in the market.
- **Taxpayer Money to improve Banking:** whether it is **recapitalising PSBs laden with bad loans or giving guarantees for security receipts, the money is coming from the taxpayers' pocket.** While recapitalisation and such guarantees are often designated as —reforms, they are band-aids at best.

### Way Forward

- A **farm-focused ARC on the lines of the recently set up National Asset Reconstruction Company Ltd** to deal with industry NPA should be set up.
- Banks have **their hands tied when it comes to the recovery of loans in the agriculture** sector. There is also a problem of anticipated farm loan waivers, which makes recovery difficult.
- The ARC has a **very vital role to play in the current scenario and it should be strengthened to solve the massive NPA problem** prevailing in the Indian banking industry.
- However, **ARC cannot be the sole response.** The most efficient approach would be to design solutions tailor-made for different parts of India's bad loan problem and use ARC only as a last resort once all other methods fail.

## GIG ECONOMY

### Context

- The surge in **demand for gig workers, particularly in the shared services and logistics segments**, in the aftermath of the Covid-19 pandemic, led to mushrooming of job discovery platforms.

### About Gig Economy

- A gig economy is a work **environment (borderless and technology-enabled) where organizations /businesses hire temporary workers or freelancers** instead of full-time long-term employees.
- **Fragmented Work** is where someone is given work for a certain amount of time.
- People provide service nearly always through a digital platform.
- Companies **provide temporary positions to workers and the latter reaches independent**, short-term contracts with them. So, instead of a regular wage, workers get paid for —gigs.

### Drivers of the Gig Economy

#### The emergence of the digital age

- Here, the **workforce is highly mobile and work can be done from anywhere, anytime.** This means that you need not **reach the location of the organization** to do the job.



### Firms

- In the era of disruption **will be safe as it avoids long-term obligations like pension and other emoluments when they provide a short-term contract.**
- The **worker can be relieved at any time without any friction.**

### Others

- The **short-term engagements better fit for the workers** to search for the best.
- **Software and technological changes taking away human efforts** also contributed to the gig economy.
- **The temporary nature of projects and greater specializations** etc. added to this trend.
- Uncertain **business climate and declining profits in the context of disruptive innovations** also tempted companies to go for short-term labour.
- In the US, colleges and universities recruit teachers and professors on a contract basis.

### Size of Gig Economy

- An **estimated 56% of new employment in India is being generated by gig economy** companies across both the blue-collar and white-collar workforce.
- The Global Gig Economy Index report **has ranked India among the top 10 countries.** India constitutes about 40% of freelance jobs offered globally.

### Advantages of the Gig Economy

- **Responding to urgent needs:** The gig economy can benefit workers, businesses, and consumers by better adapting to their current needs and demands for a flexible lifestyle.
- **Cheaper and more efficient:** Most employers can't afford to hire full-time employees. In the gig economy, many people work part-time or in temporary positions.
- The result is cheaper and more efficient services for those who want to use them, like Uber and Airbnb.
- **Expanded options for employers: Technology and connectivity over the Internet eliminate the need for freelancers to work in the office.** Therefore, employers have more choices for applicants because they don't have to hire someone to stay nearby.
- **Provide specific know-how:** Professional service companies hire gig staff to provide a wide range of expertise to their client impact teams. Most professional service contacts have extensive domain-specific knowledge, such as consultants.
- **Greater choice for employees:** People often need to move or occupy multiple positions to be able to provide the desired lifestyle. Today, people also tend to change jobs many times in their lives. The gig economy reflects this upward trend.
- **Economic productivity of young people:** India has a high proportion of young people who are expected to grow. According to IMF economists, India's youth inactivity is the highest in developing countries at 30%.

### Associated Challenges

- There is **no certainty, stability or employment security** in the gig economy.
- **Workers do not receive pensions, benefits, etc.** available to full-time employees.
- If stable income is **not guaranteed, there is no basis for banks or other financial** service providers to grant credit lines.
- Social goals can be ignored **if the business and the profitable freelance path are at the forefront.**
- **Internet connectivity and electricity are still inaccessible to many rural people who are distant dreams.** This denies them this opportunity, which leads to another inequality controversy.
- Confidentiality of documents at work is not guaranteed here. When there are situations in which a gig worker may work for others, including competitors, the employer suspects that they are sharing with the gig worker and is always suspicious.
- For some work projects where teamwork is essential, the gig economy will not work in such scenarios.

## Way Forward

- **Enforcement of Social Security Law:** Platform workers and gig workers will be recognized as the first new expert group in the 2020 Social Insurance Bill.
- This means that Platform **employees are entitled to benefits such as life and disability insurance, old age protection, maternity allowances, pension funds and occupational accident benefits.** The dignity of the gig worker.
- **Take an example from global best practices:** Labor law changes in Ontario and California have shown that platform workers are granted minimum wage and benefit guaranteed worker status.
- This is the view expressed by EU international organizations, including European trade unions.
- Therefore, the Government of India **should also consider granting gig workers the status of aggregator employees. This automatically provides all work services such as PF and ESI.**
- **Providing Gig Workers with the Opportunity to Become a Self-employed Entrepreneur:** Governments should consider offering platform workers a loan program to end their reliance on platform aggregator companies.

## STARTUPS

### Context

- India has added 33 'unicorns' in a single year as per the Hurun Report.
- This has helped India displace the United Kingdom (U.K.) to be third on a list of countries hosting unicorn companies.

### About Unicorns

- Unicorns are enterprises valued at more than \$1 billion.

### Reasons for Growth of Startups

#### Indian Market Size

- With a GDP growth of 7.0% in 2018, India is one of **the fastest-growing large economies in the world.**
- In a country with a population of nearly 1.3 billion people, even niche products can have significant market potential.

#### Rising Consumption

- Rising consumption is driven by **the growth of upper-middle-income and high-income segments of the population, which will grow** from being one in four households today to one in two households by 2030.

#### Demographic Dividend

- Half of the country's population is **below the age of 25 years** and the youth is aspirational.
- The nearly 700 million people born through the late 1980s to the 2000s carry material ambitions and can spend and make those goals a reality.

#### Role of Diversity

- If Startups solutions are successful in addressing the **needs of diverse customers pan-India, they can likely find market uptake in other geographies** such as Africa and Latin America, and even the developed world.

#### Export Potential

- Indian startups often do pilots and serve customers in the United States, where the user base has a much higher ability to pay.

#### Increased Technology Penetration

- Over the last few decades, **technological change has reduced the cost of building digital products** and has provided access to consumer markets.
- As India improved its digital connectivity, **market access barriers have been brought down.**
- The **broadband penetration is increasing fast** and the number of wireline subscribers in 2018 is expected to increase by 44 % over the next four years.
- The **Aadhaar biometric ID system, introduced in 2009 and assigning Indian residents a unique identity number,** has made it easier for companies to validate information about their customers.

### Increased Political Will

- The federal, as well as some state governments, **increasingly recognise startups** as important engines for economic growth.
- The government has launched Startup India to build a strong ecosystem that is conducive to the growth of startup businesses, drives sustainable economic growth and generates large-scale employment opportunities.

### Changing Perceptions towards Entrepreneurship

- Most startup founders in India **have strong intrinsic motivations and report being** driven by their passion, curiosity, the satisfaction that comes from problem-solving, and desire to make a difference in society.
- Some founders have become India's "startup heroes", contributing to a current image of entrepreneurship as "cool and—glamorous."

## Challenges

### Diversity and the Digital Divide

- In general, an **information gap exists between those who provide solutions** and those who are supposed to use them.
- **Most startup founders are well-educated and come from well-off backgrounds in urban metro cities.** However, nearly 70 % of the Indian population live in rural areas leading to disconnect.

### Taking Products to Market and Low Willingness to Pay

- startups are at a **disadvantage compared to large companies.** On the one hand, this is because big market players are more capable of dealing with bureaucratic regulations.
- **public procurement is seen as weak and government prefers** to sign contracts with established companies.
- communication **with and retention of customers takes time and effort.** Convincing Indian customers is difficult, especially if the startup develops innovative products and caters to new market segments.

### Hiring Qualified Employees

- the majority prefer to **work for large corporations, which promise more stable jobs.**
- In addition, **startups can rarely compete with the reputation and compensation** structures that large companies can offer.
- many job applicants are **not sufficiently skilled.** Startups see a **gap between the knowledge taught to students in colleges and the knowledge needed for the jobs,** especially in sectors in which technologies change at a fast pace.
- A significant number of **highly qualified specialists move abroad for jobs.** At the same time, and in contrast to many other startup hubs globally, Indian startups are yet to attract international talent.

### Complex Regulatory Environment

- Startups in India **often feel encumbered by bureaucratic processes,** which appear to lack underlying standards.
- They have **insufficient possibilities to find information,** and there is little planning security about how long processes can take.
- Despite the government's declared intention to hasten the setting up of a business, the process is **generally described as lengthy and costly.** It requires many approvals, constituting a high entry barrier.
- Some startups fail, but **closing down a business was described as even more difficult than setting it up.**

## Way Forward

### Changes in Culture

- changes in the **broader cultural milieu would be helpful to encourage** people to take risks and possibly develop impactful solutions.

### Economic Reforms

- Policy reforms **improving general economic conditions as well as investments** in digital and physical infrastructure (for instance, internet connectivity, roads and public transportation, power and electricity), are expected to also benefit startups.

### Integration with College Curriculum

- There is a need for the integration of entrepreneurship courses into college curricula, which would better prepare students for careers in startups.

## STATE OF UNEMPLOYMENT IN INDIA

### Context

- According to recent statistics from the Centre for Monitoring Indian Economy (CMIE), India's labour force participation rate (LFPR) has dropped to under 40% from a low of 47% in 2016.

### Key findings of the report

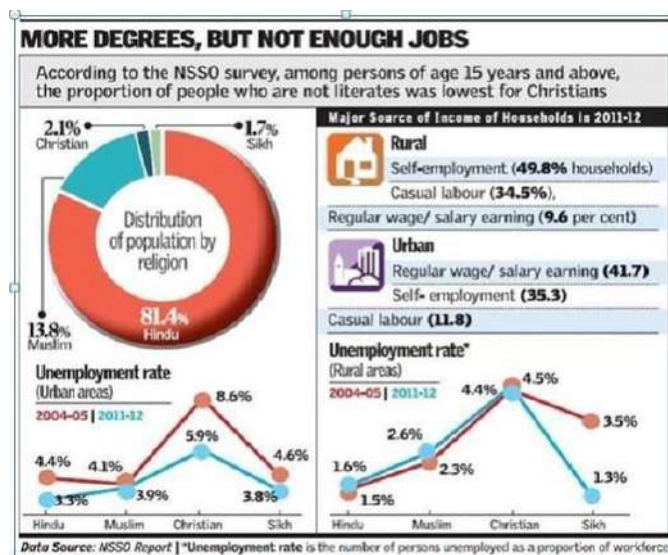
- LFPR is approximately 60% all around the world. It has been declining in India for the past ten years, falling from 47 % in 2016 to barely 40% in December 2021.
- Moreover, half of India's working-age population (15 years and older) is opting out of the labour market, although this number is growing.

### What is Labour Force Participation Rate (LFPR)?

- The LFPR is the proportion of the working-age population (15 years or older) that is looking for employment.
- In an economy, it symbolises the demand for work.
- It encompasses both working and jobless individuals.
- The Unemployment Rate (UER) is the percentage of the labour force that is jobless (category 2).

### What is the significance?

- The LFPR provides a more accurate representation of the country's unemployment situation. The burden of unemployment in India will be underestimated simply by looking at the UER.
- LFPR shows how individuals of working age become discouraged when they can't find work.



### Why is the employment rate deteriorating?

- The steep drop in the LFPR shows that, despite India's large youth population, many have simply chosen not to work, possibly disappointed by the lack of remunerative, productive occupations.
- Women, who had a lower participation percentage, to begin with, face an even more terrible position. Not only is India's female labour force participation lower than the world average, but it is also lower than in nations like Bangladesh.
- Unemployment is high among individuals searching for work following the outbreak. In addition, the unemployment rate among the young and educated is greater.
- While there are hints of increased formalization, as evidenced by EPFO data, a significant portion of the workforce remains in the informal sector, with no safety net.

### What is the way forward?

- When the LFPR is declining as persistently and dramatically as it has in India, it is more useful to monitor another metric: the Employment Rate (ER).
- Not only can the labour-intensive industrial sector accommodate the millions that enter the labour market each year, but also those who leave agriculture.
- To put women on a level with working male professionals, gender stereotypes in the workplace must be addressed.



## DIRECT SEEDING OF RICE

### In News

- Recently the Punjab government has announced a Rs 1,500 incentive per acre for farmers opting for **Direct Seeding of Rice (DSR)**, which is known for saving water methods.
- According to the studies, around 3,600 litres to 4,125 litres of water is required to grow one kg of rice depending upon the paddy variety.
  - Long-duration varieties consume more water.

### Benefits of DSR

- The direct Seeding of Rice (DSR) technique can help save 15% to 20% water.
  - In some cases, water-saving can reach 22% to 23%.
- It could solve the problem of labour shortage because like the traditional method it does not require a paddy nursery and transplantation of a 30-day-old paddy nursery into the main puddled field.
- In DSR, paddy seeds are sown directly into the field with machines.
- It promotes groundwater recharge.
- It matures 7-10 days earlier than traditional transplanted crops** and provides more time for the management of paddy straw.
- An increase in yield, one to two quintals per acre higher than traditional transplanted rice.**

DIRECT SEEDING vs TRANSPLANTING	
Direct Seeding	Transplanting
-Relatively cheaper than transplanting	-Relatively costly
-Require less labor	-labor requirement is high
-Average yield is high	-Average yield is lower excepting long aged varieties
-Plants are usually healthier and have stronger, deeper root system	-Plants have not vigorous deep root system
-Final plant cover is random and looks natural	-Final plant cover is regular
-Large amount of seed is required	-Seed requirement is less
-Plant density is higher	-Plant density is optimum
-Weed control is difficult	-Easy of weed control

### DSR technique requires some basic arrangements

- Farmers must sow paddy only after pre-sowing irrigation and not in dry fields.
- The field should be laser levelled.
- Spraying of herbicide must be done simultaneously along with sowing.
- Suitable for medium to heavy textured soils including sandy loam, loam, clay loam, and silt loam.
- Not to be cultivated in sandy and loamy sand as these soils suffer from severe iron deficiency, and there is a higher weed problem in it.
- Avoid the land which was under crops other than rice in previous years as these soils are likely to suffer more from iron deficiency and weed problems.

## PARVATMALA PROJECT

### Context

- Union Finance Minister in the Budget for 2022-23 has announced the National Ropeways Development Programme —Parvatmala.

### Details

- It will be taken up in PPP mode.
- It will be a preferred ecologically sustainable alternative in place of conventional roads in difficult hilly areas
- The idea is to improve connectivity and convenience for commuters, besides promoting tourism.



- It will also cover congested urban areas, where a conventional mass transit system is not feasible.
- The scheme is being presently started in regions like Uttarakhand, Himachal Pradesh, Manipur, Jammu & Kashmir and the other North Eastern states.

### Nodal ministry

- The Ministry of Road Transport and Highways (MORTH) will be the nodal ministry.
- The Ministry will also have responsibility for the development of ropeway and alternative mobility solutions technology, as well as construction, research, and policy in this area.

### Major factors driving ropeway infrastructure

- **Economical mode of transportation:** Given that ropeway projects are built in a straight line over hilly terrain, it also results in lower land acquisition costs. Hence, despite having a higher cost of construction per km than roadways, ropeway projects' construction cost may happen to be more economical than roadways.
- **Faster mode of transportation:** Owing to the aerial mode of transportation, ropeways have an advantage over roadway projects where ropeways can be built in a straight line, over hilly terrain.
- **Environmentally friendly:** Low dust emissions. Material containers can be designed to rule out any soiling of the environment.
- **Last mile connectivity:** Ropeway projects adopting 3S (a kind of cable car system) or equivalent technologies can transport 6000-8000 passengers per hour.

### Benefits of ropeways

- **Ideal for difficult / challenging / sensitive terrain**
  - Long rope spans: The system crosses obstacles like rivers, buildings, ravines, or roads without a problem.
  - Ropes guided over towers: Low space requirements on the ground, and no barrier for humans or animals.
- This mode of transportation will enable mobility for people living in difficult areas and help them become part of the mainstream. Villagers/farmers living in such areas will be able to sell their produce in other areas, which in turn will help them grow their income.
- **Economy:** Ropeway has multiple cars propelled by a single power plant and drives the mechanism. This reduces both construction and maintenance costs. The use of a single operator for an entire ropeway is a further saving in labour cost. On level ground, the cost of ropeways is competitive with narrow-gauge railroads; in the mountains, the ropeway is far superior.
- **Flexible:** Transport of different materials - A ropeway allows for the simultaneous transport of different types of material.
- **Ability to handle large slopes:** Ropeways and cableways (cable cranes) can handle large slopes and large differences in elevation. Where a road or railroad needs switchbacks or tunnels, a ropeway travels straight up and down the fall line. The old cliff railways in England and ski resort ropeways in the mountains take advantage of this feature.
- **Low footprint:** The fact that only narrow-based vertical supports are needed at intervals, leaving the rest of the ground free, makes it possible for ropeways to be constructed in built-up areas and in places where there is intense competition for land use.

## FOREIGN DIRECT INVESTMENT

### In News

- India has recorded the highest ever annual FDI inflow of USD 83.57 billion in the Financial Year 2021-22.

### What is FDI?

- Foreign direct investment (FDI) is **when a company takes controlling ownership of a business entity in another country.**
- With FDI, foreign companies are **directly involved with day-to-day operations in the other country.** This means they aren't just bringing **money with them, but also knowledge, skills and technology.**
- Generally, FDI takes place when an investor establishes foreign business operations or acquires foreign business assets, including establishing ownership or controlling interest in a foreign company.

## Where is FDI made?

- Foreign Direct Investments are **commonly made in open economies that have skilled workforce and growth prospects**. FDIs not only bring money with them but also skills, technology and knowledge.
- **Automatic Route**
  - The non-resident or Indian company does not require a prior nod of the RBI or the government of India for FDI.
  - Foreign Investment is allowed under the automatic route without prior approval of the Government or the Reserve Bank of India, in all activities/ sectors as specified in Regulation 16 of FEMA 20 (R).
- **Government Route**
  - The government's prior approval is mandatory. The company will have to apply through Foreign Investment Facilitation Portal, which facilitates single-window clearance.
  - The application is then forwarded to the respective ministry, which will approve/reject the application in consultation with the Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce.
  - DPIIT will issue the Standard Operating Procedure (SOP) for the processing of applications under the existing FDI policy.

## FDI Prohibition

- There are a **few industries where FDI is strictly prohibited** under any route. These industries are;
  - Atomic Energy Generation
  - Any Gambling or Betting businesses
  - Lotteries (online, private, government, etc).
  - Investment in Chit Funds
  - Nidhi Company
  - Agricultural or Plantation Activities (although there are many exceptions like horticulture, fisheries, tea plantations, Pisciculture, animal husbandry, etc).
  - Housing and Real Estate (except townships, commercial projects, etc).
  - Trading in TDRs Cigarettes, Cigarettes, or any related tobacco industry.

## Status of FDI flows into India

- FDI is an **important monetary source for India's economic development**. Economic liberalization started in India in the wake of the 1991 crisis and since then, FDI has steadily increased in the country.
- India, today is a part of the top 100-club on Ease of Doing Business (EoDB) and globally ranks number 1 in the Greenfield FDI ranking.
- Apart from being a critical driver of economic growth, Foreign Direct Investment (FDI) has been a major non-debt financial resource for the economic development of India.
- Foreign companies invest in India to take advantage of the relatively lower wages, special investment privileges like tax exemptions, etc. When foreign investment is being made in India, it also helps the country achieve technical know-how and generate employment.
- The Government has taken many initiatives in recent years such as relaxing FDI norms across sectors such as defence, PSU oil refineries, telecom, power exchanges, and stock exchanges, among others.
- India ranked 43rd on the Institute for Management Development's (IMD) annual World Competitiveness Index 2021.
  - According to the IMD, India's developments in government efficiency are primarily due to relatively stable public finances (despite COVID-19-induced challenges), and optimistic sentiments among Indian business stakeholders concerning the funding, and subsidies offered by the government to private firms.

## Market Size

- India has **recorded the highest ever annual FDI inflow** of USD 83.57 billion in the Financial Year 2021-22.
- In 2014-2015, FDI inflow in India stood at 45.15 USD billion as compared to the highest ever annual FDI inflow of USD 83.57 billion reported during the financial year 2021-22.
- India's FDI inflows have increased 20-fold since FY03-04 when the inflows were USD 4.3 billion only.
- Total FDI inflow into India in the third quarter of FY22 stood at US\$ 17.93 billion, while the FDI equity inflow for the same period stood at US\$ 12.02 billion.

## Sectors attracting the highest FDI

- Data for 2021 indicates that;
  - The computer software and hardware industry attracted the highest FDI equity inflow of US\$ 10.25 billion, followed by the automobile sector at US\$ 5.96 billion, the services sector at US\$ 5.35 billion, the trading sector at US\$ 2.99 billion, construction activities at US\$ 1.59 billion, and drugs and pharmaceuticals at US\$ 1.21 billion.

## Top countries with the highest FDI equity inflow

- Between April-December 2021, India recorded the highest FDI equity inflow from Singapore (US\$ 11.69 billion), followed by the US (US\$ 7.52 billion), Mauritius (US\$ 6.58 billion), the Cayman Islands (US\$ 2.74 billion), the Netherlands (US\$ 2.66 billion), and the UK (US\$ 1.44 billion).

## Top States with the highest FDI equity inflow

- Between April-December 2021 Karnataka registered the highest FDI equity inflow of US\$ 17.25 billion - 38 % Share, followed by Maharashtra (US\$ 9.69 billion), Delhi (US\$ 6.39 billion), Tamil Nadu (US\$ 2.38 billion), Gujarat (US\$ 2.06 billion), and Haryana (US\$ 2.03 billion).

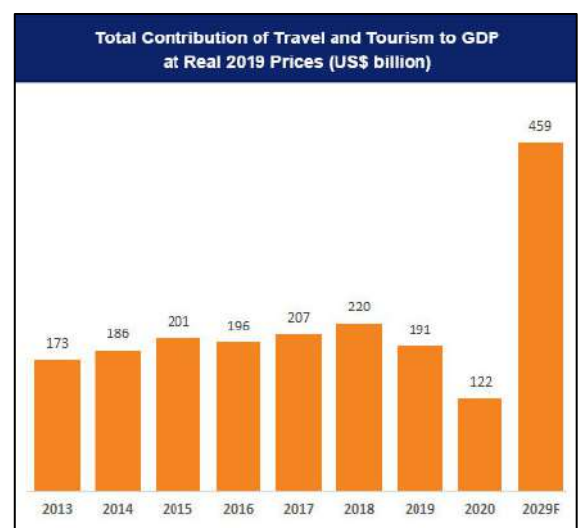
## Government Initiatives promoting FDI

- To boost domestic and foreign investments in India, the central government has taken various steps like – Reducing corporate tax rates, easing NBFC and bank liquidity problems, improving the Ease of Doing Business, FDI policy reforms, compliance burden reduction, and policy measures to boost domestic manufacturing through public procurement orders, Phased Manufacturing Program (PMP), and various Ministries’ Production Linked Incentives (PLI) schemes are among them.
- The implementation of measures like PM Gati Shakti, single window clearance and GIS-mapped land bank is expected to push FDI inflows in 2022.
- To further liberalise and simplify FDI policy for providing Ease of doing business and attract investments, reforms have been undertaken recently across sectors such as Coal Mining, Contract Manufacturing, Digital Media, Single Brand Retail Trading, Civil Aviation, Defence, and Insurance and Telecom.
- The government has amended the rules of the Foreign Exchange Management Act (FEMA), allowing up to 20% FDI in the insurance company LIC through the automatic route. The Government of India is considering easing scrutiny on certain foreign direct investments from countries that share a border with India.
- In August 2021, the government amended the Foreign Exchange Management (non-debt instruments) Rules, 2019, to allow the 74% increase in the FDI limit in the insurance sector.
- In September 2021, the Union Cabinet announced that to boost the telecom sector, they’ll allow 100% FDI via the automatic route in, up from the previous 49%.
- In September 2021, India and the UK agreed to an investment boost to strengthen bilateral ties for an ‘Enhanced Trade Partnership’.

## TOURISM SECTOR OF INDIA

### Context

- The Ministry of Tourism, under its “Incredible India” brand line is participating in the Arabian Travel Market (ATM), Dubai -2022.
- The aim is to showcase India’s rich & diversified tourism potential and providing a platform to the tourism stakeholders to showcase the various tourism destinations and products including Niche products.
- Also, it aims to promote India as a ‘Must See, Must Visit’ destination.



## India's Tourism Sector

- The Indian tourism and hospitality industry have emerged as **one of the key drivers of growth among the services sector in India.**
- In 2020, the Indian tourism sector accounted for **39 million jobs, which was 8% of the total employment in the country.**

## Achievements of Tourism Industry in India

### Investment

- India was globally the third largest in terms of investment in travel and tourism in 2018, accounting for 5.9% of the total investment in the country.

### Employment

- According to The **World Travel and Tourism Council (WTTC)**, tourism generated 6.8% of India's GDP in 2019 and supported 39.80 million jobs which is 8 % of its total employment.
- In 2014, Tourism & Hospitality sustained a total of 36.7 million direct, indirect, and induced jobs in India, which is more than the jobs created in banking, automotive manufacturing, chemicals manufacturing, education, financial services, and mining sectors.

### Medical tourism

- The total number of inward medical tourists doubled in last three years in India.

### Global Rankings

- India's rank in the Travel & Tourism Competitiveness Index (TTCI), 2017 has also shown a 25 places jump from 2013.
- Rank of India in TTCI Report of 2017 was 40th as compared to 52nd in 2015 and 65th in 2013.

## Challenges plaguing the Tourism Industry

### Lack of proper infrastructure

- An entrenched framework of infrastructure which includes proper transportation facilities, health facilities, stable, and uninterrupted connectivity and other human resources are mandatory for stable tourism.
- India positioned 112nd in the ICT readiness component and **104th rank in the health and hygiene components of the WEF's Travel and Tourism Competitiveness Index, 2017.**
- This basically mirrors the poor quality infrastructure our nation has.

### Human resources

- To maintain the growth of our Indian travel and tourism industry a large amount of skilled man force is required at different levels.
- In the past years, there was an exploding increase in manpower for other sectors like banking, engineering, and medicine. This gradually prompted abatement in the human resources available for the tourism sector.

### Insufficient promotion and marketing

- Great promotion and enough marketing push are excessively indispensable for a nation's travel industry improvement.
- In India, the financial backing allotted to help and advance the travel industry is less contrasted with other tourist destinations.

### Taxation

- High taxes on the entire industry including the airline facilities, hotels, and tour operators are highly expensive.
- This is the one main reason why India loses to other less expensive countries when it comes to tourism.

### Security issues

- The increasing rate of sexual abuse of women, theft, credit card fraud, identity theft, food poisoning, terrorism, and public violence is affecting Indian tourism to a high extent.

### **B2B Pricing Wars**

- The B2B travel industry in India is a highly cluttered market offering homogenous range of choices and highly customized services.
- Due to which most destination management companies in India are proposing and selling trips by pricing out competition.
- This has led to the advent of extremely low margins and a growing dependence on what is known as the “shopping culture.”

### **Technology and Funding**

- Well-funded big companies are thriving through the deployment of state-of-the-art technology and innovation.
- Lack of proper infrastructure, funding, and research data acts as a major disadvantage and tends to leave the smaller companies at the mercy of big-companies.
- At present, in India, well-funded companies such as MakeMyTrip and ClearTrip have done really well in cementing their positions in the travel industry.
- However, the inbound travel industry in India, is still not very large and is dominated by a few large B2B companies.
- Smaller travel companies led by innovation have not received the recognition that they deserve.

### **Perception of India**

- Lack of cohesiveness across various state-led tourism campaigns has limited India as clichéd, and stereotypical spiritual destination. We can refer to this tourist section as the **Eat-Pray-Love crowd**.
- This is despite of the fact that as a travel destination, we have lots to offer such as ancient culture, historical heritage, spiritual experiences, beautiful landscape, natural diversity, adventure, wildlife and so on.

**Eg-** The mighty Himalayas are our asset.

### **Socio Political Agitations**

- For example the temporary closure of Jammu and Kashmir to tourists and socio-political and religious agitations in other northern states of the country rendering them unattractive to tourists.

### **Tourism Policy**

- Lack of an Integrated Tourism Promotion Programme has hindered the growth of tourism.
- Indifference of many states and union territories to tourism, which has not yet been accorded industry status by them, is another factor limiting its growth.

## **Suggestions**

### **Association with Policy makers**

- Experts in the fields of hotel management and tourism must be associated with all the decision-making bodies.

### **Coordination**

- Better liaison should exist between State Tourism Department and ITDC.

### **Tourism Planning Board**

- A state level Tourism Planning Board can be set up to do perspective planning to provide the required fillip to the tourism industry in India.

### **Subsidy**

- Electricity and water to tourism & hospitality units should be charged at a subsidized rate and on actual consumption against fixed load.

### **Infrastructure Status**

- Grant infrastructure status to all hotels to allow them to avail electricity, water and land at industrial rates as well as better infrastructure lending rates with access to larger amounts of funds as external commercial



borrowings. It will also make them eligible to borrow from India Infrastructure Financing Company Limited (IIFCL).

### National Tourism Policy

- A national tourism policy should be issued by the Ministry of Tourism, Government of India which covers common protocols for entry of a tourist into a state. This will act as a uniform guideline for all states to follow.

### Targeted Marketing Campaign

- The states and union territories should have a targeted marketing campaign to communicate the safety measures taken by the Government at various tourist attractions and the private stakeholders to ensure the safety of the tourists when travelling to the destination.
- This will help to educate tourists and build their confidence to travel for tourism purposes.

### Leave Travel Allowance

- The Government can provide tax rebate of upto rupees 1.5 lakhs for spending on Domestic holidays in the lines of the Leave Travel Allowance (LTA).

### Tourism Fund

- Creation a separate Tourism fund under the aegis of Ministry of Tourism to support the Hospitality and Travel Industry in this time of crisis. The fund should be accessible to the Industry as a collateral free 10-year loan.

### Combating Pandemic Crisis

- Stimulus package to stabilize and support the sector in the near term, including a workforce support fund to ensure that there are no job losses.

### MSMEs as PSL

- Lending to MSMEs in the Hospitality sector may be treated as 'Priority Sector lending', which will enable increased access to bank finance.

## **Steps taken to promote Tourism in India**

### **DekhoApnaDesh**

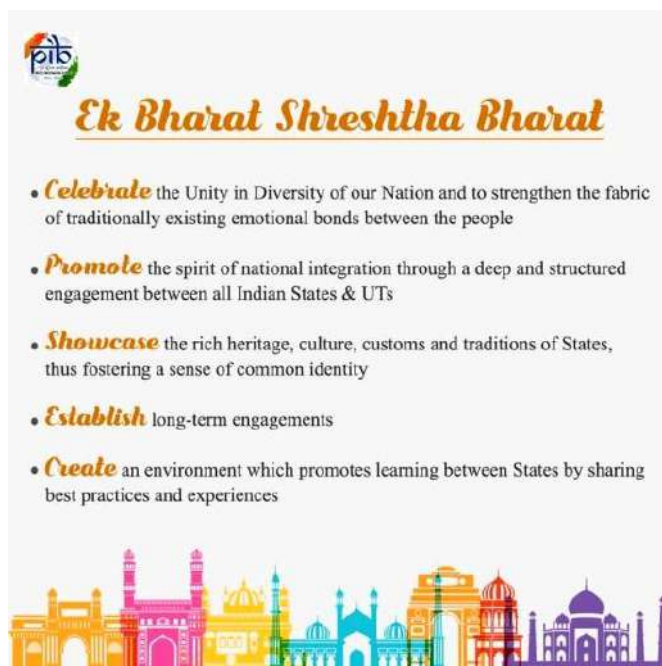
- The 'DekhoApnaDesh' webinar series is an effort to showcase India's rich diversity under "Ek Bharat Shreshtha Bharat."
- The DekhoApnaDesh Webinar Series is presented in technical partnership with Ministry of Electronics and Information Technology's Department of National e Governance.

### **Swadesh Darshan Scheme**

- This is a **central sector scheme**; i.e. - 100% funded by Central Government of India.
- The **funding available for Corporate Social Responsibility (CSR) initiatives of Central Public Sector Undertakings** and Corporate Sector is also used in this scheme.
- The scheme aims to promote, develop and harness the potential of tourism in India.

### **MICE**

- Meetings, incentives, conferences and exhibitions (MICE) is a type of tourism in which large groups, usually planned well in advance, are brought together. Recently there has been an industry trend towards using the term 'meetings industry' to avoid confusion from the acronym.
- **Aim:** to promote India as a MICE Destination (Meetings, Incentives, Conferences and Exhibitions).



**PRASHAD**

- Central Financial Assistance to States/UTs under the schemes of **SwadeshDarshan, National Mission on Pilgrimage Rejuvenation and Spiritual Heritage Augmentation Drive (PRASHAD)** and Assistance to Central Agencies for the development of tourism related infrastructure in the country.

**e- visa Facility**

- Extension of **e- visa facility** to citizens of 167 countries.

**Incredible India 2.0 campaign**

- Niche tourism products like Heritage Tourism, Adventure Tourism, Cruise Tourism, Rural Tourism, Wellness & Medical Tourism, MICE, Golf, etc. are being promoted through the Incredible India 2.0 Campaign.

**Helpline**

- Launch of **24x7 toll free multi-lingual tourist helpline** in 12 International languages including Hindi and English.

**Global Tourism Mart for India**

- Organisation of annual **Global Tourism Mart for India** in line with major international travel marts being held in countries across the world. It provides a platform for all stakeholders in tourism and hospitality industries to interact and transact business opportunities.

**International Buddhist Conclave**

- Organisation of biennial **International Buddhist Conclave**. It showcases the Buddhist Heritage in India and boost tourism to the Buddhist sites in the country and cultivate friendly ties with countries and communities interested in Buddhism.

**Annual International Tourism Mart**

- Organisation of Annual International Tourism Mart for promotion of tourism in North Eastern States.

**“Know India” seminars**

- Promotional activities in tourist generating markets overseas through the India Tourism Offices abroad with active participation in travel fairs and exhibitions; organizing Road Shows, **“Know India” seminars & workshops**.

**Swachh Paryatan**

- The Ministry of Tourism launched a mobile application called **SwachhParyatan** which will let citizens report any hygiene issues at various tourist destinations across the country.

**Adarsh Smarak**

- ASI has identified 100 monuments to be developed as Model Monuments. These monuments would be provided necessary tourist facilities including Wi-Fi, security, signage, encroachment free area, interpretation centres showing short films about the importance of monuments and signboards of Swachh Bharat Abhiyan.

**SAATHI**

- Ministry of Tourism developed an initiative called **SAATHI (System for Assessment, Awareness & Training for Hospitality Industry)** by partnering with the Quality Council of India (QCI) in October 2020.
- The initiative will effectively implement guidelines/SOPs issued with reference to COVID-19 for safe operations of hotels, restaurants, B&Bs and other units.

**Audio Odigos**

- Ministry of Tourism launched Audio Guide facility App called **Audio Odigos** for 12 sites in India (including iconic sites).

### Adopt a Heritage Project

- Ministry of Tourism has launched the 'Adopt A Heritage' project.
- Heritage sites are being offered for adoption by the public sector, private sector and individuals to become 'Monument Mitras' for developing amenities and facilities at these sites under this programme.

### 'Special Tourism Zones'

- Creation of 'Special Tourism Zones' anchored on Special Purpose Vehicles (SPVs) in partnership with the States.
- Creation of Special Tourism Zones would lead to overall development of the areas and offer diverse tourism experiences which would help in creating livelihood and improve standards of local communities living in those areas.

### Glass Top Coaches

- Ministry of Tourism as part of its Rail Tourism Policy is collaborating with Ministry of Railways for manufacturing of three glass top coaches to be deployed on scenic rail routes of the country.
- Two glass top coaches were launched in 2017 on the Vishakhapatnam – Araku Valley and Dadar to Madgaon route. The third glass top coach is being constructed for the Qazigund – Baramullah route in Jammu and Kashmir.

### Conclusion

- Tourism sector is predicted to grow at an annual rate of 6.9% to \$460 bn by 2028 which is 9.9% of GDP.
- Government of India is rightly working to achieve 2% share in world's international tourist arrivals by 2025.
- To achieve its goals India needs a colossal move from the conventional marketing techniques that are still being followed to a much modern approach.
- It is time to showcase the cultural diversity of the country and reinforce the principle of "Tourism for All".

<https://www.pib.gov.in/PressReleasePage.aspx?PRID=1823968>

## **RBI's ANNUAL REPORT 2021**

### **In News**

- Reserve Bank of India (RBI) released its first annual report **after it adopted an April-to-March cycle** for fiscal 2021-22.
- Annual Report's cover design, with a rupee symbol that looks suitably Covid-19 stressed (if not stricken), seemed to capture RBI's current challenge.

### **Highlights of the Report**

1. **Headline inflation spiked** on repetitive supply shocks during the year. But there was a reversion to the target as shocks receded.
2. The **monetary policy remained accommodative** for COVID recovery to take root. Monetary Policy remained vigilant so that inflation remains within the target going forward.
3. **Sustained exports and revival in inbound remittances** led to the viability of the balance of payments. Net capital flows contributed to the **accumulation of foreign exchange reserves**.
4. The world economy faced a brutal blow.
5. Escalation of geopolitical tensions into war.
6. Multiple waves of the pandemic.
7. Supply chain and logistics disruptions.
8. Elevated inflation and bouts of financial market turbulence due to diverging paths of monetary policy.
9. Economic costs of the war and sanctions.
10. **Growth was uneven**. The velocity of money saw only a slight uptick, and India's 'credit gap', was still too weak to emerge from a slump that had haunted our economy since 2013-14.
11. Indian economy is relatively better placed to strengthen the recovery that is underway and improve macroeconomic prospects going forward.
12. RBI is factoring in the emerging risks in the FinTech segment. The involvement of BigTechs in the Banking, financial services and insurance (BFSI) segment also brings along systemic risks.

### Way Forward

- To handle various issues, the Reserve Bank's approach will have to **balance innovation with regulation**, without compromising on any of the principles of risk management.

## SCIENCE AND TECHNOLOGY

### Geomagnetic Storm & its impact on Earth

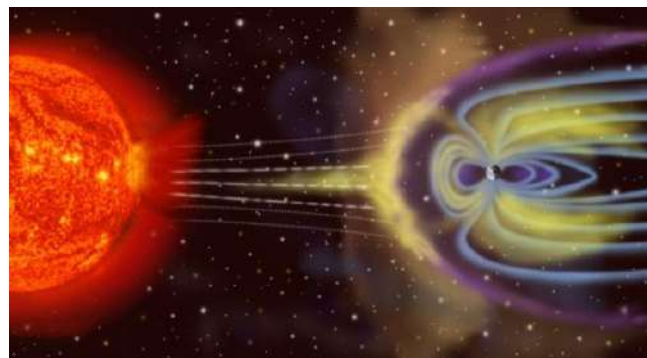
#### Context

- Elon Musk's Starlink has lost dozens of satellites that were caught in a geomagnetic storm a day after they were launched.
- Up to 40 of the 49 satellites were impacted, causing them to fall from orbit before they could be commissioned.

#### Geomagnetic Storm

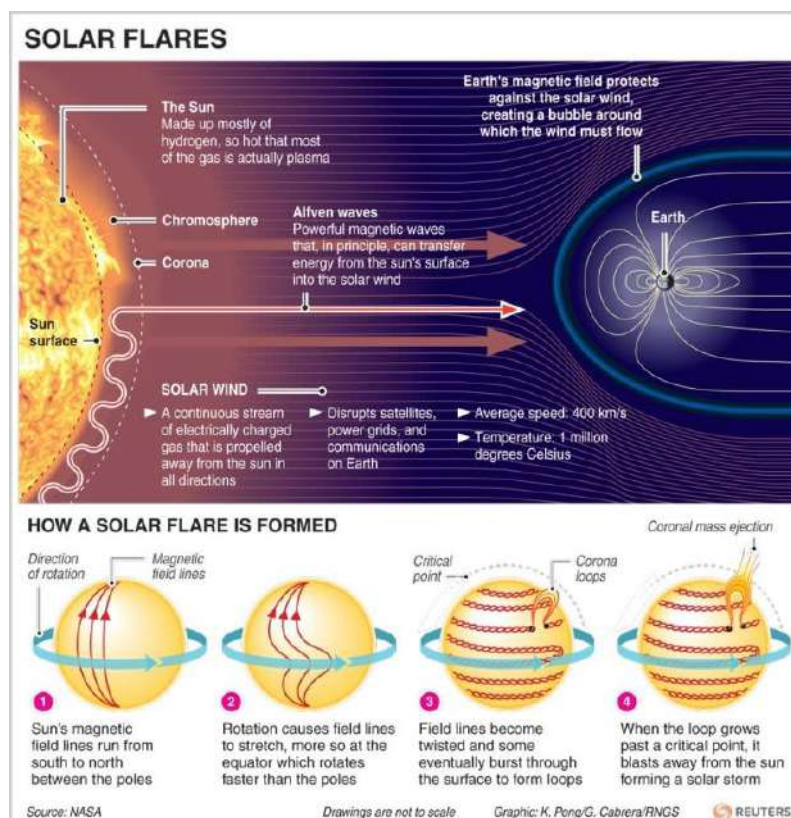
##### About

- A geomagnetic storm is a temporary disturbance of the Earth's magnetosphere **caused by a solar wind shock wave** or solar magnetic field that interacts with the Earth's magnetic field.
- These storms result from variations in the solar wind that produces major changes in the currents, plasmas, and fields in Earth's magnetosphere.

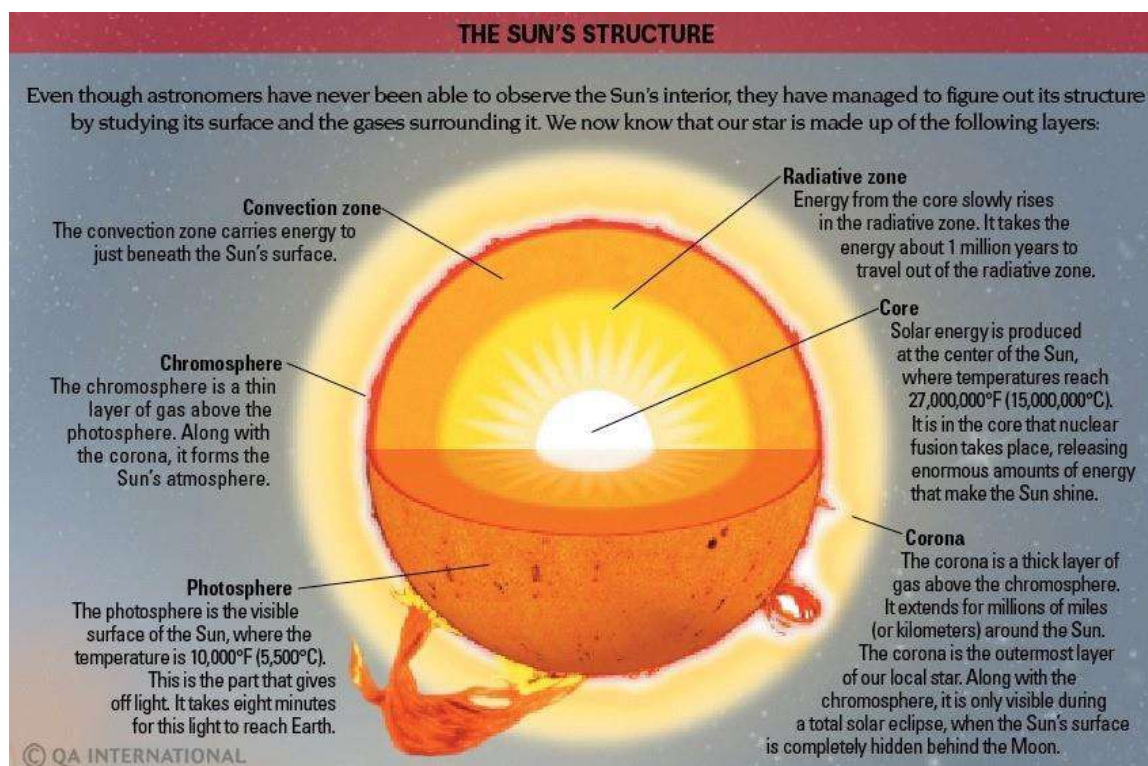


##### Occurrence

- **Sunspots:** They occur during the release of magnetic energy associated with sunspots. Sunspots are small and dark but cooler areas on the solar surface having strong magnetic forces. They are cooler than the surrounding photosphere. Sunspots are indicative of solar activity, giving birth to solar flares and coronal mass ejections (CMEs).
- **CMEs:** These conditions are also associated with solar coronal mass ejections (CMEs) where a billion tons of plasma with its embedded magnetic field are expelled from the sun's corona, arrives at Earth.
- **Solar storm:** Solar wind storm also creates conditions favorable to Geomagnetic Storms. Solar storms are magnetic plasma ejected at great speed from the solar surface.







## Impact on Earth

Not all solar flares reach Earth, but solar flares/storms, solar energetic particles (SEPs), high-speed solar winds, and coronal mass ejections (CMEs) that come close can impact space weather in near-Earth space and the upper atmosphere.

- **Space-dependent services:** Solar storms can hit operations of space-dependent services like satellite communications.
- **Radio communication:** Geomagnetic storms interfere with high-frequency radio communications.
- **Magnetosphere:** CMEs, with ejections loaded with matter travelling at millions of miles an hour, can potentially create disturbances in the magnetosphere, the protective shield surrounding the Earth.
- **Ionosphere and LEO satellites:** During storms, the currents in the ionosphere, as well as the energetic particles that precipitate into the ionosphere add energy in the form of heat that can increase the density and distribution of density in the upper atmosphere, causing extra drag on satellites in low-earth orbit.
- **Global Positioning System:** The local heating also creates strong horizontal variations in the ionospheric density that can modify the path of radio signals and create errors in the positioning information provided by GPS.
- **Power and navigation systems:** They can disrupt navigation systems such as the Global Navigation Satellite System (GNSS) and create harmful geomagnetic induced currents (GICs) in the power grid and pipelines.
- **Astronauts:** Astronauts on spacewalks face health risks from possible exposure to solar radiation outside the Earth's protective atmosphere.
- **Other:** Aircraft flights, power grids, and space exploration programmes are vulnerable.

### Do you know?

A solar storm in March 1989 caused a nine-hour blackout Hydro-Québec's electricity transmission system in Canada.

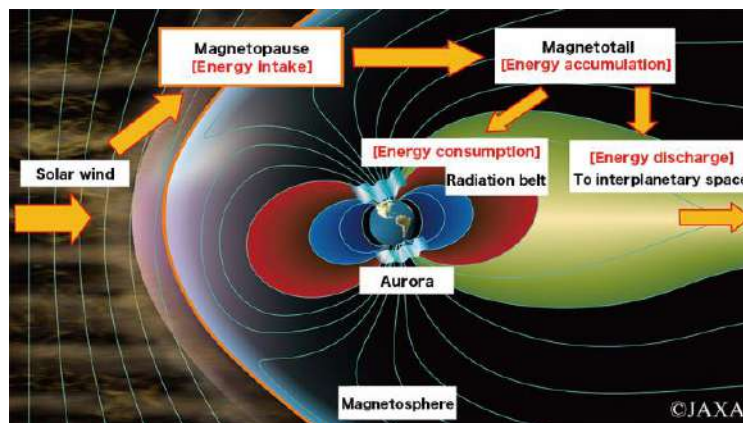
## Final Thought

- With the increasing global dependence on satellites for almost every activity, there is a need for better space weather forecasts and more effective ways to protect satellites.

## Magnetosphere

A magnetosphere is the region around a planet dominated by the planet's magnetic field. Other planets in our solar system have magnetospheres, but Earth has the strongest one of all the rocky planets: Earth's magnetosphere is a vast, comet-shaped bubble, which has played a crucial role in our planet's habitability. Life on Earth initially developed and continues to be sustained under the protection of this magnetic environment. The magnetosphere shields our home planet from solar and cosmic particle radiation, as well as erosion of the atmosphere by the solar wind (constant flow of charged particles streaming off the sun) - that would otherwise strip away the upper atmosphere, including the ozone layer that protects Earth from the harmful ultraviolet radiation.

It is generated by the convective motion of charged, molten iron and nickel, far below the surface in Earth's outer core. Constant bombardment by the solar wind compresses the sun-facing side of our magnetic field.



<https://indianexpress.com/article/explained/geomagnetic-storm-that-killed-starlink-sats-7764995/>

## CARBON SEQUESTRATION

### Context

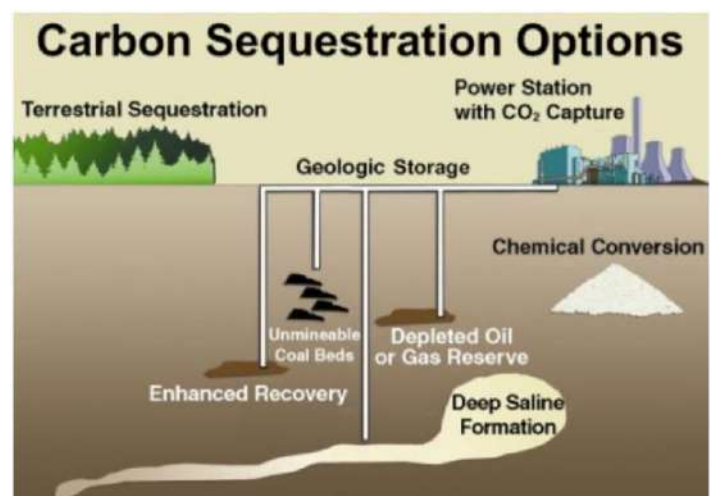
- Oil India Limited has signed a Memorandum of Understanding with the Digboi Forest Division of the Assam Forest Department for a project on Carbon Sequestration and Restoration of Degraded Forest Land in the Upper Dihing Reserved Forest (west block) of the Digboi Forest Division.

### The need

- As **global warming worsens and humanity continues to generate greenhouse gases**, the concept of investing in artificial carbon sequestration techniques is gaining traction.
- To avoid the worst consequences of climate change, the Intergovernmental Panel on Climate Change estimates that countries would need to remove between 100 billion and 1 trillion tonnes of carbon dioxide from the atmosphere this century, significantly more than can be absorbed by just growing more trees.

### Carbon Sequestration

- The long-term storage of carbon in plants, soils, geologic formations, and the ocean is known as carbon sequestration.
- Carbon sequestration refers to the storing of carbon that happens naturally and as a result of manmade actions.



## Types

- **Terrestrial Carbon Sequestration**

- o CO<sub>2</sub> from the atmosphere is collected by trees and plants through photosynthesis and stored as carbon in soils and biomass in a process known as terrestrial carbon sequestration (tree trunks, branches, foliage, and roots).

- **Geologic Carbon Sequestration**

- o CO<sub>2</sub> may be stored in a variety of places, including oil and gas reservoirs, unmineable coal seams, salty formations, and high-organic-content shale formations.

- **Ocean Carbon Sequestration**

- o Large volumes of CO<sub>2</sub> are absorbed, released, and stored by the oceans. This may be accomplished in two ways: by increasing the productivity of ocean biological systems by iron fertilisation, or by pumping CO<sub>2</sub> into the deep sea.

## Challenges

- A rising number of **businesses are investing in so-called engineered carbon removal methods**. However, these technologies are still in their infancy and will require a major upgrade before they can be fully utilised.
- Carbon removal methods are still too costly to be widely used. Artificial carbon sequestration is expensive, energy-intensive, and unproven, with no additional advantages.
- **Deep below, carbon dioxide might be stored. Reservoir design flaws, rock cracks, and tectonic processes** all have the potential to release the gas held in the reservoir into the ocean or atmosphere, resulting in unforeseen consequences like ocean acidification.

## What is the potential?

- In comparison to artificial sequestration, natural sequestration is a gradual process. As a result, it may be used in conjunction with natural sequestration to reach the targets necessary to combat climate change.
- As a result of stored carbon in subterranean chambers such as ancient oil reservoirs, aquifers, and coal seams, agricultural yields have improved and oil recovery has improved.
- This new and developing industry is drawing private investors and venture capitalists, who can help create jobs.

## GM CROPS

### Context

- 500 tonnes of genetically modified rice were discovered in a consignment that India exported to the European Union countries in June 2021.

### About

- Genetically modified crops (GM crops) are plants used in agriculture, the DNA of which has been modified using genetic engineering methods.
- GM crops were first introduced in the U.S. in the mid-1990s.

### The debate around GM Crops Merits

#### Reduced input burden

- Since genetically modified crops require minimal pesticides, fertilizers or insecticides the cost of input is greatly reduced.

#### Disease resistance and Sustainability

- Through genetic modifications, genetically modified crops are made resistant to diseases. This enhances their sustainability and yield.

#### Environmental Protection

- According to an Oklahoma State University report, the increase of GM animals and crops often requires less time, tools and chemicals, and may help with reducing greenhouse gas emissions, soil erosion and environmental pollution.

**Longer Shelf life**

- Genetically modified foods have a longer shelf life. This enhances the ease of transportation and storage.

**Affordability**

- Due to the reduced burden of inputs and longer shelf life hence reduced wastages, the prices of the output will be low.
- This increases the affordability.

**Fortification**

- According to the Food and Agricultural Organization of the United Nations, some GM foods have been engineered to become more nutritious in terms of vitamin or mineral content.
- This not only helps people get the nutrients they need but also plays a significant role in fighting against malnutrition in third-world countries.

**Decreased Use of Pesticides**

- It has been proven that genetically modified crops do not need pesticides to become stronger against various types of insects or pests that may destroy them.

**Demerits****Gene Transfer**

- A constant risk of genetically modified foods is that an organism's modified genes may escape into the wild.
- Experts warn that genes from commercial crops that are resistant to herbicides may cross into the wild weed population, thus creating super-weeds that have become impossible to kill.

**Antibiotic resistance**

- Genetically modified crops have inbuilt antibiotic properties due to their inbuilt mechanisms for disease control.
- This can result in superbugs which can disrupt the health care sector.

**Carcinogen exposure risk**

- There are researches which show that crops tolerant to commercial pesticides greatly increase the risk of cancer development in rats.
- Genetically modified crops can also pose serious threats to human health.

**Lower Level of Biodiversity**

- When we remove a certain pest that is harmful to crops, we could also be removing a food source for a certain species.
- In addition, genetically modified crops could prove toxic to some organisms, which can lead to their reduced numbers or even extinction.

**Gene Spilling**

- It is unclear what effects if there are any, the genetic pollution resulting from inadequate sequestering of genetically modified crop populations would have on the wild varieties surrounding them.

**Exploitation**

- Some countries may use genetic engineering of foods as a very powerful weapon against their enemies.

**Widening Gap of Corporate Sizes**

- This disadvantage can happen between food-producing giants and their smaller counterparts.
- Larger companies might have more political power and might be able to influence safety and health standards.

**New Diseases**

- As previously mentioned, genetically modified foods can create new diseases.



### Economic Concerns

- Consumer advocates are worried that this will raise seed prices to very high levels that third-world countries and small farmers cannot afford, thus widening the gap between the rich and the poor.

✓ Benefits of GMOs	Risks of GMOs ✗
Nutritional value of foods could be improved (e.g. by introducing proteins, vitamins or vaccines)	New traits could cause adverse health reactions (e.g. new proteins may cause allergic responses)
Crops can be produced that lack known allergens	Removal of traits could have unknown effects
Crops can grow in arid conditions for better yield (e.g. by introducing drought resistant genes)	Crops may limit biodiversity of local environment (increased competition with native species)
GM crops can produce herbicides to kill pests	Cross pollination could lead to 'super weeds'
Improve food supply / agriculture in poor countries (GM crops can be engineered for improved yields)	Patents restrict farmers from accessing GM seeds (biotech companies hold monopolies over crop use)
GM crops may have longer shelf lives (less spoil)	Foods with GM components may not be labeled
Reduces economic costs and carbon footprint – less need for land clearing and pesticide usage	Different governments may have conflicting regulatory standards concerning safe usage

### The Case of India

- India allows the import of GM soybean and canola oil.
- The only crops approved for cultivation are (Bt) cotton.
- India has had an effective ban on other GM seeds for a considerable time.

**Note:** In India, the Genetic Engineering Appraisal Committee (GEAC) under of Ministry of Environment, Forest and Climate Change is the apex body that allows for the commercial release of GM crops

### Conclusion

- Genetically modified foods can potentially solve many hunger and malnutrition problems in the world, as well as help, protect and preserve the environment by increasing yields and reducing reliance upon chemical pesticides and herbicides.
- However, it is important to proceed with caution to avoid unfavourable consequences for the surroundings and our health, considering that genetic engineering technology is very powerful.

## GEOSPATIAL SECTOR

### Context

- Recently, India liberalized its regulations on geospatial data.

### Geospatial data

- Geospatial data is **information that describes objects, events or other features with a location on or near the surface of the earth.**
- Geospatial data typically combine -
  - location information (usually coordinates on the earth)
  - attribute information (the characteristics of the object, event or phenomena concerned)
  - temporal information (the time or life span at which the location and attributes exist).
- The location provided may be:
  - Static in the short term (for example, the location of a piece of equipment, an earthquake event, children living in poverty) or
  - Dynamic (for example, a moving vehicle or pedestrian, the spread of an infectious disease).

### Examples of geospatial data

- Vectors and attributes:** Descriptive information about a location such as points, lines and polygons
- Raster and satellite imagery:** High-resolution images of our world, taken from above



- **Census data:** Released census data tied to specific geographic areas, for the study of community trends
- **Cell phone data:** Calls routed by satellite, based on GPS location coordinates
- **Drawn images:** CAD images of buildings or other structures, delivering geographic information as well as architectural data
- **Social media data:** Social media posts that data scientists can study to identify emerging trends

## Present policy on geo-spatial data in India

### Strict regulations

- There are **strict restrictions on the collection, storage, use, sale, and dissemination of geospatial data and mapping** under the current regime.

### Driven by security concerns

- Initially conceptualised as a matter solely concerned with security, geo-spatial data collection was the prerogative of the defence forces and the government.
- The policy had **not been renewed in decades and has been driven by internal as well as external security concerns.**

### Dominated by Government

- The sector so far is **dominated by the Indian government as well as government-run agencies such as the Survey of India.**

### Crippled Private Sector

- Private companies need to navigate a system of permissions from different departments of the government (depending on the kind of data to be created) as well as the Defence and Home Ministries, to be able to collect, create or disseminate geo-spatial data.

### Dependency on foreign data

- GIS mapping was also rudimentary, with the government investing heavily in it after the Kargil war highlighted the dependence on foreign data and the need for indigenous sources of data.

## Impact of present policy

### Delayed projects

- This system of acquiring licenses or permission, and the red tape involved, can take months, delaying projects, especially those that are in mission mode – for both Indian companies as well as government agencies.

### Lack of Data

- There is also a huge lack of data in the country which impedes planning for infrastructure, development and businesses which are data-based.
- The mapping of the entire country, that too with high accuracy, by the Indian government alone could take decades.

### Mistrust

- Indian companies were monitored by a government agency- thereby leading to mistrust in Indian entities.

## Major objectives of deregulating geo-spatial data

- There are three major objectives of the new guidelines
  1. Ease of collecting, using and sharing geospatial data.
  2. Deregulating the sector and allowing private entities to survey and map all physically accessible areas without prior approvals.
  3. Sharing the geospatial data collected by government agencies with the public and the industries.

## New Guidelines

- Under the new policy, geospatial data from government agencies such as the Survey of India and the Indian Space Research Organisation will also be made **available to public and private companies**.
- Private companies are allowed to conduct surveying and mapping **without prior government approvals**.
- Private companies **can also share the data for various everyday applications**, from logistics and transport to road safety and e-commerce.
- Indian entities will require **no prior approvals, security clearances, licenses for acquisition and production of geospatial data** and geospatial data services, **including maps**.
- The new policy **restricts terrestrial mapping and surveying to only Indian entities** – both public and private.
- The data generated also needs to be owned and stored in India, with foreign entities being allowed to license it.
- High-resolution data – finer than 1m horizontally and 3m vertically – will remain restricted.

## Benefits of liberalizing the Geospatial sector

### Allied sectors

- This will be beneficial for all allied sectors that need geospatial data such as logistics and transportation, road safety, and e-commerce.

### Govt. schemes

- It will also aid government programmes such as MNREGA where people will now be able to see the implementation of various projects and their progress.

### Logistics sector

- Currently, in the logistics industry, the country spends around 13% of its GDP.
- This can be brought down to 9% using geospatial data and other technology.

### The level playing field for Indian Companies

- This will also level the playing field for Indian companies.
- Just as an example, while Google Earth could provide satellite images on the map we weren't allowed to do so even though we had the technology. Indian companies will now be able to develop indigenous apps, for example, an Indian version of google maps.

### Mapping

- It will promote projects like the 4D map that we are working on – a 3D map with real-time updated data that can be used by applications such as autonomous vehicles.
- The new guidelines will allow an increase in the scale, speed, and accuracy of mapping.

### Employment

- Startups and businesses can now also use this data in setting up their concerns, especially in the sector of e-commerce or geo-spatial based apps – which in turn will increase employment in these sectors.

### Increase in Private-public partnership

- There is likely to be an increase in public-private partnerships with the opening of this sector with data collection companies working with the Indian government on various sectoral projects.

### Increased investment and export

- There can be an increase in investment in the geo-spatial sector by companies, and also an increase in the export of data to foreign companies and countries, which in turn will boost the economy.

## Final Thoughts

- Geospatial data is vital for all manners of planning and development work.
- Liberalising policies governing the acquisition and production of geospatial data is a massive step in our vision for an Aatmanirbhar Bharat or Self-Reliant India.
- The reforms will unlock tremendous opportunities for our country's start-ups, private sector, public sector and research institutions to drive innovations and build scalable solutions.

# SEMICONDUCTOR SHORTAGE

## Context

- Recently, there has been an abrupt and cascading shortage of semiconductors worldwide.

## Challenges faced by the semi-conductor Industry

- The world's top chipmakers still can't manufacture chips fast enough to satisfy the market's insatiable appetite.

## The COVID-19 crisis

- The pandemic disrupted semiconductor shipments as global demand for new mobile devices, PCs, and data centre upgrades surged in response to remote work, online learning, and other stay-at-home trends.

## Declining memory chip prices

- Memory chip prices soared in 2017 and 2018 but declined in 2019 and 2020 amid sluggish demand from the PC and smartphone markets.

## The ongoing tech war

- The tech war between the U.S. and China, which intensified under President Donald Trump and is continuing under President Joe Biden, is another pressing issue.
- The U.S. has already levied sanctions against several big Chinese companies, including SMIC and Huawei, amid national security concerns.
- Those sanctions are exacerbating the shortage of advanced chips in China.
- They're also spurring the Chinese government to aggressively invest in its domestic chipmakers to reduce its overall dependence on overseas technologies -- which could cause a messy decoupling of the U.S. and Chinese markets.

## Fluctuating forecasts

- Automakers that cut back drastically early in the pandemic underestimated how quickly car sales would rebound.
- They rushed to re-up orders late in 2020, only to get turned away because chipmakers were stretched supplying computing and smartphone giants like Apple Inc.

## Stockpiling

- Chinese companies began building up inventory to ensure they could survive U.S. sanctions that were set to cut them off from their primary suppliers.

## Disasters

- Several recent setbacks -- including a power outage at TSMC, a production pause at Samsung, and a fire at the Japanese auto chipmaker Renesas -- all highlight the fragility of the semiconductor supply chain.

## Impact

### Disrupted supply chain

- The semiconductor shortage severely disrupts the supply chain and constrains the production of many electronic equipment types.
- Production of laptops, tablets, smartphones and other electronic devices is impacted by the shortage of semiconductors.

### Increasing Prices

- Foundries are increasing wafer prices, and in turn, chip companies are increasing device prices.

### Production Disruption in Automobile Sector

- Domestic and global automobile manufacturers cut output and halt production due to the semiconductor shortage.
- According to data from the Society of Indian Automobile Manufacturers (SIAM), automobile wholesales in

India declined 11 per cent year-on-year in August 2021.

- Chip shortages are expected to wipe out \$210 billion of sales for carmakers in 2022, with the production of 7.7 million vehicles lost.

## Challenges specific to India

### Competition

- It is difficult to compete with neighbouring countries like China and Vietnam which have been favourite destinations for global chip manufacturers due to better cost-efficiency.

### Massive investment

- In addition to the huge cost, running in billions of dollars, manufacturing even a single chip requires hundreds of gallons of pure water, which may also be hard to find in India in the required quantities.

### Infrastructure

- There have been challenges in setting up Semiconductor Wafer Fabrication (FAB) units in India.
- India is still not on par in terms of the basic infrastructure needed.

### Power Supply

- An uninterrupted power supply is another major hurdle.
- The heart of the issue is that India is still not on par in terms of the basic infrastructure needed to pursue endeavours in the chip manufacturing space.

### Price pressure

- There is also constant price pressure from other global players, particularly China which is also building a homegrown chip program for the adoption of local semiconductors in 70% of its products by 2025.

### Dependency on Imports

- India **imports 100% of its semiconductors**.
- Around 40 per cent of India's demand is met through imports from China, despite the frequent geopolitical impasse that the two nations find themselves in.

## Government efforts

### Development of sustainable semiconductor and display ecosystem in the Country Programme

- The comprehensive programme for the **"development of sustainable semiconductor and display ecosystem in the country"** is aimed at making India a global hub of electronic system design and manufacturing.
- The scheme would provide financial support of up to 50% of the project cost for setting up semiconductor and display fabrication units.

### 100% FDI in the ESDM

- In 2016, the government allows **100% FDI in the ESDM sector through an automatic route to attract investments** including from Original Equipment Manufacturers (OEMs) and Integrated Device Manufacturers (IDMs).

### Electronics development Fund

- The Department of Electronics and Information Technology (DeitY) has established an Electronics Development Fund (EDF) managed by Canara Bank to provide risk capital and attract venture funds, angel funds and seed funds for incubating R&D and fostering the innovative environment in the sector.

### Initiatives under Telecom and Electronic Policies

- Some of the initiatives outlined in the National Electronics policy and the National Telecom policy are in the process of implementation, such as Preferential Market Access (PMS), Electronics Manufacturing Clusters (EMC) and Modified Special Incentive Package Scheme (M-SIPS).

### **Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS)**

- Ministry of Electronics and Information Technology (MeITy) has drawn up the Scheme for Promotion of manufacturing of Electronic Components and Semiconductors (SPECS).

### **Production-linked incentive scheme (PLI) scheme**

- Under the scheme, the Centre will offer financial support to companies that want to manufacture a range of semiconductor goods in India.
- The subsidy will bring down the production costs of companies manufacturing such goods, and thus encourage them to set up new factories and other facilities.

### **Global efforts**

- In the US, the Biden administration's \$2 trillion infrastructure investment package includes \$50 billion for the semiconductor industry.
- The South Korean government has announced a massive \$451 billion investment to help companies boost the production of semiconductors.
- Many tech companies have begun developing their chips, a move that will not only alleviate the current supply concerns but will likely help the industry in the long run.
- Western countries are focusing on the need to shift manufacturing within their countries and become self-reliant.

### **Way Ahead and Final Thoughts**

- As 5G mobile networks proliferate with many people working from home, the need for more powerful, energy-efficient chips is only going to grow.
- The rise of artificial intelligence is another force pushing innovation since AI relies on massive data processing.
- The Indian semiconductor industry is set for a stable upsurge with bright prospects **provided India's generic obstacles like red tape-ism, fund crunch and infrastructural deficits are adequately addressed.**
- Steps needed to be taken:**
  - Land Acquisition by the government:** acquire the land and develop a special economic zone (SEZ) which would encompass a complete semiconductor manufacturing ecosystem.
  - Cover all ancillaries:** The monetary benefits being extended for setting up a fab should be made available for all the ancillary units manufacturing speciality chemicals to clean room apparel.
  - Focus on simple technology:** The requirements are less stringent and the fabs are less expensive. These companies typically operate at much lower gross margins as opposed to the large fabs and OEMs.
- With the implementation of fabrication capabilities in India, the country could achieve a degree of self-sufficiency in the sector of semiconductors.
- Building a strong semiconductor industry would put an end to the country's reliance on imports to meet its semiconductor needs and will help in the creation of jobs.

## **ELECTRIC VEHICLES**

### **Context**

- India is the fifth largest car market in the world and has the potential to become one of the top three shortly – with about 40 crore customers in need of mobility solutions by the year 2030.

### **Data on Electric Vehicle**

- It is estimated **that two in every hundred cars sold today** are powered by electricity.
- This phenomenon is today defined by the rapid growth in EV uptake, with EV sales for the year 2020, reaching 2.1 million.
- The global EV fleet totalled 8.0 million in 2020 with EVs accounting for 1 per cent of the global vehicle stock and 2.6 per cent of global car sales.
- Falling battery costs and rising performance efficiencies are fueling the demand for EVs globally.



## Benefits of EV

- **Reduced greenhouse gases emission** - petrol and diesel are important sources of carbon dioxide emissions. CO<sub>2</sub> is a leading source of global warming. EVs can help in reducing GHG emissions.
- **Reduced air pollution** - Petroleum fuels are also a source of NO<sub>x</sub>, SO<sub>2</sub> and particulate matter along with photochemical smog. With EVs, this pollution can be addressed.
- **Reduced noise pollution** - EV vehicles produce less noise as compared to petrol or diesel vehicles. This will be helpful to transport in urban areas, forested areas etc.
- **Use of renewable energy** - with EVs there will be a rise in electricity demand. This will give scope for more renewable energy like solar and wind.
- **Easier to maintenance** - An internal combustion engine usually contains more than 2,000 moving parts. An electric motor onboard an EV on the other hand contain around 20 moving parts.
- **Low cost of ownership** - It is a proven fact by many researchers that EVs offer a way lower cost of ownership in their lifecycle compared to fossil fuel-powered vehicles.

## Challenges

- **High price** -There is no price parity between electric vehicles and ICE vehicles in India. Electric vehicles are way more expensive than their conventional fuel-powered counterparts. For example, the Tata Nexon price starts from ₹7.19 lakh, while the Tata Nexon EV price starts from ₹13.99 lakh. Weak charging infrastructure beyond major urban areas.
- **Range anxiety** -Range anxiety is one of the crucial challenges ahead of the growth path for electric vehicles in India. The EV customers are often worried about the vehicle's capability to reach point B from point A before the battery runs out.
- **Consumer perception** -The consumer perception of electric vehicles in India is still weak compared to ICE vehicles. The range anxiety, lack of charging infrastructure, a wide gap between EV and ICE vehicle prices, lack of assurance about satisfactory resale value plays a key role in that.
- **Scarce battery technology** -The lithium-ion battery is the most popular and widely used energy source for EVs. India doesn't produce lithium. The country doesn't produce li-ion batteries either.
- **The majority of EVs are not covered under the FAME scheme** -The Indian government took an attempt to promote electric mobility in the country via incentivizing and discounts for EVs. The terms and conditions of the FAME scheme don't support the majority of electric vehicles.
- **Lack of products** - Only a few options are there and the majority of them are not from established trustworthy brands.

## Government Steps

- **FAME (faster adoption of electric and hybrid vehicles)** scheme in phase 2 has been going on.
- **EV policy** - individual states are coming up with EV policies. Eg. Recently the Maharashtra government came up with its policy till 2025.
- **Green-coloured number plates** - the government has decided to use green-coloured number plates for EVs.
- The Ministry of Power has **issued a policy on charging infrastructure and has issued a notification clarifying that charging electric vehicles will be a service, not a sale of electricity.**
- The decision to **promote aluminium batteries as an alternative to lithium batteries.**
- electricity **regulatory commissions have also brought out special tariffs for EV charging,** and ARAI has introduced standards for AC & DC charging.
- MoHUA has amended Building Bye-laws and Urban and Regional Development Plans Formulation and Implementation Guidelines to make charging infrastructure development an integral part of urban planning, development and construction.

## SOLAR WASTE HANDLING POLICY

### Context

- According to the International Renewable Energy Agency (IRENA), India does not have a firm policy on managing waste that results from used solar panels or the manufacturing process.

### Why does India need a solar waste handling policy?

- India is ramping up solar power installation. India has set a target of producing 100 GW of solar energy by 2022.
- The International Renewable Energy Agency (IRENA) estimated that the global photovoltaic waste will touch 78 million tonnes by 2050, with India expected to be one of the top five photovoltaic-waste creators.
- India does not yet have a firm policy on managing waste that results from used solar panels or the manufacturing process.

### Current situation

- India currently considers solar waste a part of electronic waste and does not account for it separately.
- There is no commercial raw material recovery facility for solar e-waste operational in India, but a pilot facility for solar panel recycling and material recovery had been set up by a private company in Gummidipoondi, Chennai, Tamil Nadu.
- Solar Power Europe and PV Cycle, supported by the European Union in India and the Union Ministry of New and Renewable Energy, could generate over 34,600 tonnes of cumulative solar waste in India by 2030, according to a report prepared by the National Solar Energy Federation of India.
- Solar panels have a life of 20-25 years, so the problem of waste seems distant. India will likely be faced with solar waste problems by the end of this decade, and solar waste will end up being the most prevalent form of waste in landfills soon.

### Other Countries Handling Solar Waste

- The Waste Electrical and Electronic Equipment (WEEE) Directive of the EU (European Union) imposes responsibility for the disposal of waste on the manufacturers or distributors who introduce or install such equipment for the first time.
- The UK also has an industry-managed —take-back and recycling scheme, where all PV producers will need to register and submit data related to products used for the residential solar market (Business-to-Consumer) and non-residential market.
- While there are no federal statutes or regulations in the US that talk about recycling, there are some states who have proactively defined policies to address end-of-life PV module management.
- The federal government in Australia has acknowledged the concern and announced a USD 2 million grant as part of the National Product Stewardship Investment Fund to develop and implement an industry-led product stewardship scheme for PV systems.
- Countries such as Japan and South Korea have already indicated their resolve to come up with dedicated legislation to address the PV waste problem.

### Suggestion

- Government should propose an action plan to evolve a —circular economy in solar panels, through the reuse/recycling of waste generated.
- Strong e-waste or Renewable Energy Waste Laws: EPR for the manufacturer and developers to take responsibility for end-of-life the solar panel.
- PV modules were the first to be included in the EU's WEEE regulations. It includes options for financing waste management.
- Infrastructure: To bring down the cost of recycling infrastructure investment is required, coordination between the energy and waste sector to efficiently handle the renewable energy waste and building more recycling plants to avoid solar panels ending up in landfills.
- Environmental Disposal and Recycling: Environmental disposal and recycling of solar waste could be part of the power purchase agreement SECI / DISCOMS / government signs with project developers.
- Ban on Landfills: Solar panel waste is harmful to the environment as it contains toxic metals and minerals that may seep into the ground.

- Business Incentives: New business models, incentives or issues of green certificates to be provided to encourage the recycling industry to participate more.
- Research and Development: Innovation in design may have an impact on the type of waste they generate; technology advancements will be significant in reducing the impact of renewable energy waste. New panels, for example, use less silicon and produce less waste during the manufacturing process.

## DRAFT BATTERY SWAPPING POLICY BY NITI AAYOG

### In News

- The Niti Aayog has released a draft battery swapping policy for developing a battery swapping network across the country.

### Details

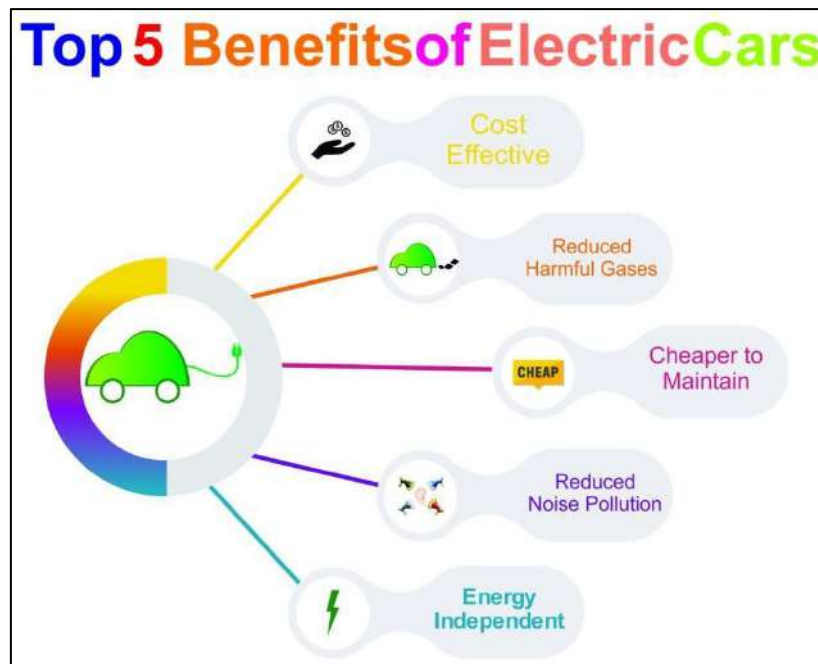
- **The Niti Aayog has released a draft battery swapping policy.**
  - **In the 1st phase, all metropolitan cities with a 40 lakh or more population** will be supported by the development of a battery swapping network.
  - **In the 2nd Phase, all major cities with 5 lakh or more** will be covered.
- Battery swapping is an alternative which involves swapping discharged batteries with charged ones.
- Battery Swapping de-links the vehicle and Battery and **reduces the upfront cost of the vehicles.**
- Battery swapping is popularly used for smaller vehicles such as 2 and 3-wheelers which have smaller batteries that are easier to swap.
- Battery swapping saves **time, and space, and is cost-efficient.**
- The Union Finance Minister in her Budget Speech 2022-23 announced that The Government of India will introduce a Battery Swapping policy to improve efficiency in the EV Ecosystem.

### Key features of the Draft Policy

- Promote swapping of batteries to reduce battery costs of purchasing Electric vehicles (EVs).
- Promoting battery swapping as an alternative to charging facilities.
- Strengthening policy and regulations to de-risk the battery swapping ecosystem
- Encourage partnerships among battery providers, and other relevant partners such as insurance/financing.
- Encouraging the formation of ecosystems capable of delivering integrated services to end-users.
- Promote better lifecycle management of batteries, including maximizing the use of batteries during their usable lifetime, and end-of-life battery recycling.

### Electric Vehicles

- An electric vehicle uses electricity from extravehicular sources, or it can be powered by a battery (sometimes charged by solar panels).
- Electric vehicles are vehicles that are **either partially or fully powered on electricity.**
- Electric vehicles have **low running costs** as they have fewer moving parts for maintenance and also are very **environmentally friendly as they use little or no fossil fuels** (petrol or diesel).
- Electric Vehicles are **easy and cheaper to maintain** because of their simple structure and operations.
- Another benefit that an EV can deliver is the **silent functioning capability.**
- Switching to Electric Vehicles will **improve the overall energy security** situation as the country imports over 80% of its total crude oil requirements, and also save valuable foreign reserves. This will help India in achieving the goal of „Atmanirbhar Bharat“.
- Increasing demand for EVs is also expected to **boost the local EV manufacturing industry**; this will support the “Make in India” programme.



### Present Status

- Government efforts resulted in a **2.5 times increase in charging stations in 9 megacities in the last four months.**
- These 9 cities (Surat, Pune, Ahmedabad, Bengaluru, Hyderabad, Delhi, Kolkata, Mumbai, and Chennai) account for about 940 of India's 1640 public EV chargers.
- Oil Marketing Companies to set up 22,000 EV charging stations across the country in prominent cities and highways.
- In 2020-21, around 1.59 lakh EVs were sold in India, which is 0.8% of the Internal Combustion Engine (ICE) sales in the same period (1.79 crores).

### Steps by Government to promote Electric Vehicles

- The government has taken various initiatives to promote the manufacturing and adoption of electric vehicles in the country.
- Government of India to expand Public Electric Vehicle Charging Infrastructure across the nation.
- The government is working with private and public agencies to increase public EV charging infrastructure.
- Faster Adoption and Manufacturing of Hybrid and Electric Vehicles in India Scheme (FAME)** was launched in 2015 to promote the manufacturing of electric and hybrid vehicles.
- The efforts undertaken by the government through various implementing agencies have increased the number of public EV charging infrastructures.
- After ensuring adequate EV infrastructure in megacities, the government is planning to expand the coverage to other cities.
- The Department of Heavy Industry has sanctioned Public Charging Stations for 25 Highways and Expressways, EV charging stations must be located within every 25 km of range on these expressways and highways.
- Cabinet approved a Production-linked incentive scheme for the automotive sector to boost the manufacturing of electric vehicles.
- NITI Aayog Released Handbook to Guide EV Charging Infrastructure in India.
- Goods and Services Council decided on **5% GST on Electric vehicles.**
- Government Launched 'e-AMRIT' portal:** One-stop platform for information on electric vehicles.

### Electric Vehicle charging infrastructure Guidelines released by the Ministry of Power

- The Guidelines allowed electric vehicle owners to charge EVs at their residences or offices using their existing electricity infrastructure.
- A Person is free to set up a Public Charging Station.** It must meet the prescribed standards released by the Bureau of Energy Efficiency, Ministry of Power, and Central Electricity Authority.

- A revenue-sharing model is suggested for land use to make a public charging station profitable from an operational point of view.
- **A Separate meter is to be installed for a public charging station** to record and bill consumption as per the applicable tariff for the EV charging station.
- Technical requirements for public charging stations have been expanded.

### Challenges

- Many residents park their vehicles in open or uncovered parking slots as they have **no dedicated parking space**. So, how would they set up their charging infrastructure?
- In India, more than 90% of workers are engaged in the unorganised sector and even organisations in the organised sector lack dedicated parking infrastructure. **Organizations in both the Organised and unorganised sectors that don't have dedicated parking spots will face the problem.**
- Lack of charging infrastructure, disruption in power supply, **inadequate dedicated service centres**, doubts over the sustainability of Electric vehicles and charging infrastructure, **long charging hours**, etc are the key challenges, which need to be addressed.

### Way forward

- The availability of **adequate charging infrastructure** is the key element for accelerating the adoption of electric vehicles in India.
- Many states have notified dedicated EV policies, while many are in process of drafting their policies. The **Central Government needs to align the policies at the central and state level and create a national-level policy for promoting EVs in the country.**
- Promote local manufacturing, Provide adequate Support to the local manufacturing ecosystem to lower the price of EV vehicles.
- Improve the research and development to promote indigenous manufacturing and reduce dependency on imports.

## SPACE DEBRIS

### Context

- A Chinese satellite had a near collision with one of the many chunks of debris left by the fallout of a recent Russian anti- satellite missile test.

### Space Debris

- **Space junk is any piece of machinery or debris left by humans in space** – principally in Earth orbit.
- These include dead satellites, fragments of rocket bodies and spacecraft etc.



### Concerns

- Currently, an estimated 20,000 objects—including satellites and space debris—are crowding low-Earth orbit. It can be a **hazard to active satellites and spacecraft.**
- At orbital velocities, even the tiniest pieces of debris **can disable an operational satellite.**
- Potential **collision threat to the space station.**
- **Earth orbit could even become impassable** if the risk of collision grows too high.
- It could **hinder our ability to use weather satellites and hence monitor weather changes.**

### Kessler syndrome

- This is an idea proposed by NASA scientist Donald Kessler in 1978.
- It says if there is too much space junk in orbit, it could result in a chain reaction where more and more objects will collide and create new space junk in the process, to the point where Earth's orbit became unusable – a Domino Effect.
- 12 fragmentation events have already taken place every year for the past two decades.



## Initiatives are taken to tackle the problem

### Inter-Agency Space Debris Coordination Committee

- IADC is an inter-governmental forum whose aim is to coordinate efforts to deal with debris in orbit around the Earth founded in 1993.

### NORAD

- North American Aerospace Defense Command, is an initiative of the U.S. and Canada that shares selective debris data with many countries.

### ClearSpace-1 Mission

- In this, a "chaser" with its four robotic arms will grab the leftover 2013 craft known as VESPA (Vega Secondary Payload Adapter) and drag it down to Earth's atmosphere where both will burn up. To be launched in 2025.

### ELSA-d, Mission

- ELSA-d (End-of-Life Services b), will test technologies to capture an object in low-Earth orbit and move it to a lower altitude, where it will eventually burn up harmlessly in Earth's atmosphere.

### Starship

- Space X Starship – the passenger-carrying spacecraft once ready can collect and de-orbit space junk apart as well.

### NEO-01'

- China launched a low Earth orbit robot prototype called 'NEO-01'.
- It can scoop up space debris left behind by other spacecraft with a big net.
- NEO-01 was launched on the Long March 6 rocket.
- NEO-01 will use a net to capture space debris and then burn it with its electric propulsion system.
- The NEO-01 will also peer into deep space to observe small celestial bodies.
- The 30kg robot will pave the way for future technologies capable of mining asteroids.

## ISRO's Efforts

### 'Project NETRA'

- It is an early warning system in space to detect debris and other hazards to Indian satellites.
- ISRO's Geosynchronous Satellite Launch Vehicle (GSLV) employs passivation of the Cryogenic Upper Stage at the end of its useful mission.
- ISRO's communication satellites are designed with adequate propellant margins for re-orbiting at the end of their useful life to a higher graveyard orbit.
- **Successful example:** INSAT-2C

## Closing Thoughts

- Such multilateral efforts, alongside technological innovation, can ensure that the great space cleanup is well underway.

# ENVIRONMENT

## STATE OF WORLD'S FOREST REPORT 2022

### In News

- The United Nations Food and Agriculture (FAO) has released the State of the World's Forests 2022.
- **The State of the World's Forests report is published bi-annually by UN Food and Agriculture (FAO).**
- For achieving green recovery and tackling multidimensional planetary crises, including climate change and biodiversity loss, this year the **report highlighted the 3 ways;**
  - **Stopping deforestation and maintaining forests.**
  - Restoring degraded lands and expanding agro-forestry.
  - **Sustainably using forests and building green value chains.**

### Highlights of the Report

- Nearly **420 million hectares of forests have been lost between 1990 and 2020**, due to **deforestation**.
- The rate of deforestation was declining.
- **15% of 250 emerging infectious diseases** have been linked to the loss of forests.
- **Example: Covid-19, Drug-resistant infections (Antimicrobials), Zika Virus, etc.**
- **Approximately 124 million more people fell into extreme poverty after Covid-19 and this may promote the use of wood-based fuel** (such as firewood, and charcoal) due to the increase in the price of LPG.
- The world population is **projected to reach nearly 9.7 billion people by 2050**, and the demand for food for this large population will rise by 35 to 56% by the 2050s.
- **Demand for forest-based biomass is expected to rise further**, mainly due to construction and packaging.
- "More than 140 countries have pledged, through the Glasgow Leaders' Declaration on Forests and Land Use, to eliminate forest loss by 2030 and to support restoration and sustainable forestry".

### India State of Forest Report 2021

- The Ministry of Environment, Forests and Climate Change (MoEFCC) has released the India State of Forest Report (ISFR) 2021.
- The **biennial report by the Forest Survey of India (FSI)** is an assessment of the country's forest resources.
- **India's forest and tree cover has risen by 2,261 square kilometres** in the last two years with Andhra Pradesh growing the maximum forest cover of 647 square kilometres.
- The total tree-and-forest cover in the country includes an increase of 1,540 square kilometres of forest cover and 721 sq km of tree cover compared to the 2019 report.
- The current forest cover of India is 7,13,789 square kilometres (21.71% of the total geographical area).
- India's total forest and tree cover is now spread across 80.9 million hectares, which is **24.62% of the geographical area of the country**.
- The top five states in terms of **increase in forest cover are Andhra Pradesh (647 sq km)**, Telangana (632 sq km), Odisha (537 sq km), Karnataka (155 sq km) and Jharkhand (110 sq km).
- The gain in forest cover or improvement in forest canopy density may be attributed to better conservation measures, protection, forestation activities, tree plantation drives and agroforestry.
- Among the megacities in the country, Ahmedabad has been the biggest loser when it comes to forest cover.
- States with maximum forest cover:
  - Area-wise, Madhya Pradesh has the largest forest cover in the country followed by Arunachal Pradesh, Chhattisgarh, Odisha and Maharashtra.
- 17 states/UTs have above 33% of the geographical area under forest cover.
- Out of these states and UTs, Lakshadweep, Mizoram, Andaman & Nicobar Islands, Arunachal Pradesh and Meghalaya have more than 75% forest cover.
- Mangrove cover in the country:
  - There is an increase of 17 sq km in mangrove cover in the country as compared to the previous assessment of 2019.
  - The total mangrove cover in the country is 4,992 sq km.
  - The top three states showing mangrove cover increase are Odisha (8 sq km) followed by Maharashtra (4 sq km) and Karnataka (3 sq km).

- The northeast did not show positive results as the current assessment showed a decrease in forest cover to the extent of 1,020 sq km in the region.
- Arunachal Pradesh lost the maximum forest cover of 257 sq km, followed by Manipur which lost 249 sq km, Nagaland 235 sq km, Mizoram 186 sq km and Meghalaya 73 sq km.

## ZERO BUDGET NATURAL FARMING

### Context

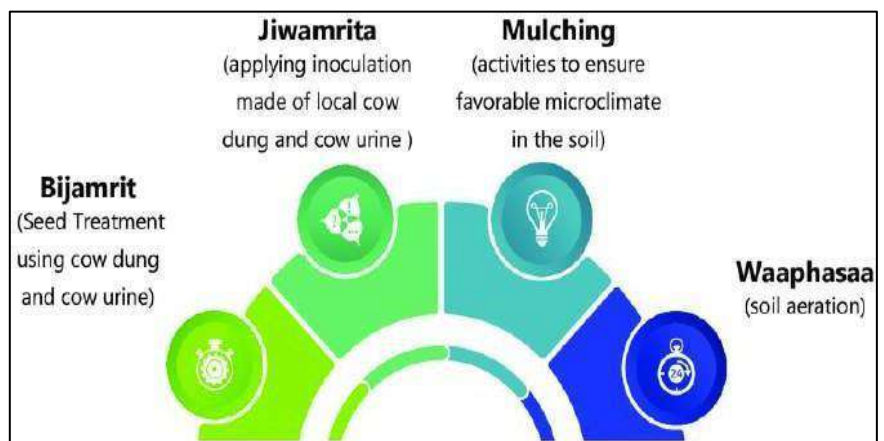
- Prime Minister Narendra Modi has recently set a vision to minimise the dependence of farmers on purchased inputs through ZBNF that reduces the cost of agriculture by relying on traditional field-based technologies which leads to improved soil health through natural farming should be fulfilled.

### What is it?

- Natural farming is a system where the laws of nature are applied to agricultural practices.
- This method works along with the natural biodiversity of each farmed area, encouraging the complexity of living organisms, both plants, and animals that shape each particular ecosystem to thrive along with food plants.
- The word 'budget' refers to credit and expenses, thus the phrase 'Zero Budget' means without using any credit, and without spending any money on purchased inputs. 'Natural farming' means farming with Nature and without chemicals.

### Features of ZBNF

1. The premise of ZBNF is that soil has all the nutrients plants need. To make these nutrients available to plants, we need the intermediation of microorganisms. For this, —four wheels of ZBNF have been suggested:
  - **Bijamrit** is the microbial coating of seeds with formulations of cow urine and cow dung
  - **Jivamrit** is the enhancement of soil microbes using an inoculum of cow dung, cow urine, and jaggery
  - **Mulching** is the covering of soil with crops or crop residues which creates humus and encourages the growth of friendly microorganisms
  - **Waaphasa** is the building up of soil humus to increase soil aeration
2. According to ZBNF principles, plants get 98% of their supply of nutrients from the air, water, and sunlight. And the remaining 2% can be fulfilled by good quality soil with plenty of friendly microorganisms. (Just like in forests and natural systems)
3. The system requires cow dung and cow urine obtained from Indian-breed cows only. Desi cow is the purest as far as the microbial content of cow dung, and urine goes.
4. In ZBNF, multi-cropping is encouraged over the single crop method.



### Similarities between Organic Farming and ZBNF

- Organic and natural farming both discourage farmers from using any chemical fertilisers, or pesticides on plants and in all agricultural practices.
- Both farming methods encourage farmers to use local breeds of seeds, and native varieties of vegetables, grains, pulses and other crops.
- Both farming methods promote non-chemical and homemade pest control methods.

## Differences between Organic Farming and ZBNF

- In organic farming, organic fertilisers and manures like compost, vermicompost, cow dung manure, etc. are used and added to farmlands from external sources. While in the natural farming decomposition of organic matter by microbes and earthworms is encouraged right on the soil surface itself, which gradually adds nutrition to the soil over the period.
- Organic farming requires basic agro practices like ploughing, tilling, mixing of manures, weeding, etc. to be performed. While in natural farming there is no ploughing, no tilting of soil and no fertilisers, and no weeding is done just the way it would be in natural ecosystems.
- Organic farming is still expensive due to the requirement of bulk manures, and it has an ecological impact on surrounding environments; whereas, natural agriculture is an extremely low-cost farming method, completely moulded with local biodiversity.

Subhash Palekar, who coined the term ZBNF, is training farmers in different states regarding the techniques of ZBNF. But experts claim that yield is less in ZBNF.

## Benefits of ZBNF

- It will help reduce the cost of farming and improve the welfare of farmers.
- It also helps to improve the health of the soil.
- In the longer run, the productivity of the farmland will not be reduced, as, in other farm practices, the overall productivity of the farmland gets reduced over time after using chemical fertiliser.
- It also lowers the toxicity in the food chain.
- Optimum utilisation of water and reduced water consumption (85%)
- Promote diversification of agriculture- towards other crops and livestock rearing. This can also lead to a reduction in the risks and enhance nonfarm income.

## Criticism or drawback of zero-budget farming

- The green revolution came to ensure food security in India however mismanagement and excess use of fertiliser created many environmental problems.
- Experts of farming still doubt zero budget farming practice, as in Sikkim state, it has been noticed that the yield of the farmers is declining due to organic farming.
- Zero budget farming is not a full-proof farming practice where it can be ensured that yield will not decline and the food security of the country will not get hampered.
- Family labour cost, rent of land, cow maintenance, electricity cost, etc are ignored in the cost calculation
- Fertiliser and microbes are not uniform in all soils; a huge lack of humus in Indian soils can make ZBNF costly. The only solution for all the Indian soils problem, may not be a practical solution.

## Way Forward

- There are a host of structural marketing issues which need to be addressed immediately before aiming to achieve the ambitious goal of Zero Based on Natural Farming. For example:
  - Strengthening the agricultural market infrastructure.
  - Ensuring that the procurement mechanism applies to all foodgrain and non-food grain crops in all the States.
  - Effective implementation of the price deficiency payment system for the selected crops.
  - Ensuring that minimum support prices (MSP) are fixed in consonance with the cost of cultivation.
  - MGNREGA should also be linked with farm work to ensure that there is a reduction in the cost of cultivation which has escalated at a faster pace over the past few years.

## Un climate change conference in Glasgow

### Context




- **COP 26 United Nations Climate Change Conference is being hosted by the UK.**
- Leaders at the CoP26 global climate conference in Glasgow have pledged to stop deforestation by the end of the decade and slash emissions of methane to help slow climate change.
- India announced that it will reach carbon neutrality by 2070 as part of a five-point action plan that included reducing emissions to 50% by 2030.



## Key Highlights

### Net Zero

- Net Zero is a state in which a **country's total emissions are offset by absorptions of carbon dioxide from the atmosphere**, like that done by trees and forests, and physical removal of carbon dioxide through futuristic technologies.

<p><b>PM MAKES FIVE PLEDGES</b></p> <ol style="list-style-type: none"> <li>1 India will increase its non-fossil energy capacity to 500GW by 2030</li> <li>2 India will meet 50% of its energy requirements from renewable energy by 2030</li> <li>3 India will reduce the total projected carbon emissions by one billion tonnes from now to 2030</li> <li>4 By 2030, India will reduce the carbon intensity of its economy by 45% (from a previous target of 35%)</li> <li>5 By 2070, India will achieve the target of net zero</li> </ol>	<p><b>WHAT IS NET ZERO?</b></p> <p>Net zero refers to a balance where emissions of greenhouse gases are offset by the absorption of an equivalent amount from the atmosphere. Experts see net zero targets as a critical measure to successfully tackle climate change and its devastating consequences</p>
<p><b>PLEDGES BY TOP THREE EMITTERS</b></p> <p> <b>CHINA:</b> Beijing announced no new pledges on Monday. It previously pledged net zero by 2060.</p> <p> <b>UNITED STATES:</b> The US touted domestic legislation to spend \$555bn to boost renewable power and electric vehicles. It has pledged net zero by 2050.</p> <p> <b>INDIA:</b> The country's economy will become carbon neutral by the year 2070</p>	

### How does India's net-zero goal compare to other countries?

- India was the only one among the major greenhouse gas emitters that hadn't specified a so-called net-zero year.
- India's setting an outer limit of 2070 by which India's emissions would effectively be zero means that it is asking **Western developed countries to do more** or undertake sharper cuts.
- China, Russia and Saudi Arabia** have committed to being net zero by 2060.
- The **United States, the United Kingdom and the European Union** have committed to a 2050 target.
- But only 12 countries have enshrined this commitment in law. These are Germany, Sweden, Japan, the United Kingdom, France, Canada, South Korea, Spain, Denmark, New Zealand, Hungary, and Luxembourg.
- The European Union has a collective target of 2050 and Germany and Sweden have a 2045 target.

### Methane Pledge

- EU and the US** have launched a landmark pledge to slash emissions of the powerful greenhouse gas methane, a commitment that could prevent 0.2 degrees Celsius of global warming.
- The alliance's members will seek to lower global emissions of methane - the second-largest contributor to climate change after carbon dioxide - by 30% below 2020 levels by 2030.
- Besides the EU and the US, more than 103 countries have signed up so far, including major methane emitters like Nigeria and Pakistan.
- China, Russia and India - have not signed up**, while Australia has said it will not back the pledge.

### Deforestation Pledge

- More than 100 national leaders pledged to halt and reverse deforestation and land degradation by the end of the decade, underpinned by USD 19 billion in public and private funds to invest in protecting and restoring forests.
- In 2020, the world lost 258,000 sq km of forest — an area larger than the United Kingdom, according to WRI's Global Forest Watch.
- The agreement vastly expands a commitment made by 40 countries as part of the 2014 New York Declaration of Forests and promises more resources.

### Call for Climate Finance

- India noted that climate finance cannot continue at the levels decided in 2009 (100 billion USD), and emphasized that it should be at least USD1 trillion to meet the goals of addressing climate change.
- India underlined the unity and strength of Like-Minded Developing Countries (LMDC) as fundamental in the UNFCCC negotiations.



### Infrastructure for the Resilient Island States

- India launched this initiative that would focus on **building capacity, having pilot projects, especially in small island developing states.**
- **ISRO will build a special data window** for them to provide them with timely information about cyclones, coral-reef monitoring, coast-line monitoring etc. through satellite.

### One Sun One World One Grid Group

- It is an initiative by **India and the United Kingdom to tap solar energy and have it travel seamlessly across borders.**
- It includes a group of governments called the **Green Grids Initiative (GGI) - One Sun One World One Grid group.**
- The aim of GGI is to help achieve the pace and scale of reforms to infrastructure and market structures needed to underpin the global energy transition.

### Other important points

- The US also re-joined the **High Ambition Coalition**, a group of developed and developing countries that ensured the 1.5C goal was a major focus of the Paris Agreement.
- The country joined the UK, India, China and others by agreeing to participate in the **Glasgow Breakthrough Agenda**, a commitment to join forces to accelerate the development and deployment of clean technologies and sustainable solutions
- A new energy partnership between the UK, EU, and the US was created with South Africa. The **Just Energy Transition Partnership** is a long-term project to support South Africa's pathway to low emissions and climate-resilient development.
- **African countries also committed to establishing a green economy** after agreeing to spend at least \$6bn from their tax revenues to help adapt to the effects of climate change, in addition to calling on the wealthier developed countries to provide \$2.5bn per year for the next five years.
- To reduce fossil fuel development, over 20 countries and financial institutions including the US, UK, Denmark, Costa Rica, and the European Investment Bank committed to redirecting \$8bn a year to green energy.
- **Glasgow Financial Alliance for Net Zero (GFANZ)** saw pledges worth \$130tn from the world's biggest banks and pension funds to ensure that by 2050 all assets managed by the institutions will take a net zero stance.
- 28 more countries joined the **Powering Past Coal Alliance**, a group dedicated to phasing out coal.
- COP President Alok Sharma urged ministers to **consider youth priorities** in COP negotiations and national climate action.

### COP 26 Goals

According to the United Nations Climate Change Framework Convention (UNFCCC), COP26 will work towards four goals:

1. **Net Zero by 2050:**
  - To secure Global Net-Zero by Mid-Century and keep 1.5 Degrees within reach.
  - Countries are being asked to come forward with ambitious 2030 emissions reduction targets that align with reaching net zero by the middle of the century.
2. **Adapt to Protect Communities and Natural Habitats:** Countries will work together to 'protect and restore ecosystems and build defences, warning systems and resilient infrastructure and agriculture to avoid loss of homes, livelihoods and even lives.'
3. **Mobilise Finance:** Developed countries must make good on their promise to mobilise at least USD100bn in climate finance per year.
4. **Work Together to Deliver:** Another important task at the COP26 is to 'finalise the Paris Rulebook'.

### About Conference of Parties (COP)

- The Conference of Parties **comes under the UNFCCC which was formed in 1994.**
- The UNFCCC was established to work towards "stabilization of greenhouse gas concentrations in the atmosphere.
- COP is the **apex decision-making authority of UNFCCC.**
- COP members have been **meeting every year since 1995.**

- The UNFCCC has **198 parties** including India, China and the USA.
- Generally, it meets in Bonn, the seat of the secretariat unless a Party offers to host the session.
- The **office of the COP President normally rotates among the five United Nations regional groups** which are – Africa, Asia, Latin America and the Caribbean, Central and Eastern Europe and Western Europe and Others.
- The President is usually the environment minister of his or her home country.

## Challenges for COP

### Trust

- The key relationships that led to success at the major climate conference in Paris in 2015 have all taken a battering.
- The so-called "high ambition coalition" of island states, developing economies and the EU that pushed things forward in France in 2015, is now not the force it was.

### Credibility

- The key to any success in Glasgow has to be the credibility of the host nation.
- France is generally seen as setting the bar for what a successful presidency looks like when it hosted the Paris COP in 2015.
- UK government has run into trouble over plans for a coal mine in Cumbria.

### The workload

- One of the biggest challenges for this COP is the sheer volume of work.
- Questions on transparency, carbon markets, and having the same timeframes for cutting carbon emissions, have defied the best efforts of negotiators in the six years since Paris.

### The process itself

- There is a growing sense among many participants that this UN negotiating process is no longer fit for purpose.
- The need for consensus from 197 parties, and the legalistic and technical nature of the talks, means there is, in reality, very little room for actual negotiations.

## Way Forward

- **To deliver on Net Zero targets, countries will need to:**
- Accelerate the phase-out of coal
- Curtail deforestation
- Speed up the switch to electric vehicles
- Encourage investment in renewables.

## Finance

- A successful outcome at COP26 on finance requires countries such as Australia, Canada, Japan, Italy and the UK to commit to an additional \$2 billion to \$4 billion a year to fulfil their fair share of climate finance.
- An agreement at COP26 will necessitate the trust of groups of countries like the Africa Group, the Climate Vulnerable Forum, Least Developed Countries, and the Alliance of Small Island States (AOSIS). For these negotiating blocks, fulfilling these currently unfulfilled promises made in Copenhagen and Paris is a prerequisite for a negotiated agreement in Glasgow.
- **Energy:** the key question remains for rich countries to provide the financial and technical support required for key regions still reliant on coal such as India, South Africa, and South East Asia to transition to clean energy.
- **Mobility:** set a phase-out date for all non-zero emission vehicles complemented by a clear plan on how to achieve it.
- **Heavy Industry and Heavy-Duty Transport:** Decarbonizing these sectors requires driving down the so-called green premium -- the additional cost of choosing a clean technology over one that emits a greater amount of greenhouse gases. Governments can help drive these investments by making carbon emissions cost by reaching an agreement on Article 6 Paris Agreement, which is a key outcome for COP26 negotiators.

# IMPACT OF NATURAL DISASTERS ON AGRICULTURE

## Context

- Agriculture crops cultivated in about 50.40 lakh hectares of the area have been affected across the country due to heavy rains, floods and landslides so far this year, with maximum damage reported in Karnataka, Parliament was informed on Tuesday.

## Some Statistics: FAO findings

- Nearly a **quarter of damages caused by natural disasters in the developing world are borne by the agriculture sector**, according to Food and Agricultural Organization (FAO).
- During the drought period, agriculture absorbs up to 84 per cent of all economic impacts.
- Within the agricultural sector, 42 per cent of assessed losses were to crops (\$13 billion) - with floods being the main culprit, responsible for 60 per cent of crop damages, followed by storms (23 per cent of crop damages).

## Climate-resilient agriculture

- Climate-resilient agriculture (CRA) is an approach that includes **sustainably using existing natural resources through crop and livestock production systems**.

## The need

- This is to achieve long-term higher productivity and farm incomes under climate variabilities.
- This practice reduces hunger and poverty in the face of climate change for forthcoming generations.
- CRA practices can alter the current situation and sustain agricultural production from the local to the global level.
- Improved access and utilisation of technology, transparent trade regimes, increased use of resource conservation technologies, and an increased adaptation of crops and livestock to climatic stress are the outcomes of climate-resilient practices.
- Most countries have been facing crises due to disasters and conflicts. Food security, however, is adversely affected by inadequate food stocks, basic food price fluctuations, high demand for agro-fuels, and abrupt weather changes.

## Strategies and technologies for climate change adaptation

### Tolerant crops

- Patterns of drought may need various sets of adaptive forms.
- Example: To reach deficient downpour conditions, early maturing and drought-tolerant cultivars of green gram (BM 2002-1), chickpea and pigeon pea (BDN-708) were brought to selected farmer's fields in Aurangabad district of Maharashtra (rainfall of 645 millimetres).
- This provided a 20-25 % higher yield than the indigenous cultivars.

### Water management

- Water-smart technologies like a furrow-irrigated raised bed, micro-irrigation, rainwater harvesting structure, cover-crop method, greenhouse, laser land levelling, reuse wastewater, deficit irrigation and drainage management can support farmers to decrease the effect of variations in climate.
- Various technologies based on a precision estimation of crop water needs; groundwater recharge techniques; adoption of scientific water conservation methods; altering the fertilizer and irrigation schedules; cultivating less water requiring varieties; adjusting the planting dates; irrigation scheduling; and adopting zero-tillage will help farmers to reach satisfactory crop yields, even in deficit rainfall and warmer years.

### Agro-advisory

- Response farming is an integrative approach; it could be called farming with advisories taken from the technocrats depending on local weather information.
- The success of response farming, viz., decreased danger and enhanced productivity has already been taken in Tamil Nadu and many other states.
- Response farming can be a viable choice for climate change adoption strategies, for the variations of climate is not sudden.

### Soil organic carbon

- Conservation agriculture technologies (reduced tillage, crop rotations, and cover crops), soil conservation practices (contour farming) and nutrient recharge strategies can refill soil organic matter by giving a protective soil cover.
- Integrated nutrient management deals with the application of organic and inorganic fertilizers, in addition to farmyard manure, vermicompost, legumes in rotation, and crop residue for sustaining soil health for the long term.
- Feeding the soil instead of adding fertilizers to the crop without organic inputs is the key point for the long-term sustainability of Indian agriculture.

### National Programmes for climate change adaptation

- The **National Mission of Sustainable Agriculture** was implemented in 2010 under the **National Action Plan on Climate Change (NAPCC)** to promote the judicious management of available resources and this was one of the eight missions under NAPCC.
- The **Pradhan Mantri Krishi Sinchayee Yojana (PMKSY)** was launched in 2015 to address the issues of water resources and provide a permanent solution that envisages Per Drop More Crop, by promoting micro/drip irrigation for the conservation of maximum water.
- The **Paramparagat Krishi Vikas Yojana mission** was executed to extensively leverage the adaptation of climate-smart practices and technologies in conjunction with the Indian Council of Agricultural Research and state governments of India.
- To mitigate climate extreme actions, **Green India Mission** was launched by the GOI in 2014 under the umbrella of NAPCC with the primary objective of protecting, restoring and enhancing India's diminishing forest covers, thereby reducing the deleterious effects of climate change.
- To protect soil health, GOI has launched the **Soil Health Card scheme** with the main objective of analysing cluster soil samples and advocating for farmers regarding their land fertility status.
- **Neem-Coated Urea** was also introduced to minimise the excess addition of urea fertilizers, thereby protecting soil health and supplying plant nitrogen.
- To encourage farmers with more income benefits and ecosystem protection, programmes such as the **National Project on Organic Farming** and **National Agroforestry Policy** were introduced in 2004 and 2014 respectively.

### Role Models

- Andhra Pradesh, Himachal Pradesh, Sikkim, etc, have already initiated several programmes to adopt and promote organic farming practices on a wider scale. **Sikkim is an organic state.**
- **The ICAR is implementing agriculture contingency plans in about 650 districts of India** for climate change preparedness for the last seven years.
- ICAR has established **climate-resilient villages across India in 151 districts**, which are replicated by the state governments towards the overall objective of building carbon-positive villages.

### Way ahead

- In a nutshell, the following steps are crucial to building climate resilient agriculture systems and achieving sustainable development goals (SDG) in India:
- Adaptation of appropriate mitigation technologies such as the **cultivation of tolerant breeds** to overcome climate stress.
- **Water and nutrient management** for efficient productivity and resource utilization.
- **Agro-advisories** for timely crop monitoring.
- **Conservation agricultural practices** to build soil organic carbon and build a congenial environment for plant growth, and manure management.
- **The reduction of greenhouse gas emissions** from all agriculture and non-agricultural sources has to be prioritised. The introduction of neem-coated urea is one such policy intervention.
- **Structured training** is essential to build confidence in stakeholders and sensitise them to understand climate change events.
- **Implementing CRA across the country** is the need of the hour.
- **Flagship farmer-oriented programmes** are needed to improvise skills in agriculture and allied sectors
- **Collaboration** between farmers, research institutions, funding agencies, governments, non-government

organisations and private sectors combine strengths to promote CRA.

## GREEN HYDROGEN AND AMMONIA POLICY

### Context

- The Centre notified the **green hydrogen and green ammonia policy**.

### Policies aim

- **Boosting the domestic production of green hydrogen to 5 million tonnes by 2030.**
- Making India an **export hub for clean fuel**.

### Key features of the new policy

- It **offers 25 years of free power transmission** for any new renewable energy plants set up to supply power for green hydrogen production before July 2025.
- This move will make it **more economical** for key users of hydrogen and ammonia such as the oil refining, fertiliser and steel sectors to produce green hydrogen for their use. These sectors currently use grey hydrogen or grey ammonia produced using natural gas or naphtha.
- The government will **provide a single portal for all clearances required for setting up green hydrogen production** as well as a facility for producers to bank any surplus renewable energy generated with discoms for up to 30 days and use it as required.
- Energy plants set up to produce green hydrogen/ammonia **would be given connectivity to the grid on a priority basis**.
- **Come under Renewable Purchase Obligation:** Power distribution companies may procure renewable energy to supply green hydrogen producers but will be required to do so at a concessional rate which will only include the cost of procurement, wheeling charges and a small margin as determined by the state commission, under the new policy. Such procurement would also count towards a state's Renewable Purchase Obligation (RPO) under which it is required to procure a certain proportion of its requirements from renewable energy sources.
- **Export-oriented:** Under the policy, port authorities will also provide land at applicable charges to green hydrogen and green ammonia producers to set up bunkers near ports for storage before export. Germany and Japan could be key markets for green hydrogen produced in India.
- **New mandates:** The government is set to come out with mandates requiring that the oil refining, fertiliser and steel sectors procure green hydrogen and green ammonia for a certain proportion of their requirements.

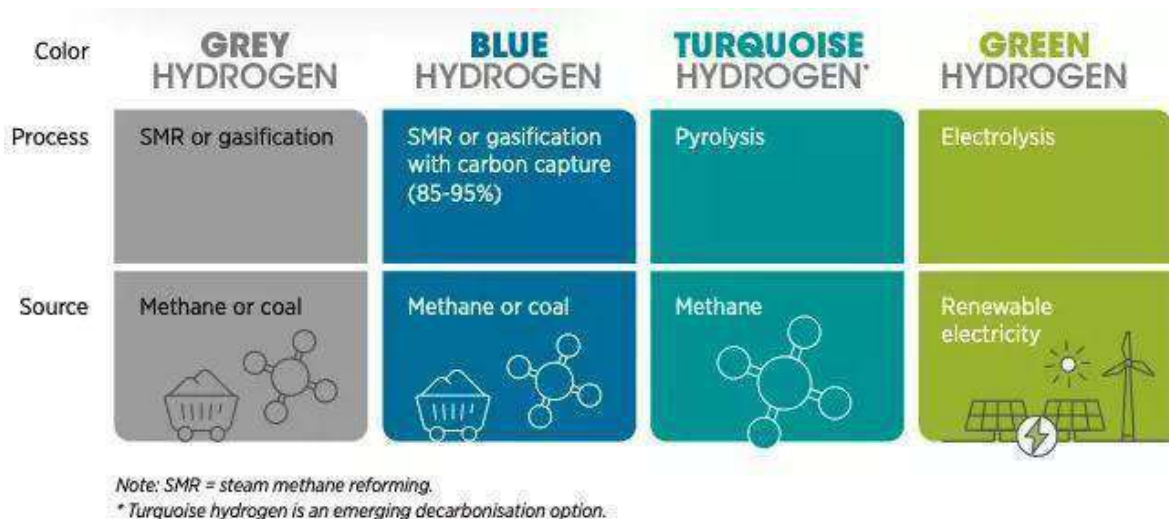
### About Hydrogen

- There are **no natural hydrogen deposits on earth**, it has to be extracted from other compounds by a chemical process.
- The vast majority of industrial hydrogen is currently produced from natural gas through a process known as **steam methane reforming or SMR**.
- Producing hydrogen in this way is sometimes referred to as **brown or grey or even blue hydrogen**.

### Types of Hydrogen

- **Brown Hydrogen:** most of the gas that is already widely used as an industrial chemical is either brown if it's made through the gasification of coal or lignite
- **Grey Hydrogen:** it is made through steam methane reformation, which typically uses natural gas as the feedstock. Neither of these processes is exactly carbon-friendly.
- **Blue Hydrogen:** where the gas is produced by steam methane reformation but the emissions are curtailed using carbon capture and storage.
- **Green Hydrogen:** Green hydrogen, in contrast, could almost eliminate emissions by using renewable energy – increasingly abundant and often generated at less-than-ideal times – to power the electrolysis of water.





### Green hydrogen current status

- At present, **less than 1 per cent of hydrogen produced is green hydrogen**, according to IRENA's World Energy Transitions Outlook.
- India consumes about six million tonnes of hydrogen every year. This could increase to 28 million tonnes by 2050.
- India has a favourable geographic location and an abundance of sunlight and wind for the production of green hydrogen.
- India will become a net exporter of green hydrogen by 2030 due to its cheap renewable energy tariffs, according to the **Global Hydrogen Council**.

### National Hydrogen Mission

- On India's 75th Independence Day (15th August 2021) the Prime Minister announced the National Hydrogen Mission.
- Under the Mission, India is targeting to produce three-fourths of its hydrogen from renewable resources by 2050.
- The Mission under the Ministry of Power aims to support India in meeting its Sustainable climate goals.
- Hydrogen is seen as the **potential fuel to replace fossil fuels in future**.
- It will help India in increasing its renewable energy capacity.
- This will help the government in achieving the target of 450 GW of Renewable Energy by 2030.

### Challenge in making Green Hydrogen

- Storing and transportation:** H<sub>2</sub> is a highly flammable gas, it takes up a lot of space and has a habit of making steel pipes and welds brittle and prone to failure.
- High Cost:** The International Energy Agency put the cost of green hydrogen at \$3 to \$7.50 per kilo, compared to \$0.90 to \$3.20 for production using steam methane reformation.
- Loss of Efficiency in every process:** Electrolyzer efficiencies range from around 60 per cent to 80 per cent.

### Significance

- Achieve targets pledged under the Paris Climate Agreement i.e. to reduce the emission intensity of its economy **by 33-35 per cent from 2005 levels by 2030**.
- Provide an alternative to fossil fuels
- Provide a transition toward low emissions and work towards a clean, healthy environment.

### Why India should opt for Green Hydrogen?

- Adoption of Green hydrogen technologies is **favourable in those sectors where direct electrification isn't feasible** for ex Heavy duty, long-range transport and long-term storage in the power sector.
- With technological improvements, green hydrogen will become **more affordable and accessible**.
- It can be used in a wide range of existing applications such as **fertilisers, mobility, power, chemicals and**

shipping.

- It can be blended up to 10 per cent by city gas distribution networks for wider acceptance.
- It is a cross-cutting solution that may reduce emissions across a range of sectors.

### What can India do to build a global-scale green hydrogen industry?

- India should **announce ambitious national targets for green hydrogen** and electrolyser capacity by 2030.
- Launch an incentive programme for the production of electrolyzers.
- Implementing **complementary solutions** that create virtuous cycles of forex. building the hydrogen infrastructure for refuelling, heating and generating electricity at airports.
- **Optimising distribution networks** to decarbonise the gas grid.

## SAND MINING

### Context

- Environment clearance issued to as many as 60 mining areas has paved the way for legal mining of bajri (riverbed sand) in Rajasthan. The mining will start in almost all riverbeds of the State after the completion of necessary formalities.
- Sand is a minor mineral.

### Background

- In 2017, Supreme Court **banned sand mining activities** in riverbeds until a scientific replenishment study was completed and the Ministry of Environment and Forest granted the clearance.
- The apex court later appointed a **Central Empowered Committee (CEC)** to look into the issue of illegal sand mining.

### CEC recommendations

- Union Ministry of Environment, Forest and Climate Change issues **environmental clearance to all valid holders of letters of intent, within three months** and without insisting on submission of the scientific replenishment report as a precondition.
- The replenishment study could be undertaken during mining.

### Impact of Sand Mining

- **Salinity:** Depletion of sand in the river bed causes the deepening of rivers and estuaries, and the enlargement of river mouths, which leads to saline water intrusion.
- **River erosion:** The excess extraction of sand affects the normal course of the river. Any variation in the course of the river will either lead to river erosion in a few areas or will lead to flooding during monsoon.
- **Affect Fishing industry:** Due to rampant sand mining and ecological imbalance, fishing activity has declined in Manguluru and fishermen are forced to take up alternative jobs outside their village.
- **Loss of tree cover:** Trees that come under the buffer zone are felled to facilitate the movement of vehicles to collect sand from the riverside.
- **Affect species diversity:** Sand mining during the monsoons affects the fish species as they lay eggs on the shores. Crabs and fish have declined drastically on the coast of Karnataka.

Impacts on	Description
<b>Biodiversity</b>	Impacts on related ecosystems (for example fisheries)
<b>Land losses</b>	Both inland and coastal through erosion
<b>Hydrological function</b>	Change in water flows, flood regulation and marine currents
<b>Water supply</b>	Through lowering of the water table and pollution
<b>Infrastructures</b>	Damage to bridges, river embankments and coastal infrastructures
<b>Climate</b>	Directly through transport emissions, indirectly through cement production
<b>Landscape</b>	Coastal erosion, changes in deltaic structures, quarries, pollution of rivers
<b>Extreme events</b>	Decline of protection against extreme events (flood, drought, storm surge)

## Steps to tackle Sand Mining

- **Legal course: Mines and Minerals (Development and Regulation) Act, 1957 (MMDR Act)** empowers state governments to make rules for regulating the grant of mineral concessions in respect of minor minerals and for purposes connected therewith.
- Ministry of Environment, Forest and Climate Change has issued **Sustainable Sand Mining Management Guidelines, 2016**.
- Grant of Environment Clearance for minor minerals, including sand and gravel, for a mining lease of area up to 5 hectares will be done by the District Environment Impact Assessment Authority headed by the District Collector / District Magistrate.
- Several states have formed their own rules to regulate sand mining.

## PLASTIC POLLUTION

### Context

- Representatives from 175 countries at the fifth session of the United Nations Environment Assembly (UNEA-5.2) agreed to **end plastic pollution and formulate an internationally binding treaty by 2024**.

### More about news

- The resolution establishes an **Intergovernmental Negotiating Committee** to complete a draft global legally binding agreement by the end of 2024
- The INC is expected to present a legally binding instrument, which would reflect diverse alternatives to address the full lifecycle of plastics, the design of reusable and recyclable products and materials and the need for enhanced international collaboration to facilitate access to technology, capacity building and scientific and technical cooperation.
- Under the legally binding agreement, countries will be expected to develop, implement and update national action plans reflecting country-driven approaches to contribute to the objectives of the instrument.
- They will be expected to promote national action plans to work towards the prevention, reduction and elimination of plastic pollution and to support regional and international cooperation.
- INC's **mandate does not grant any stakeholder a two-year pause**. UNEP will work with any willing government and business across the value chain to shift away from single-use plastics, as well as to mobilise private finance and remove barriers to investments in research and a new circular economy.

### What is Plastic Pollution?

- Plastic pollution occurs when **plastic has gathered in an area and has begun to negatively impact the natural environment** and create problems for plants, wildlife, and even the human population.
- This includes killing plant life and posing dangers to local animals.
- Plastic is an incredibly useful material, but it is not biodegradable.

### Various Causes of Plastic Pollution

- As plastic is **less expensive**, it is one of the most widely available and overused items in the world today.
- **Rapid urbanization and population growth** increase the demand for cheap plastics.
- Since it is an **affordable and durable material**, it is utilized in every other way possible, from packaging materials to plastic bottles and containers, straws to plastic carry bags.
- Plastic takes **400 years and even more to Decompose**. The decomposition rate of plastic typically ranges from 500 to 600 years, depending on the type.
- Abandoned Fishing Nets
- The disposal of plastic is often **mismanaged**; it ends up in landfills.
- **Burning plastic is incredibly toxic** and can lead to harmful atmospheric conditions and deadly illnesses.

### Serious Effects of Plastic Pollution

- **Negative Effects on Human Health:** Microplastics entering the human body via direct exposures through ingestion or inhalation can lead to an array of health impacts, including inflammation, genotoxicity, oxidative stress, apoptosis, and necrosis, which are linked to an array of negative health outcomes including cancer, cardiovascular diseases.
- **Plastic-contaminated seafood:** Scientists have found microplastics in 114 marine species, and around one-

third of these end up on our plates.

- **Upsets the Food Chain:** Because it comes in sizes large and small, polluting plastics even affect the world's tiniest organisms, such as plankton.
- **Groundwater Pollution:** Most of the litter and pollution affecting the world's oceans and groundwater comes from plastics.
- **Land Pollution:** When plastic is dumped in landfills, it interacts with water and forms hazardous chemicals. When these chemicals seep underground, they degrade the water quality. The wind carries and deposits plastic from one place to another, increasing the land litter.
- **Air Pollution:** The burning of plastic in the open air leads to environmental pollution due to the release of poisonous chemicals.
- **Economic impacts:** Plastic pollution costs \$13 billion in economic damage to marine ecosystems per year. This includes losses to the fishing industry and tourism, as well as the cost to clean up beaches. Economic costs include those linked to clean-up operations, litter removal, the repair and replacement of damaged vessels and gear, reduced fishing catches, and a decline in coastal tourism and impact on related industries.
- **Marine life:** The most visible and disturbing impacts of marine plastics are the ingestion, suffocation and entanglement of hundreds of marine species. Marine wildlife such as seabirds, whales, fishes and turtles, mistake plastic waste for prey, and most die of starvation as their stomachs are filled with plastic debris.

### What are microplastics?

- Microplastics are **plastic debris smaller than 5mm in length**, or about the size of a sesame seed.
- They come from a variety of sources, one of them is when larger pieces of plastic degrade into smaller pieces, which are difficult to detect.

### Why is microplastic pollution especially harmful?

- The **durability of plastic** implies that plastic can take hundreds to thousands of years to decompose depending on the type of plastic and where it has been dumped.
- In the oceans, plastic pollution **impacts marine life, ocean health, coastal tourism and even human health.**
- Over the past few years, various news reports have shown that **marine animals such as whales, seabirds and turtles unknowingly ingest plastic and often suffocate.**
- For humans, too, marine plastic pollution is harmful if it **reaches the food chain.** For instance, microplastics have been found in **tap water, beer and even salt.**
- One of the first studies to estimate plastic pollution in human
- ingestion that was published in June 2019 said that an average person eats at least **50,000 particles of microplastic each year.**

### Measures were taken by the government

- India has pledged to **ban all single-use plastics by 2022.**
- All offices of central and state governments and major PSUs have been told to prohibit single-use plastic products.
- India has **banned imports of solid plastic waste.**
- India passed the Plastic Waste Management Rules, in 2016 and introduced **Extended Producer Responsibility.**

### Way Forward

#### The 3R's +E Strategy

- **Reduce:** To efficiently reduce plastic pollution, there is an evident need of reducing our usage of plastic.
- **Reuse:** Many plastic items can be reused or used for different purposes. Before throwing plastic items, it is important to consider how they can be reused.
- **Recycle:** Plastic recycling consists of collecting plastic waste and reprocessing it into new products, to reduce the amount of plastic in the waste stream.
- **Educate:** Another crucial solution is education to increase awareness and behavioural change.



### Legal way out

- **Law can be framed** and used to tackle plastic pollution and support a circular plastics economy.  
**Policy shifts** can reduce plastic pollution by incentivizing changes in both business and consumer behaviour, as well as in plastic design, alternatives and recycling.
- Governments can also **impose taxes** to deter the production or use of single-use plastics or **offer tax breaks, subsidies and other fiscal incentives to encourage alternatives to single-use plastic products**.
- **Product standards, certifications and labelling requirements can be designed to educate the public on the environmental impacts of plastic**, and the health and safety hazards involved in their production and use.
- **Extended Producer Responsibility (EPR) programs** can ensure that manufacturers maintain responsibility for single-use plastic products throughout the whole life cycle of those products.

### Conclusion

- There is no silver bullet to solving the world's plastic problem. It will require governments at both the national and sub-national levels to tackle the regulation of single-use plastic products, determining what policy approaches they want to use and what type of legislation will support their objectives.

## CARBON TAX

### Context

- Pennsylvania becomes the first major fossil fuel-producing state in the US to adopt a carbon pricing policy to address climate change.
- It joins 11 states where coal, oil and natural gas power plants must buy credits for every ton of carbon dioxide they emit.
- **Canada** imposes fuel charges on individuals and also makes big polluters pay for emissions. It's one of 27 nations with some kind of carbon tax. Canada's carbon taxes include a **minimum fuel charge for individuals** "s equivalent to about \$40 per ton.

### Provisions in India

- India, the **world's third-largest emitter of greenhouse gases**, is among the few countries in the world to have introduced a carbon tax.
- **India has the world's fourth-largest reserves** and is the second-largest producer of coal.  
The government created the **National Clean Energy Fund (NCEF)** with contributions from the **clean energy cess** imposed on coal mined in India or imported.
- The cess, which came into effect in July 2010, was initially **₹50 per tonne in 2010 and reached ₹400 in 2016**. However, with the goods and services tax (GST) coming into effect in July 2017, the **clean energy cess was subsumed by the GST compensation cess**.
- In Glasgow, India promised to **bring down the country's total projected carbon emission by 1 billion tonnes by 2030, reduce carbon intensity by 45% by the end of the decade from 2005 levels** and achieve net-zero carbon emissions by 2070.
- The commitment also includes meeting 50% of India's energy requirements from renewable energy by 2030 and increasing non-fossil fuel power generation capacity to 500GW by the end of the decade.
- The Union budget announced a scheme, named Roadmap for Sustainable and Holistic Approach through National Energy Efficiency, or **ROSHNEE, to help cut the country's carbon emissions**.

### Carbon border tax

- A carbon border tax is a **tax on carbon emissions attributed to imported goods that have not been carbon-taxed at the source**.
- The carbon border tax proposal is part of the **European Commission's European Green Deal** that endeavours to make Europe the **first climate-neutral continent by 2050**.
- A national carbon tax is a **fee that a government imposes on any company within the country that burns fossil fuels**.
- However, this often increases electricity costs in households and industry, which may lead to local business closures and other economic hardships for businesses and citizens.
- In contrast, a carbon border tax can **protect a country's local manufacturers, motivating them to adhere to green regulations**.



- Many EU companies are at a cost disadvantage as they have been paying a carbon border tax for carbon emissions since 2005 under the EU's Emissions Trading System.
- The new carbon border tax can therefore lead to a more level playing field against importers, especially those from nations with more lax environmental standards.
- The border tax **would not take effect until 2026**.

### How does this impact India?

- As India's third largest trading partner, the EU accounted for \$74.5 billion worth of trade in goods in 2020 or 11.1% of India's total global trade. India's exports to the EU were worth \$41.36 billion in 2020-21, as per data from the commerce ministry.
- By increasing the prices of Indian-made goods in the EU, this tax **would make Indian goods less attractive to buyers and could shrink demand**.
- The tax would create serious near-term challenges for companies with a large greenhouse gas footprint--and a new source of disruption to a global trading system already roiled by tariff wars, renegotiated treaties, and rising protectionism.
- A levy of \$30 per metric ton of CO2 emissions **could reduce the profit pool for foreign producers by about 20%** if the price for crude oil remained at \$30-40 per barrel.

## STUBBLE BURNING

### Context

- At least 5,772 incidents of stubble fire have been registered in Punjab till October 22 alone.
- Every year around October and November, farmers in states like Punjab, Haryana and Uttar Pradesh burn the stubble that is left after harvesting the paddy crop.

### What is Stubble Burning?

- Stubble burning is, quite simply, the act of removing paddy crop residue from the field to sow wheat. It's usually required in areas that use the '**combine harvesting**' method which leaves crop residue behind.

### Now, what is combined harvesting?

- Combines are machines that harvest, thresh i.e. separate the grain, and also clean the separated grain, all at once.
- The problem, however, is that the machine doesn't cut close enough to the ground, leaving stubble behind.
- This stubble is of no use for the farmer.
- There is pressure on the farmer to sow the next crop in time for it to achieve a full yield.
- The quickest and cheapest solution, therefore, is to clear the field by burning the stubble.

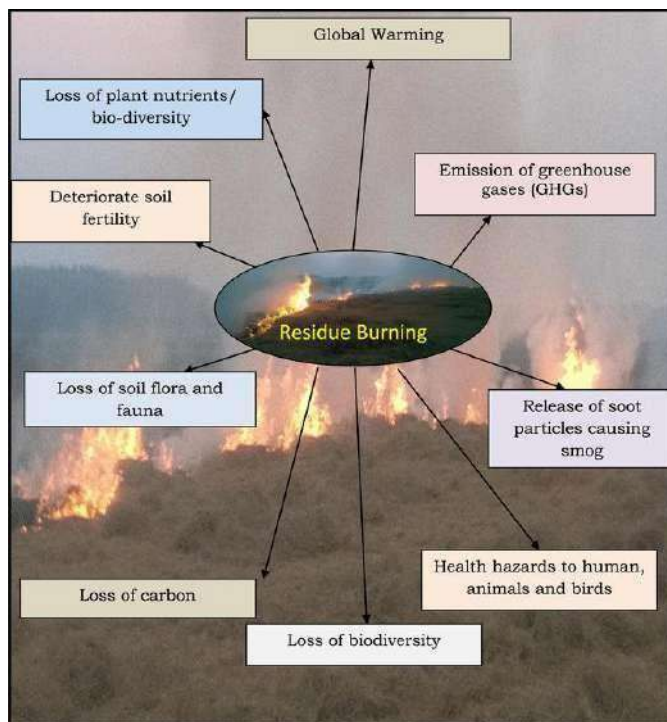
### Statistics

- According to an August 2019 study titled '**Fields on fire: Alternatives to crop residue burning in India**,' farmers in northwest India burn around 23 million tonnes of rice straw so that they can clear the land quickly for the sowing of wheat.
- According to official reports, more than 500 million tonnes of parali (crop residues) are produced annually in the country.

### Impact of Stubble Burning

- **Air Quality:** Air quality monitoring stations in Delhi-NCR registered **above 999 on the Air Quality Index in 2019**, which is way beyond emergency levels.
- The emissions directly contribute to environmental pollution and are also responsible for the **haze in Delhi and the melting of Himalayan glaciers**.
- **PM 2.5 and PM10** particularly cause cancer.
- The cost of air pollution due to stubble burning in India is estimated to be \$30 billion annually.
- Stubble-burning deteriorates the soil's organic content, essential nutrients and microbial activity - which together will reduce the soil's long-term productivity.
- **Health:** Severe neurological, cardiovascular and respiratory diseases, asthma, chronic obstructive pulmonary disease (COPD), bronchitis, lung capacity loss, emphysema, cancer, etc. It also leads to an increase in

mortality rates due to prolonged exposure to high pollution.



### Solutions to the burning problem

- In 2014, the Union government released the **National Policy for Management of Crop Residue**.
- Farmers can also manage crop residues effectively by employing agricultural machines like:
  - Happy Seeder (used for sowing of the crop in standing stubble).
  - Rotavator (used for land preparation and incorporation of crop stubble in the soil).
  - Zero till seed drill (used for land preparations directly sowing of seeds in the previous crop stubble).
  - Baler (used for collection of straw and making bales of the paddy stubble).
  - Paddy Straw Chopper (cutting of paddy stubble for easily mixing with the soil).
  - Reaper Binder (used for harvesting paddy stubble and making it into bundles)

**Waste Decomposer:** Scientists at the National Centre for Organic Farming have developed a 'Waste Decomposer' concocted with effective microorganisms that propel in-situ composting of the crop residue.

### Other uses of stubble

#### Converting Crop Stubble into Animal Feed, Manure, Cardboard

- In South India, stubble is not burnt as there's economic value as animal feed.

#### Converting Crop Stubble to Biodegradable Cutlery

- Kriya Labs, an IIT-Delhi startup, has developed a machine that can convert the leftover rice straw into pulp, and that is further moulded to produce biodegradable cutlery.

#### Biochar

- Another option is to convert stubble into biochar, which can be used as a fertiliser, by burning it in a kiln.

#### In power plants

- There is also the option of using a straw to replace coal in old power plants. This would not only help to extend the life of the built infrastructure but will also reduce environmental costs.

#### Redesigning- Combine Harvesters

- The best solution is if Combine Harvesters do not leave the stubble behind. This can be done by the Combine Harvester manufacturers by slightly tweaking the design of their machines. This will eradicate the entire

problem from its root and cause.

### Agri-Waste Collection Centers

- The government may consider setting up “Agri- Waste Collection Centres” alongside the “Paddy Purchase Centres”.
- Here, the farmers may sell their agri-waste at a reasonable price and earn some additional income and are not tempted to burn it.

### Crop Diversification - A long-term solution

- A shift to crops such as maize, beans and lentils needs to be envisaged.
- This would reduce the burning because they are normally harvested by hand or can be gathered earlier.
- The Centre and state governments could adopt methods to incentivize farmers, rather than penalise them.
- If the production of other crops, like maize, is made more lucrative, then farmers will switch to growing those.
- Another way to reduce stubble burning is to replace long-duration paddy varieties with shorter-duration varieties like **Pusa Basmati-1509 and PR-126**.

### Directions from the apex court

- The Supreme Court has been asking if the MSP can be withheld over farm fires.

### Final Thoughts

- A holistic approach is required to address crop residue burning. This includes a multi-disciplinary and multi-agency setting involving
  - technical agencies,
  - market-based economic tools,
  - supporting agricultural and environmental policies, and
  - awareness and capacity building for farmers.
- In the medium term (that is the next seven years), there is a need to encourage crop diversification and rotation.
- There also needs to be a **central coordinating mechanism for paddy stubble management and crop diversification** with adequate resources and a clear assignment of responsibilities between national and sub-national agencies.
- A push towards crop diversification package should be a mix of policy measures such as encouragement of agro-business enterprises – possibly under Aatmanirbhar Bharat Abhiyan (Self-reliant India) – farmer awareness campaigns, economic incentives such as minimum support prices for alternative crops, along with infrastructure support such as agricultural inputs for identified alternative crops, cold storage facilities and market promotion mechanisms.

## E-WASTE

### Context

- Recently, the Union Environment Ministry has disclosed a draft that incentivises registered electronic waste recyclers.
- The crucial difference from the previous 2016 rules is the generation of EPR, or Extended Producer Responsibility, certificates.
  - **Recyclers on processing a certain quantity of waste would be given a certificate** verifying this number by the Central Pollution Control Board (CPCB).
- Electronics goods companies can buy these certificates online from the CPCB to meet their annual targets.
  - Recyclers can also directly contract with a company to recycle a certain quantity of waste and generate certificates that can be accessed from the CPCB.

### Background

- According to Global E-waste Monitor 2020, **Global e-waste will increase by 38% in the decade between 2020 and 2030**.
- There were 6 million tonnes of electronic waste in 2019 which is an **average of 7.3 kg per capita**. That is a nearly 21 per cent increase in just five years

- Asia generated the greatest volume of e-waste in 2019.
- Most E-waste in 2019 consisted of small equipment, large equipment and temperature exchange equipment.
- Less than 18 % of the e-waste generated in 2019 was collected and recycled.
- The number of countries that have adopted a national e-waste policy, legislation or regulation has increased from 61 to 78 and including India.
- It is far from the target set by the International Telecommunication Union to raise the percentage of countries with e-waste legislation to 50%.
- The Global E-waste Monitor 2020 is a collaborative product of the Global E-waste Statistics Partnership, formed by the United Nations University, International Telecommunication Union, International Solid Waste Association, and UN Environment Programme.

### E-Waste

- E-Waste or Electronic Waste is the **term used to describe old, end-of-life or discarded electronic appliances**.
- It is categorised into 21 types under two broad categories:
  - Information technology and communication equipment.
  - Consumer electrical and electronics.
- E-waste includes components, consumables, parts and spares.
- E-waste contains several toxic additives or hazardous substances such as mercury, brominated flame retardants (BFR), CFCs and HCFCs.
- **The increasing levels of e-waste, low collection rates, and non-environmentally sound disposal and treatment of this waste stream pose significant risks to the environment and human health.**

### India specific

- There are 312 authorised recyclers of e-waste in India, with the capacity for treating approximately 800 kilo tonnes annually.
- About 90% of the country's e-waste is recycled in the informal sector.
- India's first e-waste clinic for segregating, processing and disposal of waste from household and commercial units has been set up in Bhopal, Madhya Pradesh.
- According to the Central Pollution Control Board (CPCB), India generated more than 10 lakh tonnes of e-waste in 2019-20, an increase from 7 lakh tonnes in 2017-18.

### Concerns

- **Toxicity:** E-waste consists of toxic elements such as Lead, Mercury, Cadmium, Chromium, Polybrominated biphenyls and Poly-brominated diphenyl.
- **Effects on Humans:** Some of the major health effects include serious illnesses such as lung cancer, respiratory problems, bronchitis, brain damage, etc due to inhalation of toxic fumes, exposure to heavy metals and alike.
- **Effects on Environment:** E-waste is an environmental hazard causing groundwater pollution, acidification of soil and contamination of groundwater and air pollution due to the burning of plastic and other remnants.

### Challenges Related to Management of E-Waste in India

- A key factor in used electronic devices not being given for recycling was because consumers themselves did not do so.
- In India, **about 5 lakh child labourers in the age group of 10-14 are observed to be engaged in various E-waste activities** and that too without adequate protection and safeguards in various yards and recycling workshops.
- There is an absence of any public information on most State Pollution Control Boards (SPCBs)/PCC websites.
- No clear guidelines are there for the unorganized sector to handle E-waste.
- Also, no incentives are mentioned to lure people engaged to adopt a formal path for handling E-waste.
- **80% of E-waste in developed countries meant for recycling is sent to developing countries** such as India, China, Ghana and Nigeria.
- **Lack of coordination between various authorities** responsible for E-waste management and disposal including the non-involvement of municipalities.
- End-of-life computers often contain sensitive personal information and bank account details which, if not deleted leave an opportunity for fraud.

## International Conventions and government initiatives

- Originally the Basel Convention did not mention e-waste but later it addressed the issues of e-waste in 2006 (COP8).
- **Nairobi Declaration** was adopted at COP9 of the Basel Convention. It is aimed at creating innovative solutions for the environmentally sound management of electronic wastes.
- **Rotterdam Convention, 2004** seeks to promote an exchange of information among Parties over a range of potentially hazardous that may be exported or imported.
- In India before 2011, e-waste was covered under the Hazardous Waste Management (HWM) Rules.
- In 2011, under the Environmental Protection Act 1986, the E-waste (Management and Handling) Rules, 2011 were enacted.
- In 2016, the **E-Waste (Management) Rules, 2016 were enacted which replaced the 2011 Rules**. The Rules were amended in 2018
- CPCB has also issued guidelines for Environmentally Sound Management of E-waste (on Collection, Storage, Dismantling & Segregation, Recycling, and Treatment & Disposal of E-Waste)
- Awareness Program on Environmental Hazards of Electronic Waste initiated by the Ministry of Electronics and Information Technology
- The creation of a Management Structure for Hazardous Substances seeks to raise awareness among people about the 2016 Rules and their implementation.
- Swachh Digital Bharat seeks to create awareness among the public about the hazards of e-waste recycling by the unorganised sector and to educate them about alternate methods of disposing of their e-waste.

## NGT's Directions

- Further steps should be taken for scientific enforcement of E-Waste Management Rules, 2016 (EWMR) in light of the reports of the CPCB.
- It noted gaps in collection targets, as the amount of e-waste collected in 2018-19 was 78,000 tonnes against a target of 1.54 lakh tonnes. There are clear governance deficits on the subject.
- The CPCB may consider steps for compliance with Rule 16 requiring a reduction in the use of hazardous substances in the manufacture of electrical and electronic equipment and their components or consumables or parts or spares.
- It took noted that a large number of accidents take place in residential areas on account of **unscientific handling of e-waste**.
- This needs special attention for constant vigilance in such hotspots. This also requires review and updating of sitting norms for e-waste by the CPCB which may be done within three months.
- All the state pollution control boards need to **identify the hotspots** by constant vigil and coordinate with the District Administration at local levels to prevent damage to the environment and public health and meaningful enforcement of rule of law.

## E-Waste Management Rules, 2016

- The Ministry of Environment, Forest and Climate Change notified the E-Waste Management Rules, 2016 in supersession of the E-waste (Management & Handling) Rules, 2011.
- Over 21 products (Schedule-I) were included under the purview of the rule. It included Compact Fluorescent Lamp (CFL) and other mercury-containing lamps, as well as other such equipment.
- For the first time, the rules brought the producers under **Extended Producer Responsibility (EPR)**, along with targets. Producers have been made responsible for the collection of E-waste and its exchange.
- Various producers can have a separate **Producer Responsibility Organisation (PRO)** and ensure the **collection of E-waste**, as well as its disposal in an environmentally sound manner.
- A **deposit Refund Scheme** has been introduced as an additional economic instrument.
- The role of State Governments has been also introduced to ensure the safety, health and skill development of the workers involved in dismantling and recycling operations.
- A provision of penalty for violation of rules has also been introduced.
- Urban Local Bodies (Municipal Committee/Council/Corporation) has been assigned the duty to collect and channel the orphan products to authorized dismantlers or recyclers.
- Allocation of proper space to existing and upcoming industrial units for e-waste dismantling and recycling.



## Way Forward

- There is a need for **better implementation methodologies and inclusion policies** that provide accommodation and validation for the informal sector to step up and help us meet our recycling targets in an environmentally sound manner.
- Also, successfully raising collection rates required every actor to be involved, including consumers.
- There is a need to strengthen the domestic legal framework to address the issue of unregulated imports of e-waste.
- Steps should be taken to formalize the informal sector by integrating it with the formal sector.
- Government should introduce **vocational training programs to rightly skill the current unorganized sector employees** to ensure their smooth transition to working with the organized sector.

## LEAF COALITION

### Context

- At the Leaders' Summit on Climate, LEAF Coalition came up with a \$1 billion fund plan that shall be offered to countries committed to arresting the decline of their tropical forests by 2030.

### About the LEAF Coalition plan

- LEAF Coalition's proposal is a **step forward in saving forests and indigenous peoples**.
- It is a collective of the United States, United Kingdom and Norway governments.
- LEAF was **supported by transnational corporations** (TNCs) like Unilever plc, Amazon.com, Inc, Nestle, Airbnb, Inc as well as Emergent, a US-based non-profit.
- It is a step towards concretising the aims and objectives of the Reducing Emissions from Deforestation and Forest Degradation (REDD+) mechanism.
  - REDD+ was created by the **United Nations Framework Convention on Climate Change** (UNFCCC).
  - REDD+ **monetised the value of carbon locked up** in the tropical forests of most developing countries, thereby propelling these countries to help mitigate climate change.
- It will incentivise the developing countries to capture extensive deforestation and provide livelihood opportunities to forest-dependent populations.
- It seeks to help developing countries in battling the double-edged sword of development versus ecological commitment.

### Why this initiative is crucial?

- The tropics have **lost close to 12.2 million hectares (ha) of tree cover** year last year according to global estimates released by Global Forest Watch, an independent monitoring platform.
- Tropical forests are massive carbon sinks and by investing in their protection, public and private players are likely to stock up on their carbon credits.

### Deforestation in India

- India's estimated loss in 2020 stands at 20.8-kilo hectares.
- India has adopted a lackadaisical attitude towards deforestation-induced climate change.
- This year India, witnessed massive forest fires in the early months of the year in states like Odisha, Uttarakhand, Madhya Pradesh and Mizoram among others.

### What leads to deforestation?

- According to the UN-REDD Programme, after the energy sector, deforestation accounts for massive carbon emissions — close to 11 per cent — in the atmosphere.
- **Rapid urbanization and commercialization of forest products** are the main causes behind rampant deforestation across tropical forests.

### Forest and indigenous tribes

- Policymakers around the world have emphasized the **role of indigenous tribes and local communities in checking deforestation**.
- These communities understand the need to protect forests as their survival and livelihood are dependent on

the forest.

- But the governments of developing countries swiftly avoid the protection of forests and the rights of forest dwellers.

### Rights of forest dwellers in India

- The government of India has not been forthcoming in recognizing the socio-economic, civil, political or even cultural rights of forest dwellers.
- According to data from the Union Ministry of Tribal Affairs, **over 55 per cent of the tribal population has still not been granted either individual or community ownership of their lands even in 2020.**
- Proposed amendments to the obsolete Indian Forest Act, of 1927 aim to give forest officials the power to take away the forest **Dwellers' rights and to even use firearms with impunity.**
- Although India has pledged to carry out its REDD+ commitments, it is impossible to do so without seeking knowledge from its forest-dwelling population.

### Significance of this plan

- Implementation of this plan will help **pump in fresh rigour among developing countries** like India, which are reluctant to recognize the contributions of their forest-dwelling populations in mitigating climate change.

### What can be done now?

- The first step is the recognition of land rights.
- The second step is the recognition of the contributions of local communities and indigenous communities, meaning the contributions of indigenous peoples.
- Recognition of traditional knowledge practices to fight climate change.

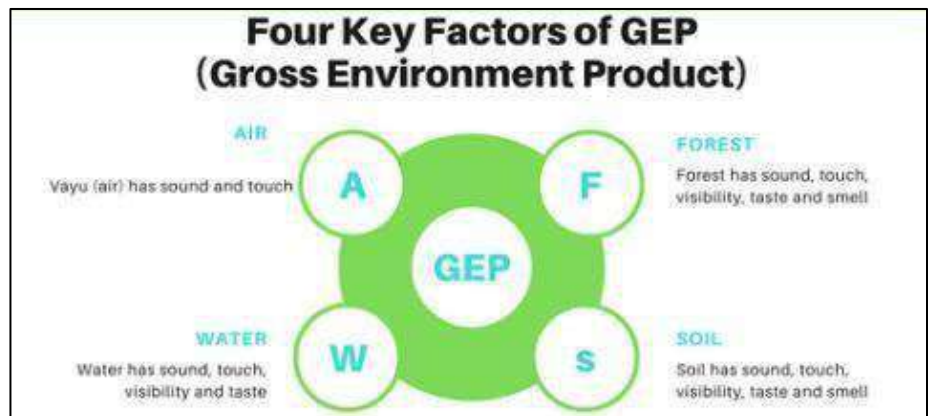
## GROSS ENVIRONMENT PRODUCT

### Context

- Uttarakhand will initiate the valuation of its natural resources in the form of 'Gross Environment Product' along the lines of Gross Domestic Product (GDP).

### Environment services

- The term —ecosystem services<sup>1</sup> was coined in 1981 to attract academics to this aspect.
- Ecosystem services are the **benefits human populations derive, directly or indirectly, from ecosystem functions.**
- The definition is still in the process of evolution.
- In 1997, a group of 13 economists and ecologists showed that at the global level the **value of ES is about twice as much as the global GDP.**
- The Millennium Ecosystem Assessment was initiated in 2001, with one of the main concerns of **changes that contributed to substantial net gains in human well-being and economic development.**
- But these gains have been achieved at several costs:
  1. Degradation of ecosystem services.
  2. Increased risks of non-linear changes.
  3. The exacerbation of poverty for some groups of people.



## The Himalayan context

- The Himalayas contribute **substantially to the sustainability of the Gangetic Plains** where 500 million people live.
- According to the recommendation of the **12th and 13th Finance Commissions**, grants were transferred to **forest-rich states** in amounts corresponding to their forest covers.
- Ecosystem services represent the benefits humans get: Forests, lakes and grasslands; timber and dyed; carbon sequestration and nutrient cycling; soil formation and productivity; and tourism.
- While valuing ecosystem services, the **population size served is important**.
- A system to valorise ecosystem services in the Himalayan states of India in a way that is consistent with the **national mission on Himalayan ecosystems**.

## CONFERENCE OF PARTIES (COP 26)

### Context

- India's big push at the COP26 will be to have more countries commit to a "net zero" deadline by mid-century.

### Formation of COP

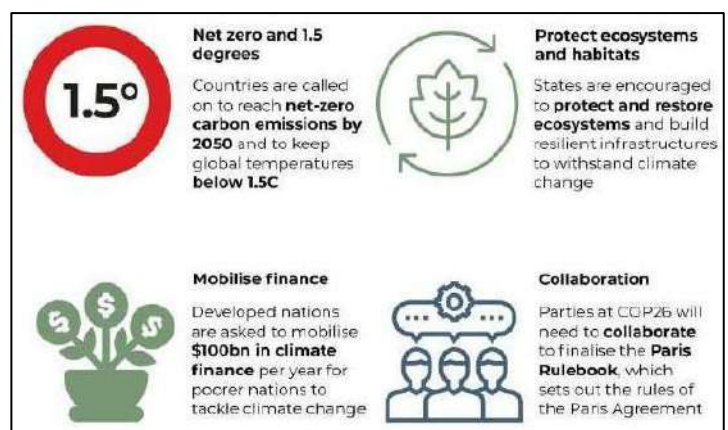
- The Conference of Parties comes under the United Nations Climate Change Framework Convention (UNFCCC) which **was formed in 1994**.
- The UNFCCC was established to work towards the "**stabilization of greenhouse gas concentrations in the atmosphere.**"
- It laid out a list of responsibilities for the member states which included:
  - Formulating measures to mitigate climate change
  - Cooperating in preparing for adaptation to the impact of climate change
  - Promoting education, training and public awareness related to climate change

### COP1 to COP25

- COP members have been meeting every year since 1995.
- The UNFCCC has 198 parties including India, China and the USA.
- The first conference (COP1) was held in 1995 in Berlin.
- At **COP3** held in Kyoto, Japan, in 1997, the famous **Kyoto Protocol** was adopted. It commits the member states to **pursue limitations or reduction of greenhouse gas emissions**. It **entered into force on 16 February 2005** and there are 192 Parties to the Kyoto Protocol.
- **India hosted the eighth COP** in 2002 in New Delhi.
- One of the most important conferences, COP21 took place in Paris, France, where member countries agreed to work together To,limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels.

### COP26 goals

- According to the UNFCCC, COP26 will work towards four goals:
  1. Secure global net-zero by mid-century and keep **1.5 degrees within reach**
  2. Adapt to protect communities and natural habitats
  3. **Mobilize finance**
  4. Work together to deliver



## The UK Presidency at COP26 has five priorities, aiming to ignite a similar level of progress through new alliances

- **Adaptation and resilience:** „Helping people, economies and the environment adapt and prepare for the impacts of climate change.“
- **Nature:** „Safeguarding ecosystems, protecting natural habitats and keeping carbon out of the atmosphere.“
- **Energy transition:** „Seizing the massive opportunities of cheaper renewable and storage.“
- **Accelerating the move to zero-carbon road transport:** „By 2040, over half of the new car sales worldwide are projected to be electric.“
- **Finance:** „We need to unleash the finance which will make all of this possible and power the shift to a zero-carbon economy.“

## What India could do to reach its targets?

- It is time for India to update its Nationally Determined Contributions NDCs. (NDCs detail the various efforts taken by each country to reduce national emissions)
- Sector by sector plans is needed to bring about development. We need to decarbonise the electricity, and transport sector and start looking at carbon per passenger mile.
- Aggressively figure out how to transition our coal sector
- India, the world's third largest emitter, hasn't agreed to a net zero deadline.

## Why hasn't India agreed to a net zero target?

- India sees a mid-century target upon itself as opposed to the **principle of “common but differentiated” responsibility** that allows countries to eschew fossil fuel without compromising equitable development.
- Net zero means that a country must commit to a year beyond which its emissions won't peak and a point at which it will balance out its emissions by taking out an equivalent amount of greenhouse gas from the air.
- Even theoretically committing to a **net zero by 2050 would require India to retire its coal plants and fossil fuel use overnight** and even this wouldn't guarantee that temperature-rise stays below 1.5C by the end of the century.
- India avers, most of the countries clamouring for a net zero target for India will continue — even with their national stated reduction targets — to pollute on a per capita basis way beyond their fair share.
- **India says** countries responsible for the climate crisis haven't made good on previous promises to fund mitigation and **adaptation projects** and so future net zero promises are therefore hollow.
- The IPCC's Sixth Assessment Report asserts that the **contribution of greenhouse gas emissions from various activities is the scientific basis for global warming and climate change.**

## What are India's expectations from COP 26?

- Huge expectations” in COP 26 include **arriving at a consensus on unresolved issues of the Paris Agreement Rule Book, long-term climate finance, and market-based mechanisms.**
- The COP26 should also be initiating the process of setting the long-term climate finance for the post-2025 period.
- India welcomed the UK COP26 Presidency's **five key initiatives** on
  - Sustainable land use
  - Energy transition
  - low emission vehicle transition
  - Climate finance and adaptation.
- **India was also hoping to** strengthen global climate initiatives including the International Solar Alliance, Coalition Disaster Resilient Infrastructure (CDRI), leadership Group for Industry Transition (LeadIT Group), Call for Action on Adaptation and Resilience and Mission Innovation.

## What are India's core demands?

- India has said it is “open to all options” provided it gets assurances that commitments in previous COPs such as
  - developing countries getting compensated to the tune of \$100 billion annually
  - the carbon-credit markets are reinvigorated and the countries historically responsible for the climate crisis be compensated by way of “Loss and Damages,” and



- Clean development technologies are made available in ways that their industries can painlessly adapt to.

## DECARBONISING INDIAN AGRICULTURE

### Context

- As per India's third **Biennial Update Report** in 2016, **agriculture and livestock emitted 407,821 Gg of CO<sub>2</sub>e, around 14% of total emissions**. Out of this, 61.3% is linked to livestock.

### India's current status

- India, with **1.75 million sq km of arable land** and a **300 million cattle population** has 160 million rural households with agriculture being the main source of livelihood.
- Hence, decarbonisation has to be carefully calibrated to avoid an adverse impact on over 120 million marginal farmers who are still in the 'survival phase' of their socio-economic development.
- Apart from livestock, the major constituents of agriculture GHG emissions are **rice cultivation (17.5%), fertiliser application (19.1%), and field burning of agricultural residues (2.2%)**.

### Agriculture and climate change

- India is the **third-largest emitter of greenhouse gases** after China and the United States.
- India emitted 2,299 million tonnes of carbon dioxide (CO<sub>2</sub>) in 2018, according to a report by the International Energy Agency. This accounts for 7 per cent of global GHG emissions. **Agriculture and livestock account for 18 per cent of gross national emissions**.
- A majority of agricultural GHG emissions occur at the primary production stage and are generated through the production and use of agricultural inputs (mainly water, fertilisers, and pesticides) farm machinery, soil disturbance, residue management and irrigation.
- Climate change is threatening India's agricultural growth with **frequent dry spells, heat waves and erratic rainfall**.

### Deep decarbonising pathways

- It would include **reducing biogenic methane from cattle** and rice cultivation
- inculcating resource efficiency by reducing consumption of irrigation water, chemical fertilisers, and energy for cultivation/ harvesting/transport as well as farm waste processing;
- reducing waste in the food supply chain; and
- building climate resilience through deploying automation and technology.

### Critical factors for both decarbonisation and sustainability

- **Soil:** Fertile soil enhances farm yields and incomes apart from being a carbon sink. Healthy soil holds more moisture and soil conservation methods reduce erosion.
- **Freshwater:** Agriculture consumes over 80% of fresh water in India, making conservation critical. **Micro-irrigation with automation and adoption of low water-intensive species** and farming practices is essential. Areas under water-intensive crops must be reduced through crop diversification.
- **Alternate cropping:** It is an emerging area in climate-smart farming. For example, seaweed cultivation as an additive to cattle feed reduces biogenic methane emissions, improves feed quality, and enhances milk production.
- **Agro-forestry:** Trees act as windbreaks, reduce soil erosion, enrich the soil, and filter water.
- **Bio-energy from farm waste:** Manure-based community biogas plants can support clean cooking and distributed power. **India's National Policy for Biofuels/ SATAT scheme** set a medium-term target of 15 million tonnes of bio-CNG. **BECCS (Bio-Energy with Carbon Capture & Storage)** involves capturing CO<sub>2</sub> from bioenergy plants and permanent storage.

### What can be done?

- India has many programmes—**National Mission on Sustainable Agriculture (NMSA) under the National Action Plan on Climate Change (NAPCC), National Initiative on Climate Resilient Agriculture (NICRA), and National Adaptation Fund for Climate Change (NAFCC)**. However, outcomes have not been satisfactory.
- **Coordinated and action-oriented implementation** and appropriate institutional architecture from the Centre



to states to districts or agro-zones are needed.

- Concepts such as **Low External Input Sustainable Agriculture (LEISA)**, which seeks to optimise the use of locally available resources replacing external inputs are receiving increased attention as a sustainable alternative to chemical farming.
- The **Zero Budget Natural Farming (ZBNF) concept** introduced in Andhra Pradesh in 2015 is a low-input, climate-resilient type of farming that encourages farmers to use low-cost locally sourced inputs. It eliminates the use of chemical fertilisers and pesticides.
- Sustainable agriculture pathways will require **significant capital**, but a large portion could come from repurposing existing subsidies. **Climate finance and patient capital** will be needed for areas having longer gestation periods, viz biogenic methane mitigation, agroforestry, etc.
- Halting deforestation, rejuvenating degraded forests, and accelerating afforestation.
- A two-pronged approach is required—to **generate high integrity, real-time data on forest status; and to undertake conservation, restoration, and regeneration under an integrated forest management framework**. This requires **funding and mobilising communities** and addressing their needs, especially forest fringe villages.
- There is a need to back ambitious targets with a **consensual approach and robust implementation**. Each action must have a separate **micro-plan with actions and timelines**.

## ETHANOL BLENDING

### In News

- The Union Government has revised its 20% ethanol blending in petrol target by 2025-26 instead of 2030.
- The Union Government has advanced its target for achieving 20% ethanol blending in petrol by 5 years.
- The Government has amended the National Biofuel Policy-2018 and has now set the new target for 2025-26 instead of 2030.

### Biofuels

- Biofuels are **liquid or gaseous fuels primarily produced from biomass—that is, plant or algae material or animal waste**.
- Biofuels can be used to replace or can be used in addition to diesel, petrol or other fossil fuels for transport, stationary, portable and other applications.
- Ethanol and biodiesel are the two main transport biofuels. These fuels can be produced from a variety of biomass.

### Categories of biofuels

- **First-generation biofuels** - First-generation biofuels are made from sugar, starch, vegetable oil, or animal fats using conventional technology. Common first-generation biofuels include Bioalcohols, Biodiesel, Vegetable oil, Bioethers, and Biogas.
- **Second-generation biofuels** - These are produced from non-food crops, such as cellulosic biofuels and waste biomass (stalks of wheat and corn, and wood). Examples include advanced biofuels like bio-hydrogen and bio-methanol.
- **Third-generation biofuels** - These are produced from micro-organisms like algae.
- **Fourth-generation biofuels** - These are produced from genetically modified (GM) algae to enhance biofuel production.

### India's Biofuel Economy

- India is one of the fastest-growing economies and the third-largest consumer of primary energy in the world after the US and China.
- India's fuel energy security will remain vulnerable until alternative fuels are developed based on renewable feedstock.
- The government of India targets to reduce the country's carbon footprint by 30-35% by the year 2030.
- These targets will be **achieved through a five-pronged strategy which includes:**
  1. Increasing domestic production
  2. Adopting biofuels and renewable
  3. Implementing energy efficiency norms

4. Improving refinery processes and
  5. Achieving demand substitution.
- The government of India has proposed a target of **20% blending of ethanol in petrol and 5% blending of biodiesel in diesel by 2030** and introduced **multiple initiatives to increase indigenous production of biofuels**.

### Biodiesel and its benefits

- Bio-diesel is an **eco-friendly, alternative diesel fuel prepared from domestic renewable resources** vegetable oils (edible or non-edible oil) and animal fats.
- These natural oils and fats are primarily made up of triglycerides. These triglycerides when reacted chemically with lower alcohols in presence of a catalyst result in fatty acid esters. These esters show a striking similarity to petroleum-derived diesel and are called "Biodiesel".
- As India is deficient in edible oils, non-edible oil may be the material of choice for producing biodiesel. Examples are *Jatropha curcas*, *Pongamia*, *Karanja*, etc.

### The benefits of using biodiesel are as follows:

- **It reduces vehicle emissions** which makes it eco-friendly.
- **It is made from renewable sources and can be prepared locally.**
- **Increases engine performance** because it has higher cetane numbers as compared to petrol-diesel.
- It has **excellent lubricity**.
- **Increased safety in storage and transport** because the fuel is non-toxic and biodegradable.
- Production of biodiesel in India **will reduce dependence on foreign suppliers**, thus helpful in **price stability**.
- **Reduction of greenhouse gases** at least by 3.3 kg CO<sub>2</sub> equivalent per kg of biodiesel.

### Benefits of India's ethanol blending mandates include:

- **Reduce Import Dependency:** Will save Foreign Exchange (FOREX).
- **Cleaner Environment:** Reducing crop burning and converting agricultural residues/wastes to biofuels will further reduce greenhouse gas (GHG) emissions.
- **Health Benefits:** Prolonged reuse of cooking oil for preparing food, particularly in deep-frying, is a potential health hazard and can lead to many diseases. Used cooking oil (UCO) is a potential feedstock for biodiesel and its use for making biodiesel prevents the reuse of UCO within the food industry.
- **Solid Waste Management:** There are technologies available, which can convert solid waste and plastics to drop-in fuels.
- **Infrastructural Investment in Rural Areas:** Establishing additional 2G biorefineries across the country will spur infrastructural investment in rural areas.
- **Employment Generation:** 2G biorefinery can contribute 1200 jobs across plant operations, village level entrepreneurs and supply chain management.
- **Additional Income to Farmers:** By adopting 2G technologies, agricultural residues/wastes that otherwise are burnt can be converted to ethanol. Farmers can realise an additional revenue source if markets are developed for these residues/wastes.

### National Policy on Biofuels - 2018

- The 'National Policy on Biofuels 2018' was notified by the Ministry of Petroleum and Natural Gas in 2018 in supersession of the National Policy on Biofuels, promulgated through the Ministry of New & Renewable Energy in 2009.
- It provided an indicative target of blending 20% ethanol in petrol by 2030.
- NITI Aayog's "Roadmap for Ethanol Blending in India 2020-25" report outlines the journey toward 20% ethanol blending in the country.

### Way Forward

- The key tenets of India's Biofuel Policy are unique and forward-looking, with a clear focus on 2G feedstocks and land regeneration. However, in its desire to accelerate biofuel blending targets, the administration has redoubled its focus on food- grain-based feedstock. Such a pivot has **significant negative implications in terms of lifecycle GHG emissions, water stress, ethanol pricing, and distortions to the agricultural supply chain – exacerbating unsustainable land-use practices without guaranteeing emissions reduction**.

- The GOI needs **to refocus on 2G production and 3 G production methods**, based on a clear roadmap and backed by policy and financial support.
- While this can delay biofuel blending targets by some years, it will not only **ensure a sustainable reduction in GHG emissions but also provide multiple economic and environmental co-benefits. A long-term, sustainable approach to biofuel production** can help India become a champion for the sustainable transport of biofuels.

# DISASTER MANAGEMENT

## DROUGHTS IN NUMBER 2022 REPORT

### In News

- Drought in Numbers, 2022 report has revealed that many parts of India fall under the list of regions that are vulnerable to drought globally.

### Drought

- Drought is a **prolonged dry period in the natural climate cycle that can occur anywhere in the world**. It is a slow-onset disaster characterized by the **lack of precipitation, resulting in a water shortage**. Drought can have a serious impact on health, agriculture, economies, energy and the environment.

### The Report

- Drought in Numbers, 2022 report is presented by the United Nations Convention to Combat Desertification (UNCCD).
- The Drought in Numbers report is a **collection of data on the effects of droughts on our ecosystem** and how they can be mitigated through efficient planning for the future.
- The report also **helps inform negotiations surrounding key decisions by the UNCCD's 197 member parties** at the 15th Conference of Parties (COP15).
- Drought, land restoration, and related aspects such as land rights, gender equality and youth empowerment are among the top considerations at COP15.
- UNCCD's COP15 **focuses on desertification, land degradation, and drought**, with the theme for the conference being **"Land. Life. Legacy: From scarcity to prosperity."** The conference has brought together government representatives, private sector members, and civil society stakeholders to ensure that land continues to benefit present and future generations.
- It proposes to tackle "the interconnected challenges of land degradation, climate change, and biodiversity loss" as we are into the UN Decade on Ecosystem Restoration (2021-2030).

### Highlights of the Report

- The report has revealed that many parts of India fall under the list of regions that are vulnerable to drought globally.
- It also stated that **India's GDP reduced by 2 to 5% between 1998 and 2017 due to severe droughts** in the country.
- **Between 2020 and 2022, 23 countries have faced drought emergencies**. According to the report, climate change alone will cause 129 countries to experience an increase in drought exposure in the next few decades.
- **More than a billion people around the world were affected by drought in 2000-19**, making it the second-worst disaster after flooding. Africa was the worst hit, with 134 droughts, of which 70 occurred in East Africa.
- According to the report, **if global warming reaches 3°C by 2100, drought losses could be five times higher than today's levels**. The largest increase in drought losses is projected in the Mediterranean and the Atlantic regions of Europe.
- **Australia's megadrought in 2019-2020 contributed to "megafires"** resulting in one of the most extensive losses of habitat for threatened species. About three billion animals were killed or displaced in the Australian wildfires. 84% of all terrestrial ecosystems are threatened by changing and intensifying wildfires.
- The impact of drought is, however, not uniform across genders. Research shows that **women and girls in emerging and developing countries suffer more in terms of education levels, nutrition, health, sanitation, and safety as a result of droughts**.
- The burden of water collection also disproportionately falls on women (72%) and girls (9%). The report notes that **they may spend up to 40% of their caloric intake fetching water**.
- In 2022, over 2.3 billion people are facing water stress. Almost 160 million children are exposed to severe and prolonged droughts.






## Why is India vulnerable to droughts?

Several factors make India susceptible to droughts such as:

- Yearly, seasonal and regional variations in rainfall despite high average annual rainfall.
- A short span of fewer than 100 days during the southwest monsoon.
- Loss of water during heavy rains as surface runoff.
- Less rainfall over 33 per cent of the cropped area in the country.
- Over-exploitation of groundwater resources and poor conservation and storage mechanisms for surface water leads to inadequate water availability in times of scanty rainfall.
- The steady decline in per capita water availability for humans and animals even in non-drought years.
- Rapid deforestation, urbanization and climate change that has been leading to erratic rainfall patterns.
- Limited irrigation coverage leads to excessive dependence of agriculture on rainfall.
- Faulty cropping patterns and over-emphasis on water-guzzling crops.

## Statistics

- As high as **68% of the cropped area in India is vulnerable to droughts** of which 33 per cent is classified as '**chronically drought-prone** comprising desert and semiarid regions that receive less than 750 mm mean annual rainfall.
- Thirty-five per cent area receives 750 mm to 1125 mm rainfall and is classified as 'drought-prone' that is confined to the arid, semi-arid and sub-humid regions of peninsular and western India. **Rajasthan, Gujarat, Odisha and some north-eastern states like Nagaland are under severe to exceptional drought-like conditions.**
- 18 meteorological and 16 hydrological droughts occurred in India from 1870 to 2018.
- **Over a fifth of India's land area (21.06 per cent) is facing drought-like conditions**, according to recent data released by Drought Early Warning System(DEWS), a real-time drought-monitoring platform.
- The 21.06 per cent area is under different degrees of drought – ranging from abnormally dry to exceptionally dry. While **1.63 per cent of the area and 1.73 per cent of land are under „extremely dry“ and „exceptionally dry“ conditions**, **2.17 per cent is under „severe“ dry conditions**. As much as 8.15 per cent is under moderate“ dry conditions. Around 7.38 per cent of land is „abnormally“ dry.

FIVE TYPES OF DROUGHT	
1	<b>METEOROLOGICAL</b> drought refers to an extended period of dry weather patterns. 
2	<b>HYDROLOGICAL</b> drought refers to low water supply in our rivers, lakes, aquifers, and other reservoirs that often follows meteorological drought. 
3	<b>AGRICULTURAL</b> drought occurs when a water shortage significantly damages or destroys agricultural crops. 
4	<b>ECOLOGICAL</b> drought is the most recently defined type of drought and refers to widespread ecological damage caused by the lack of soil moisture. 
5	<b>SOCIOECONOMIC</b> drought refers to when a water shortage affects the supply and demand of drought commodities, such as water, food grains, and fish. 

## Institutional structures to deal with droughts in the country

- The Department of Agriculture, Cooperation and Farmers Welfare (DAC&FW) under the Ministry of Agriculture and Farmers Welfare is the apex body that formulates policies and institutional structures for drought management at the national and state levels.
- The department has a Drought Management Cell (DMC) that gathers information from various sources, monitors drought conditions, and issues advisories, and coordinates with central government and state government ministries and other concerned agencies to mitigate the effects of drought.

## Mitigating Droughts

- Drought and poverty are interconnected with millions of very poor people living in drought-prone areas. Considering the spread and impact of the problem, drought mitigation requires careful attention at the policy level and effective action on the ground.
- **Examples of important mitigations measures include** Water harvesting, protecting water sources against contamination, developing water sources – such as micro dams, ponds and wells, use of reserve sources of groundwater and water rationing/allocation. Restoring pastures and balancing land and water resources.



<b>Drought mitigation measures</b>	<b>Institutional measures</b> <ul style="list-style-type: none"> <li>• Drought risk management plan</li> <li>• Internal coordination and external collaboration</li> <li>• Public communication</li> </ul>
	<b>Water supply side measures</b> <ul style="list-style-type: none"> <li>• Maximize existing water supply</li> <li>• Temporary permit increase</li> <li>• Partnership with neighboring water utilities</li> </ul>
	<b>Institutional measures</b> <ul style="list-style-type: none"> <li>• Public education outreach for water saving</li> <li>• Water conservation by behavior changes or water efficient equipment</li> <li>• Water restriction on nonessential water use</li> </ul>

Water supply increase		
Existing supplies	New supplies	Complex supplies
– Surface storage	– Emergency use of lakes	– Conveyance grids
– Subsurface storage	– Saltwater conversion	– Conjunctive water use
– Interbasin transfer	– Fossil waters	– Snow and ice management
– Water conservation	– Weather modification	
Water demand reduction		
Active strategies	Reactive strategies	
– Legal restriction and public pressures	– User recycling systems	
– Economic incentives	– User production adjustments	
Drought impact minimization		
Forecasting	Risk sharing	Damages reduction
– Forecast and warning	– Insurance	– Drought resistant crops
– Follow-up forecast and warning	– Individual protection	– Agricultural techniques adjustment
	– Disaster aid	– Urban vegetation adjustment

# INTERNAL SECURITY

## POLICE REFORMS IN INDIA

### In News

- The Vice President of India has released a book titled “The Struggle for Police Reforms in India” written by a former IPS officer, Shri Prakash Singh.

### Details

- The Vice President of India on the occasion has highlighted that **“a progressive, modern India must have a police force which meets the democratic aspirations of the people”** and called for implementing reforms in the police forces.
- He stressed the need to **upgrade the skills of policemen to effectively tackle 21st-century crimes** such as cybercrimes and economic offences which require special investigative expertise due to their sophisticated and often transboundary nature.
- He suggested **filling up the huge number of vacancies in police departments** and strengthening the police infrastructure in tune with the requirements of modern age policing.
  - He called for particularly strengthening the police force at the grassroots.
  - Stressing that the behaviour of policemen towards the common man should be friendly.
- **He said that the** attitude of the police must be open-minded, sensitive and receptive to each citizen’s concerns.

### Concern

- Indian police force works at only 77% of its sanctioned strength.
- Low People to Police Ratio.
- Lack of Sensitisation of Police Personnel.
- Absence of accountability.
- The politicisation of the Police.
- Losing Public Confidence.
- Existing police personnel are also not adequately trained.

### 2nd ARC Report on Public Order

- **Crime Investigation should be separated** from other Policing functions.
- Crime Investigation Agency should be constituted in each State, having **full autonomy in matters of investigation and having a minimum tenure**.
- Appropriate mechanisms should be developed to ensure Coordination between Investigation, Forensic and Law and Order Agencies, at the Local, District and State levels.
- **State Police Performance and Accountability Commission** Should be constituted.
- **State Police Establishment Committee** Should be Set up to deal with all matters of Postings and transfers, Promotions.
- All officers and Staff Should have a **minimum tenure** of 3 years.
- **Municipal Police Service in Metropolitan Cities** has a population of more than one million.
- Non-Core Police functions could be outsourced to other agencies.
- Motivate Persons from different Sections of Society to Join Police Service.
- **Rational working hours, Welfare measures for Police Personnel** in the form of improved working conditions, better education facilities for their children, and Social Security measures during Service, as well as Post-retirement.
- A **District Police Complaints Authority** should be Constituted to enquire into allegations against the Police within the district.
- **Need to expand the forensic facilities** and upgrade them technologically. Every district or a group of districts has a forensic laboratory.
- The syllabus of Forensic Science Should be Continuously upgraded in line with international trends.
- Intelligence agencies should develop multi-disciplinary Capability by utilising the Services of experts. Training should focus on **bringing in attitudinal Change** in Police So that they become more responsive and

sensitive to Citizens' needs.

- **All training Programmes should include a module on gender and human rights.** Training Programmes Should Sensitise the Police towards the Weaker Sections. Representation of women in Police at all levels should be increased.
- As far as Possible the deployment of Police Personnel in Police Stations with a significant proportion of religious and linguistic minorities should be in proportion to the population of such Communities within the local jurisdiction of such police stations.
- The administration should be responsive, transparent, vigilant and fair in dealing with all sections of society.
  - o Public agencies should follow a zero-tolerance strategy in dealing with violations of laws

### Directions of the Supreme Court in Prakash Singh vs Union of India

- **Constitute a State Security Commission in every state that will lay down policy for police functioning,** evaluate police performance, and ensure that state governments do not exercise unwarranted influence on the police.
- **Constitute a Police Establishment Board in every state that will decide postings, transfers and promotions for officers** below the rank of Deputy Superintendent of Police, and make recommendations to the state government for officers of higher ranks.
- **Constitute Police Complaints Authorities** at the state and district levels to inquire into allegations of serious misconduct and abuse of power by police personnel.
- Provide a **minimum tenure of at least two years** for the DGP and other key police officers within the state forces
- Ensure that the DGP of state police is appointed from amongst three senior-most officers based on length of service, good record and experience.
- Separate the investigating police from the law and order police.
- **Constitute a National Security Commission** to shortlist the candidates for appointment as Chiefs of the central armed police forces.

### Way Forward

- In a well-ordered democracy, Police are supposed to be a disciplined force trained to uphold the law and enforce the functioning of democracy on Constitutional lines.
- Periodic review of the performance of the police force.
- **Police need to be sensitised about their role in society,** decency of behaviour, trained in body language and strictly advised to refrain from abusive behaviour, attitudinal change, and Police behaviour.
- It is necessary to increase public confidence in the police by upgrading levels of police service delivery. Enhancing accountability will improve police legitimacy and increase public confidence, which, in turn, will reinforce the integrity of the system.
- **The police-to-people ratio should be improved;** Women are grossly under-represented in our police force. They constitute less than 7% of total police strength and need to recruit more and more women police personnel.
- Efficient, accountable and people-centric police that steadfastly uphold the Rule of Law in all situations.
- Police forces need to be well-equipped, in terms of personnel, weaponry, forensic, communication and transport support, to perform their role well.
- They need to have the operational freedom to carry out their responsibilities professionally and in satisfactory working conditions while being held accountable for poor performance or misuse of power.

## DRONE ATTACK

### Context

- The need for an anti-drone system shielding critical installations in the country came under sharp focus after a drone attack on an IAF base in Jammu, 14 km from the international border.
- Jammu attack was the first such instance in India where a drone was weaponised.

## What are Drones?

- It usually refers to **any unpiloted aircraft**.
- It is also referred to as —**Unmanned Aerial Vehicles**" (UAVs), these crafts can carry out an impressive range of tasks, ranging from **military operations to package delivery**.
- Drones can be as large as an aircraft or as small as the palm of your hand.

## Recent instances of Drone attacks

- Drones have been used in the Middle East, particularly in Iraq and Syria, by the US to carry out targeted assassinations.
- In 2020, Iranian general Qasem Soleimani was killed in a US drone strike in Iraq.
- In 2018, Venezuelan President Nicolas Maduro claimed he survived an assassination attempt involving drones rigged with explosives.

## How to counter the drone threat?

- Anti-drone systems are required to counter hostile Unmanned Aerial Vehicles (UAVs), popularly known as drones.
- Companies, predominantly based out of Israel, the US, and even China, have developed **anti-drone systems using existing technologies such as radars, frequency jammers, optic and thermal sensors** etc.
- Some systems simply monitor and alert the presence of a drone, while others are equipped with ballistics and even lasers.

## Why there is a need for an anti-drone system?

- At present, the only option is to shoot down the drones.
- Sighting drones, especially during the night, is not easy.
- It requires sniper fire and the drone to be within range.

## What are the existing anti-drone systems?

- Rafael's **Drone Dome** can detect and intercepts drones.
- Drone Dome is also capable of jamming the commands being sent to a hostile drone and blocking visuals, if any, that are being transmitted back to the drone operator.

## Is there an indigenous solution for India?

- The Defence Research and Development Organisation (DRDO) has developed an '**Anti DroneSystem**' and it will be deployed this year.
- The anti-drone system can detect and jam drones up to 3km and uses a laser weapon to fire at targets that are 1 to 2.5km away.
- The Navy is procuring **Smash-2000 rifles to counter drones**.

## Some uses and applications of Drone technology

- Aerial photography for journalism and film
- Express shipping and delivery.
- Gathering information or supplying essentials for disaster management
- Thermal sensor drones for search and rescue operations
- Geographic mapping of inaccessible terrain and locations
- Building safety inspections
- Precision crop monitoring
- Unmanned cargo transport
- Law enforcement and border control surveillance
- Storm, tracking and forecasting hurricanes and tornadoes.

## Drone regulation in India

- **Drone Operator Permits for Different UAV Categories**
- **Nano Drones:** For drones weighing **less than or equal to 250 grams**, no license or permit is needed.
- **Micro or Small Drones:** To fly a drone weighing **more than 250 grams** and less than or equal to 25 kilograms,

whether, for commercial or recreational purposes, one needs the UAS Operator Permit-I (UAOP-I).

- **Medium and Large Drones:** For any operation that requires a drone weighing more than 25 kilograms, one needs the UAS Operator Permit-II (UAOP-II).

### Exemptions to Drone Permit

- The **Central Government can exempt** any Ministry, Department, or government-affiliated agency – at both the central and state level – from the requirements of a drone operator permit if it is in the **national interest or helps to uphold the security of the country**.

### No-Fly Zones in India for Drone Operations

- Within a distance of 5 km from the perimeter of **international airports at Mumbai, Delhi, Chennai, Kolkata, Bengaluru, and Hyderabad**
- Within a distance of 3 km from the perimeter of any civil, private, or defence airports
- Within 25 km from the **international border** which includes Line of Control (LoC), Line of Actual Control (LAC), and Actual Ground Position Line (AGPL)
- Within 3 km from the perimeter of military installations/facilities without clearance
- Within a 5 km radius of Vijay Chowk in Delhi, etc.

### Flight Permission and Flight Log

- Except for the Nano category, all drone operations shall take place only after prior permission has been received for a flight or series of flights through the **Digital Sky online platform**.
- The drone operator will also ensure that the aircraft stays within the defined area for which permission was obtained, and furnish a log of each flight through the online platform.

### Obtaining a Drone Pilot License in India

- **Student Remote Pilot License:** These are issued for a fee by an authorized training organization. A student license remains valid for a maximum period of 5 years and can be renewed for an additional period of 2 years.
- **Remote Pilot License:** These are issued for a fee by the DGCA, subject to the submission of a certificate of training and a skill test report from an authorized training organization. A remote pilot license is valid for 10 years and can be renewed for another 10 years with each renewal application.
- **Minimum Qualifications:** One should have passed class X or its equivalent examination from a recognized Board. Cleared a medical examination as specified by the DGCA.
- **Age Criteria:** The minimum age to apply for both student and remote pilot licenses is 18 years. The maximum age at which you can exercise the privileges of a remote pilot license for commercial activities is 65 years.

### Penalties for Illegal Drone Flying in India

- Except for Nano category drones, any individual who operates a drone **without a valid license or permit shall have to pay a fine of INR 25,000**.
- Flying over no-operation zones will attract a fine of INR 50,000.
- Drone flying without valid third-party insurance will be subject to a fine of INR 10,000.

## Illegal influx from myanmar in northeastern states

### In News

- Ministry of Home Affairs (MHA) has written to the Chief Secretaries of Nagaland, Manipur, Mizoram and Arunachal Pradesh to —take appropriate action as per law to check the illegal influx from Myanmar into India.
- The directive comes weeks after the military coup and subsequent crackdown in the neighbouring country led to several persons crossing over into India.
- More than a dozen foreign nationals including policemen and women from Myanmar have fled to neighbouring Mizoram fearing a military crackdown.
- India and Myanmar share a 1,643 km border and people on either side have familial ties.
- A **Free Movement Regime (FMR)** exists between India and Myanmar under which every member of the hill tribes, who is either a citizen of India or a citizen of Myanmar and who is a resident of any area within 16 km on either side of the Indo-Myanmar Border (IMB) can cross the border **with a border pass (with one-year**



validity) issued by the competent authority and can stay up to two weeks per visit.

- Letter to Chief Secretaries says **States have no power to grant refugee status to any foreigner.**
- India is not a signatory to the United Nations Refugee Convention of 1951 and its 1967 Protocol.

### Illegal immigration in India

- An illegal immigrant in India is a foreigner who has entered India either without valid documents or who initially had a valid document, but has overstayed beyond the permitted time, as per the general provisions of the Citizenship Act as amended in 2003.
- Such persons are not eligible for citizenship by registration or naturalization. They are also liable to be imprisoned for 2-8 years and fined.
- An exception was made in 2015 for minority communities of Bangladesh, Pakistan and Afghanistan who were compelled to seek shelter in India due to religious persecution or fear of religious persecution.
- They are not classified as illegal migrants and remain eligible for citizenship.

### Present legal scenario

- According to Indian law, **illegal immigrants are not refugees.**
- India has signed neither the 1951 United Nations Refugee Convention nor its 1967 Protocol, which has 140 signatories, an overwhelming majority of the world's 190-odd nations.
- Thus, the impediment to the expulsion of migrants does not apply in India. **However, India continues to host a large population of refugees.**

### Why won't India sign the Convention or the Protocol?

- The United Nations High Commissioner for Refugees (UNHCR) won't officially say why, but the reasons are chiefly security-related.
- The line of argument is that **borders in South Asia are extremely porous** and any conflict can **result in a mass movement of people.**
- This can have two results: first, a strain on local infrastructure and resources in countries that are poorly equipped to deal with sudden spikes in population.
- Second, it can upset the demographic balance, a tinderbox in South Asia.
- India retains a degree of scepticism about the UNHCR. This flows from the Bangladesh war of 1971.
- India is home to diverse groups of refugees. India already does its duty, so where's the need to sign this piece of paper? It mostly doesn't even take UN money to look after the refugees.

### Associated concerns

- Entry of illegal migrants into India is important as they **impose pressure on citizens, and available resources and pose a security threat**, especially in sensitive areas such as J&K, northeastern states and West Bengal.
- Illegal migrants **create fear psychosis and identity crisis** in the mind of the native tribes of the north-eastern States.
- Cases and litigation filled by Illegal migrants to avoid deportation or giving them the right to reside on humanitarian grounds **burden the judiciary.**
- Illegal migrants are mostly associated with smugglings of banned drugs, cattle, women and children thus adding economic pressure on the Indian populace
- Northeastern states are mainly hilly areas and are more prone to natural disasters, illegal migrants create a burden on limited available resources and aggravate environmental degradation.

### Way forward

- There is a need to sensitize the law enforcement and intelligence agencies to take appropriate prompt steps for identifying illegal migrants, their restrictions to specific locations as per provisions of law, capturing their biographic and biometric particulars, cancellation of fake Indian documents and legal proceedings including initiation of deportation proceedings as per provisions of law.
- Government should consider the idea of appointing a **National Immigration Commission** to frame a National Migration Policy and a National Refugee Policy.
- Necessary steps should be made for **effective management of border, check posts either through personal patrolling or through technology.**
- **Bilateral efforts** should be made with the governments of the neighbouring countries to prevent the

spreading of cross-border terrorism and insurgency.

## WOMEN IN COMBAT ROLE

### In News

- Captain Abhilasha Barak from Haryana becomes the Indian Army's first woman combat aviator.
- In 2018, she joined the Indian Army from the Officers Training Academy, Chennai.
- She was selected as a Contingent Commander for Presentation of Colours to Army Air Defence by President Ram Nath Kovind.

### Women in the Indian Armed Forces

- The Indian Army allowed women officers in non-medical roles in 1992.
- In 2007, the United Nations (UN)' first all-female peacekeeping force made up of 105 Indian policewomen was deployed to Liberia (a Country in West Africa).
- Females are not allowed to serve in warfare units like the Infantry, the Armoured Corps and Mechanized infantry.

### Concerns

- **Physical differences** make women more vulnerable to certain types of injuries and medical problems.
- The **biological processes of menstruation and pregnancy** make women vulnerable during combat situations.
- **Lack of privacy and sanitation** can increase the risk of genitourinary infections.
- Women are more attached to their families, particularly their children. This results in greater mental stress.
- Mental stress in women due to isolation, a low number of women in the military.

### Way Forward

- Women can be trained as military police jawans, and then, they can be trained for combat.
- For protecting female jawans' dignity, there should be codes of conduct for all.
- It is the responsibility of the government to create both administrative and social infrastructure for the easy entry of women.
- Society and Government have to accept that women can also play a crucial role in confronting enemies.

## CYBER WARFARE

### Context

- It increasingly appears that cyber warfare is going to become a regular part of the arsenal of nations.
- The changing military doctrines, all across the world, favour the need to raise cyber commands reflecting a shift in strategies along with building deterrence in cyberspace.

### About Cyber Warfare

- It is the use of computer technology to disrupt the activities of a state or organization; deliberately attacking information systems for strategic or military purposes.
- Cyber warfare typically involves the use of illegal exploitation methods on the internet, corruption or disruption of computer networks.

### Arguments in Favor of Cyber Warfare

- **Tempered by responsible use and appropriate controls**, cyber warfare is a safer and more flexible strategic alternative, one critical step between sanctions and bombs.
- Reducing the loss of human lives forms one of the core principles of ethics of war.
- Cyberwars can be seen as an **opportunity to decrease global violence and can shift wars'** focus away from human casualties.
- Fighting digitally offers a unique opportunity; the continuation of Politically by other means, without the physical invasion of sovereign territory.

## Arguments against War Fare

- Cyber warfare **attacks on military infrastructure, government and private communications systems, and financial markets pose a rapidly growing** but little understood threat to international security and could become a decisive weapon in future conflicts among States.
- More Number of Countries to Engage in Wars: Once cyber technology enters as an important variable in nations' defence policies, the size of a country will cease to matter.
- **Even smaller countries empowered by cyber technology** will be equal to the larger countries like the US, Russia, India or China, in their capability to cause unacceptable damage.
- **Lowering Threshold of Entry into War:** Weapons in the 21st century will merely mean a cyber-button on the desk of the nation's military/ the leader of the government.
- **Geographical land, population, or GOP will be irrelevant** in war-making capacity or deterrence.
- **More Frequent Conflicts:** With cyber warfare becoming a norm, each nation will have to be more prepared for bilateral conflicts that are based on cyber warfare rather than in multilateral acts of conventional war.

## Threats to India

- India has been the victim of cyber-attacks multiple times in the past
- In 2009, a **suspected cyber espionage network dubbed Ghost Net was found to be targeting, amongst others, the Tibetan government in exile in India, and many Indian embassies.**
- The power outage in Mumbai in 2020 is also suspected to be the result of an attack by a Chinese state-sponsored group.
- The real danger to India lies **in targeted cyber-attacks coming from adversarial nation-states. Countries like China can bring immense assets to bear in carrying out sophisticated cyber-attacks.**
- India is one of the few countries which still does not have a dedicated cyber component in its military. The setting up of a Defence Cyber Agency was announced but came out only as a typical half-hearted step characterising India's lack of strategic planning process.

## Way Forward

- Clarifying the Objectives: The National Security Policy in the 21st century shall define what assets are required to be defended and the identity of opponents who seek to overawe the people of a target nation by unfamiliar moves to cause disorientation of people.
- Setting Priorities: The national security priorities will require new departments for supporting several frontiers of innovation and technologies; hydrogen fuel cells, desalination of seawater, thorium for nuclear technology, anti-computer viruses, and new immunity-creating medicines. This focus on a new priority will require compulsory science and mathematics education.
- Also, every citizen will have to be made aware of the new remote-controlled military technology and be ready for it.
- **Changing the Strategy:** The strategy required for the new national security policy will be to anticipate the enemies in many dimensions and by demonstrative but limited pre-emptive strikes by developing a strategy of deterrence of the enemy.
- For India, it will be China's cyber capability factor which is the new threat for which it has to devise a new strategy.
- **New Agenda:** The agenda for the new strategy will be to focus on; critical & emerging technologies, connectivity & infrastructure, cyber security and maritime security.
- **Role of Policy Makers:** The government should carve out a separate budget for cyber security. Creating a central body of cyber warriors to counter state-sponsored hackers.
- India's talent base in software development should be harnessed by providing career opportunities. Bootstrapping the cyber security capability programme in states through central funding.
- **Defence, Deterrence and Exploitation:** These are the three main components of any national strategy to counter cyber threats. Critical cyberinfrastructure must be defended and individual ministries and private companies must also put procedures in place to honestly report breaches.
- **Deterrence in cyberspace is a hugely complex issue.** Nuclear deterrence is successful because there is clarity on the capability of adversaries but cyber warfare lacks any such clarity.
- Exploiting cyberspace to achieve national security objectives. The preparation for this will have to start with the Indian military gathering intelligence, evaluating targets and preparing the specific tools for cyber-attacks.

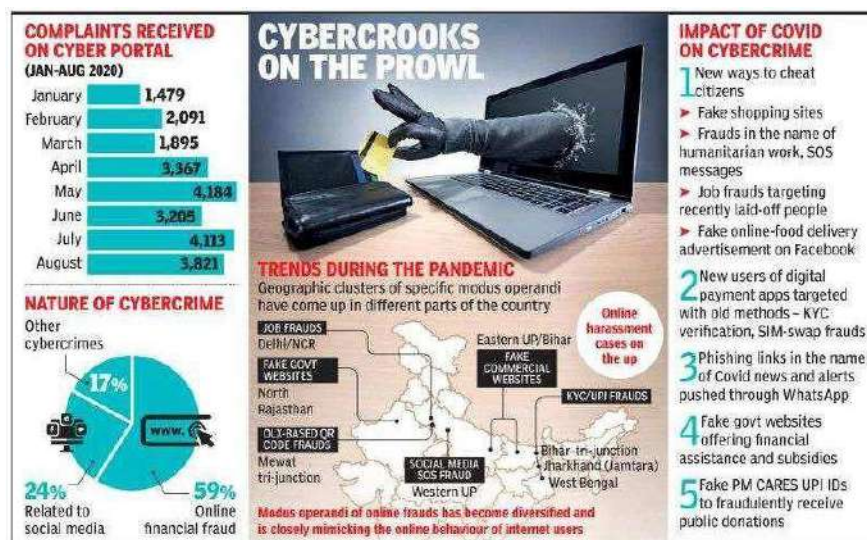
## Conclusion

- Once cyber technology becomes a key variable in the defence policies of a nation, land size or GOP size are irrelevant. Hence, clearer strategy and greater transparency are the need of the hour to improve India's cybersecurity posture.

## CYBERCRIME

### Context

- Cyber crimes have gone up by almost 500% in India during the global pandemic
- With data gradually transcending into the open domain with numerous firms permitting employees to work from their homes amid the pandemic, **sensitive information has become susceptible to security vulnerabilities.**
- The rise of digital payments has also increased complex cyber crimes.



### Why does India need a robust cyber security strategy?

- Demonetization and Covid-19** have pushed Indians to adopt digitisation. Work from home is now accepted as a new normal.
- India's **digital growth will not be sustainable** if we do not have a strong shield in the form of data protection laws and privacy policies.
- To address the issue of protecting critical information infrastructure in cyberspace, build integrated capabilities to prevent and respond to cyber threats.
- India has **one of the highest numbers of internet users** in the world and is also **among the top 10 countries facing cyberattacks.**
- To address the **current gaps in governance** and to provide a strong framework to handle issues related to cybersecurity.
- There is **no centralised command** to have oversight and coordinate efforts to handle larger cybersecurity issues.
- To protect domestic interest:** The discovery of potential North Korean malware at both the Kudankulam Nuclear Power Plant and the Indian Space Research Organisation (ISRO) last year, and recent revelations of a Chinese firm tracking Indians' personal data highlight just how vulnerable Indian cyberspace can be.

### Challenges in ensuring cyber security

- Digital illiteracy** makes Indian citizens highly susceptible to cyber fraud, cyber theft, etc.
- In India, the majority of devices used to access the internet have **inadequate security infrastructure** making them susceptible to malware
- Rampant use of unlicensed software and underpaid licenses** also make them vulnerable.
- Lack of adoption of new technology
- There are a variety of devices used with **non-uniform standards** which makes it difficult to provide a uniform



security protocol.

- **Import dependence** on the majority of electronic devices put India in a vulnerable situation.
- There are currently around 30,000 cyber security vacancies in India but **demand far outstrips the supply of people with the required skills.**
- Even advanced precision threats carried out by hackers are **difficult to attribute to specific actors, state or non-state.**
- **Lack of coordination** among various agencies working for cyber security.
- The absence of geographical barriers and the majority of servers located outside India **are other factors.**
- Terrorists, DTOs, etc.
- Hackers / Hacktivists

### Threats

- Malware – Malicious software to disrupt computers
- Viruses, worms
- Theft of Intellectual Property or Data
- Hacktivism – Cyber protests that are socially or politically motivated
- Mobile Devices and applications and their associated Cyber Attacks
- Social Engineering – Entice Users to click on malicious links
- Spear Phishing – Deceptive Communications (e-mails, texts, tweets)
- Domain Name System (DNS) Attacks
- Router Security – Border Gateway Protocol (BGP) Hijacking
- Denial of Service (DoS) – blocking access to websites
- AI and machine learning, IoT, and 5G offer several threats

### Institutional framework: Policies, Acts, Schemes

- **INFORMATION TECHNOLOGY ACT 2000** continues to be the omnibus legislation that governs cyber security policy and it includes provisions for e-governance, e-commerce, data protection, cyber offences, critical information infrastructure, interception, monitoring and cyber terrorism.
- **REGULATORY GUIDELINES** are issued by sectoral regulators such as RBI, TRAI, SEBI, and IRDA for organizations under their purview.
- **NATIONAL CYBER SECURITY POLICY (NCSP) 2013** document was prepared by the Ministry of Communications and Information Technology to facilitate the creation of a secure cyberspace ecosystem and strengthen the existing regulatory frameworks.
- **CERT-In Rules 2013** outlines proactive measures for protecting cyber security, including forecasts and alerts on security incidents, and the prediction and prevention of future incidents.
- The Ministry of Home Affairs developed the **NATIONAL INFORMATION SECURITY POLICY AND RELATED GUIDELINES** in 2014 for securing classified information in all government organizations.
- **Draft IoT Policy** was released by MeitY in 2014-15 to solicit inputs from the industry and others on cyber security concerns in the IoT ecosystem.
- **DRAFT M2M (MACHINE-TO-MACHINE) TELECOM ROADMAP:** Developed by DoT, discusses cyber security issues in M2M interactions.
- **NATIONAL DIGITAL COMMUNICATIONS POLICY 2018:** outlines a focus on ensuring individual autonomy and choice, data ownership, privacy and security; while recognizing data as a crucial economic resource.
- MeitY has engaged with the Data Security Council of India for creating cyber crime awareness among law enforcement authorities through workshops in different cities across India.
- A **NATIONAL CYBER SECURITY STRATEGY 2020** is being formulated by the Office of National Cyber Security Coordinator at the National Security Council Secretariat. The aim is to improve cyber awareness and cybersecurity through more stringent audits.
- **INDIAN COMPUTER EMERGENCY RESPONSE TEAM (CERT-IN)**, established within the Ministry of Electronics and Information Technology (MeitY), issues alerts and advisories regarding the latest cyber threats and countermeasures regularly. Power sector CERTs have been created.
- PMO includes within it several cyber portfolios. Among these are the **NATIONAL SECURITY COUNCIL**, usually chaired by NSA, and NSA also chairs the **NATIONAL INFORMATION BOARD**, which is meant to be the apex body for cross-ministry coordination on cybersecurity policymaking.



- The Office of the **NATIONAL CYBER SECURITY COORDINATOR** was established under the National Security Council Secretariat as the nodal agency for cyber security established for the purpose.
- **NATIONAL CRITICAL INFORMATION INFRASTRUCTURE PROTECTION CENTER** was established for the protection of critical information infrastructure in the country, as per the provisions of section 70A of the Information Technology (IT) Act, 2000.
- **Proposed CERT-Fin**: the creation of a separate CERT for the financial services sector.
- **IB-CART** at IDBRT: CERT-IN has created a Centre of Excellence (CoE) for cyber security within IDBRT in Hyderabad.
- **NATIONAL CYBER COORDINATION CENTRE** was set up to generate necessary situational awareness of existing and potential cyber security threats and enable timely information sharing for proactive, preventive and protective actions by individual entities.
- **SECURITY AUDITING AGENCIES** have been empanelled to support and audit the implementation of Information Security Best Practices.
- The government has launched the '**CYBER SWACHHTA KENDRA**' (Botnet Cleaning and Malware Analysis Centre) that provides detection of malicious programs and free tools to remove them.

### Global cyber security norms and frameworks

- There have been multiple global forums such as the **Global Commission on the Stability of Cyberspace**.
- **ITU Global Cyber Security Agenda & Global Cyber Security Index**: the goal is to foster a global culture of cyber security and its integration at the core of information and communication technologies.
- **Tallinn Manual 2.0**: Does an influential resource for legal frameworks around cyber issues and details four sections comprise general legal principles in the cyber domain as well as specific specialized legal regimes.
- **UN Group of Governmental Experts (UN GGE)**: comprises 20 nations equitably distributed based on geography and includes nation states regarded as leaders in cyber areas.
- The UN General Assembly adopted two resolutions on cyber, one creating a **working group to study cyber norms and possible dialogues**, and another setting up a **working group of government experts to study the applicability of international law to states in cyberspace**.
- **Paris Call for Trust And Security In Cyberspace**: launched by the French President in 2018, as a high-level declaration for cooperation.
- **Open Ended Working Group at UN**: developing norms of responsible state behaviour in cyberspace.
- **Cyber Security Tech Accord**: Around 34 global technology and security companies came together in 2018 to sign a Cyber security Tech Accord with a pledge to "protect and empower civilians online and to improve the security, stability and resilience of cyberspace."
- **Budapest Convention on cybercrime**: This convention of the council of Europe is the only binding international instrument on this issue that addresses Internet and computer crime by harmonizing national laws, improving legal authorities for investigative techniques, and increasing cooperation among nations.

### Way forward

- Much-needed **SYNERGY** among various institutions and work out a coordinated approach to cyber security, including cyber deterrence.
- India needs to make a proper assessment of an **OFFENSIVE CYBER DOCTRINE** adopted by many countries where they are acquiring offensive capabilities by building 'cyberweapons' to do enormous damage to the adversary's networks.
- **DOCTRINE ON CYBER CONFLICTS** that holistically captures India's approach to cyber conflict, either for conducting offensive cyber operations, or the extent and scope of countermeasures against cyber-attacks.
- Currently, the average cost of a **CYBER INSURANCE** in India is around \$7.5 million which in comparison to developed countries is about 20-25% lesser.
- **INVESTMENT IN IT SECURITY** has to be increased with the adoption of a cybersecurity plan, purchase of cyber insurance as well as appointment of a data security officer.
- The regulations need to keep pace with the changing cyber scenario to ensure penalties serve as deterrence for crimes.
- **SKILL DEVELOPMENT**: By 2025, the cybersecurity space is expected to generate around a million jobs in India.
- **SECURITY AUDIT** adhering to international standards may be made applicable to all govt. websites, applications before hosting and publishing.

- Establishing a cybersecurity framework at the state level.

## INDIA'S DEFENCE EXPORTS

### Context

- India's defence exports have increased from Rs. 1,521 crores in 2016-17 to Rs. 8,434.84 crores in 2020-21.

### Current situation of the defence sector

- The government has set an ambitious target to **achieve exports of about Rs. 35,000 crores (\$5 billion)** in aerospace and defence goods and services **by 2025**.
- There was an overall drop in India's arms imports between 2011-15 and 2016-20.
- According to the **SIPRI report of 2020, India remained among the top importers**, it was also included in the **Top 25 defence exporters**.

### Which Indian companies are major exporters?

- According to the SIPRI report, three Indian companies figure among the top 100 defence companies in the 2020 rankings
  - Hindustan Aeronautics Limited (HAL)
  - Ordnance Factory Board and**
  - Bharat Electronics Ltd (BEL).

YEAR	Defence Production (in crore)	Defence Exports (in crore)
2016-17	<b>₹74,121</b>	<b>₹1,521</b>
2017-18	<b>₹78,817</b>	<b>₹4,682</b>
2018-19	<b>₹80,502</b>	<b>₹10,745</b>
2019-20 (TARGETED)	<b>₹90,000</b>	<b>₹15,000</b>
TARGETED DEFENCE EXPORT FOR 2024: <b>₹35,000 CRORE</b>		

IANS GRAPHICS

### What are the big-ticket items that India can export?

- India was ready to supply different types of missile systems, LCA/helicopters, multi-purpose light transport aircraft, warships and patrol vessels, artillery gun systems, tanks, radars, military vehicles, electronic warfare systems and other weapons systems to IOR nations.
- Assistance in capacity building and capability enhancement** to Indian Ocean littoral states.

### What are the steps taken by the Centre to boost defence production?

#### Measures announced to boost exports include

- Simplified defence industrial licensing
- Relaxation of export controls and grant of no-objection certificates
- Specific incentives were introduced under the foreign trade policy
- Ministry of External Affairs has **facilitated Lines of Credit for countries to import defence products**.
- Defence attaches in Indian missions abroad have been empowered to promote defence exports.
- On the domestic front, to boost indigenous manufacturing, the Government **issued two "positive indigenisation lists" consisting of 209 items that cannot be imported** and can only be procured from the domestic industry.
- A percentage of the capital outlay of the defence budget has been reserved for procurement from domestic industry.

## GS-4

### Competition Commission of India orders Google inquiry after news publishers complain

#### Recent context:

Recently, India's Digital News Publishers Association has alleged that Google not only dominates the market for information but also abuses this dominance.

#### About Digital Media Ethics:

- Digital media ethics deals with the distinct ethical problems, practices, and norms of digital news media. Digital news media includes online journalism, blogging, digital photojournalism, citizen journalism, and social media.
- It also includes questions about how professional journalism should use this new media to research and publish stories, as well as how to use text or images provided by citizens.

#### Ethical Issues Emerging Out of Digital Media:

- Plagiarism has become an often-accepted practice and international cultural norm due at least in part to the ease and temptation of copying online sources.
- Digitally altering images or video is common in advertising and sometimes in news. Using anonymous sources is frequently an accepted practice in journalism.
- Omnidirectional imaging is more than science fiction.
- WikiLeaks and the transparency of public records have changed how the public understands government, the military, and big business around the world.
- Artificial intelligence and computerized news writing are commercial realities.
- Social media, webcams, and privacy are part of citizens' daily lives.

#### Ethical repercussions because of digital media:

##### Negative effects:

- According to a survey an individual was willing to give a wrong answer just to conform to the majority view. This explains the impact of fake news online, which contributes to a polarised society.
- People are lacking pure judgments, trying to imitate the group leading to a severe value crisis in society.
- The trolling of women and bullying of children has brought to the fore the disturbing reality of online violence and abuse women face in India.
- New ethical issues are emerging because of privacy concerns, social injustice, ignorance, effects on family values, etc.

##### Positive effects:

- The successful "Me-too" movement gave a ray of hope to many voiceless women. Their voice is being heard now and many guidelines are released for their safety at the workplace.
- The sense of questioning is developed in citizens through the social media handles of various ministries. This also adds to the accountability of the government.
- Awareness regarding the rights of the LGBTQ community acid attack victims etc. is increasing. This lets them live their life with dignity.
- Compassion towards an accident victim or a person in need is being shown by many fundraiser campaigns on social media.

## Digital Media Ethics Code Relating to Digital Media:

- **Self-Classification of Content:** The platforms, called the publishers of online curated content in the rules, would self-classify the content into five age-based categories– U (Universal), U/A 7+, U/A 13+, U/A 16+, and A (Adult).
  - Online and OTT platforms would be required to implement parental locks for content classified as U/A 13+ or higher and reliable age verification mechanisms for content classified as “A”.
  - The publisher of online curated content shall prominently display the classification rating specific to each content or program together with a content descriptor.
- **Norms for news:** Publishers of news on digital media would be required to observe Norms of Journalistic Conduct of the Press Council of India and the Programme Code under the Cable Television Networks Regulation Act.
- **Self-regulation by the Publisher:** Publisher shall appoint a Grievance Redressal Officer based in India who shall be responsible for the redressal of grievances received by it.
- **Self-Regulatory Body:** There may be one or more self-regulatory bodies of publishers. Such a body shall be headed by a retired judge of the Supreme Court, a High Court, or an independent eminent person and have not more than six members.

## First ‘CRISPR babies’

### Recent context:

Two prominent bioethicists (in China) are calling on the government to set up a research center dedicated to ensuring the well-being of the first children born with edited genomes.

### About CRISPR

- CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats) is a family of DNA sequences found in the genomes of prokaryotic organisms such as bacteria and archaea.
- These sequences are derived from DNA fragments of bacteriophages that had previously infected the prokaryote. They are used to detect and destroy DNA from similar bacteriophages during subsequent infections.

### About CRISPR babies:

- CRISPR is a new biotechnology that allows the editing of genes, with applications including potentially curing genetic conditions such as sickle cell anemia and cystic fibrosis.

### Ethical Issue:

- This proposal precedes the impending release from the prison of researcher He Jiankui, who shocked the world in 2018 by announcing that he had created a baby with an altered genome. His actions were widely criticized by scientists around the world and demanded a global moratorium on the processing of embryos to be implanted.
- Several ethics committees have since concluded that the technology should not be used to make changes that can be passed on.
- Gene editing could have created errors in the children’s genomes, which could be passed to their children.
- Researchers recommend regular sequencing of the children’s genomes to check for “abnormalities”, including conducting genetic tests of their embryos in the future.

### Birth of gene-edited babies:

- He Jiankui (Chinese scientist) in 2018, had implanted embryos in which he had used CRISPR–Cas9 to edit a gene known as CCR5, which encodes an HIV co-receptor, with the goal of making them resistant to the virus.
- The implantation led to the birth of twins in 2018, and a third child was later born to separate parents. **Human genome-editing: recommendations by WHO.**
- The recent application of tools, such as CRISPR-Cas9, to edit the human genome with the intention of treating or preventing disease.
- It will also fill the gaps in our scientific understanding, in addition to some of the proposed applications of human genome editing, raise ethical issues that have highlighted the need for robust oversight in this area.
- In December 2018, WHO established a global, multidisciplinary expert advisory committee to examine the scientific, ethical, social, and legal challenges associated with human genome editing.

- The Committee produced a series of recommendations:
  - International collaboration for effective governance and oversight.
  - Human genome editing registries
  - Illegal, unregistered, unethical, or unsafe research and other activities
  - Ethical values and principles for use by WHO

### Arguments: In favour:

#### Healthy children

- In cases where a woman's eggs have a heritable genetic abnormality, a dominant allele associated with a disease, or both she and her husband have recessive genes linked to a disease, which could give rise to a genetically abnormal child, gene editing could, in theory, result in a healthy offspring.
- In such circumstances, where all of a woman's eggs are defective, preimplantation genetic screening (PGS) is unlikely to resolve the problem.

#### Reproductive autonomy

- According to this argument, parents should be able to employ whatever methods are available to them at whatever expense they are able and willing to incur to have a baby of their desire with whatever physical, intellectual, or psychological traits they believe can be offered to their offspring.

### Arguments: Against:

#### Harm

- Creating a child by genetic editing an embryo is too risky and is more likely than not on occasion to produce damaged children. The use of CRISPR for gene editing can introduce collateral damage through off-target effects.

#### Societal issues

- Try to imagine that gene editing an embryo can improve the memory of a child. Assume also that memory enhancement could be done relatively safely, with perhaps a small risk.
- It is highly unlikely that any current society, even societies with strong social welfare policies, would make this procedure available to everyone. Only a select number of wealthy families would be able to take advantage of this enhancement.
- Those children born with this trait will be in an elite group and would be rewarded for it. As a result, this gene-editing would contribute to greater disparities in society.

## Civil Services Cadre Rules

### Recent context:

The Union Government has proposed four amendments to Rule 6(1) of the Indian Administrative Services (Cadre) Rules, 1954 dealing with deputation.

### Amendments to Rules

- The proposed amendments seek to change the rules for central deputation of IAS officers from different states.
- The existing Rule 6(1) states that a cadre officer may be deputed to the Central Government (or to another State or a PSU) only with the concurrence of the State Government concerned.
- However, that in case of any disagreement with states and centre, the matter shall be decided by the Central Government.

#### CADRE CONTROLLING AUTHORITY

The Department of Personnel and Training (DoPT) is the cadre controlling authority of IAS officers. However, letters have been sent for deputation of Indian Police Service and Indian Forest Service Officers (IFoS) after approval from the Ministry of Home Affairs (MHA) and the Environment Ministry respectively



## History and Importance of All India Services

- It was Sardar Patel who had championed the creation of the IAS and the IPS as “All India Services” (AIS) whose members would be recruited and appointed by the Centre and allotted to various States, and who could serve both under the State and the Centre.
- Patel considered the AIS essential to the administrative framework of a vast and diverse country into an integrated whole and to provide a connecting link between implementation at the field level and policymaking at the top.
- Speaking to the Constituent Assembly on October 10, 1949, Patel said, “The Union will go, you will not have a united India if you have not a good All India Service which has the independence to speak out its mind, which has a sense of security....”
- All India Services officers are made available for central deputation through a consultative process involving the Centre, the States and the officers concerned.

### Challenges:

- **Conflict between state and centre:** Unfortunately, both the Centre and the States have at times flouted these healthy conventions for political considerations.
  - Intrusion from the Centre in July 2001: the centre unilaterally ‘placed at its disposal’ the services of three IPS officers of Tamil Nadu cadre.
  - In December 2020, the centre did the same in respect of three IPS officers of West Bengal cadre.
  - In May 2021, the centre unilaterally issued orders for the central deputation of the Chief Secretary of West Bengal just before his last day in service. In all these cases, the States concerned refused to relieve the officers.
- **Intrusion from the states:** Some States used to vindictively withhold the names of some of the officers who had opted for central deputation or delay their relief after they were picked up by the Centre.
  - In 2014, A senior IPS officer who was not allowed to join the CBI despite earlier clearance and was suspended by the Government of Tamil Nadu in May 2014 when she relieved herself from the State pursuant to the Centre’s direction.

### The Existing rules:

- **Rule 3:** Constitution of Cadres 3(1) there shall be constituted for each State or group of States an Indian Administrative Service Cadre.
- **3(2)** The Cadre so constituted for a State or a group of States is hereinafter referred to as a ‘**State Cadre**’ or, as the case may be, a ‘**Joint Cadre**’.

### Rule 4: Strength of Cadres:

- Rule 4(1) the strength and composition of each of the cadres constituted under rule 3 shall be determined by regulations made by the Central Government in consultation with the State Governments in this behalf and until such regulations are made, shall be as in force immediately before the commencement of these rules.

### Rule 6: Deputation of a Cadre officer.

- A cadre officer may, with the concurrence of the State Governments concerned and the Central Government, be deputed for service under the Central Government or another State Government or under a company, association or body of individuals, whether incorporated or not, which is wholly or substantially owned or controlled by the Central Government or by another State Government.
- Provided that in case of any disagreement, the matter shall be decided by the Central Government and the State Government or State Governments concerned shall give effect to the decision of the Central Government.

### The Proposed changes:

- If the State government delays posting a State cadre officer to the Centre and does not give effect to the Central government’s decision within the specified time, “the officer shall stand relieved from cadre from the date as may be specified by the Central government.” Presently, officers have to get a noobjection clearance from the State government for Central deputation.
- The Centre will decide the actual number of officers to be deputed to the Central government in consultation with the State and the latter should make eligible the names of such officers.

- According to existing norms, States have to depute the All India Services (AIS) officers, including the Indian Police Service (IPS) officers, to the Central government offices and at any point it cannot be more than 40% of the total cadre strength.
- In case of any disagreement between the Centre and the State, the matter shall be decided by the Central government and the State shall give effect to the decision of the Centre “within a specified time.”
- In specific situation where services of cadre officers are required by the Central government in “public interest” the State shall give effect to its decisions within a specified time.

#### Think of cooperative federalism:

- A new proviso making it mandatory for the State government to provide a certain fixed number of IAS officers for central deputation every year.
- This more or less compels a State government to offer IAS officers for central deputation even when these officers themselves may not wish to go on central deputation.
- Poor working conditions in junior-level posts, an opaque and arbitrary system of empanelment for senior-level posts, and lack of security of tenure at all levels are the real reasons for the shortage of IAS officers, which the Centre should address.
- With the Government of India itself enthusiastically promoting lateral entry to posts in the Centre and providing an increased share of central deputation posts to the central services, there is no need to push unwilling IAS officers on central deputation.
- Other is a proviso that requires the State government to release such officers whose services may be sought by the Central Government in specific situations.
- Based on experiences of the recent past, State governments have a justified apprehension that this proviso may be misused for political considerations.
- What if the Centre unilaterally places at its disposal the services of the Chief Secretary, Principal Secretary to the Chief Minister and other key officers of a State ruled by a rival party or deposes them to other States?
- **Other Long-term reform:** Confidence in governance: The contemplated changes have grave implications for the independence, security and morale of IAS officers.
- Reduction of IAS in the long term: If States begin to doubt the loyalty of IAS officers, they are likely to reduce the number of IAS cadre posts and also their annual intake of IAS officers. They may prefer officers of the State Civil Services to handle as many posts as possible.
- In course of time, the IAS will lose its sheen, and the best and the brightest candidates will no longer opt for the IAS as a career. Short-sighted decisions can do long-term damage to the polity.

#### Way Forward

- **In the words of jurist Nani Palkhivala**, “A national consensus should clearly remind the Centre that it has not inherited the Viceroy’s mantle of paramountcy... The Centre would have no moral authority to govern unless it displays a sense of constitutional morality, particularly a sense of justice and fairness towards the States”.
- **In S.R. Bommai vs Union of India (1994)**, the Supreme Court held that “States have an independent constitutional existence and they have as important a role to play in the political, social, educational and cultural life of the people as the Union. They are neither satellites nor agents of the Centre”.
- **In a federal setup**, it is inevitable that differences and disputes would arise between the Centre and the States. But all such quarrels should be resolved in the spirit of cooperative federalism and keeping the larger national interest in mind.

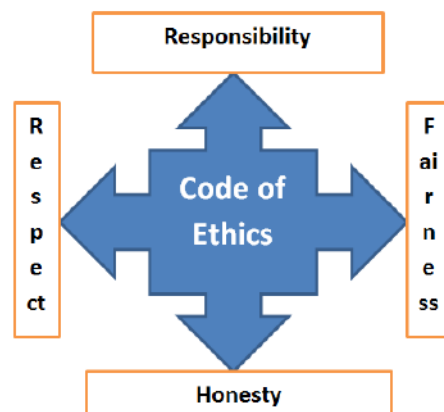
## Code of Ethics

#### Recent context:

A Parliamentary panel asked the government to ensure a code of ethics is followed in the digital media space while preserving the right to freedom of expression.

## OTT platforms (Over-the-top media service) Panel recommendation

- The panel considered the issue of unregulated content made available through online and OTT platforms.
- The panel observed that social media platforms (Facebook, WhatsApp, Instagram) have placed journalism in the hands of the citizens as they use their personal recording devices and post them on internet.
- The committee is conscious that the information and content portrayed on such platforms can impact viewers, including minor children.
- At the same time, the committee acknowledges that OTT platforms offer freedom to the individual user to decide what to watch, a freedom that should not be abridged by the heavy hand of Government.
- The report said that any regulation must have checks and balances to ensure that it is neither misused nor violate of Articles 14, 19 and 21 of the Constitution.



## OTT regulation:

- Government of India decided that “Over-the-top media service” now under the ambit of the Ministry of Information and Broadcasting.
- The regulation followed as are compiled by the Central Board of Film Certification (CBFC) for online movies.
- It may also regulate through Press Council of India for print media and News Broadcasting Standards Authority (NBSA) for television.
- A legal framework put in that way that or government must ensure that nobody, or producer tends to break the rules set by the Ministry.

## New start-up culture suffers from old malaise of entitlement

### Recent context:

Recently, questions have been raised over the toxic work culture in India’s start-ups after an abusive call row that shows the new start-up culture suffers from old malaise of entitlement.

## Components of Ethical Work culture

- Desirable work culture includes shared institutional values, priorities, rewards, and other practices which foster inclusion, high performance, and commitment, while still allowing diversity in thought and action.
- A perfect example of a good workplace culture is ISRO (Indian Space Research Organisation).
- It was founded in the 1960s and has since then contributed immensely to the development of the nation.
- Despite India being a third-world country, ISRO has against all odds launched various space programs, the most recent being Chandayan 2.
- It cannot be denied that one of the most important factors of ISRO’s success is a healthy work culture.

WHAT IS AN ETHICAL WORKPLACE/CULTURE ENVIRONMENT?

Ethical workplace culture gives priority to employee rights, fair procedures, and equity in pay and promotion, and that promotes tolerance, compassion, loyalty, and honesty in the treatment of customers and employees

## Need for Ethics Work Culture:

- Having an organizational culture that emphasizes ethical behavior can cut down on the misbehaviour of organizations. Research shows that leaders with a moral compass set the tone when it comes to ethical dilemmas.
- A business perceived to lack integrity or to operate in an unethical, immoral, or irresponsible manner soon loses the support of customers, suppliers, and the community at large.
- By creating a culture and environment which has values that are meaningful and aligned with those of staff, people are more motivated to work and will bend over backward for things that they believe in.

- Businesses with strong workplace ethics add value to the organization and support an environment where employees feel safe and valued. Leaders can help create an ethical workplace culture that benefits shareholders, the organization, and the people in the company.

### Importance of work culture in the success of an organization:

- **Transparency, innovation, and discipline:** Healthy work culture promotes transparency, innovation, and discipline in an organization.
- **Reduced Conflicts:** Good work culture promotes effective communication and helps in reducing conflicts among individuals/teams during work.
- **Increases Productivity and Quality:** Transparency, responsibility, unbiased are underpinnings of good work culture. These will enable individuals and teams to become self-organized which in turn improves quality and productivity.
- **Sustainable Work:** Good work culture includes peer respect, recognition of hard work, and freedom to bring new ideas (innovation). These will help in the long-term prospects of the organization.
- **Effective Communication:** Healthy work culture provides a platform for effective communication among the verticals and horizontals of the organization which helps in getting work done effectively.

### Responsibility of the employee and the employer in an organization

- Employers have a moral obligation to look out for the welfare of employees.
- Employees have moral obligations, and they go beyond giving a full day's work for a full day's pay. Loyalty goes both ways. Employees have moral duties to the organization, co-workers, and customers.
- Create a supportive environment. It required providing a working culture, which helps the employees to work in their ideas.
- Helpfully provide feedback. The institution should send regular updates regarding their work, so all employees remain energetic towards the next projects.
- Ask for their advice. The organization should consistently get their advice so new technology; new updates they can implement in the institution.
- Create opportunities for moving up the ladder. There is always a facility for upward movement so they remain active toward their next achievement.