

# THE IAS GAZETTE

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## APTI PLUS

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TH EDITION

## RUDRESHWARA TEMPLE

UNESCO's World Heritage Site



BRICS COUNTER  
TERRORISM ACTION PLAN



MARINE PLASTIC  
POLLUTION



US WAR  
IN AFGHANISTAN

A MONTHLY PERIODICAL FOR ASPIRANTS OF UPSC EXAMINATION



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## HEAD OFFICE &amp; KOLKATA CAMPUS

Office no. 803, "AMP Mall Vaisaakkhi", 8th floor,  
Salt Lake Sector - II, Salt Lake City - AG 112,  
Kolkata-700091,  
Ph: +91-8820341777

## ELGIN ROAD

Elgin Chambers, 3rd Floor, Room No. 302,  
1A, Ashutosh Mukherjee Road, Kolkata-20  
Ph: (033)-40645777, +91-8100765577

## BHUBANESHWAR CAMPUS

Plot No. 2280, Biju Pattanaik College Road,  
Jaydev Vihar, Bhubaneswar, Odisha-751013  
Phone: 099383 86166

## E-mail

theiasgazette@gmail.com

## Website

www.aptiplus.in | www.iasgyan.in

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## GENERAL STUDIES - I

### SWAMI VIVEKANANDA

### GS-I MODERN HISTORY

#### Context

- The Nation remembered Swami Vivekananda, on his death anniversary.

#### Key Facts

- Disciple of:** Ramakrishna Paramhansa
- Founder of:** Ramakrishna Mission (1897), Ramakrishna Math, Vedanta Society of New York
- Philosophy:** Advaita Vedanta
- Literary works:** Raja Yoga (1896), Karma Yoga (1896), Bhakti Yoga (1896), Jnana Yoga, My Master (1901), Lectures from Colombo to Almora (1897)
- He was responsible for the **revival of Hindu spiritualism** and established Hinduism as a revered religion on world stage.
- His **message of universal brotherhood and self-awakening remains relevant** especially in the current backdrop of widespread political turmoil around the world.
- The Ramakrishna Mission undertook various forms of social service like establishing and running school, colleges and hospitals, propagation of practical tenets of Vedanta through conference, seminars and workshops, initiating relief and rehabilitation work across the country.
- He introduced Hinduism at the Parliament of the World's Religions in Chicago in 1893.
- He **harmonized the East and the West, religion and science, past and present**.
- He believed that working for social change requires energy and spirit.
- Hence, he asked the youth to work on both - mental energy and physical fitness.
- What Vivekananda wanted from the youth was '**muscles of iron**' and '**nerves of steel**'. **He advised the youth to 'Serve God in man'**.
- Swami Vivekananda suggested to rebuild the Indian society, education was the primary means for empowering the people.
- Vivekananda called for a nationwide renovation with the ideals of 'tyaga' or sacrifice and 'seva' or selfless service, the most imperative aspects of shaping the life of young people.
- Swami made the point that this way of life is what can be called '**spiritual pursuit**'.
- His vision of India was that of a transformed society inspired by dignity, freedom and individuality and rooted in strength, love and service.

#### Some important quotes by Vivekananda

- Arise, awake and do not stop until the goal is reached.*
- We are what our thoughts have made us; so take care about what you think. Words are secondary. Thoughts live; they travel far.*
- Truth can be stated in a thousand different ways, yet each one can be true.*
- Superstition is our great enemy, but bigotry is worse. If superstition enters, the brain is gone.*
- We want that education by which character is formed, strength of mind is increased, the intellect is expanded, and by which one can stand on one's own feet.*

### ASHADHI BIJ

### GS-I CULTURE & HERITAGE

#### Context

- Prime Minister, Shri Narendra Modi has greeted the people on the auspicious occasion of Ashadhi Bij, the Kutchi New Year.

#### About

- Ashadi Beej is observed on the second day of the Shukla Paksha or waxing phase of moon in Ashada month.
- It is the Kutchi New Year observed in the Kutch region in Gujarat.
- Ashadi Beej is a celebration of rains.
- During Ashadhi-beej, farmers check the moisture in the atmosphere to help predict which crop would do best in coming monsoon.

#### List of New Year Festivals in India

Calendar	Festival name	Region / Communities / Religion
Lunar	Ugadi	Andhra Pradesh, Telangana, Karnataka
Lunar	Gudhi Padwa	Maharashtra, Goa
Lunar	Navreh	Kashmir
Lunar	Ashadhi Bij	Kutch
Lunar	Balipratipada	Gujarat, Rajasthan



<b>Lunar</b>	<u>Cheti Chand</u>	<u>Sindhi</u>
<b>Lunar</b>	Chaitra Navaratri (Hindu Lunar New Year)	North and Central India (Uttar Pradesh (Awadh, Braj, Bagelkhand), Madhya Pradesh (Bundelkhand, Malwa, Mahakoshal, Gird), Bihar (Bhojpur, Magadh), Chhattisgarh, Jharkhand)
<b>Solar</b>	<u>Mesha Sankranti / Vaisakhi</u> (Hindu Solar New Year)	North India (in Punjab, Haryana, Jammu, Uttar Pradesh, Himachal Pradesh, Uttarakhand (Garhwal and Kumaon), Nepal (Sikkim, Darjeeling))
<b>Solar</b>	<u>Puthandu</u>	Tamil Nadu
<b>Solar</b>	<u>Bisu Parba</u>	Tulu Nadu
<b>Lunar</b>	<u>Sajibu Cheiraoba</u>	Manipur
<b>Solar</b>	<u>Buisu</u>	Tripura
<b>Solar</b>	<u>Bwisagu</u>	<u>Bodoland</u>
<b>Solar</b>	<u>Bohag Bihu</u>	<u>Assam</u>
<b>Solar</b>	<u>Pana Sankranti</u>	<u>Odisha</u>
<b>Solar</b>	<u>Pahela Baishakh</u>	<u>West Bengal and the wider Bengal region</u>
<b>Solar</b>	<u>Jur Sital</u>	<u>Mithila</u>
<b>Lunar</b>	<u>Losong/Namsoong</u>	<u>Sikkim (Bhutia, Lepcha)</u>
<b>Lunar</b>	<u>Galdan Namchot</u>	<u>Ladakh</u>
<b>Lunar</b>	<u>Losar</u>	<u>Arunachal Pradesh (Monpa)</u>
<b>Lunar</b>	<u>Gyalpo Lhosar</u>	<u>Sikkim (Sherpa)</u>
<b>Lunar</b>	<u>Tamu Lhosar</u>	<u>Sikkim (Gurung)</u>
<b>Lunar</b>	<u>Sonam Lhosar</u>	<u>Sikkim (Tamang)</u>
<b>Solar</b>	<u>Sangken</u>	<u>Arunachal Pradesh (Khamti, Singpho, Khamyang, Tangsa), Assam (Tai Phake, Tai Aiton, Turung)</u>
<b>Solar</b>	<u>Bizhu</u>	<u>Chakma</u>
<b>Solar</b>	<u>Pateti</u>	<u>Parsis</u>
<b>Solar</b>	<u>Nowruz</u>	<u>Zoroastrians</u>

## KANWAR YATRA

## GS-I CULTURE & HERITAGE

### Context

- Uttarakhand is urging devotees to comply with the ban on this year's Kanwar Yatra amid Covid-19.

### About

- The Kanwar Yatra is a pilgrimage organised in the Hindu calendar month of Shravana.
- Saffron-clad Shiva devotees generally walk barefoot with pitchers of holy water from the Ganga or other holy rivers.
- Devotees carry the pitchers of holy water on their shoulders, balanced on **decorated slings known as Kanwars**.
- The water is used by the pilgrims to worship Shiva lingas at shrines of importance, include the 12 Jyotirlingas, or temples such as the Pura Mahadeva and Agharnath Temple in Meerut, Kashi Vishwanath Temple in Varanasi, Baidyanath Dham in Deogarh, Jharkhand etc.
- An important festival with similarities to the Kanwar yatra in North India, called the **Kavadi festival, is celebrated in Tamil Nadu, in which Lord Muruga is worshipped**.
- The legend of the ritual goes back to the 'samudra manthan', narrated in the Bhagavata Purana.

### Jyotirlingas

- A Jyotirlinga is a devotional representation of Shiva.
- There are twelve traditional Jyotirlinga shrines in India.



12 Jyotirlinga in India		
12-Jyotirlinga		
Jyotirlinga List with Location		
No	Jyotirlinga	Location
1	Somnath Jyotirlinga	Saurashtra, Gujarat
2	Mahakaleshwar Jyotirlinga	Ujjain, Madhya Pradesh
3	Omkareshwar Jyotirlinga	Shivpuri, Madhya Pradesh
4	Mallikarjuna Jyotirlinga	Srisailem, Andhra Pradesh
5	Vaishnath Jyotirlinga	Parli, Maharashtra
6	Kedarnath Jyotirlinga	Kedarnath, Uttarakhand
7	Nageshwar Jyotirlinga	Darukavanam, Gujarat
8	Trimbakeshwar Jyotirlinga	Nasik, Maharashtra
9	Bhimashankar Jyotirlinga	Pune, Maharashtra
10	Rameshwar Jyotirlinga	Rameshwaram, Tamil Nadu
11	Grishneshwar Jyotirlinga	Aurangabad, Maharashtra
12	Kashi Vishwanath Jyotirlinga	Varanasi, Uttar Pradesh

**LOKMANYA TILAK****GS-I MODERN HISTORY****Context**

- Prime Minister, Shri Narendra Modi has paid tributes to the great Lokmanya Tilak on his Jayanti.

**About**

- Bal Gangadhar Tilak was an Indian nationalist, teacher, and an independence activist.
- He was one third of the Lal Bal Pal triumvirate.
- Tilak was the **first leader of the Indian independence movement**.
- The British colonial authorities called him "**The father of the Indian unrest**."
- He was also conferred with the title of "Lokmanya", which means "accepted by the people (as their leader)".
- Mahatma Gandhi called him "**The Maker of Modern India**".

**Political Ideology**

- He advocated **Rashtriyatva (Nationalism)**. He joined the Indian National Congress in 1890.
- He belonged to the **extremist faction of the Indian National Congress** led Independence Movement.
- Tilak was one of the **first and strongest advocates of Swaraj ("self-rule")** and a strong radical in Indian consciousness.
- He is known for his quote in Marathi: "Swarajya is my birthright and I shall have it!".

**Educationist**

- Inspired by Vishnushastri Chiplunkar, **he co-founded the New English school for secondary education in 1880** with a few of his college friends, including Gopal Ganesh Agarkar, Mahadev Ballal Namjoshi and Vishnushastri Chiplunkar.
- Their goal was to improve the quality of education for India's youth.
- The team would then set up the **Deccan Education Society in 1884** to create a new system of education that taught young Indians nationalist ideas through an emphasis on Indian culture.
- The Society established the Fergusson College in 1885 for post-secondary studies. Tilak taught mathematics at Fergusson College.

**Freedom Movement**

- Following the Partition of Bengal, set out by Lord Curzon, Bal Gangadhar Tilak **propagated Swadeshi Movement** in 1905 and encouraged people to **boycott foreign goods**.
- Tilak reunited with his fellow nationalists and rejoined the Indian National Congress during the **Lucknow pact 1916**.
- Tilak helped found the **All India Home Rule League in 1916-18**, with G. S. Khaparde and Annie Besant.
- Tilak was **impressed by the Russian Revolution**, and expressed his admiration for Vladimir Lenin.
- He started his Home Rule League in **Maharashtra, Central Provinces, and Karnataka and Berar region**. Besant's League was active in the rest part of India.

**Religio-Political Views**

- Tilak sought to unite the Indian population for mass political action **through anti-British and pro-Hindu activism**.
- He sought justification in the original principles of the **Ramayana and the Bhagavad Gita**.
- He named this call to activism **karma-yoga or the yoga of action**.
- The events like the Ganapati festival and Shiv Jayanti were used by Tilak to build a national spirit.

**Books**

- "The Arctic Home in the Vedas",
- "The Orion",
- "Shrimadh Bhagvad Gita Rahasya" in prison at Mandalay.
- 'Indian Unrest' written by Valentine Chirol.

**Newspapers**

- Weeklies Kesari (Marathi)
- Mahratta (English)

**ASHADHA PURNIMA - DHAMMA CHAKRA DAY PROGRAMME****GS-I MODERN HISTORY****Context**

- 'Care with prayer' initiative of the International Buddhist Confederation is praiseworthy, said the Prime Minister in his message for the Ashadha Purnima-Dhamma Chakra Day programme.
- Application of Buddhist values and principles in addressing issues of global concern will help in healing the world and making it a better place, said the President of India, while addressing the annual Asadha Poornima – Dharma Chakra Day.

## About

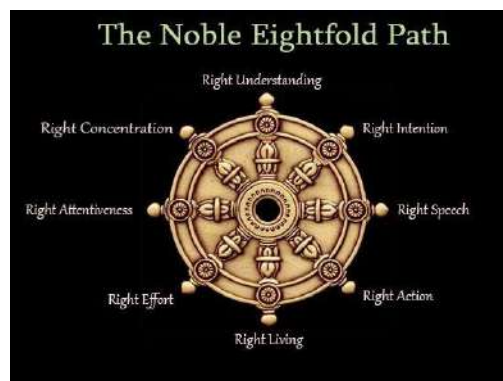
- The International Buddhist Confederation (IBC) in partnership with Ministry of Culture, celebrates Asadha Poornima as Dharma Chakra Day every year.
- The day marks **Buddha's first teaching after attaining Enlightenment to the first five ascetic disciples (pañcavargika) on the full-moon day of Asadha at 'Deer Park', Rājipatana in Sarnath, near Varanasi.**
- The teaching of Dharma chakra Pravartana Sutra is also known as the **First Turning of Wheels of Dharma.**
- It comprises of the **Four Noble Truths and Noble Eightfold Path.**
- The day is also observed as Guru Poornima by both Buddhists and Hindus as a day to mark reverence to their Gurus.
- It is the second most sacred day for Buddhists after the Buddha Poornima or Vesak.

## The Four Noble Truths

These truths are usually explained as follows:

- 1. All life is dukkha**
- 2. Dukkha is caused by tanha ('thirst', desire, attachment, craving)**
- 3. Tanha can be overcome, therefore dukkha can be overcome**
- 4. Tanha can be overcome by following the Eightfold Path**

**There is suffering.**  
**Suffering has an origin.**  
**Suffering can cease.**  
**There is a path out of suffering.**



## Relevance of teachings of Buddha amid the Pandemic

- "Buddha" denotes one who has attained enlightenment and had a sense of awakening to build a **peaceful, harmonious and just society.**
- The Buddha's assurance **of putting an end to suffering**; his emphasis on universal compassion and non-violence; his message to pursue morality and moderation in all aspects of life, have inspired countless people **over the last 2600 years since his first sermon at Sarnath.**
- This universal appeal of Buddhism is due to its **logical, rational and simple answers to the fundamental problems faced by human beings across time and place.**
- The ongoing COVID pandemic bears testimony to the fact that the **complexities of the modern world carry with them more uncertainties and crises.**
- The threats of **bioterrorism, climate change, global warming, radicalism, extremism,** etc, are shaking the conscience of humanity.
- The Buddha's method of introspection and awakening shows the path in these troubling times.
- The Buddha's lesson of **"Atma Dipo Bhava" – every man can be a light unto himself,** a savior of himself through personal efforts – is apt to alter the individualist approach.
- The Buddhist approach of **righteous behaviour, wisdom, compassion, and the reduction of trishna (greed) offers a set of building blocks for a new world order.**
- In this world violence and conflict are minimized and **development takes place without degrading the natural resources.**
- The adoption of the "middle path" by avoiding extreme positions as taught by Buddha leads to **avoiding conflict, reconciliation of different viewpoints, and achieving consensus.**
- His eight-fold-path has not only transformed the spiritual landscape worldwide but also **encouraged ethical and sustainable social, political, and commercial practices.**
- It is due to the Buddhist values of compassion and the promotion of peaceful coexistence that the world is looking towards India with hope.
- His teachings find **reflection in the globally-accepted Gandhian ethos.**
- In the ongoing global fight against the corona pandemic, **India is leading from the front.**
- India has emerged as the pharmacy of the world by helping out the 123 needy countries** by supplying medical assistance.
- As **peace and sustainable development are interlinked,** the Buddha's prism can be the guiding lights to every single stakeholder from local to global institutions and leaders, to work together for promoting dialogue, harmony, and justice based on compassion and wisdom.
- Buddha Purnima is an apt moment amid this pandemic to reinforce our commitment to take determined action to relieve ourselves from conflicts, violence, and **strengthen the contemporary relevance of Vasudhaiva Kutumbakam.**

## International Buddhist Confederation

- International Buddhist Confederation is the **biggest religious Buddhist confederation,** based in Delhi.
- The architect of the International Buddhist Confederation is Lama Lobzang.
- This confederation is named as the first organization which unites Buddhists from the whole world.



## RUDRESWARA TEMPLE

## GS-I CULTURE & HERITAGE

### Context

- Rudreswara Temple, (also known as the Ramappa Temple) at Palampet, near Warangal in the state of Telangana has been inscribed on UNESCO's World Heritage list.
- This is India's 39th World Heritage Site.
- Liverpool has been stripped of its World Heritage status after a UN committee found developments threatened the value of the city's waterfront.

### About

- The temple was built by a Kakatiya General Recherla Rudra Reddy, during the period of the Kakatiya ruler Ganapati Deva in 13<sup>th</sup> century.
- The temple is a Sivalayam, where Lord Ramalingeswara is worshipped.
- Marco Polo, during his visit to the Kakatiya Empire, allegedly called the temple "the brightest star in the galaxy of temples".
- The temple is named after the sculptor Ramappa, who built it, and is perhaps the only temple in South India to be named after a craftsman who built it.
- The main structure is in a reddish sandstone, but the columns round the outside have large brackets of black basalt.
- The temple is carved with mythical animals or female dancers or musicians, and are "the masterpieces of Kakatiya art, notable for their delicate carving, sensuous postures and elongated bodies and heads".
- The roof of the temple is built with bricks, which are so light that they are able to float on water.



## INDIA'S 40TH WORLD HERITAGE SITE: DHOLAVIRA

## GS-I CULTURE & HERITAGE

### Context

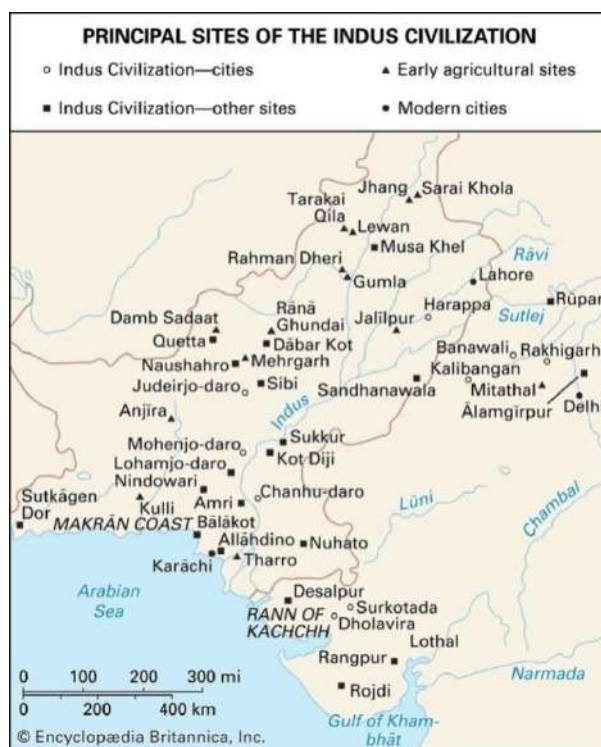
- Dholavira, a Harappan-era city in Gujarat, has been conferred the tag of UNESCO World Heritage Site.

### Details

- Dholavira is an example of a proto-historic Bronze Age urban settlement pertaining to the Harappan Civilization.
- It bears evidence of a multi-cultural and stratified society during the 3rd and 2nd millennia BCE.
- It is the first site of the ancient Indus Valley Civilisation (IVC) in India to get the tag.
- Dholavira and the Ramappa Temple were included in the list during the 44th session of the UNESCO's World Heritage Committee.
- Gujarat now has four world heritage sites –
  1. Dholavira,
  2. Champaner near Pavagadh,
  3. Rani ki Vav in Patan and the
  4. Historic city of Ahmedabad

### Distinct features of Dholavira

- After Mohen-jo-Daro, Ganweriwala and Harappa in Pakistan and Rakhigarhi in Haryana of India, Dholavira is the fifth largest metropolis of IVC.
- The site has a fortified citadel, a middle town and a lower town with walls made of sandstone or limestone instead of mud bricks in many other Harappan sites.
- A series of water reservoirs, outer fortification, two multi-purpose grounds, nine gates with unique designs, hemispherical structures like the Buddhist Stupas – as some of the unique features of the Dholavira site.
- Dholavira cites the origin of the Buddhist Stupas.
- Unlike graves at other IVC sites, no mortal remains of humans have been discovered at Dholavira.
- Remains of a copper smelter indicate of Harappans, who lived in Dholavira, knew metallurgy.



- Traders of Dholavira used to source copper ore from present-day Rajasthan and Oman and UAE and export finished products.
- It was also a hub of manufacturing jewellery made of shells and semi-precious stones, like agate and used to export timber.
- Beads peculiar to the Harappan workmanship have been found in the royal graves of Mesopotamia, indicating Dholavira used to trade with the Mesopotamians.

#### Decline of Dholavira

- Its decline coincided with the collapse of Mesopotamia, indicating the integration of economies.
- Harappans, who were maritime people, lost a huge market, affecting the local mining, manufacturing, marketing and export businesses once Mesopotamia fell.
- From 2000 BC, Dholavira entered a phase of severe aridity due to climate change and rivers like Saraswati drying up.
- Because of a drought-like situation, people started migrating toward the Ganges valley or towards south Gujarat and further beyond in Maharashtra.
- In those times, the Great Rann of Kutch, which surrounds the Khadir island on which Dholavira is located, used to be navigable, but the sea receded gradually and the Rann became a mudflat.

#### Other Harappan sites in Gujarat

- Lothal, on the bank of Sabarmati river of Ahmedabad district, is another prominent site of IVC in Gujarat.
- It was excavated between 1955 and 1960 and was discovered to be an important port city of the ancient civilisation, with structures made of mud bricks.
- From a graveyard in Lothal, 21 human skeletons were found.
- Foundries for making copperware were also discovered.
- Ornaments made of semi-precious stones, gold etc. were also found from the site.
- Rangpur on the bank of Bhadar river was the first Harappan site in Gujarat to be excavated.
- Rojdi, Prabhas, Lakhabaval in Jamnagar, and Deshalpar in Bhuj are among other Harappan sites in the state.

#### World Heritage Sites in India

- A World Heritage Site is a landmark or area with legal protection by an international convention administered by the United Nations Educational, Scientific and Cultural Organization (UNESCO).
- World Heritage Sites are designated by UNESCO for having cultural, historical, scientific or other form of significance.
- India has 40 world heritage sites that include 32 Cultural properties, 7 Natural properties and 1 mixed site.
- India has the sixth largest number of sites in the world.

#### Cultural (32)

- |   |   |
|---|---|
| 1. Agra Fort (1983)   | 18. Jaipur City, Rajasthan (2019)   |
| 2. Ajanta Caves (1983)  | 19. Khajuraho Group of Monuments (1986)   |
| 3. Archaeological Site of Nalanda Mahavihara at Nalanda, Bihar (2016) | 20. Mahabodhi Temple Complex at Bodh Gaya (2002)  |
| 4. Buddhist Monuments at Sanchi (1989)                                | 21. Mountain Railways of India (1999,2005,2008)   |
| 5. Champaner-Pavagadh Archaeological Park (2004)                      | 22. Qutb Minar and its Monuments, Delhi (1993)  |
| 6. Chhatrapati Shivaji Terminus (formerly Victoria Terminus) (2004)   | 23. Rani-ki-Vav (the Queen's Stepwell) at Patan, Gujarat (2014)                                       |
| 7. Churches and Convents of Goa (1986)                                | 24. Red Fort Complex (2007)   |
| 8. Elephanta Caves (1987)   | 25. Rock Shelters of Bhimbetka (2003)   |
| 9. Ellora Caves (1983)  | 26. Sun Temple, Konârak (1984)  |
| 10. Fatehpur Sikri (1986)   | 27. Taj Mahal (1983)  |
| 11. Great Living Chola Temples (1987,2004)                            | 28. The Architectural Work of Le Corbusier, an Outstanding Contribution to the Modern Movement (2016) |
| 12. Group of Monuments at Hampi (1986)                                | 29. The Jantar Mantar, Jaipur (2010)  |
| 13. Group of Monuments at Mahabalipuram (1984)                        | 30. Victorian Gothic and Art Deco Ensembles of Mumbai (2018)  |
| 14. Group of Monuments at Pattadakal (1987)                           | 31. Rudreswara Temple of Telangana (2021)   |
| 15. Hill Forts of Rajasthan (2013)                                    | 32. Dholavira in Gujarat (2021)   |
| 16. Historic City of Ahmadabad (2017)                                 |   |
| 17. Humayun's Tomb, Delhi (1993)                                      |   |

#### Natural (7)

- |   |  |
|---|--|
| 1. Great Himalayan National Park Conservation Area (2014) | 5. Nanda Devi and Valley of Flowers National Parks (1988,2005) |
| 2. Kaziranga National Park (1985)                         | 6. Sundarbans National Park (1987)                             |
| 3. Keoladeo National Park (1985)                          | 7. Western Ghats (2012)  |
| 4. Manas Wildlife Sanctuary (1985)                        |  |

## Mixed (1)

1. Khangchendzonga National Park (2016)

### World Heritage Sites across the world

- The World Heritage List comprises **121 properties of Outstanding Universal Value**.
- Natural sites represent about 23% of this list, including 39 mixed (both cultural and natural) sites and 213 natural sites.
- Apart from India, countries like **Italy, Spain, Germany, China and France also have 40 such sites each**.
- **China is home to largest number of UNESCO world heritage sites in the world. It has 55 world heritage sites.**

### Benefits of a World Heritage Site designation

- It brings **international attention to the need for the preservation and conservation of the site**.
- It **brings tourism to the site**, with its accompanying economic benefits to the host country and local area.
- It can **provide funds for restoration, preservation, and training**. For example, in 2001, the Taliban destroyed two 6th century, 150-ft. statues of Buddha carved into the mountainside in the Bamiyan Valley in Afghanistan. The site has received more than \$4 million from UNESCO to help with reconstruction and to hire a sculptor to re-carve some of the damaged stone.
- It **promotes national and local pride** in the natural and man-made wonders of the country.
- It promotes close ties with the United Nations system and the prestige and support it provides.
- It provides **access to global project management resources**.
- It facilitates creating partnerships between government, the private sector, and NGOs to achieve conservation goals.
- Once declared, the site becomes **protected under Geneva convention against destruction during a war**.

## SAMBANDAR AND VIJÑAPTIPATRAS

## GS-I CULTURE & HERITAGE

### Context

- The National Gallery of Australia announced Thursday it will return 14 works of art from its Asian art collection to the Indian government.

### Some significant works to be returned

- Chola dynasty (9th-13th centuries), The child-saint Sambandar, 12th century, purchased 1989
- Seated Jina, 1163 - Mount Abu region, Rajasthan
- Goddess Durga slaying the buffalo demon [Durga Mahisasuramardini], 12th-13th century, - Gujarat
- Letter of invitation to Jain monks; picture scroll [vijñaptipatra], c. 1835- Rajasthan

### About Sambandar

- Sambandar, also referred to as Thirugnana Sambandar was a Saiva poet-saint of Tamil Nadu who lived sometime in the 7th century CE. He was a contemporary of Appar, another Saiva poet-saint.
- According to the Tamil Shaiva tradition, he composed an oeuvre of 16,000 hymns in complex meters, of which 383 (384) hymns with 4,181 stanzas have survived.
- These narrate an intense loving devotion (bhakti) to the Hindu god Shiva.
- The surviving compositions of Sambandar are preserved in the first three volumes of the Tirumurai, and provide a part of the philosophical foundation of Shaiva Siddhanta.

### Vijñaptipatras (Letters)

- The custom of sending vijñaptipatras originated in Gujarāt-Kaṭhiāwād and was the practice followed by the Śvetāmbara Jaina community.
- The vijñaptipatras were written in Sanskrit and some parts in local dialect like Māiwādi and Gujarāti.
- The vijñaptipatras were chiefly meant to invite a Jaina āchārya or preceptor to stay with a Jaina saṅgha or community of a particular locality during the next chaumāsā, i.e., the period of the four months of the rainy season when touring is not allowed to a Jaina monk.
- While conveying the invitation, these letters were meant to atone for the acts of commission and omission of the members of a saṅgha and to convey their good wishes for the whole of humanity.
- They usually convey in pictorial form a description of the locality from which the invitation was issued, and these exciting pictures are valuable for various studies.



## WORLD ENDANGERED SITE

## GS-I CULTURE & HERITAGE

### Context

- Venice has been on UNESCO's heritage list since 1987, but the UN body warned last month of the need for "more sustainable tourism management", recommending that Venice be added to its endangered list.



## About

- The List of World Heritage in Danger is compiled by the United Nations Educational, Scientific and Cultural Organization (UNESCO) through the World Heritage Committee according to Article 11.4 of the World Heritage Convention, which was established in 1972 to designate and manage World Heritage Sites.
- The list is intended to increase international awareness of the threats and to encourage counteractive measures.
- Threats to a site can be either proven **imminent threats or potential dangers that could have adverse effects on a site.**
- Armed conflict and war, earthquakes and other natural disasters, pollution, poaching, uncontrolled urbanization and unchecked tourist development pose major problems to World Heritage sites.
- Dangers can be 'ascertained', referring to specific and proven imminent threats, or 'potential', when a property is faced with threats which could have negative effects on its World Heritage values.
- Note:** No Heritage Site in India is listed in the Endangered List.
- 52 properties in 26 countries which the World Heritage Committee has decided to include on the List of World Heritage in danger are as follows:

### Afghanistan

- Cultural Landscape and Archaeological Remains of the Bamiyan Valley (2003)
- Minaret and Archaeological Remains of Jam (2002)

### Austria

- Historic Centre of Vienna (2017)

### Bolivia (Plurinational State of)

- City of Potosí (2014)

### Central African Republic

- Manovo-Gounda St Floris National Park (1997)

### Côte d'Ivoire

- Mount Nimba Strict Nature Reserve (1992) \*

### Democratic Republic of the Congo

- Garamba National Park (1996)
- Kahuzi-Biega National Park (1997)
- Okapi Wildlife Reserve (1997)
- Virunga National Park (1994)

### Egypt

- Abu Mena (2001)

### Guinea

- Mount Nimba Strict Nature Reserve (1992) \*

### Honduras

- Río Plátano Biosphere Reserve (2011)

### Indonesia

- Tropical Rainforest Heritage of Sumatra (2011)

### Iraq

- Ashur (Qal'at Sherqat) (2003)
- Hatra (2015)
- Samarra Archaeological City (2007)

### Jerusalem (Site proposed by Jordan)

- Old City of Jerusalem and its Walls (1982)

### Kenya

- Lake Turkana National Parks (2018)

### Libya

- Archaeological Site of Cyrene (2016)
- Archaeological Site of Leptis Magna (2016)
- Archaeological Site of Sabratha (2016)
- Old Town of Ghadamès (2016)
- Rock-Art Sites of Tadrart Acacus (2016)

### Madagascar

- Rainforests of the Atsinanana (2010)

### Mali

- Old Towns of Djenné (2016)
- Timbuktu (2012)
- Tomb of Askia (2012)

### Mexico

- Islands and Protected Areas of the Gulf of California (2019)

### Micronesia (Federated States of)

- Nan Madol: Ceremonial Centre of Eastern Micronesia (2016)

### Niger

- Air and Ténéré Natural Reserves (1992)

### Palestine

- Hebron/ Al-Khalil Old Town (2017)
- Palestine: Land of Olives and Vines – Cultural Landscape of Southern Jerusalem, Battir (2014)

### Panama

- Fortifications on the Caribbean Side of Panama: Portobelo-San Lorenzo (2012)

### Peru

- Chan Chan Archaeological Zone (1986)

### Romania

- Roşia Montană Mining Landscape (2021)

### Senegal

- Niokolo-Koba National Park (2007)

### Serbia

- Medieval Monuments in Kosovo (2006)

### Solomon Islands

- East Rennell (2013)

### Syrian Arab Republic

- Ancient City of Aleppo (2013)
- Ancient City of Bosra (2013)
- Ancient City of Damascus (2013)
- Ancient Villages of Northern Syria (2013)
- Crac des Chevaliers and Qal'at Salah El-Din (2013)
- Site of Palmyra (2013)

### Uganda

- Tombs of Buganda Kings at Kasubi (2010)

### United Republic of Tanzania

- Selous Game Reserve (2014)

### United States of America

- Everglades National Park (2010)

### Uzbekistan

- Historic Centre of Shakhristabz (2016)

### Venezuela (Bolivarian Republic of)

- Coro and its Port (2005)

### Yemen

- Historic Town of Zabid (2000)
- Old City of Sana'a (2015)
- Old Walled City of Shibam (2015)

## TIDAL WAVES

## GS-I GEOGRAPHY

### Context

- Tidal wave washed away portion of Odisha Village.

### Decoding Tidal Waves through comparison Chart

	Tidal Wave	Tsunami
<b>About</b>	Tidal waves are waves created by the gravitational forces of the sun or moon, and cause changes in the level of water bodies.	Tsunami is a series of water waves caused by the displacement of large bodies of water. They generally have low amplitude but a high (a few hundred km long) wavelength. Tsunamis generally go unnoticed at sea but prominent in shallow waters or land.
<b>Cause</b>	Tidal waves are caused due to the gravitational force exerted by the sun and the moon.	Tsunamis are generated by earthquakes, erupting submarine volcanoes or due to any gas bubble erupting in the sea or ocean.
<b>Intensity</b>	The intensity of a changing tide is noticeable only in certain parts where it's high enough (As high as 55 feet in the Bay of Fundy, Canada).	Tsunamis can have wavelengths of up to 200 kilometres and can travel over 800 kilometres per hour. When tsunamis approach shallow water near land masses, the speed decreases, and the amplitude increases very rapidly.
<b>Location</b>	Tidal waves are phenomena seen most at coastal areas.	A majority of tsunamis (80%) occur in the Pacific Ocean but can occur in any large body of water if the underlying causes are present.
<b>Frequency</b>	Tidal waves occur daily at a coastal area.	Tsunamis occur only when there is seismic disturbance in large water bodies.

## CORONAL HOLES

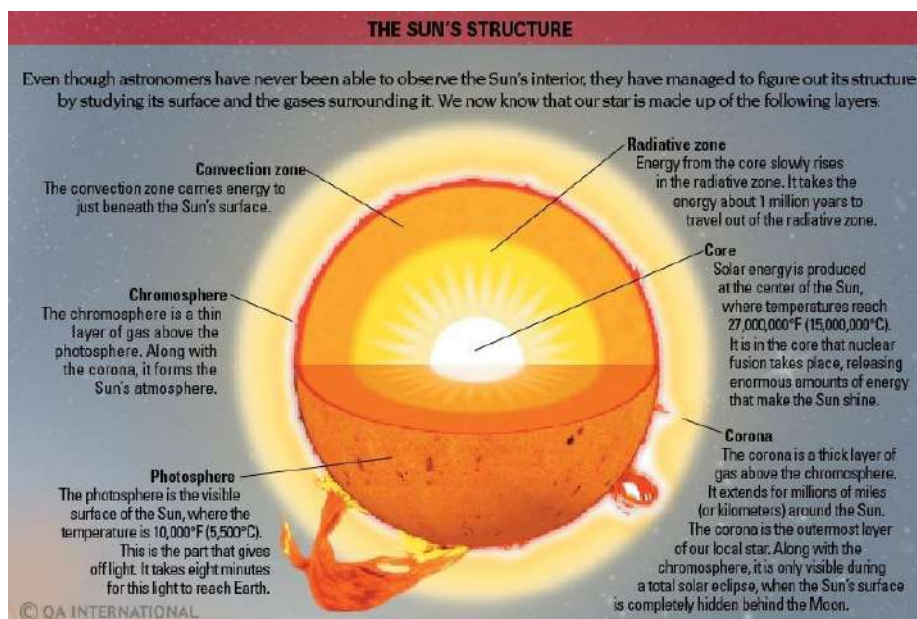
## GS-I GEOGRAPHY

### Context

- Scientists from the University of Graz (Austria), have developed a new neural network that can reliably detect coronal holes from space-based observations.

### About

- Coronal holes are areas in the Sun's atmosphere that appear dark in X-ray and ultraviolet images of the Sun.
- The plasma (electrified gas) in these regions of the Sun's corona (it's upper atmosphere) is cooler and denser than in other parts of the corona.
- They appear dark because plasma particles can escape along the magnetic field from the solar surface into interplanetary space, leaving a 'hole' in the corona.
- The escaping particles form high-speed solar wind streams that can eventually hit Earth, causing geomagnetic storms.
- The appearance and location of these holes on the Sun varies in dependence of the solar activity, giving us also important information on the long-term evolution of the Sun.



## ASTEROID RYUGU

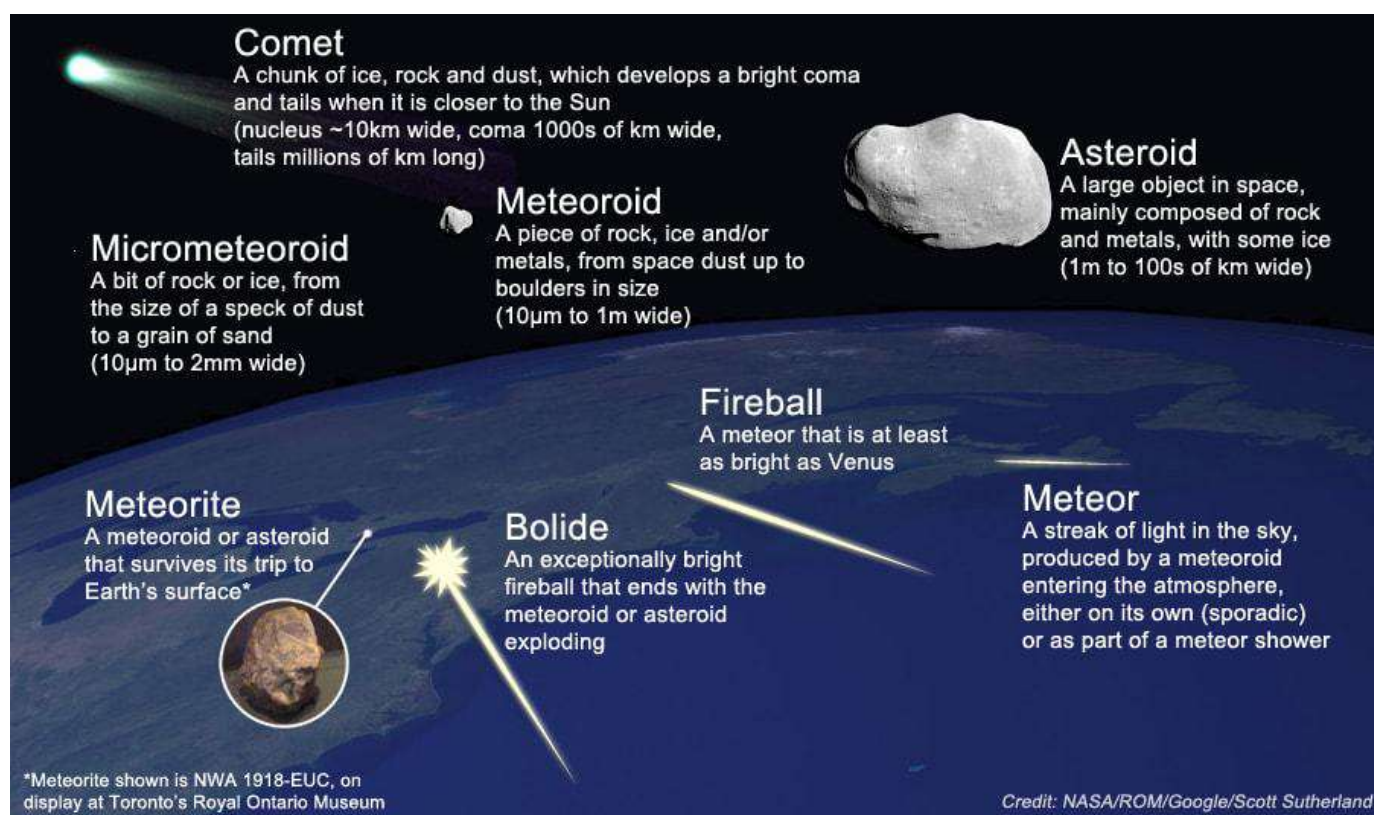
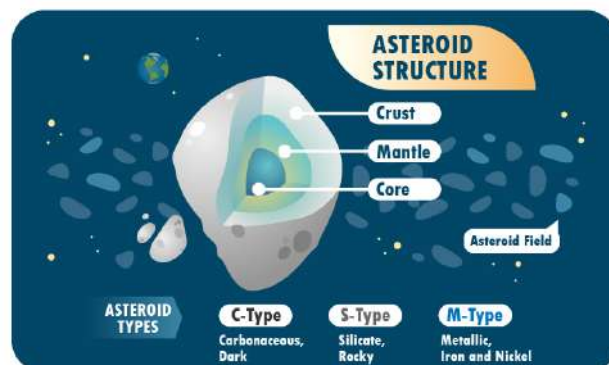
## GS-I GEOGRAPHY

### Context

- NASA recently received its first sample of asteroid Ryugu, which was returned to Earth last December by the Japan Aerospace Exploration Agency's (JAXA) Hayabusa2 spacecraft.

### About

- It is a near-Earth object and a potentially hazardous asteroid of the Apollo group.
- It measures approximately 1 kilometre in diameter.
- Ryugu was discovered in 1999 by the Lincoln Near-Earth Asteroid Research (LINEAR) project.
- Ryugu is orbiting the sun between Earth and Mars and occasionally crosses Earth's orbit.



## WHITE DWARF

## GS-I GEOGRAPHY

### Context

- Only a smidge bigger than the moon, a newfound white dwarf is the smallest of its kind known.

### About

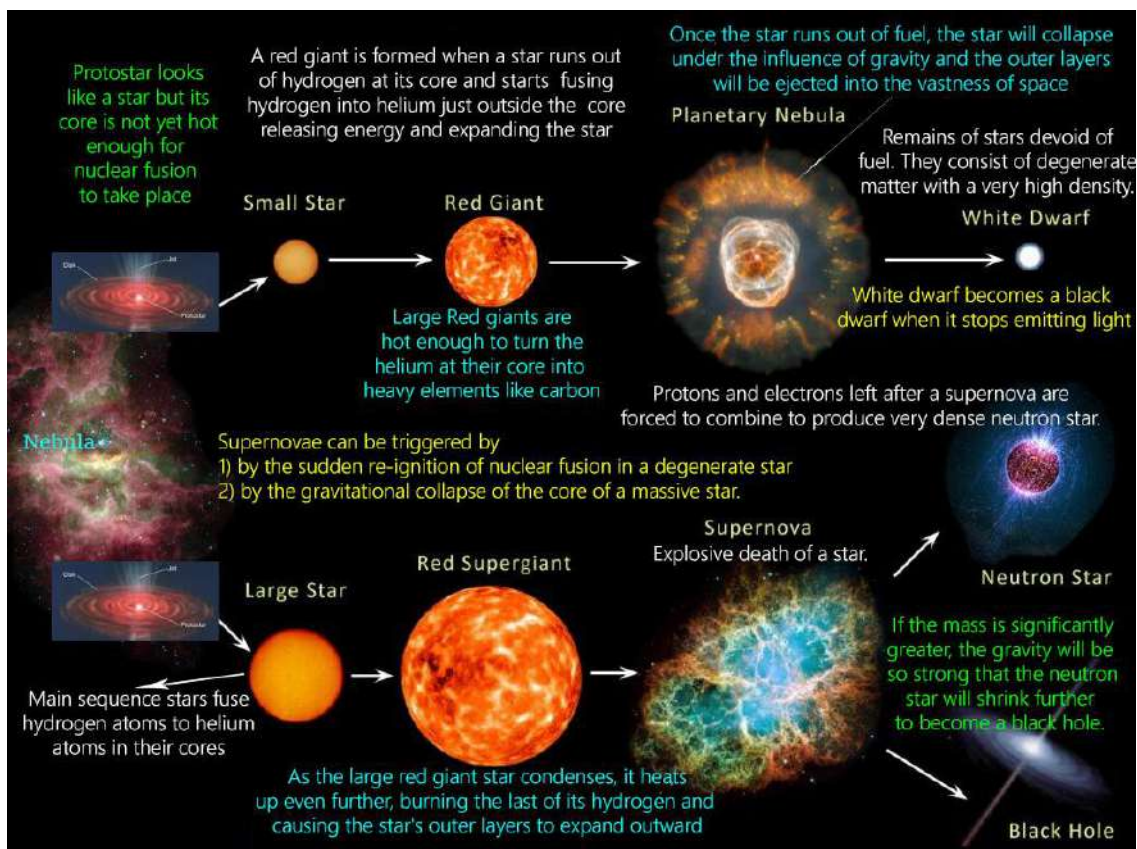
- A white dwarf is what stars like the Sun become after they have exhausted their nuclear fuel.
- Near the end of its nuclear burning stage, this type of star expels most of its outer material, creating a planetary nebula.
- Only the hot core of the star remains.
- This core becomes a very hot white dwarf, with a temperature exceeding 100,000 Kelvin.
- The white dwarf then cools down over the next billion years or so.
- Recently, soft X-ray and extreme ultraviolet observations has become a powerful tool in the study the composition and structure of the thin atmosphere of these stars.
- A typical white dwarf is half as massive as the Sun, yet only slightly bigger than Earth.
- A white dwarf is 200,000 times as dense as the Earth.



- This makes white dwarfs one of the densest collections of matter, surpassed only by neutron stars.

### Composition

- Usually, white dwarfs are composed of carbon and oxygen (CO white dwarf).
- Neon Magnesium
- Helium white dwarf may also form.



### Neutron Stars

- Neutron stars are formed when a massive star runs out of fuel and collapses.
- The very central region of the star – the core – collapses, crushing together every proton and electron into a neutron.
- Neutron stars are the smallest and densest currently known class of stellar objects.
- Many neutron stars are undetectable because they simply do not emit enough radiation.
- A handful of neutron stars have been found sitting at the centers of supernova remnants quietly emitting X-rays.
- The two general classes of non-quiet neutron stars are – pulsars and magnetars.

## HEAT DOME

## GS-I GEOGRAPHY

### Context

- Canada and parts of United States are experiencing extreme temperatures, due to which hundreds of people have died.
- The weather is due to heat dome, a climate phenomenon behind sudden rise in temperatures.
- The abnormal heat wave caused the temperature in the country to rise to 49.5 degrees Celsius, an all-time record.

### What is a heat dome?

- A heat dome occurs when the atmosphere traps hot ocean air like a lid or cap.
- The phenomenon begins when there is a strong change (or gradient) in ocean temperatures.
- In the process known as convection, the gradient causes more warm air, heated by the ocean surface, to rise over the ocean surface.
- As prevailing winds move the hot air east, the northern shifts of the jet stream trap the air and move it toward land, where it sinks, resulting in heat waves.

### How long does a heat dome last?

- A heat dome typically lasts a week.

### Effects of heat domes

- Temperatures rise to unbearably high, leading to sudden fatalities.
- The trapping of heat can also damage crops, dry out vegetation and result in droughts.
- The heat domes can also act as fuel to wildfires, which destroy a lot of land area in the US every year.

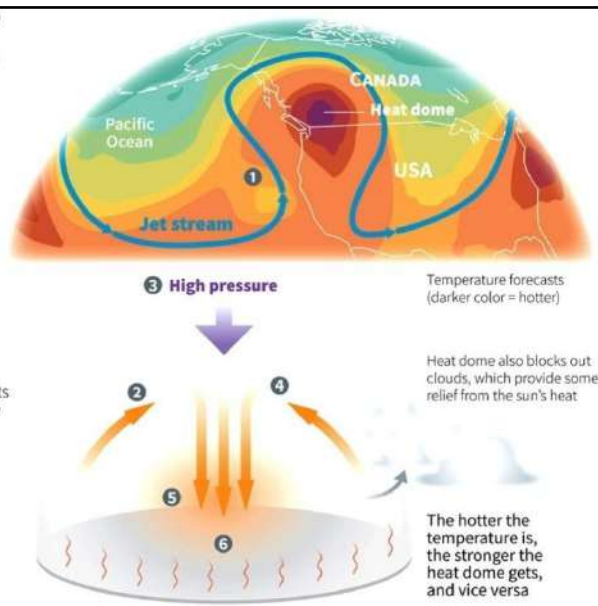
### Climate change and heat domes

- Weather scientists have been highlighting the effects of rising temperature (climate change) on more extreme heat waves.
- Average US temperatures have increased since the late 19th century – **Experts**
- The western Pacific Ocean's temperatures have increased in the past few decades and are relatively more than the temperature in the eastern Pacific.
- This strong change in ocean temperature from the west to the east is the reason for the heat dome.
- In decades to come, the climate scientists expect more days of severe heat wave.

### The 'heat dome'

Occurs when the atmosphere traps hot ocean air like a lid or cap

- 1 In summer, the **jet stream** (which moves the air) shifts northward
- 2 Hot and stagnant air expands upwards
- 3 Strong and **high-pressure** atmospheric conditions combine with influences from La Nina act like a dome or cap
- 4 In a process known as **convection**, hot air attempts to escape but high pressure pushes it back down
- 5 Under the dome, the air sinks and **compresses**, releasing more heat
- 6 As winds move the hot air east, the jet stream traps the air where it sinks, resulting in **heat waves**



## GREEN HYDROGEN

## GS-I GEOGRAPHY

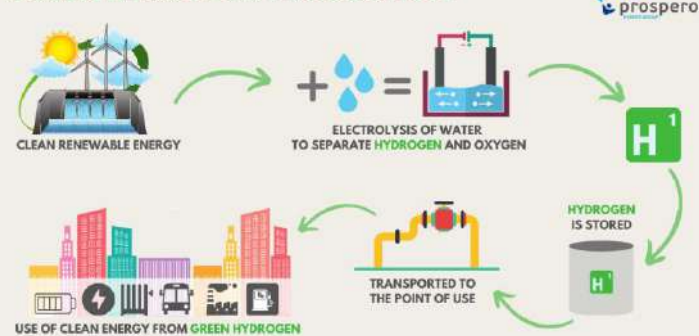
### Context

- According to the International Renewable Energy Agency (IRENA), hydrogen will make up 12% of the energy mix by 2050.

### 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**.

### GREEN HYDROGEN PRODUCTION



### Green hydrogen production

- Hydrogen can also be produced **by the electrolysis of water** (using an electric current to break water, H<sub>2</sub>O, into its component elements of hydrogen and oxygen).
- If this electric current is **produced by a renewable source** (e.g. Solar PV or a wind turbine), the clean hydrogen produced is known as green hydrogen.

### Green hydrogen Status

- **Less than 1% of hydrogen** produced in the world is green hydrogen.
- India consumes about six million tonnes of hydrogen every year. This could increase to 28 million tonnes by 2050.
- India has favorable geographic location and 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**.
- Green hydrogen currently costs or Rs 371-446, which is nearly triple the cost of grey hydrogen.
- The price will decrease further as production and sales increase.

### Significance

- Under the Paris Climate Agreement, India pledged to reduce the emission intensity of its economy **by 33-35 per cent from 2005 levels by 2030**.

### Kinds of Hydrogen

Hydrogen is most likely the energy of the future. However, it takes a lot of energy to produce and the question is what kind of energy is used to produce it.

**Brown Hydrogen**  
Derived from process of coal gasification that produces synthesis gas containing a mixture of carbon dioxide, carbon monoxide, hydrogen, methane and ethylene. A highly polluting substance.

**Grey Hydrogen**  
Obtained from natural gas. It's production generates large amounts of carbon dioxide. It is the cheapest process today but carbon taxes may make it more costly in the near future.

**Blue Hydrogen**  
Also produced by hydrocarbons but the emissions are captured and sequestered in the process. This process is slower and costly but offers promise for the future since it will avoid carbon tax strategies.

**Green Hydrogen**  
It is not created by fossil fuels, instead from the hydrolysis of water by means of electricity obtained from renewable sources like wind and solar. The cost of this hydrogen is dropping at a phenomenal rate and offers promise to make hydrogen the fuel of the near future.



- Our ability to produce large quantities of green hydrogen will play a major role in providing an alternative to fossil fuels as we transition to low emissions and work towards a clean, healthy environment.
- Through the use of green hydrogen, we can foresee a sustainable future in handling increased demand of clean energy.

**The International Renewable Energy Agency (IRENA)** is an **intergovernmental organisation** mandated to facilitate cooperation, advance knowledge, and promote the adoption and sustainable use of renewable energy. It is the first international organisation to focus exclusively on renewable energy, addressing needs in both industrialised and developing countries. It entered into force on 8 July 2010. The agency is headquartered in Masdar City, Abu Dhabi. IRENA is an official United Nations observer.

## MOON WOBBLE

## GS-I GEOGRAPHY

### Context

- Sometimes, the moon seems to move in mysterious ways. It is mostly circles and ovals. But there is also something else — a so-called wobble — animating those rotations and revolutions. According to a recent study, the phenomenon is expected to lead to more flooding here on Earth in the middle of the next decade.

### About

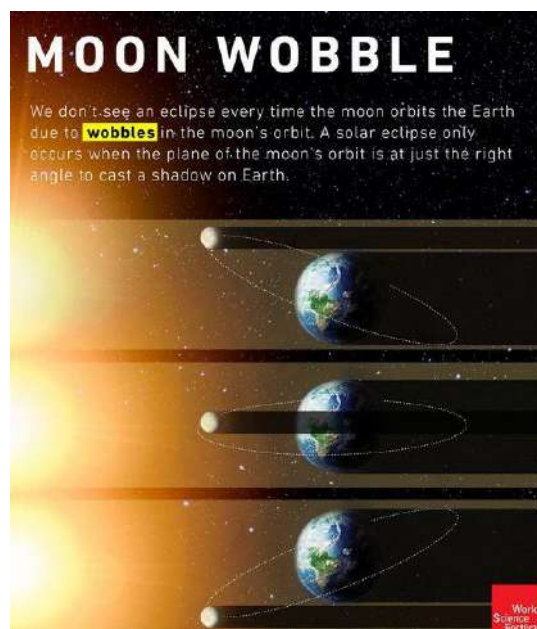
- The moon wobble is nothing but a regular swaying in the moon's orbit.
- It was first documented way back in 1728.
- This wobble takes over an 18.6-year period to complete, and continues in a cyclic fashion.

### Impact

- The moon wobble **impacts the gravitational pull of the moon, and therefore, indirectly influences the ebb and flow of tides here on the Earth**.
- Each wobble cycle has the power to amplify and suppress the tides on Earth.
- One half of the 18.6-year cycle suppresses the tides, which means that the high tides get lower, while the low tides get higher than normal.
- Once this cycle completes, the situation flips — in the subsequent cycle, the tides are amplified, with high tides getting higher and low tides, lower!
- The lunar cycle is expected to shift again by mid-2030, and in the coming phase, the tides will amplify once again.

### Moon wobble and climate change

- The upcoming changes in the lunar cycle will pose a serious threat, as the amplified high tides coupled with the rising sea levels will make the risk of flooding far greater across all coastal regions of the globe.
- The study predicts that the high tide-associated floods—also known as nuisance floods or sunny day floods—may occur in clusters that could last for months or even for longer periods!



## TYPHOON IN-FA

## GS-I GEOGRAPHY

### Context

- Typhoon In-fa has moved to Shanghai and continued to lash the city after making landfall at the nearby island-city of Zhoushan.

### Details

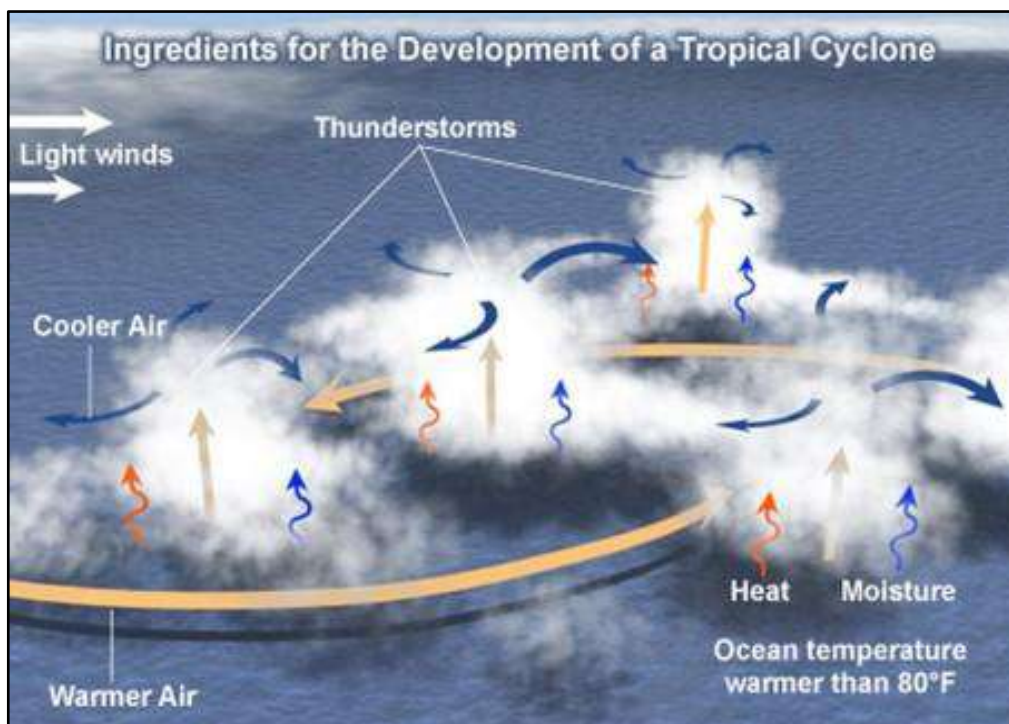
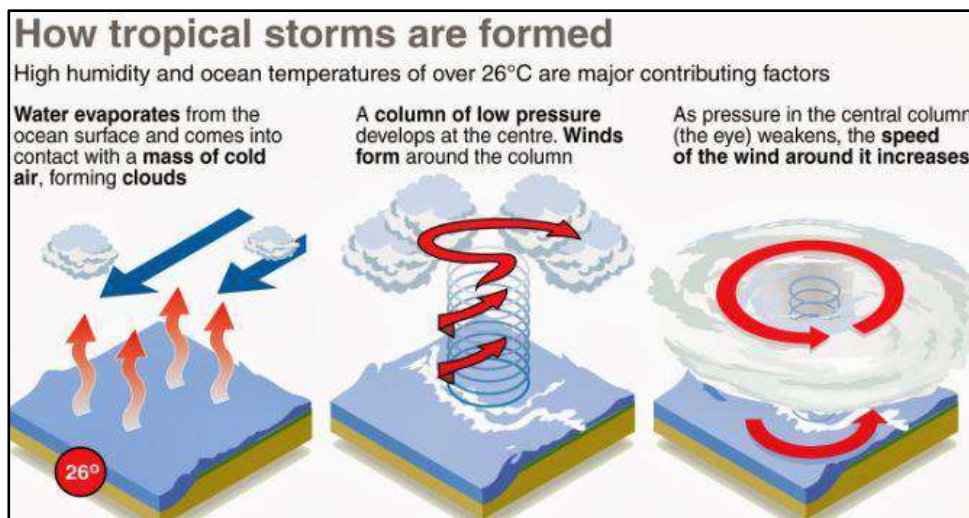
- A severe Tropical Storm In-fa is known as a Tropical Storm Fabian in the Philippines.
- Storm In-Fa is officially the 7th tropical storm of the 2021 Pacific typhoon season.
- It will be the third typhoon after Category 5 Surigae (mid-April) and Category 1 typhoon Champi (late June).

Category	Wind speeds
5	More than 157 MPH
4	From 130 to 156 MPH
3	From 111 to 129 MPH
2	From 96 to 110 MPH
1	From 74 to 95 MPH



## Tropical Storms

- Hurricanes, cyclones and typhoons are all types of tropical storms. But are given different names depending on where they appear.
- **Hurricanes** are tropical storms that form over the North Atlantic Ocean and Northeast Pacific.
- **Cyclones** are formed over the South Pacific and Indian Ocean.
- **Typhoons** are formed over the Northwest Pacific Ocean.



## Favorable Conditions for Tropical Cyclone Formation

- Large sea surface with temperature higher than 27° C,
- Presence of the Coriolis force enough to create a cyclonic vortex,
- Small variations in the vertical wind speed,
- A pre-existing weak low-pressure area or low-level-cyclonic circulation,
- Upper divergence above the sea level system,

## What has fueled the In-fa storm?

- Favorable conditions under the MJO over the Pacific Basin have helped the storm to intensify since its birth in the Philippine Sea.
- The sea surface temperatures across the western Pacific Ocean are extremely warm, even hot in places this summer.
- A large portion of the Philippine Sea and the South China Sea is very hot with sea surface water temperatures 30 to nearly 32 °C (86-88 °F) in some spots.
- This is \*extremely\* supportive of healthy fuel for the deep convective storms.

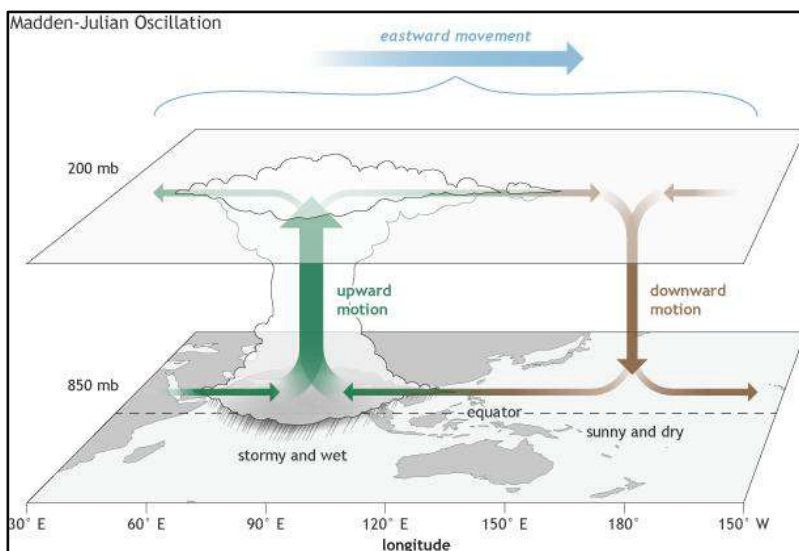
- Strongly anomalous sea temperature often leads to the explosive development of deep storms that develop well-organized tropical cyclones.

### Sea Temperature Anomaly

- Most of the western Pacific remains with well above-average sea waters.
- Sea waters are also warm further west across the South China Sea and towards the Indian Sea.
- But the **highest sea surface temperature anomalies are observed around Japan and across the Northwest Pacific.**
- These very warm seas again coincide with another tropical factor that has a huge effect on tropical cyclone activity worldwide. It is known as the MJO – The Madden-Julian Oscillation.

### What is the MJO wave?

- The Madden-Julian Oscillation (MJO) is the major fluctuation in tropical weather on weekly to monthly timescales.
- The MJO can be characterized as an **eastward moving 'pulse' of cloud and rainfall near the equator that typically recurs every 30 to 60 days.**
- It's a traversing phenomenon and is **most prominent over the Indian and Pacific Oceans.**
- And the intensity of the MJO wave has recently increased over the Western Pacific and lead to the formation of Typhoon In-Fa.
- The MJO has two parts, one side is the enhanced rainfall (we call it the wet phase) and the other side is the suppressed rainfall (we call it a dry phase).
- This means that there are increased storms with a lot of rainfall on one side and reduced storm potential and drier weather on the other side.
- The wet phase leads to diverging (ascending) air parcels while the dry phase brings converging (descending) air parcels.
- This horizontal movement of the air is referred to as the Velocity Potential (VP) in the tropics.



### How does MJO affect Indian Monsoon?

- The journey of MJO goes through eight phases.
- When it is over the Indian Ocean during the Monsoon season, it brings good rainfall over the Indian subcontinent.
- On the other hand, when it witnesses a longer cycle and stays over the Pacific Ocean, MJO brings bad news for the Indian Monsoon.
- Basically, it is linked with enhanced and suppressed rainfall activity in the tropics and is very important for the Indian monsoonal rainfall.
- It has also been established that if the periodicity of MJO is nearly 30 days then it brings good rainfall during the Monsoon season.
- If it is above 40 days then MJO doesn't give good showers and could even lead to a dry Monsoon.
- Shorter the cycle of MJO, better the Indian Monsoon.** Simply because, it then visits the Indian Ocean more often during the four month-long period.
- Presence of MJO over the Pacific Ocean along with an El Nino is detrimental for Monsoon rains.

## CLOUD BURST

## GS-I GEOGRAPHY

### Context

- On July 28, at least seven people were killed, 17 injured and over 35 missing after a cloudburst hit a remote village of Jammu and Kashmir.

### What is a cloudburst?

- Cloudbursts are **short-duration, intense rainfall events over a small area.**
- According to the India Meteorological Department (IMD), it is a weather phenomenon with unexpected **precipitation exceeding 100mm/h over a geographical region of approximately 20-30 square km.**

### Meteorological Factors behind the Cloudburst

- Atmospheric pressure, atmospheric temperature, rainfall, cloud water content,



cloud fraction, cloud particle radius, cloud mixing ratio, total cloud cover, wind speed, wind direction, and relative humidity during the cloudburst, before as well as after the cloudburst.

- Relative humidity and cloud cover is at the maximum level with low temperature and slow winds.

### Findings

- Several studies have shown that climate change will increase the frequency and intensity of cloudbursts in many cities across the globe.
- World Meteorological Organization** noted that there is about a 40% chance of the annual average global temperature temporarily reaching 1.5°C above the pre-industrial level in at least one of the next five years.
- It added that there is a 90% likelihood of at least one year between 2021 and 2025 becoming the warmest on record and dislodge 2016 from the top rank.
- As temperatures increase the atmosphere can hold more and more moisture and this moisture comes down as a short very intense rainfall for a short duration probably half an hour or one hour resulting in flash floods in the mountainous areas and urban floods in the cities.
- Also, there is evidence suggesting that globally short duration rainfall extremes are going to become more intense and frequent.
- With warming climate or climate change, we will witness these cloudburst events in increased frequency in the future.

## PERMAFROST

## GS-I GEOGRAPHY

### Context

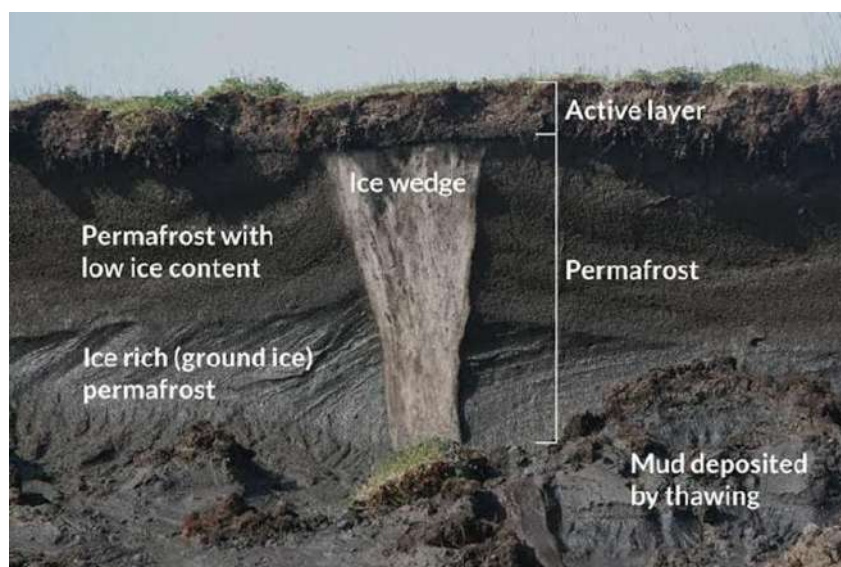
- The environment for permafrost in Daisetsu Mountains in Japan is projected to decrease significantly.

### About Daisetsu Mountains

- The Daisetsuzan Volcanic Group is a volcanic group of peaks arranged around the 2 kilometres wide caldera in Hokkaidō, Japan.

### 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.





## GENERAL STUDIES - II

### PRINCIPLE OF NATURAL JUSTICE

### GS-II POLITY

#### Context

- Chief Justice opined, a judge should focus on law, precedents and facts of a case and, on the other, the human aspect.

#### Background

- The principles of natural justice and procedural or administrative fairness are at the foundation of ombudsman decision making.
- natural justice is the historical foundational concept that has been expanded to include the more modern principles of procedural fairness and administrative fairness.
- Essentially, natural justice requires that a person receive a fair and unbiased hearing before a decision is made that will negatively affect them.

#### About Philosophy of Natural Justice

- The three main requirements of natural justice that must be met in every case are: adequate notice, fair hearing and no bias.
- Sometimes, all three of these concepts are grouped together as "the right to a fair hearing."
- The notice requirement means that the people affected by the decision must be told about the important issues and be given enough information to be able to participate meaningfully in the decision-making process.
- The fair hearing requirement means that the people affected are given a reasonable opportunity to present their point of view and to respond to facts presented by others, and that the decision-maker will genuinely consider what each person has told them when making the decision.
- The no bias requirement means that the person making the decision must act impartially when considering the matter, and must not have any relationships with anyone that could lead someone to reasonably doubt their impartiality.

#### Principles of Natural justice in Administrative decision

- The US Supreme court in Baker Case gave the following components where the Natural justice of an administrative decision has been challenged in the courts.
- The nature of the decision
- The nature of the statutory scheme
- The importance of the decision to the individual affected
- The legitimate expectations of the parties
- The choice of procedure made by the decision-maker.

#### The Humanism approach of judiciary must include

- Accessible** – particularly to those without legal representation and those who are disadvantaged in their ability to understand and exercise their own rights and obligations.
- Timely** – decisions must be rendered within a reasonable amount of time.
- Cost-effective** – the cost of the services, which are borne by the industry, must be proportionate to the nature of the disputes.

#### Basic components of Humanistic decisions

- Consider the matters that are within the mandate of courts.
- Listen to both parties and give them the opportunity to respond to any allegations against them.
- Remain independent and impartial against external pressures.
- Honour the litigants legitimate expectations based on the commitments.
- Make all decisions in good faith .
- Reasonable Decisions and accountable decisions.
- Transparent review and complaint procedures.
- Evaluate processes and methodologies on an ongoing basis and make improvements and correct mistakes whenever they are identified.

### ALL INDIA JUDICIAL SERVICES

### GS-II POLITY

#### Context

- Government has spearheaded a consultative process for the creation of the All India Judicial Service (AIJS) in 2019.

#### Current Process of appointment of Judges

- It is appointed by recommendations of a collegium system.

- Collegium system is the system of appointment and transfer of judges that has evolved through judgments of the Supreme Court, and not by an Act of Parliament or by a provision of the Constitution.
- The Supreme Court collegium is headed by the Chief Justice of India and comprises four other seniormost judges of the court.
- The government's role is limited to getting an inquiry conducted by the Intelligence Bureau (IB) if a lawyer is to be elevated as a judge in a High Court or the Supreme Court.
- It can also raise objections and seek clarifications regarding the collegium's choices, but if the collegium reiterates the same names, the government is bound, under Constitution Bench judgments, to appoint them as judges.

### Challenges to Collegium system

- The system is non-transparent, since it does not involve any official mechanism or secretariat.
- It is seen as a closed-door affair with no prescribed norms regarding eligibility criteria or even the selection procedure.
- There is no public knowledge of how and when a collegium meets, and how it takes its decisions.
- It violates the principle of separation of power as judges are appointing themselves. It has led to tyranny of unelected.
- There is the lack of a written manual for functioning, the absence of selection criteria, the arbitrary reversal of decisions already taken, the selective publication of records of meetings.

### All India Judicial services

- The AIJS envisages **recruiting officers for subordinate courts through a national entrance test.**
- Those who **clear the pan-India test would be appointed by high courts and the State governments**

### Constitutional perspective

- **Article 233(1) of the Constitution** states that appointments, posting and promotion of, district judges in any State shall be made by the Governor of the State in consultation with the corresponding High Court.
- **Article 312 (1)** empowers Parliament to make laws for the creation of one or more All-India Services, including an AIJS, common to the Union and the States.
- **The 42nd Constitutional amendment** in 1976 shifted the domain of administration of justice constitution and organisation of all courts, except the Supreme Court and the High Courts into the concurrent list from the previous state list.

### Benefits associated with AIJS

- **Accountability and transparency:** A career judicial service will make the judiciary more accountable, more professional, and arguably, also more equitable.
- **Infuses objectivity in recruitment:** Open competitive exams would bring objectivity in the recruitment process of the judiciary by reducing discretion of the selection panel.
- **Securing the best talent:** AIJS will ensure a transparent and efficient method of recruitment to attract the best talent in India's legal profession. Also the prospects of promotion to High Courts, for lower judiciary, at an early age would increase as they currently join at much later age than judges from the Bar.
- **Uniformity across the country:** Quality of adjudication and the dispensation of justice would attain uniformity across the country by ironing out state-level differences in laws, practices and standards.
- **Checks pendency of cases:** Streamlined and objective recruitment process would ensure regular stream of good quality judicial officers for vacant posts, which would reduce pendency of cases.
- **Representative Character:** AIJS will improve the judiciary's representative character by drafting in trained officers from deprived sections of society especially women and SC/STs.
- **Overall Efficiency:** A well-organized judicial service can attract talent from our law schools and young, well-informed judicial officers at the level of additional district judge will make a difference. As ADJs and district judges, they can help make the judicial system move faster and more efficiently.
- **Inclusion of vulnerable sections:** AIJS will necessarily increase representation of marginalized communities in the Indian judiciary .

### Challenges Associated

- **Vernacular language problem:** Courts up to District and Sessions Judge transact their business in State language and AIJS officers would find difficult to acclimatize themselves with local language, thus hampering dispensation of justice..
- **Problem of local laws and indigeneous customs:** AIJS does not take into account the problem of local laws, practices and customs which vary widely across States, thus increasing the costs of training for judges selected through the mechanism.
- **Young age of the selected candidates:** one of the objections was whether a person who will clear the exam in the age of 24-25 would have enough experience to be in the position of a District Judge.
- **Dilute separation of power under Article 50 of Indian Constitution:** If the control over state judiciary is transferred to the Union government, through AIJS, by removing control of the High Court as provided under Article 235 currently, independence of judiciary would be undermined.
- **Violation of Federalism:** Under the envisaged AIJS, the fundamental power of the States to make rules and govern the appointment of district judges would rest with the union government. It will enhance power of the union government.
- **Issues with the subordinate judiciary:** Another aspect of concern is that the operationalization of the AIJS could **severely curtail the promotional avenues of the subordinate judiciary.**

- **Social issues:** Many states provide higher representation to the marginalised sections than compared to the provided by the central government. AIJS may not provide sufficient representation to bring these states on the same platform.

#### Way Forward

- **The feasibility of the AIJS in the current context requires to be studied**, especially when reliance is placed upon archaic reports of the Law Commission.
- It is **for the Union to dispel doubts and at the same time give wings** to the aspirations of all stakeholders when implementing the proposal.

## PREVENTIVE DETENTION

## GS-II POLITY

#### Context

- Former top officials have asked an end to the “misuse” of the “draconian” preventive detention law, the National Security Act.

#### Constitutional Provisions for preventive detention

- **Article 22(3) provides that if the person who has been arrested or detained under preventive detention laws then the protection** against arrest and detention provided under article 22 (1) and 22 (2) shall not be available to that person.
- A person may be **taken to preventive custody only for 3 months at the first instance**. If the period of detention is extended beyond 3 months, the **case must be referred to an Advisory Board consisting of persons with qualifications for appointment as judges of High Courts**.
- **The detainee is entitled to know the grounds of his detention**. The state, however, may refuse to divulge the grounds of detention if it is in the public interest to do so. Needless to say, this power conferred on the state leaves scope for arbitrary action on the part of the authorities.
- **The detaining authorities must give the detainee earliest opportunities for making** representation against the detention.

#### About preventive detention

- Under these laws, **executive officers such as District Magistrates and Commissioners of Police are empowered to pass orders for arrest and to take persons into custody**.

#### Laws on Preventive detention

- **Maintenance of Internal Security Act (MISA):** It gave the State apparatus the right to arrest and detain a citizen for up to one year without due judicial process.
- **National Security Act :** This act empowers the Central Government and State Governments to detain a person to prevent him/her from acting in any manner prejudicial to the security of India, **the relations of India with foreign countries, the maintenance of public order, or the maintenance of supplies and services essential to the community it is necessary** so to do.
- The act also gives power to the governments to detain a foreigner in a view to regulate his presence or expel from the country.
- **COFEPOSA (Conservation of Foreign Exchange and Prevention of Smuggling Activities Act):** It is an Act of Parliament passed in 1974 during administration of Indira Gandhi, trying to retain foreign currency and prevent smuggling.

#### Objective of the Preventive Detention

- The objective of Preventive Detention is **not to Punish but to prevent the detenu from doing something, which is prejudicial to the State. The satisfaction of the concerned authority is a subjective satisfaction in such a manner**. It comes within any of the grounds specified like
  - o Security of the State,
  - o Public Order,
  - o Foreign affairs,
  - o Services essential to the community.

#### Supreme court judgement on preventive law

##### Ahmed Noor Mohamad Bhatti V. State of Gujarat, AIR 2005

- While upholding the validity of the power of the Police under section 151 of the Criminal Procedure **Code 1973 to arrest and detention of a person without a warrant to prevent the commission of a Cognizable offense ruled that a provision could not be held to be unreasonable as arbitrary and therefore unconstitutional merely because the Police official might abuse his authority**.
- **Preventive detention act is a necessary tool in the hands of the executive which authorizes** them to arrest any person from whom reasonable suspicion arises that he can commit any cognizable offense or his **activities are prejudicial to law and order to state and the police** can arrest that person without warrant.



### Issues with Preventive detention

- Preventive detention processes come without many of the hallmarks of procedural fairness that we take for granted in regular criminal law.
- While all arrests and detentions under preventive detention laws do undergo some subsequent checks, this scrutiny remains almost exclusively executive-based.
- There is **no judicial oversight** where detention beyond three months is not sought.
- **No publicly available orders or judgments** are published about the ultimate decision.
- **There is no right to legal assistance for detainees.**
- The legal framework governing this preventive project comes along with reduced procedural **compliances and quick outcomes only makes preventive detention laws** more tantalising for security-minded officers.
- It has **been exercised arbitrarily by executive.**
- **HARASSMENT OF ORDINARY PEOPLE:** It is a source of harassment for ordinary people, as they can be detained even for a year even without any consular access being provided to them.
- **BREACH OF RIGHTS:** It leads to breaching of rights of the people who are illegitimately detained either due to political reasons or due to any other reason.
- **DRACONIAN NATURE:** The law by its very nature is draconian in nature and empowers the police to run as per its whims and fancies.

## INDIAN CONSTITUTIONAL FEDERALISM

## GS-II POLITY

### Context

- Delimitation can hinder the axis of cooperative federalism.

### About Federalism

- Essentially, federalism is an **institutional mechanism to accommodate two sets of politics** – one at the regional level and the other at the national level.
- Each government is autonomous in its sphere. The Indian Constitution provides for a federation with a strong centre.
- It **does not use the word 'federation' and has described India as a "Union of States"**, which implies the 'cooperative' nature with certain unitary features.
- The **Union, State, and Concurrent lists demarcate the responsibilities and functions** of the two.
- Federalism has to continuously maintain a difficult balance between the Centre and the States with decentralization of resources, strengthening them all by bringing the weaker leg forward, creating healthy competition among the States in the form of
- Health, Sanitation Rankings, etc.

### Objective of the Federalism

- The idea is to develop a culture and a set of values and virtues like mutual trust, and a spirit of cooperation among the people and policies.
- It is about acknowledging and celebrating unity as well as diversity, respecting the boundaries as well as transcending the boundaries.
- The most common analogy given for such a structure is 'the brain' and 'the body parts'.
- The way they work in tandem with perfect synchronization is the spirit, mind, and soul of federalism as well.
- Each organ is dependent on the other for smooth functioning and growth of the entire body. National unity cannot be built by streamlining differences.
- Such forced unity only generates greater social strife and alienation and tends finally to destroy unity.
- A responsive polity sensitive to diversities and the demands for autonomy can alone be the basis of a cooperative federation.

### Indian federalism

- India's **diversity made federalism inevitable, but, fearing fissiparous tendencies** among States that had never been a single political unit, they also created a strong centre.
- In India, any clash between federal principles and democracy will inevitably also have **linguistic, religious and cultural implications and may result in new** forms of sub-regional chauvinism.
- **Article 1 of the Indian Constitution says, India is a Union of States** not a federation of states
- No separate State citizenship or State Constitutions.
- Upper house seat allocation is with respect to population and not equity.
- National powers over the States aren't restricted.

### American federalism

- **National powers over the States were limited.**
- Each **State regardless of size had two seats in the Senate**, giving smaller States an outsized role in national governance.

- **Presidents are elected by electoral votes**, which means they must win States rather than the total national population.
- **State can confer citizenship if the centre denies.**

### Need of the hour

- A diverse and large country like India requires a proper balance between the six pillars of federalism: autonomy of states, national integration, centralisation, decentralisation, nationalisation, and regionalisation.
- Extreme political centralisation or chaotic political decentralisation can both lead to the weakening of Indian federalism.
- The right balance would prevent the Union government from repressing state autonomy beyond a point while guarding the states against divergence that can threaten national unity.
- Controlling these extremes is a challenge, as federalism must reconcile the need for national unity on the one hand, and on the other, regional autonomy.

## JUDICIAL ACTIVISM

## GS-II POLITY

### Context

- Honorable judge of the Supreme Court opines the importance of judicial activism.

### Background

- The **concept of judicial activism originated, coined** and developed in the USA.
- Judicial activism denotes the proactive role or assertive role played by the judiciary to force the other two executive organs of the government (legislature and) to discharge their **constitutional duties and protect rights of the citizens.**
- **Judicial activism can be defined as the process of lawmaking by judges.**
- **It means an active interpretation of existing legislation by a judge.**
- It's a **philosophy of judicial decision-making whereby judges** allow their personal views about public policy, among other factors, to guide their decisions
- Concept of judicial activism is closely related to the concept of Public Interest Litigation (PIL).
- Judicial activism of the Supreme Court **and high courts is the major factor for the rise of PIL i.e., PIL is an outcome of judicial activism.**
- In fact, **PIL is the most popular form (or manifestation) of judicial activism.**
- Judicial activism is not backed by the Constitution; it is a product devised solely by the judiciaries

### Role of Judicial Activism

- If the government isn't able to fulfill its duty **then it results in erosion of the confidence in the Constitution and democracy amongst the citizens.**
- There is a tremendous pressure **on judiciary to step in aid for the ensuring masses as citizens of the country look up to the judiciary** for the protection of their rights and freedoms
- Judicial legislation fills the judicial vacuum in certain areas.

### Initiators or catalyst of Judicial Activism

- **Judicial activism more often doesn't occur from the side of courts but there** are certain activists who activate judicial activism
- Eg - Civil Rights Activists, Civil Rights Activists, Environmental groups etc.

### Views against Judicial Activism

- **Democratic fears-** How can judiciary overplay the democratic elected government which is the voice of the people
- **Epistemic fears-** Do judges have enough knowledge in economic matters which led to cancellation of allocation of coal block (2G Scam) , environment matters which led to cancellation of translocation of Cheetah.

### Supreme Court Observations on Judicial Activism

- The remedy is not in **the judiciary taking over the legislative or the executive** functions, because that will violate the delicate balance of power enshrined in the Constitution ( Article 50 of DPSP )
- **Judiciary has neither the expertise nor the resources to perform these functions** of executive and legislature
- If that, the other two (Executive and legislature) organs are not doing their jobs properly. Even assuming this is so, **the same allegations can be made against the judiciary too because there are cases pending in courts** for half-a-century
- If the legislature or the executive was not functioning properly, it was for the people to correct the defects by exercising universal adult franchise and peaceful demonstrations.

### Recent instances of Judicial Activism

- **Prashanthbhusan and kunalkamran contempt case** - Indiscriminate exercise of contempt power
- **Arun Gopal v. Union of India:** The Supreme Court fixed timings for bursting of crackers on diwali and prohibited the use of non-green fireworks, although there are no laws to that effect.

- **Golaknath case:** The questions, in this case, were whether the amendment is a law; and whether Fundamental Rights can be amended or not
- **KesavanandaBharati case:** This judgement defined the basic structure of the Constitution.
- **M.C. Mehta vs Union of India case-** Where SC directed that no BS-IV vehicle should be sold after March 31, 2020 and only BS-VI vehicles should be sold after that.
- **Subhashkashinath vs state of maharashtra case-** SC amended the Scheduled Castes and Tribes (Prevention of Atrocities) Act, 1989
- A Judge mandated that every student in Tamil Nadu must study Tirukkural.
- Justice SR Sen of Meghalaya High Court said India should have declared itself a Hindu country, like Pakistan declared itself a Islamic nation.
- The Supreme Court has directed the most complex engineering of interlinking rivers in India when water disputes are not in the original jurisdiction of the Supreme Court.
- The court has passed orders banning the pasting of black film on automobile windows.
- The court has ordered the exclusion of tourists in the core area of Tiger reserve.

## JUDICIAL INDEPENDENCE

## GS-II POLITY

### Context

- The Supreme court of India reaffirmed the importance of judicial independence.

### Background

- An **independent judiciary is necessary for a free society and a constitutional** democracy.
- It ensures **the rule of law and realization of human rights and also the prosperity** and stability of a society.
- The **independence of the judiciary is normally assured through the constitution** but it may also be assured through legislation, conventions, and other suitable norms and practices.
- Following the Constitution of the United States, **almost all constitutions lay down at least the foundations, if not the entire edifices, of an independent** judiciary.
- Ultimately the independence of the judiciary depends on the totality of a favorable environment created and backed by all state organs, including the judiciary and the public opinion.
- The independence of the judiciary also needs to be constantly guarded against unexpected events and changing social, political, and economic conditions.
- India has given to itself a liberal constitution in the Euro-American traditions which aims at establishing a free and democratic society.

### What judicial independence means

- The independence of the judiciary is not a new concept but its meaning is still imprecise.
- The starting and the central point of the concept is apparently the doctrine of the separation of powers.
- Therefore, primarily it means the independence of the judiciary from the executive and the legislature.
- But that amounts to only the independence of the judiciary as an institution from the other two institutions of the state without regard to the independence of judges in the exercise of their functions as judges.
- The independence of the judiciary does not mean just the creation of an autonomous institution free from the control and influence of the executive and the legislature.
- The underlying purpose of the independence of the judiciary is that judges must be able to decide a dispute before them according to law, uninfluenced by any other factor.
- For that reason the independence of the judiciary is the independence of each and every judge.

### Need of judicial independence

- In democratic countries, the judiciary is given a place of great significance.
- The **architects of the Indian Constitution were conscious of the very significant and special role assigned to** the judiciary in the scheme of the Constitution.
- It was **envisaged as the organ for protecting the rights of the citizens, guaranteed under the Constitution.**
- There was the recognition that Judges, particularly the judges of the superior courts, who have been given the **power of judicial review of administrative and legislative actions, should function without fear or favour.**
- It is a **function of the courts to uphold the rule of law** and ensure that the government runs according to the law.
- In a country with a Written Constitution, **courts have the additional function of safeguarding the supremacy of the Constitution by interpreting** and applying its provisions and keeping all authorities within the constitutional framework.
- For the maintenance of the rule of law and fair judicial administration, an independent judiciary is of utmost importance.



## Provisions by Indian Constitution to ensure independence judiciary

### 1) Judicial Appointments:

- Independence and impartiality of the judiciary is the hallmark of democratic set-up of the government. Independence of the judiciary starts from appointment of judges.
- Article 124 deals with the appointment of Judges to the Supreme Court and Article 217 regarding appointment of Judges to High Courts.

### 2) Qualifications:

- The next issue which has a direct bearing on the Independence of judiciary is the quality of the person who is asked to serve in the courts. The quality of the judges depends on the conditions necessary for the appointment of judges.
- Article 124(3) prescribes qualifications of a person who can be appointed as a Judge of the Supreme Court
- The qualification of a High Court judge is set out in Article 217(2)

### 3) Salaries And Allowances

- The salaries and allowances of the judges is also a factor which makes the judges independent as their salaries and allowances are fixed and are not subject to a vote of the legislature Removal of Judges:
- In India, both the Supreme Court and High Court Judges are appointed by the President under Article 124 and 217, and they enjoyed a fixed tenure and are removable under Articles 124(4) and 217 on proved misbehaviour or incapacity after an impeachment motion passed by each house supported by a stipulated majority.
- No judge has been removed till now.

### 4) Transfer of Judges

- Article 222(1) empowers the President after consultation with the Chief Justice of India to transfer a judge from one High Court to another.
- The Constitution makes provisions for granting compensatory allowances when a judge is transferred from one High Court to another.
- The power of transfer of a judge vested with the President is not absolute.
- He takes into consideration two things:
  - Public interest
  - Effective consultation with the Chief Justice of India.

### 5) Power To Punish For Its Contempt

- The rationale behind Contempt of court is that courts must have the power to secure obedience to their judgements, in order to serve this purpose of administering justice.
- Contempt of Court can refer to both civil and criminal contempt.
- Contempt of Court finds a place in the Indian Constitution under Article 19(2), Article 129 and Article 215.
- According to Article 19(2) of the Constitution, contempt of Court is one of the grounds on which the State can legislate to place reasonable restrictions on freedom of speech.
- Article 129 of the Constitution of India says that the Supreme Court shall be a 'court of record'.
- Article 215 grants a similar status to the High Courts.

### 6) Prohibition On Practice After Retirement

- The Constitution debars the Judges of the Supreme Court from pleading or appearing before any court or tribunal or judicial authority in India after retirement.

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**RIGHT TO INFORMATION (RTI)****GS-II GOVERNANCE****Context**

- Armed attack on RTI Activist breaches the significance of RTI

**Background**

- The Right to information is one of the classic examples of epitome in legal activism which is by far one of the refined tools to ensure transparency in the governmental system.
- Right to Information Act, 2005 was promulgated in 2005 to promote transparency and accountability in the working of every public authority.
- A clear knowledge of the provisions of the Act to the Public Information Officers/First Appellate Authorities of the public authorities is key to the successful implementation of the Act.
- The RTI act defines what is information, and it depends on the various interpretations of the court. Information means any material in any form, including records, documents, memos, e-mails, opinions, advice, press releases, circulars, orders, logbooks, contracts, reports, papers, samples, models, data material held in any electronic form and information relating to any private body which can be accessed by a public authority under any other law for the time being in force.
- The era in which there are various instrumentalities to disclose information from the public scrutiny it is one of the most pragmatic ways to ensure transparency and act as a hindrance to the tyrannical and shady practices of the government.
- Information is something which is sacrosanct to a person's existence and also enumerated as a fundamental right in the Indian constitution.
- Transparency and accountability in administration is the sine qua non of participatory democracy.

**Jurisdiction on RTI**

- It covers all the constitutional authorities, including executive, legislature and judiciary.
- Any institution or body established or constituted by an act of Parliament or a state legislature.
- It is also defined in the Act that bodies or authorities established or constituted by order or notification of appropriate government including bodies "owned, controlled or substantially financed" by government, or non Government organizations "substantially financed, directly or indirectly by funds".

**Policy level Challenges to Right to information**

- In the long history of the RTI Act 2005 in India, there have been varied challenges to beat. Since British times, there are several laws that prohibited implementation of the right to information which includes:
  - Section 123 of the Indian Evidence Act 1872:** "No one shall be permitted to give any evidence derived from unpublished official records relating to any affairs of State, except with the permission of the officer at the head of the department concerned, who shall give or withhold such permission as he thinks fit."
  - The Official Secrets Act, 1923:** The Official secret Act 1923 is India's anti undercover work act control over from British colonization. It states clearly that action that involves serving an enemy state against India. It conjointly states that one cannot approach, inspect, or maybe jump over a prohibited government web site or space. Consistent with this Act, serving to the enemy state is often within the sort of human action a sketch, plan, a model of a politician secret, or of official codes or passwords, to the enemy. This law was the most important challenge in the history of RTI Act 2005 in India because it prohibited all public servants from disclosing any information to the public.
  - Rule 11 of The Central Civil Services (Conduct) Rules, 1964:** "No Government servant shall, except in accordance with any general or special order of the Government or in the performance in good faith of the duties assigned to him, communicate, directly or indirectly, any official document or any part thereof or information to any Government servant or any other person to whom he is not authorized to communicate such document or information."
  - Oath by the Public Servant: Before joining duty,** the public servant swears that the information is a state secret.
  - Archives Policy Resolution of 22 December 1972:** States that each one document is classified for thirty years and henceforth solely no confidential material is obtainable to a restricted variety of individuals. Even unclassified material can't be communicated to anyone outside the govt. without permission.

**International Activities**

- In the international arena the right to information is warmly welcomed in various international human rights documents.
- Some of them are**
  - The universal declaration of human rights.
  - The international covenant on economic, social & cultural rights.

**Challenges in the Implementation of the Act**

- Section 4 (1)(a) of the Act says that every public authority shall maintain all its records duly catalogued and indexed, and all records should be computerised. But this hasn't been done yet.

- Section 4 (2) of the Act says that every public authority should constantly endeavour to provide as much information suo-moto to the **public at regular intervals. But this remains an unfinished promise.**
- **Delays have been witnessed in appointments to higher posts**, including even the post of CIC lying vacant since August 2014 and were filled only in July 2015.
- **Political parties continue to remain outside the purview of the Act.**
- A large number of **appeals are pending with State and Central Information Commissions.** A report brought out by the RTI Assessment and Analysis Group (RAAG) in 2014 has shown a waiting period of around 60 years in Madhya Pradesh and about 18 years in West Bengal (based on current rates of pendency in Information Commissions).
- Those who **seek information on illegal construction, or alleged scams in social welfare schemes etc., face a threat to their life.** Commonwealth Human Initiative has observed that around
- **90 RTI activists have been killed since 2005.** The said Act does not provide any protection to RTI Activists.
- The **Government staff is not trained adequately to reply to RTI queries.** Besides, the colonial attitude of bureaucracy to withhold the information is acting as a barrier against disclosure.
- Section 8 of the Act allows disclosure of information if the more significant public interest is served. But many times, such **information is not disclosed by keeping it under the 'national security clause' of the Act. Recently the central government refused to disclose information related to Rafael deal under the 'national security and friendly relations with foreign countries' clause.**
- There **have been cases of misuse of RTIs by people** by filing frivolous and Vexatious Requests.
- In the **past 15 years of its enactment, only around 2% of Indians have filed the RTI application till 2018. Many people feel hesitant to approach the authority** to seek the information even if it is necessary.

### Second ARC recommendation

- The information which qualifies for the exemption given under RTI Act can only be given a security classification.
- Timeline: under the existing instructions, information once classified continues to be so without any time limit. In other countries, even war secrets are brought into the public domain after a lapse of a specific period, usually 30 years.
- Second ARC has **recommended that documents classified as 'top secret' and 'secret' should remain classified not exceeding 30 years.** Documents classified as 'confidential' and
- 'restricted' should remain classified not exceeding ten years. However, they can remain classified if their disclosure causes damage to the national interest, but the competent authority should give reasons in writing.
- Only officers of sufficient seniority should be empowered to classify documents. Second ARCs recommendation for officers:

## DAM SAFETY

## GS-II GOVERNANCE

### Context

- PANIC gripped people in the Cauvery basin area after a small wall at Krishnaraja Sagar Dam collapsed

### About the Dams

- Dams are artificial barriers on rivers which store water and help in irrigation, power generation, flood moderation, and water supply.
- In India, dams higher than 15 m or between 10 m and 15 m height that fulfil certain additional design conditions are called large dams.
- As of June 2019, India has 5,745 large dams (includes dams under construction). Of these, 5,675 large dams are operated by states, 40 by central public sector undertakings, and five by private agencies.
- Over 75% of these dams are more than 20 years old and about 220 dams are more than 100 years old.
- Most of these large dams are in Maharashtra (2394), Madhya Pradesh (906), and Gujarat (632).
- As a large amount of water may be stored in a dam's reservoir, its failure can cause large scale damage to life and property.
- Therefore, monitoring dam safety is essential.

### Monitoring of Dams

- The **Central Dam Safety Organisation, under the Central Water Commission (CWC), provides technical assistance** to dam owners, and maintains data on dams.
- The **National Committee on Dam Safety devices dam safety policies and regulations.**
- Currently, 18 states and four dam owning organisations have their own Dam Safety Organisations.
- CWC provides that each dam owner should carry out pre and post monsoon inspections (covering site conditions, dam operations) every year.
- However, as per a CAG report on flood forecasting, from 2008 to 2016, of the 17 states studied, only two had carried out such inspections.
- A **CWC Committee on Dam Safety (1986) had recommended unified safety procedures** for all dams and suggested a legislative framework for dam safety.



### Legal framework for monitoring of dams

- In 2007, Andhra Pradesh and West Bengal passed resolutions requesting Parliament to make a law on dam safety.
- Consequently, the Dam Safety Bill, 2010 was introduced in Lok Sabha under Article 252 (which allows Parliament to make laws on state subjects which will apply to those states that pass a resolution requiring such law).
- The 2010 Bill lapsed with the dissolution of the 15th Lok Sabha.
- The Dam Safety Bill, 2019 was introduced and passed by Lok Sabha in 2019.

### Dam Safety Bill 2019

- The Bill provides for the surveillance, inspection, operation, and maintenance of all specified dams across the country.
- These are dams with height more than 15 metres, or height between 10 metres to 15 metres with certain design and structural conditions.
- It constitutes two national bodies: the National Committee on Dam Safety, whose functions include evolving policies and recommending regulations regarding dam safety standards; and the National Dam Safety Authority, whose functions include implementing policies of the National Committee, providing technical assistance to State Dam Safety Organisations (SDSOs), and resolving matters between SDSOs of states or between a SDSO and any dam owner in that state.
- It also constitutes two state bodies: State Committee on Dam Safety, and State Dam Safety Organisation.
- These bodies will be responsible for the surveillance, inspection, and monitoring the operation and maintenance of dams within their jurisdiction.
- Functions of the national bodies and the State Committees on Dam Safety have been provided in Schedules to the Bill.
- These Schedules can be amended by a government notification.
- An offence under the Bill can lead to imprisonment of up to two years, or a fine, or both.

### Controversy on large dams

- Dam reservoirs cause water losses. This is believed as mainly a result of the considerable amount of evaporation losses from the huge sizes of surface areas of reservoirs.
- Large dams are generally justified by regional and/or national macro-economic benefits while their physical impacts are locally concentrated, mostly affecting those within the confines of the river valley and along the river reaches.
- The livelihoods of many millions of people also suffer because of the downstream effects of dams: the loss of fisheries, contaminated water, decreased amount of water, and a reduction in the fertility of farmlands and forests due to the loss of natural fertilizers and irrigation in seasonal floods. Dams also spread waterborne diseases such as malaria, leishmaniasis and schistosomiasis.
- According to the study conducted dams can stop regular annual floods but often fail to hold back exceptionally large floods. Eg- Recent floods in Kerala.
- Because dams lead people to believe that floods are controlled, they lead to increased development of floodplains.
- When a large flood does come, damages caused are often greater than they would have been without the dam.
- Some scientists do not consider hydropower as clean power because of the destruction of river ecosystems and its many social impacts.
- Internationally, private investors in power projects are largely avoiding large dams and prefer to invest in cheaper and less risky gas-fired power plants, solar and wind mills.

## THE CONSUMER PROTECTION ACT 2019

## GS-II GOVERNANCE

### Context

- Recently, government has come out with a list of proposed amendments to the Consumer Protection Act of 2019.

### Draft Rules

- The draft amendments propose banning of fraudulent flash sales and mis-selling of goods and services on e-commerce platforms.
- Ban on misleading users by manipulating search results, and appointment of chief compliance officer and resident grievance officer are some of the other amendments being proposed.
- E-commerce entities are also required to provide information not later than 72 hours of the receipt of an order from a government agency for prevention, detection and investigation and prosecution of offences under any law, as per the proposed amendments.
- It has also proposed 'fall-back liability' for every marketplace e-commerce entity to ensure that consumers are not adversely affected in the event where a seller fails to deliver goods or services due to negligent conduct by such seller.

### Challenges

- Some states have argued that proposed rules can disturb the state's business ecosystem, especially with regard to MSMEs and small entrepreneurs and will also limit the choices for consumers, rather than safeguarding their interest.

- The regulation of **these firms should actually come within the ambit of the Competition Commission of India.**
- There are a lot of other quality checks that these marketplaces put in place. There are consumer courts that cheated customers can access. **This just adds to the bureaucracy.**
- **There's not enough state capacity for implementing some of these rules.**

### Background

- The **Consumer Protection Bill, 2019 was introduced in Lok Sabha** by the Minister of Consumer Affairs, Food and Public Distribution in 2019.
- The Bill replaces the Consumer Protection Act, 1986.

### Key features of the bill

#### Definition of consumer

- A consumer is **defined as a person who buys any good or avails a service for a consideration.**
- It does not **include a person who obtains a goods for resale or a goods** or service for commercial purpose.
- It covers transactions through all modes including online, and online through electronic means, teleshopping, multi-level marketing or direct selling.

### Rights of consumers

- **Six consumer rights have been defined** in the Bill.

#### Six new consumer rights

- The **right to be protected against the marketing of goods, products or services which are hazardous to life and property.**
- The **right to be informed about the quality, quantity, potency, purity, standard and price of goods, products, or services** to protect the consumer against unfair trade practices.
- **The right to be assured, wherever possible, access to a variety of goods, products, or services at competitive prices.**
- The **right to be heard and to be assured that consumer's interests will receive** due consideration at appropriate fora.
- The **right to seek redressal against unfair trade practice or restrictive trade practices** or unscrupulous exploitation of consumers.
- The **right to consumer awareness.**

#### Central Consumer Protection Authority

- The central government **will set up a Central Consumer Protection Authority (CCPA) to promote, protect and enforce** the rights of consumers.
- It will regulate **matters related to violation of consumer rights, unfair trade practices, and misleading advertisements.**
- The **CCPA will have an investigation wing, headed by a Director-General, which may conduct inquiry or investigation into** such violations.

#### CCPA will carry out the following functions, including

- **Inquiring into violations of consumer rights, investigating and launching prosecution** at the appropriate forum
- Passing **orders to recall goods or withdraw services that are hazardous, reimbursement** of the price paid, and discontinuation of the unfair trade practices, as defined in the Bill
- Issuing **directions to the concerned trader/ manufacturer/ endorser/ advertiser/ publisher** to either discontinue a false or misleading advertisement, or modify it.
- Imposing penalties, and
- Issuing safety notices to consumers against unsafe goods and services.

#### Penalties for misleading advertisement

- The **CCPA may impose a penalty on a manufacturer or an endorser of up to Rs 10 lakh and imprisonment for up to two years** for a false or misleading advertisement. In case of a subsequent offence, the fine may extend to Rs 50 lakh and imprisonment of up to five years.

#### Role of Endorser

- **CCPA can also prohibit the endorser of a misleading advertisement from endorsing that particular product or service** for a period of up to one year.
- For **every subsequent offence, the period of prohibition may extend to three years.** However, there are certain exceptions when an endorser will not be held liable for such a penalty.

#### Consumer Disputes Redressal Commission

- Consumer Disputes Redressal Commissions (CDRCs) will be set up at the district, state, and national levels. A consumer can file a complaint with CDRCs in relation to:
  - Unfair or restrictive trade practices.
  - Defective goods or services.
  - Overcharging or deceptive charging
  - The ordering of goods or services for sale which may be hazardous to life and safety.
- Complaints against an unfair contract can be filed with only the State and National
- **Appeals from a District CDRC will be heard by the State CDRC.**
- Appeals from the State CDRC will be heard by the National CDRC.

- Final appeal will lie before the Supreme Court.

#### Jurisdiction of CDRCs

- The **District CDRC will entertain complaints where the value of goods and services does not exceed Rs one crore.**
- **The State CDRC will entertain complaints when the value is more than Rs one crore but does not exceed Rs 10 crore.** Complaints with value of goods and services over Rs 10 crore will be entertained by the National CDRC.

#### Product liability

- Product liability means the liability of a product manufacturer, service provider or seller to compensate a consumer for any harm or injury caused by a defective good or deficient service.
- To claim compensation, a consumer has to prove any one of the conditions for defect or deficiency, as given in the Bill.

## SOCIAL AUDIT OF SOCIAL SECTOR SCHEMES

## GS-II GOVERNANCE

#### Context

- The Ministry of **Social Justice and Empowerment has formulated a scheme, namely Information Monitoring, Evaluation and Social Audit (IMESA)** in FY 2021-22.
- Under this **scheme, Social Audits are to be conducted for all the schemes of the Department starting FY 2021-22.**
- These social audits are done through Social Audit Units (SAU) of the States and National Institute for Rural Development and Panchayati Raj.

#### About Social Audit

- A **social audit is a way of measuring, understanding, reporting and ultimately improving** an organization's social and ethical performance.
- A **social audit helps to narrow gaps between vision/goal and reality, between efficiency and effectiveness.**
- It is a **technique to understand, measure, verify, report on and to improve** the social performance of the organization.
- **Social auditing creates an impact upon governance.**
- It values the voice of stakeholders, including marginalized/poor groups whose voices are rarely heard. Social auditing is taken up for the purpose of enhancing local governance, particularly for strengthening accountability and transparency in local bodies.

#### Advantage of social audit

- It **helps in Managing and measuring non financial** activities.
- **Monitor internal and external consequences of the departments** social and commercial interest
- It **leads to Understanding of the administrative system from the perspective** of the people: How the process and rules affect the citizens for whom these systems have been developed.
- It **provides In depth scrutiny and analysis of the working of the public utility** vis a vis its social relevance.
- **Organisation can assess its social, economic and environmental** impacts through social audit.
- It **act as tool of feedback which can lead to improvement in policy** implementation.
- It allows Verification of deliverables thus bringing focus on outcomes and outputs rather than inputs.
- It is a **Safeguards against corruption and frauds.**

#### Limitation of Social audit

- It is Highly localised in nature. It is conducted at the gram sabha level and its findings can't be generalized in nature.
- It has been Sproadic and adhoc in nature. Most of the social audit depends upon the will of executive to conduct.
- Social audits haven't resulted into penalizing the erring officer which has led to decline in interest of these audits.
- documentation for the social audits do not provide consistent evidence.

#### Way Forward

- It should be brought into mainstream for all the social sector schemes
- It Can be mainstreamed for undertaking compliance audit for all the social sector schemes related to rules, frauds and corruption.
- Government should Facilitate CAG association with local auditors for certification of Gram Sabha accounts.
- Government should Develop partnership with all the major social auditors and bring out the standard procedure for social auditing
- CAG should provide capacity building of social auditors
- Synergy with CAG will help in dissemination of the role of CAG of India in appraisal and monitoring of public sector programme.
- There is a need to Give recognition to the social auditors



### Examples of social audit

#### *Social audit in Jharnipalli Panchayat, Agaipur block, Bolangir district, Orissa*

- In October 2001, the gram sabha members of Jharnipalli Panchayat conducted a oneday social audit of development works carried out in the panchayat over the preceding three years. This audit took place with the active participation of many individuals and agencies, including block and district administration officials, MKSS [Mazdoor Kisan Shakti Sangathan], NCPRI [National Campaign for People's Right to Information] and Action Aid India.

#### The audit found that

- Although the works were not carried out, the sanctioned funds were shown in the records as having been utilized.
- Contractors were banned under government guidelines, but 31 contractors were working on the project.
- Muster rolls were not maintained by the contractors.
- Instead of the target of 100 mandays of employment for families below the poverty line (BPL), only 12 half days of work were generated.
- The BPL families could not buy subsidized food from the public distribution system (PDS) shops as partial wages because they did not possess the needed ration cards.

## SUPREME COURT VERDICT ON COOPERATIVE

## GS-II GOVERNANCE

### Context

- The recent Supreme Court verdict striking down a part of the 97th Constitution Amendment, insofar as it dealt with cooperative societies under the domain of the States.

### 97th amendment

- The Amendment proposed to create a framework for the functioning of cooperative societies. State laws on cooperatives should conform to this framework.
- It introduced **Part IXB in the Constitution so that the concept of cooperative societies gains constitutional recognition.**
- It was **on the lines of Part IX, which deals with panchayats, and Part IXA, which deals with urban local bodies.**
- The idea **was to empower Parliament to frame laws for cooperative societies that function across States (multi-State cooperative societies) and State legislatures** to make laws for all other cooperative societies falling under their jurisdiction.
- The **Amendment added the words "or cooperative societies" to Article 19(1)(c) of the Constitution to expand the fundamental right to form associations or unions to cover cooperative societies too.**
- It also **added a 'Directive Principle' through Article 43B, which says: "The State shall endeavour to promote voluntary formation, autonomous functioning, democratic control and professional management of cooperative societies."**
- The Amendment set out basic rules:
  - such as a maximum of 21 directors in a society,
  - a fixed term of five years for elected members,
  - a six-month cap on the time limit for which a society's board of directors can be kept under supersession or suspension,
  - reservation of one seat for the Scheduled Castes or the Scheduled Tribes, and two seats for women on the board of every cooperative society.

### Reasons behind 97th amendment

- It referred to the **"weaknesses" in safeguarding the interests of members of cooperatives and the fulfilment of the objectives of these institutions.**
- It referred to **delayed elections, nomination of office-bearers for long durations, reduced accountability in management and inadequate professionalism in many societies.**
- It spoke of the need to **initiate fundamental reforms to revitalise these institutions and ensure "their autonomy, democratic functioning and professional management".**

### Government argument in Supreme Court

- The Centre's defense was that the Amendment did not alter the entry in the State List on 'cooperative societies'.
- In fact, it specified that the State legislatures would enact the relevant laws based on a common framework.
- There was no need for ratification by the Assemblies, as no subject was shifted from the State List to the Central or Concurrent List.

### Supreme Court Verdict

- The **Amendment had the effect of limiting and circumscribing the scope and extent to which States could frame laws on cooperative societies.** This impacted on their legislative power and would therefore amount to a change that would require ratification by the Assemblies.
- All **judges of supreme court agreed with the Gujarat High Court that the ratification by the State legislatures was required for Part IXB, and in the absence of such ratification, the Part had to be struck down.**

- The court took the example of the 73rd and 74th Amendments which introduced the chapters on panchayats and municipalities, respectively.
- Those amendments, similar in impact on the legislative power of the States, had been passed by the special procedure involving ratification by State legislatures.
- It would be valid as far as multi-State cooperative societies were concerned as Parliament had the power to regulate their functioning.

### Methods of Constitutional amendment

#### Simple Majority

- A large number of provisions contained in the constitution are open to change by a simple majority. These may be divided into two classes:

#### Where the text of the constitution is not altered but the law is changed

- Article 11 confers on the Parliament power to enact a law regarding citizenship.
- An Act made in pursuance of that power will change the law relating to citizenship without altering the text of Article 5 to 10.
- Article 124 still refers to the Supreme Court as consisting of the Chief justice and 7 judges.
- But in exercise of its power the Parliament has increased the strength of the judges from 7 to 25.

#### Where the text of the constitution is changed

- Formation of new state.
- Creation or abolition of legislative council
- Creation of council of ministers for Union territories
- Extending the period of 15 years fixed for the use of English in Article 343
- Defining Parliamentary privileges
- Salaries and allowances of President, Vice-President, Judges, etc.

#### Special Majority

- Except those provisions which are amendable by an ordinary majority, the rest of the provisions require a special majority for amendment.
- The Amendment Bill must be passed by a majority of two-thirds of the members of each House present and voting and such majority must exceed 50% of the total membership of the House.

#### Special Majority and Ratification by half of the States

- Those provisions which relate to the federal structure of the constitution require special majority in Parliament as well as ratification by at least half of the state legislatures.
- This procedure is required in the following provisions:
  - Manner of election of President
  - Executive power of the Union and the State
  - The Supreme Court and the High Courts
  - Distribution of legislative power between the Union and the States
  - Representation of states in Parliament
  - Article 368 itself

### Way Forward

- The cooperative sector has always been in the domain of the States or provinces.
- The organising principles and mechanism of these cooperatives differ from area to area and depend on the industry or crop which forms the fulcrum of the cooperative.
- Homogeneity in this area would only result in the creation of round holes in which square pegs no longer fit.
- They also would not really serve to break the control some political interests have taken over cooperatives.

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## SEXUAL OFFENCES

## GS-II SOCIAL JUSTICE

### Context

- The Supreme Court has asked trial judges to take care to not reveal the identity of victims in sexual offence cases.

### Issues with Sexual Offences

- Sex related offences are shameful **universal phenomena**, which take place in every society.
- Sexual offences aptly take the form of sexual violence, which sometimes cause severe and irreparable damage to the physical and mental health of the victims.
- Physical injury includes an increased risk of a range of sexual and reproductive health problems.
- Its impact on mental health can be equally serious as that of physical injury.
- Sexual offences, when they assume the form of sexual violence may lead to murder, suicide, acute depression, etc. of victims.
- It entirely disturbs the social well being of the victims because of stigmatisation and the consequential loss of status in their families and the neighbourhood.
- The fundamental principles to be followed in the determination of a case involving a sexual offence against a child have been laid down in various **international instruments** and in the **Preamble to the POCSO Act, 2012 itself**.
- The **State Governments**, the **Child Welfare Committee**, the **Police**, the **Special Courts**, **NGO's** and all professionals and experts assisting the child at the trial and pre-trial stages are bound to **abide by these fundamentals**.

### Fundamentals involved while dealing with sexual offences

- Right to life and survival:** Every child has the right to life and survival and to be shielded from any form of hardship, abuse or neglect, including physical, psychological, mental and emotional abuse and neglect; and to a chance for harmonious development and a standard of living adequate for physical, mental, spiritual, moral and social growth.
- The best interests of the child :** Every child has the right to have his/her best interests given primary consideration. This includes the right to protection and to a chance for harmonious development.
- The right to be treated with dignity and compassion:** Child victims should be treated in a caring and sensitive manner throughout the justice process, taking into account their personal situation and immediate needs, age, gender, disability and level of maturity and fully respecting their physical, mental and moral integrity.
- The right to be protected from discrimination:** The justice process and support services available to child victims and witnesses and their families should be sensitive to the child's age, wishes, understanding, gender, sexual orientation, ethnic, cultural, religious, linguistic and social background, caste and socio-economic condition, as well as to the special needs of the child, including health, abilities and capacities.
- The right to special preventive measures:** Children may already face twice as much risk of repeated victimisation as adults because they often are or are perceived by a potential offender as being vulnerable, unsure of how to defend themselves or unable to properly assert themselves and take a strong position against an adult.
- The right to be informed:** There are two aspects of child victims' and witnesses' right to be informed. The first aspect is the more general one and consists of informing child victims and witnesses about the assistance they are entitled to.
- The second aspect is more specific and relates to information on the particular case in which the child is involved.
- The right to be heard and to express views and concerns:** Every child has the right to be heard in respect of matters affecting him/her. The child has a right to participate at all levels.
- The right to effective assistance:** The child must receive the required assistance to address his/her needs and enable him/her to participate effectively at all stages of the justice process.
- The right to privacy:** The child's privacy and identity must be protected at all stages of the pre-trial and trial process".
- The right to be protected from hardship during the justice process:** Throughout the justice process, child victims are exposed to hardship, also referred to as secondary victimization.
- The right to safety:** Where the safety of a child victim may be at risk, appropriate measures should be taken to require the reporting of those safety risks to appropriate authorities and to protect the child from such risk before, during and after the justice process.
- The right to compensation:** The child victim may be awarded compensation for his/her relief and rehabilitation. This compensation may be awarded at an interim stage, during the pendency of trial, as well as at the conclusion of the trial.

### Legal Intervention

- Section 228A IPC clearly prohibits the printing or publishing "the name or any matter which may make known the identity of the person". It is obvious that not only the publication of the name of the victim is prohibited but also the disclosure of any other matter which may make known the identity of such a victim.
- Apex court, in the State of Karnataka versus Puttaraja case, had said it would be 'appropriate' **if courts do not name the victim in its records**.
- Prevention of Sexual offences at Workplace** aims to make workplace safer for women to work.
- Protection of Children from Sexual Offences Act** aims to protect children from the sexual abuse.



- **Multiple sections of the Indian Penal Code** deals with the sexual offences in different context to provide holistic framework of the law.

## CASTE DISCRIMINATION IN INDIA

## GS-II SOCIAL JUSTICE

### Context

- A qualified faculty member of the Indian Institute of Technology Madras resigned alleging caste discrimination.

### About Caste

- A defining feature of Hinduism, caste encompasses a complex ordering of social groups on the basis of ritual purity.
- A person is considered a member of the caste into which he or she is born and remains within that caste until death, although the particular ranking of that caste may vary among regions and over time.
- Differences in status are traditionally justified by the religious doctrine of karma, a belief that one's place in life is determined by one's deeds in previous lifetimes.

### Caste Discrimination in Education

- **Alienation, social exclusion, and physical abuse** transcend all levels of education, from primary education to university.
- Illiteracy and drop-out rates among Dalits are very high due to a number of social and physical factors.
- **discriminatory practices are conducted by teachers**, which may include corporal punishment, denial of access to school water supplies, segregation in class rooms and Dalits being made to eat separately.
- **Intolerance, prejudice and harassment towards Dalits** are equally prevalent in institutions of higher education where discrimination is practiced by dominant caste students, teachers, faculties, and administrations.
- The caste **bias manifests itself in the way teachers ignore Dalit students and unjustly fail them in exams**, in social exclusion and physical abuse, and in the unwillingness of the university administration to assist Dalits and support them.
- **Dalit children face discriminatory attitudes from fellow students and the community** as a whole who perceive education for Dalits as a threat to village hierarchies and power relations.

### Other Means of Caste Discrimination

#### Access to justice and rising violence against Dalits

- According to the 2015 Equity Watch report "Access to Justice for Dalits in India", **violence and atrocities against Dalits are rising in India**.
- **dominant castes in India are using violence against Dalits** to reinforce the hierarchical caste related power structures and suppress Dalit rights assertions and claims.
- **Very often Dalit women are seen to bear the brunt of violence** as they are used as a way to punish Dalit communities.

#### Discrimination against Dalit Women

- **Dalit women are considered easy targets for sexual violence** and other crimes, because the perpetrators are likely to get away with it.
- **Dalit women are also very vulnerable to caste-based slavery and forced prostitution**, discriminated against on multiple grounds in education and face serious obstacles in access to basic services.

#### Prevalence of Child Labour and Bonded Labour

- In India there are **specific forms of forced labour that certain castes (Dalits) are expected to perform including** for example the practice of manual scavenging and the Devadasi practice of forced prostitution.
- **Most child labourers in India are either lower caste or minorities** and that discrimination play a key part in sustaining slavery and child labour in the country.

#### Untouchability and access to basic services

- Widespread discrimination and untouchability in India is an **obstacle for access to basic services including water & sanitation, housing, health care** and food.
- According to the Human Development survey:
  - merely five percent of Indians said they had married a person from a different caste, and 27 percent of households self-reported engaging in untouchability practices.
  - 52% Brahmins self-reported to not allow a Dalit to use their kitchen utensils.
  - In some states untouchability across castes was found to be almost 50%.

#### Social and economic rights including land rights

- **Generally land rights are an area of conflict and dispute between Dalits** and dominant castes as dominant castes may try to seize Dalit land using force, threats and violence.

### Constitutional mechanism for upliftment of SC

- **Article 17 abolishes Untouchability.**

- **Article 46** requires the State 'to promote with special care the educational and economic interests of the weaker sections of the people, and, in particular, of the Scheduled Castes and the Scheduled Tribes, and to protect them from social injustice and all forms of exploitation.
- **Article 335** provides that the claims of the members of the Scheduled Castes and the Scheduled Tribes shall be taken into consideration, consistently with the maintenance of efficiency of administration, in the making of appointments to services and posts in connection with the affairs of the Union or of a State.
- **Article 15(4)** refers to the special provisions for their advancement.
- **Article 16(4A)** speaks of "reservation in matters of promotion to any class or classes of posts in the services under the State in favour of SCs/STs, which are not adequately represented in the services under the State".
- **Article 338** provides for a National Commission for the Scheduled Castes and Scheduled Tribes with duties to investigate and monitor all matters relating to safeguards provided for them, to inquire into specific complaints and to participate and advise on the planning process of their socio-economic development etc.
- **Article 330 and Article 332** of the Constitution respectively provide for reservation of seats in favour of the Scheduled Castes and the Scheduled Tribes in the House of the People and in the legislative assemblies of the States. Under Part IX relating to the Panchayats and Part IXA of the Constitution relating to the Municipalities, reservation for Scheduled Castes and Scheduled Tribes in local bodies has been envisaged and provided.

### Government Action to Check the Caste Discrimination

#### Scheduled Castes and Scheduled Tribes (Prevention of Atrocities) Act, 1989

- Financial assistance is provided to the States/ UTs for implementation of these Acts, by way of relief to atrocity victims, incentive for inter-caste marriages, awareness generation, setting up of exclusive Special courts.

#### The 'Prohibition of Employment as Manual Scavengers and their Rehabilitation Act, 2013' (MS Act, 2013)

- Identify and eliminate the insanitary latrines.
- Prohibit:- i) Employment as Manual Scavengers and ii) Hazardous manual cleaning of sewer and septic tanks
- Identify and rehabilitate the manual scavengers.

#### Schedules Caste Sub-Plan (SCSP)

- It is an umbrella strategy to ensure flow of targeted financial and physical benefits from all the general sectors of development for the benefit of Scheduled Castes.
- Under the strategy, States/UTs are required to formulate and implement Special Component Plan (SCP) for Scheduled Castes as part of their Annual Plans by earmarking resources.

## RELIGIOUS CONVERSION

## GS-II SOCIAL JUSTICE

### Context

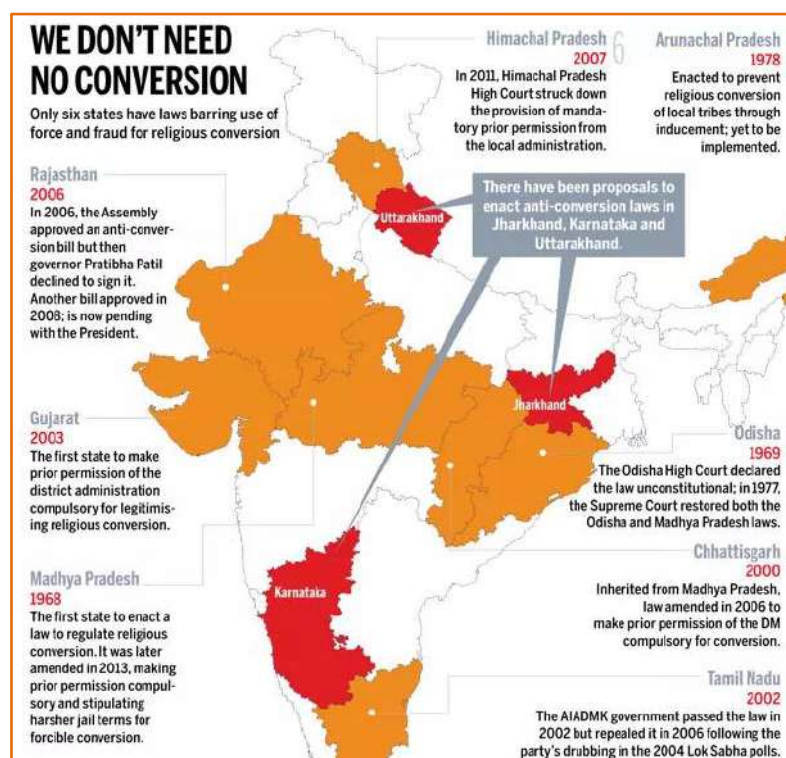
- Recently, there was a massive protest by the Sikh Community against the alleged forced conversion of a girl.

### Universal Acceptance of Freedom of Religion

- Every individual has a **natural entitlement of religious faith and freedom** of conscience, a right to adopt or abandoned any faith of his own choice.
- The **freedom of religion and freedom of conscience** has also been recognized under the international law.
- freedom of religion and freedom of conscience is fundamental right both constitutionally and conventionally.

### Constitution on freedom of religion

- Indian society has nourished and nurtured almost all the established religion of the world like Hinduism, Islam, Christianity, Buddhism, Jainism, Sikhism etc. from its time immemorial.
- **Article 25 (1)** states, "Subject to public order, morality and health and to the other provisions of this Part, all persons are equally entitled to freedom of conscience and the right freely to profess, practise and propagate religion"
- Religious conversion means adopting a new religion, a religion that is different from his previous religion or religion by his birth.



### Reasons behind religious conversion

- Conversion by force
- Conversion by offering better life. It means offering economic incentive for one to come out of the religion.
- Conversion for marriage.
- Conversion to escape the rigid hierarchical system caste system.
- Conversion by free will or free choice as the tenets of other religion appear more closer to person.
- Conversion to get reservation benefits

### Anti-Conversion Law

- India's Freedom of Religion Acts or "anti-conversion" laws are state-level statutes that have been enacted to regulate religious conversions.
- All of the laws seek to prevent any person from converting or attempting to convert, either directly or otherwise, **another person through "forcible" or "fraudulent" means, or by "allurement" or "inducement."**
- However, the anti-conversion laws in Rajasthan and Arunachal Pradesh appear to exclude reconversions to "native" or "original" faiths from their prohibitions.
- **Penalties for breaching the laws can range from monetary fines to imprisonment**, with punishments ranging from one to three years of imprisonment and fines
- Some of the laws provide for stiffer penalties if women, children, or members of scheduled castes or scheduled tribes (SC/ST) are being converted.

### Supreme Court Stand on Anti-conversion laws

- The Constitution of India guarantees the freedom to profess, practice, and propagate one's religion under article 25.
- The Supreme Court in Rev Stanislaus v. State of Madhya Pradesh examined whether the right to practice and propagate one's religion also included the right to convert and the court held "restrictions on efforts to convert are constitutional because such efforts impinge on 'freedom of conscience' and 'public order'."

### Concerns

- Human rights organizations and institutions **have expressed concerns over the years about the rights implications of, and lack of equitable treatment under, these state anti-conversion laws.**
- State and national laws **that do not comply with international standards of freedom of religion or belief, including Article 18 of the UN Declaration of Human Rights.**
- According to the USCIRF (United States Commission on International Religious Freedom), some observers note that **"these laws create a hostile, and on occasion violent, environment for religious minority communities** because they do not require any evidence to support accusations of wrongdoing."

## POPULATION CONTROL

## GS-II SOCIAL JUSTICE

### Context

- The government in Assam, eyeing a two-child policy in the long run, has decided to constitute eight sub-groups toward stabilising the State's population.

### Objectives of the group:

- Each group **would work in specific sectors such as health, education, financial inclusion** and women empowerment, besides population stabilisation.
- "The inputs of these sub-groups will help in preparing a five-year road map."

### Indian Population Data:

- Total Fertility Rate (TFR) is 2.2 – slightly higher than the replacement level of 2.1, the state when a couple is replaced by two children.
- Twenty-five out of 28 states and six out of eight UTs and most urban areas report a replacement TFR of 2.1 and less.
- The wanted fertility in India as per NFHS (National Family Health Survey) IV is only 1.8.
- Census figures also show that the 2001-2011 decade was the first in 100 years where a lesser population was added compared to the decade preceding it.

### Reasons behind decline in total fertility rates:

- The **increased acceptance of contraceptives is just** one of the factors for the decline of TFR.
- **Significant rise in the married women ages** have also led to the decline in the total fertility rates.
- **Improvement in the education status of the population along with the economic** living has also contributed in decline of total fertility rates.



### Challenges of 2 children norm:

- International experience shows that any coercion to have a certain number of children is counter-productive and leads to demographic distortions”.

### Failure in controlling the Population growth:

- The **burden of planning a family falls almost entirely on Indian women**. According to the NFHS-4, in 2015-16, 36% of married women in the ages of 15-49 years underwent sterilisation as against less than 1% of married men aged 15-54 years.
- There is a **large need for contraception among married women**, and contraception choices for couples are limited.
- **Women's well-being has not been fully assured**. In November 2014, 16 young women tragically died and many were left critically ill following tubectomies at a mass sterilisation camp in Bilaspur district, Chhattisgarh.

### What works in Population Control:

- Kerala and Tamil Nadu have shown what needs to be done: **ensure the provision of basic services, promote girls' schooling and improve development opportunities for women**.
- Southern **governments proactively urged families to have only two children**, followed by female sterilisation immediately thereafter.

### Government stand

#### Government has stated in Supreme Court:

- It was 'unequivocally' against setting limits on the **number of children couples could have in a bid to 'control' population**.
- Family Welfare **Programme is voluntary in nature, which enables couples to decide the size of their family** and adopt the family planning methods best suited to them, according to their choice, without any compulsion.

### Way Forward

- The Institute for Health Metrics and Evaluation has projected that India's TFR will drop to 1.3 by 2100.
- India need to get rid of misconceptions about vasectomies and links to virility.
- India need to prioritise women's agency, giving them the ability to choose if, when, and how many children they want.
- State governments must lead health sector reforms in a “suitable and sustainable manner”.
- Encouraging male participation in housework, improving their ability to combine work and family, and improving family planning services will make TFR stabilise around 1.7.

### About total Fertility rate:

- TFR is defined as the total number of children to be born to women in her lifetime by the current age specific fertility rates.
- When the TFR touches 2.1, which is called replacement fertility level, one can say that the population is getting stabilised, subject to the momentum factor.

## CHILD MARRIAGE

## GS-II SOCIAL JUSTICE

### Context

- Odisha has witnessed a sharp increase in the number of child marriages prevented over the past four years, following increased awareness and better coordination among field-level staff.

### Background

- Child Marriage is defined as a marriage of a girl or boy before the age of 18 and refers to both formal marriages and informal unions in which children under the age of 18 live with a partner as if married.
- Child marriage affects both girls and boys, but it affects girls disproportionately, especially in South Asia.

### Data on Child Marriage

- South Asia has the highest rates of child marriage in the world.
- Almost half (45%) of all women aged 20-24 years reported being married before the age of 18.
- Almost one in five girls (17%) are married before the age of 15.
- Child marriage violates children's rights and places them at high risk of violence, exploitation, and abuse.
- India has the largest number of brides in the world – one-third of the global total.
- Bangladesh has the highest rate of child marriage in Asia (the fourth highest rate in the world).
- Nepal has also one the highest rates of child marriage in Asia for both boys and girls.
- Child marriage is declining (63% in 1985 to 45% in 2010) in South Asia, with the decline being especially marked for girls under 15 (32% in 1985 to 17% in 2010).
- Child marriage is the result of the interplay of economic and social issues.
- In communities where the practice is prevalent, marrying a girl as a child is part of a cluster of social norms and attitudes that reflect the low value accorded to the human rights of girls.

### Causes

- Child marriage, a deeply rooted social norm, provides glaring evidence of widespread gender inequality and discrimination.
- It is **the result of the interplay of economic and social forces**.
- The **lack of adequate investments in many countries to end child marriage** is likely due in part to the fact that the economic case for ending the practice has not yet been made forcefully.
- As a result of **norms assigning lower value to girls, as compared to boys, girls are perceived to have no alternative role other than to get married**. And are expected to help with domestic chores and undertake household responsibilities in preparation for their marriage.

### Issues related to child Marriage

- According to UNICEF India has the largest number of brides in the world – one-third of the global total.
- Child marriage **violates children's rights and places them at high risk** of violence, exploitation, and abuse.
- Child **marriage affects both girls and boys, but it affects girls disproportionately**.
- Child marriage ends childhood.
- It **negatively influences children's rights to education, health and protection**. These consequences impact not just the girl directly, but also her family and community.
- A girl **who is married as a child is more likely to be out of school and not earn money and** contribute to the community.
- She is more **likely to experience domestic violence and become infected** with HIV/AIDS.
- She is **more likely to have children when she is still a child**.
- There are **more chances of her dying due to complications** during pregnancy and childbirth.
- Estimates of UNICEF suggest that each year, **at least 1.5 million girls under 18 get married in India, which makes it home to the largest number of child brides** in the world - accounting for a third of the global total.
- Nearly 16 per cent adolescent girls aged 15-19 are currently married.
- While the prevalence of girls getting married before age 18 has declined from 47 per cent to 27 per cent between 2005-2006 and 2015-2016 it is still too high.
- Child marriage **negatively affects the Indian economy and can lead to an intergenerational cycle of poverty**.
- Girls and boys **married as children more likely lack the skills, knowledge and job prospects** needed to lift their families out of poverty and contribute to their country's social and economic growth.

### Law on Child Marriage in India

- Child marriage is prohibited in India as per the Prohibition of Child Marriage Act, 2006.

#### Objective of law

- allows anyone who was a child at the time of getting married to legally undo it;
- provides for maintenance for the girl in a child marriage;
- treats children born out of child marriages to be legitimate, and makes provisions for their custody and maintenance; and
- considers certain kinds of child marriages where there was force or trafficking as marriages which never happened legally.

#### Crimes under the law:

- for an adult male to marry a child wife;
- to perform or help with a child marriage in any way;
- to allow, encourage or fail to stop a child marriage (as a parent or guardian); and
- to attend or take part in a child marriage (as a parent or guardian).

#### Means of Implementation

- One can **directly go to a District Court and make an application** – the judge can pass an order directing the people involved to not take part in the child marriage.
- One can go to a **Child Marriage Prohibition Officer** for help with annulling a child marriage.

### Way Forward

- The significant **progress in the reduction of child marriages in India has contributed to** a large extent to the global decrease in the prevalence of the practice.
- The **decline may be the result of multiple factors such as increased literacy of mothers, better access to education for girls, strong legislation and migration from rural areas to urban centres**.
- **Increased rates of girls' education, proactive government investments in adolescent girls, and strong public messaging around the illegality of child marriage and the harm it causes are also among the reasons for the shift**.
- Evidence shows that critical game changers for **adolescent girls empowerment include postponing marriage beyond the legal age, improving their health and nutritional status, supporting girls to transition to secondary school, and helping them develop marketable skills** so that they can realize their economic potential and transition into healthy, productive and empowered adults.

## CRIME AGAINST WOMEN

## GS-II SOCIAL JUSTICE

### Context

- According to the National Crime Record Bureau crime against women has increased by 25 percent.
- The data states that rape cases saw an increase of 43% from 580 till June 15 last year to 833 this year, molestation jumped by 39% from 733 to 1,022, kidnapping of women from 1,026 to 1,580, abduction of women from 46 to 159, and dowry deaths from 47 to 56.

### Background

- In spite of the fact that the women's contribution to the country's development is equal to that of their male counterpart, still they experience a number of limitations that restrain them from comprehending their potential for expansion.
- The UN stated that 'Gender Equality and Women Empowerment' as one of the Sustainable Development Goals to be attained by the year 2030. However these goals are far from being realized in a country like India.
- Infact often women in India are deprived of their fundamental right to dignity and also leave alone the question of gender equality.

### Issues against Women

- Missing of girl child:** The idiom "missing women" was for the first time used by Nobel laureate Sri Prof. Amartya Sen when he showed that in many developing countries the proportion of women as compared to men in the population is suspiciously low.
- Dowry deaths:** The National Crime Records Bureau in India in its report had disclosed that in 2012 around 8233 newly wedded brides were killed for dowry.
- Sati:** The discourse on sati was invigorated in the post independence India in 1986 when a young bride from Rajasthan named Roop Kanwar was set on the pyre of her husband.
- Child Marriage:** According to the National Population Policy, "over 50% of the girls marry below the age of 18, resulting in a typical reproductive pattern of 'too early, too frequent, too many', resulting in a high IMR( Infant Mortality Rate )
- Preference for a son:** Even in many families today the preference for a son is a phenomenon which is historically rooted in the patriarchal system of the Indian society.
- Female foeticide:** In India it is estimated that around "10 million female fetuses have been aborted in the last 20 years". "The child sex ratio in Punjab declined from 894 in 1961 to 793 in 2001. In Haryana, the child sex ratio plummeted from 910 in 1961 to 820 in 2001.
- Education:** the high rate of women's education is still a distant dream. In spite of the fact that Sarva Shiksha Abhiyan to an extent has been successful in bringing the girl child back to the schools, yet their retention rate in the school is lower as compared to their male counterpart.
- Forced evictions and exclusion:** In India often the widows are evicted from their matrimonial home and are left alone to feed themselves and their children following the demise of their spouses. The UN Special Rapporteur on Adequate Housing argues: "In almost all countries, whether 'developed' or 'developing', legal security of tenure for women is almost entirely dependent on the men they are associated with.
- Sexual harassment at the workplace:** it was the passage of the 'Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Bill 2013' that helped in translating Vishaka guidelines into concrete rules that are to be implemented. But even today "the issue of sexual harassment has largely been swept under the carpet in India.
- Rape:** According to National Crime Records Bureau, in 2012, 25000 rape cases were The Criminal Law (Amendment) Act 2013 to deal with the rape cases in India.
- Societal violence against women:** Quite often the religious communities have made the life of the women worse by forcing them to adopt conservative practices that are harmful to women.

### Women's human Rights provided by Constitution of India and legislations

- The state is directed to **provide maternity relief to female workers under Article 42 of the Constitution**, whereas Article 51-A declares it as a fundamental duty of every Indian citizen to renounce practices to respect the dignity of women.
- Indian Parliament **has passed the Protection of Human Rights Act, 1993 for the proper implementation of Article 51-A.**
- The significant **among them are the Equal Remuneration Act, the Prevention of Immoral Traffic Act, the Sati (Widow Burning the rights of) Prevention Act, and the Dowry Prohibition Act etc.**
- Apart from these, **the 73rd and 74th Constitution (Amendment) Acts provided for 33% reservation for women** in both panchayat and Nagarpalika institutions as well as for the positions of chairpersons of these bodies.
- Besides this, the government in **India has enacted a variety of laws like Dowry Prohibition Act, Sati prevention Act etc to guarantee the rights** of women.
- Apart from this, in India, **the National Commission for Women(NCW) was established in 1990 to look into women's problems.**
- NCW have engaged them to deal with the cases relating to the violation of women's rights.

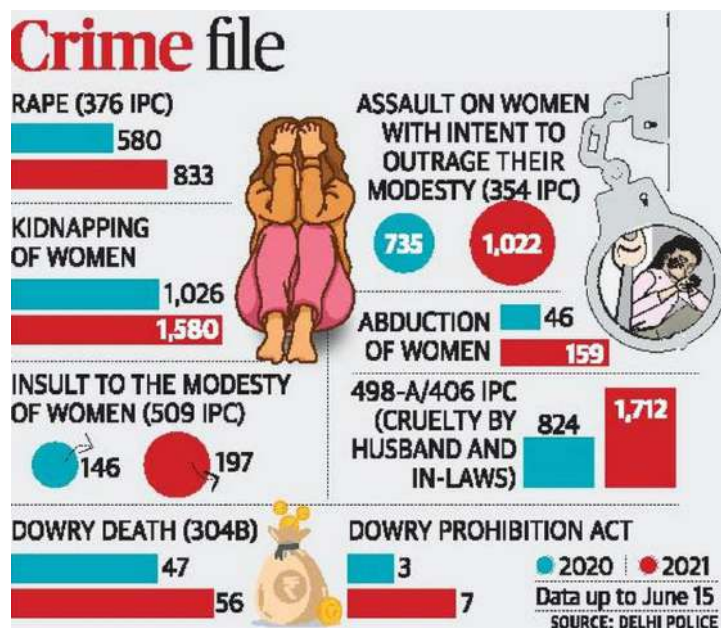


### About NCRB

- The National Crime Records Bureau, abbreviated to NCRB, is an Indian government agency responsible for collecting and analysing crime data as defined by the Indian Penal Code (IPC) and Special and Local Laws (SLL)
- NCRB is headquartered in New Delhi and is part of the Ministry of Home Affairs (MHA), Government of India.
- NCRB was set-up in 1986 to function as a repository of information on crime and criminals to assist the investigators in linking crime to the perpetrators.

### Objectives of NCRB

- Create and maintain secure sharable National Databases on crimes and criminals for law enforcement agencies and promote their use for public service delivery.
- Collect and process crime statistics at the national level and clearing house of information on crime and criminals both at National and International levels.
- Lead and coordinate the development of IT applications and create an enabling IT environment for Police organizations.
- National repository of fingerprints of all criminals.
- To evaluate, modernize and promote automation in State Crime Records Bureaux and State Finger Print Bureaux.
- Training and capacity building in Police Forces in Information Technology and Finger Print Science.



## FOREST RIGHTS ACT

## GS-II SOCIAL JUSTICE

### Context

- Government has asked Chief Secretaries of States to review the implementation of the Forest Rights Act that came into force in 2006 and ensure better coordination among forest departments and forest communities.

### Forest Rights act

- The act recognises mainly two types of forest dwellers:
  - Forest Dwelling Scheduled Tribe
  - Other traditional forest dwellers.
- It gives these communities the right to cultivate the land maximum upto 4 hectare.

### Aims of act

- Grants legal recognition to the rights of traditional forest dwelling communities, partially correcting the injustice caused by the forest laws.
- Makes a beginning towards giving communities and the public a voice in forest and wildlife conservation.

### Types of Rights granted

#### 1. Land Rights:

- Forest dwellers gets the right maximum upto 4 hectares.
- The land cannot be sold or transferred to anyone except by inheritance.
- Those who are cultivating land but don't have document can claim up to 4 hectares, as long as they are cultivating the land themselves for a livelihood.

#### 2. Use Rights:

- Minor forest produce things like tendu patta, herbs, medicinal plants etc "that has been traditionally collected (see section 3(1) (c)). This does not include timber.
- Grazing grounds and water bodies
- Traditional areas of use by nomadic or pastoralist communities i.e. communities that move with their herds, as opposed to practicing settled agriculture.

#### 3. Right to Protect and Conserve:

- For the first time, this law also gives the community the right to protect and manage the forest.
- Section 3(1) (i) provide a right and a power to conserve community forest resources.
- Section 5 gives the community a general power to protect wildlife, forests, etc.

### Procedure of Rights

- The gram sabha (full village assembly, NOT the gram panchayat) makes a recommendation – i.e who has been cultivating land for how long, which minor forest produce is collected, etc.
- The gram sabha's recommendation goes through two stages of screening committees at the taluka and district levels.
- The district level committee makes the final decision.
- At both the taluka and the district levels, any person who believes a claim is false can appeal to the Committees.
- One cant appeal beyond the district level committee.

### Importance of these Rights

- The acts **looks to right the wrongs of government policies in both colonial and independent India toward forest-dwelling communities**, whose claims over their resources were taken away during 1850s.
- The act **also has potential of sustainably protecting forest through** traditional ways along with providing tribes means of livelihood.
- It expands the **mandate of the Fifth and the Sixth Schedules of the Constitution** that protect the claims of indigenous communities over tracts of land or forests they inhabit.
- The **alienation of tribes was one of the factors behind the Naxal movement**, which affects states like Chhattisgarh, Odisha and Jharkhand. The act through identifying IFR and CFR tries to provide inclusion to tribes.
- It has the **potential to democratise forest governance by recognising community forest resource rights over an estimated 85.6 million acres**, thereby empowering over 200 million forest dwellers in over 1,70,000 villages.
- The act will **ensure that people get to manage their forest on their own which will** regulate exploitation of forest resources by officials, forest governance and management as well as tribal rights etc.

### Challenges

- The debate on **the issue of the act leading to even more encroachment of already** troubled forest lands has started.
- Though the act **tries to focus on the needs of the forest dwellers, it defeats the purpose when the eviction rate of families from** these lands increases as their claims on these lands are not accepted by the government.
- The role of the sub-divisional level committee is always questioned as they have been given the **important right to make a decision on the needs and claims of the marginal communities on the piece of forest lands**.
- **Issues have arisen from the part of forest departments who have been seen unwilling to give their forest lands**. Role of forest department to let the forest dwellers sow in the forest the reap the benefits is criticized as tribes like Baigas have blamed the department to not support their claim over the land.
- The **tribes and communities also lack the capability to prove their occupancy over the forest land** and the law turns out to be weak to strengthen their claim.
- Government's **role of allowing commercial plantations in degraded land is also debated** and questioned as the degraded land makes 40% of forests.

### Supreme Court order on Forest rights implementation

- Court has ordered the eviction of lakhs belonging to the Scheduled Tribes (STs) and Other Traditional Forest Dwellers (OTFDs) categories across 16 States, whose claim as forest-dwellers has been rejected under the Forest Rights Act.
- It ordered the Forest Survey of India (FSI) to make a satellite survey and place on record the "encroachment positions."

### Way Forward

- Awarding of the community rights must be increased to ensure well being of the forest.
- Forest department must work in collusion with the tribals in seeking the sustainable development than acting as bureaucratic department.

## CUSTODIAL CRIMES

## GS-II SOCIAL JUSTICE

### Context

- Social Activist death in custody has reaffirmed the need for custodial regulations.

### Reasons behind custodial death

- The police feel that they have a power to manipulate evidence as the investigation is their prerogative and with such manipulated evidence, they can bury the truth.
- Non accountability of the Police. In 2015, for instance, the police registered cases against fellow police officers in only 33 of the 97 custodial deaths. These deaths were labelled as suicide or natural deaths.
- There is lack of transparency and poor communication to the family of the person.
- Poor socio-economic background of accused also helps police to use their torture mechanism as they are unaware about the law.
- Custodial deaths are also result of accused not able to fulfil the demands of local police.

- Overcrowding of jails lead to higher no of deaths due to space crunch and lack of infrastructure.
- Medical checkups are not done regularly.
- No scientific investigation methods are followed by police. They still indulge in brute force method of interrogation.
- Our police force is understaffed and overburdened. Continuous pressure to solve the crime on fast basis exhort them to employ such methods.
- Overcrowding of jails: due to high no of under trials around 68% of total as highlighted by recent prisons statistics India (NCRB)

#### About Custodial deaths

- Increased by 9% from 92 in 2016 to 100 in 2017, according to the National Crime Records Bureau.
- Since the enactment of Section 176(1A) in 2005, the National Human Rights Commission has recorded 24,043 custodial deaths/rapes between 2005-2006 and 2018-2019.
- National Crimes Records Bureau's annual reports from 2005 to 2017 state that judicial inquiry was not conducted in about 80% of the cases recorded by it.
- With respect to 476 cases of "death or disappearance of persons remanded in police custody by court," 266 cases were registered and 54 police officers were charge sheeted, but not a single police officer was convicted.
- Out of the 827 cases of death or disappearance of persons in police custody without court remand, judicial inquiry was ordered only in 166 cases – 20% of the total cases.

#### Constitutional Provisions against Custodial death

- Article 21(1) provides that no person who is arrested shall be detained in custody without being informed as soon as possible of the ground for such arrest.
- Article 22(2) provides that every person who is arrested and detained in custody shall be produced before the nearest magistrate within a period of 24 hours of such arrest.
- Article 20 ensures that administration of the criminal justice system should not be so designed or implemented as to destroy the deeper and moral values of justice itself.

#### Court Judgement on Custodial death

##### D.K. Basu v. State of West Bengal

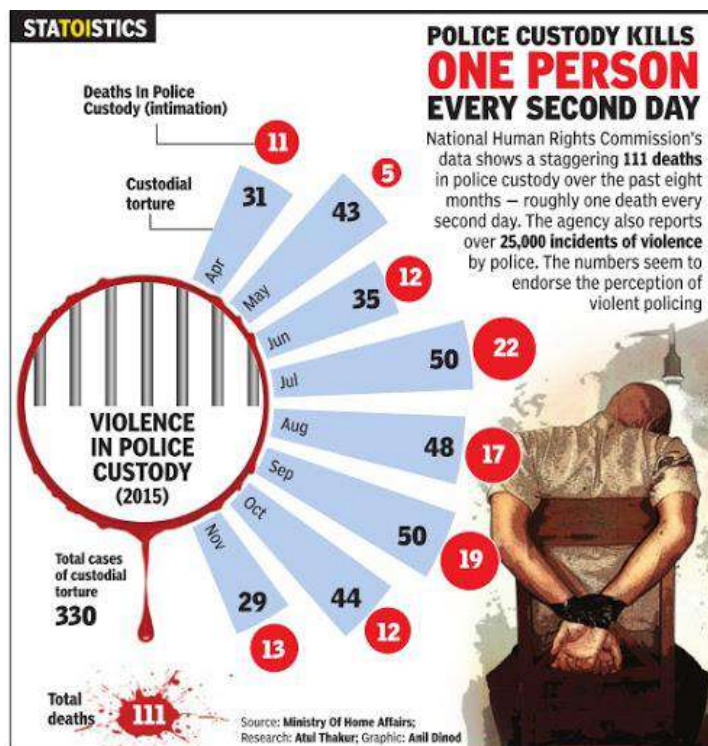
- The ubiquity of torture and third-degree methods in police investigations and lamented the 'growing incidence of torture and deaths in police custody.
- A crime-suspect must be interrogated – indeed subjected to sustained and scientific interrogation determined in accordance with the provisions of law.
- He can't however be tortured or subjected to third-degree methods or eliminated with a view to elicit information, extract confession or derive knowledge about his accomplices, weapons etc.
- The burden of explaining a custodial death lay on the police rather than the victim.
- The court granted compensation on the constitutional basis in public law for the infringement of fundamental rights.
- Realizing the essential connection between the provisions of Articles 22(1) and 22(2), the courts have held that the provision of clauses (1) and (2) of Article 22 are mandatory.

##### Other Verdicts

- Punishment which has an element of torture is unconstitutional.
- Prison restrictions amounting to torture, pressure or infliction and going beyond what the court order authorizes are unconstitutional.
- As under-trial or convicted prisoner cannot be subjected to physical or mental restraint.

#### Measures to prevent Custodial death

- Ensuring presence of lawyer through contact to nearest legal aid committee as soon as person is taken into the custody.
- The National Legal Services Authority should design processes that ensure lawyers are either stationed at police stations on a rotational basis or available on call.





- Ensuring Accountability of Police - any such crime must be fast tracked within specified time period through Independent investigation Agency
- Inculcation of scientific method of investigation in Police force and curtailing the practice of third degree torture
- Strict Implementation of DK Basu case guidelines as well as NHRC guidelines by States
- Behavioural change in Police force through training and awareness campaign
- Encouraging civil societies, Human Rights' NGO, NHRC & SHRCs to play active role in creating awareness and accountability of Police.
- Implementation of SC's recent directive to publish FIRs online within 24 hours
- Video conferencing through prisons
- Passing of the Prevention of Torture Bill.

## DRAFT TRAFFICKING IN PERSONS BILL 2021

## GS-II SOCIAL JUSTICE

### Context

- There are high hopes and some concerns surrounding the Trafficking in Persons (Prevention, Care and Rehabilitation) Bill, 2021, likely to be tabled in the monsoon session of Parliament.

### Need of the bill

- To prevent and counter Trafficking in persons, especially women and children,
- to provide for care, protection, and rehabilitation to the victims, while respecting their rights,
- creating a supportive legal, economic and social environment for them,
- ensure prosecution of offenders, and for matters connected therewith or incidental thereto.

### Key aspects

- The National Investigation Agency shall act as the national investigating and coordinating agency responsible for prevention and combating of Trafficking in persons and other offences under this Act, as well as for investigation, prosecution and coordination in cases of Trafficking in persons and other offences under this Act in accordance with the provisions of the National Investigation Agency Act, 2008, including cases which are inter-state or international in nature or such other cases as may be assigned to it by the Central Government.
- The Central Government shall, by notification, establish a **National Anti-Human Trafficking Committee**, for ensuring overall effective implementation of the provisions of this Act, for coordination as needed for prevention and countering of the offences under this Act.
- Provide for **protection homes and rehabilitation homes to enable immediate** and long-term sustainable rehabilitation of victims.
- **Ensure effective coordination between the concerned authorities both** within the country as well as with other countries for repatriation of victims.
- To coordinate with the Agency, appropriate Governments and other concerned **authorities to maintain an updated national database of traffickers** and other offenders under this Act.
- Seek **reports from appropriate Government, State Anti-Trafficking Committee, District Anti- Trafficking Committee**, on the quality of services and the functioning of the protection homes and rehabilitation homes and other setups under this Act.
- Enhance **public awareness about the** provisions of this Act and its rules;
- Perform such other functions as may be prescribed as considered necessary by the National Anti-Human Trafficking Committee for effective discharge of the provisions of this Act.

### Constitutional provision

- Article 23 of the Indian Constitution deals with the aspect of prohibition of traffic in human beings and forced labour.
- Article 23 of the Indian Constitution deals with the Right against Exploitation.
- As per clause (1) of Article 23, traffic in human beings and begar and other similar forms of forced labour are prohibited and any contravention of this provision shall be an offence punishable in accordance with the law.

### Challenges with the legislation

- Extensive power to NIA: The proposal to hand the **responsibility of investigation in trafficking crimes to the NIA** has been criticized for the following two reasons:
  - This could further **burden the already stretched NIA**.
  - This also amounts to an **attack on federalism**, given that this will only decrease the power of local enforcement agencies with respect to the implementation of the proposed provisions.
- Broad definition of Human trafficking : Another key criticism of the Bill has been its broad definitions of victims and **failure to distinguish consensual sexual activity for commerce from human trafficking**. This would end up criminalising sex work and victimisation of the already exploited.

- **Overzealous provisions** Various civil society activists and legal experts have criticised some overzealous provisions adopted by the draft legislation to counter human trafficking.
  - **Reporting of offences has been made mandatory** with penalties for non-reporting.
  - The **proposal of the death penalty** for various forms of aggravated trafficking offences.
  - Though societies and governments must have zero tolerance for human trafficking, the use of overzealous provisions as those proposed risks **the adoption of a purely legal and punitive approach to solve what is essentially a socio-economic problem.**
- **Failure to acknowledge root causes:** In its current form, the draft Trafficking in Persons (Prevention, Care and Rehabilitation) Bill, 2021 seems to be inadequate to stamp out human trafficking given its failure to acknowledge the contributing factors to human trafficking, including **vicious poverty, debt, lack of opportunity, and ineffectiveness/inefficiency of the development schemes.**

### Conclusion

- Tackling human trafficking needs a wholesome approach that is cognizant of the causative factors.

## NATIONAL EDUCATION POLICY

## GS-II SOCIAL JUSTICE

### Context

- Government is rolling out many initiatives envisaged in the national education policy.

### Initiatives to be rolled out

#### Credit Transfer System

- credit transfer system that will allow multiple entry and exit options in higher education. The Academic Bank of Credit will be rolled out for students in over 290 top institutions from the current academic year 2021-22 onwards.
- All institutions in the top 100 of the National Institutional Ranking Framework as well as those who have achieved an A grade under the National Assessment and Accreditation Council will be allowed to participate in the credit transfer system.

#### Others

- Conducting engineering programmes in regional languages.
- Multidisciplinarity is also being encouraged with guidelines to be issued to allow the merger of institutes as well as to give students the choice of taking subjects such as social sciences, music and sports while getting engineering degrees.
- Government will also announce the establishment of the National Digital Education Architecture and National Education Technology Forum.
- For school education, the NEP recommendation for a foundational literacy and numeracy mission has been carried out, although it has pushed back its target date by two years to 2026-27.
- Government will roll out Vidya Pravesh, a three-month play-based school preparation module for Class 1 students.
- A competency-based assessment framework for Classes 3, 5 and 8 will also be announced for students of the Central Board of Secondary Education.

#### Challenges in other initiatives

- The proposal for four-year undergraduate degrees has run into some opposition, especially from faculty at the premier University of Delhi. The university and colleges do not have adequate infrastructure to implement this programme.
- A large section of ad hoc teachers also feel that bringing back the programme will lessen the work of teachers and ultimately end the ad hocism and many ad hoc and guest teachers will lose their job.
- The credit transfer system introduced **under this policy will make the student lazy, degree-oriented and not knowledge oriented.**
- premier institutions such as the **Indian Institutes of Technology have balked at the idea of introducing courses in Indian languages.**
- The **Higher Education Commission of India (HECI) Bill, however, is still entangled in objections from State governments as it proposes a new centralized education regulatory regime.**
- NEP proposals that **require additional funding such as a free breakfast for all government school students have been delayed by the budget crunch** caused by the pandemic.
- The FYUP also has an additional provision of 30 per cent online classes, which has worried teachers. However, according to teachers, **the shift was extremely difficult to implement due to technological gaps and lack of infrastructure.** But, this was done due to corona induced pandemic.

### National Education Policy 2020

#### Key Highlights

#### Multidisciplinary Institution

- By 2040, **all higher education institutions HEIs) shall aim to become multidisciplinary institutions**, each of which will aim to have 3,000 or more students.
- **Aims at setting up at least one large multidisciplinary institution in or near every district by the year 2030.**

- A university will mean a multidisciplinary institution that offers undergraduate and graduate programmes, with high quality teaching, research, and community engagement.
- Under Graded Autonomy, Academic, Administrative & Financial Autonomy will be given to colleges, on the basis of the status of their accreditation.

#### Undergraduate degree courses

- The undergraduate degree courses will be of either 3 or 4- year duration, with multiple exit options.
- A certificate course after completing 1 year in a discipline or field, including vocational and professional areas, or a diploma after 2 years of study, or a Bachelor's degree after a 3-year programme.
- An Academic Bank of Credit (ABC) shall be established which would digitally store the academic credits earned.
- Aims at 50% gross enrolment ratio by 2035.
- There will be multiple entry and exit options for those who wish to leave the course in the middle.
- Their credits will be transferred through Academic Bank of Credits.
- The National Testing Agency (NTA) will offer a high-quality common aptitude test, as well as specialized common subject exams in the sciences, humanities, languages, arts, and vocational subjects, at least twice every year for university entrance exams.

### Digital drive

The new education policy has emphasised the integration of technology in all levels of learning. Some features of the policy:

#### Technology in education

- An autonomous body, the National Educational Technology Forum, will be created for the exchange of ideas on use of technology to enhance learning, assessment, planning and administration
- A dedicated unit for the purpose of creating digital infrastructure, digital content and capacity building will be set up in the ministry
- Integration of technology will be done to improve classroom processes

#### Teacher education

- By 2030, the minimum degree qualification for teaching will be a four-year integrated B.Ed. degree

#### Financial support

- Meritorious students belonging to SC, ST, OBC and other socially and economically disadvantaged groups will be given incentives
- Private institutions will be encouraged to offer scholarships to their students

#### Professional education

- Standalone technical universities, health science universities, legal and agricultural universities will aim at becoming multi-disciplinary institutions

#### Interaction with Foreign Institutions

- Aims at promotion India as a global study destination providing premium education at affordable costs.
- An International Students Office at each institution hosting foreign students will be set up.
- The Ministry has been renamed as Education Ministry.
- Selected universities like those from among the top 100 universities in the world will be facilitated to operate in India.
- High performing Indian universities will be encouraged to set up campuses in other countries.

#### Vocational Education

- The education ministry, would constitute a National Committee for the Integration of Vocational Education (NCIVE).
- Students will get 360 degree holistic report card, which will not only inform about the marks obtained by them in subjects, but also their skills and other important points.
- Every child to learn at least one vocation and exposed to several more.
- Sampling of important vocational crafts, such as carpentry, electric work, metal work, gardening, pottery making, etc., as decided by States and local communities during Grades 6-8.
- By 2025, at least 50% of learners through the school and higher education system shall have exposure to vocational education
- A 10-day bag less period sometime during Grades 6-8 to intern with local vocational experts such as carpenters, gardeners, potters, artists, etc.

#### National Research Foundation

- A National Research Foundation (NRF) will be established.
- The overarching goal of the NRF will be to enable a culture of research to permeate through universities.
- The NRF will be governed, independently of the government, by a rotating Board of Governors consisting of the very best researchers and innovators across fields.

#### Vernacular Language

- Proposes the setting up of an Indian Institute of Translation and Interpretation (IITI) while also laying significant emphasis on Sanskrit and other Indian languages.
- There will e- content in regional language apart from English and Hindi.

#### Online Education

- Quality technology-based options for adult learning such as apps, online courses/modules, satellite-based TV channels, online books, and ICT-equipped libraries and Adult Education Centres, etc. will be developed.



- A dedicated unit for the purpose of orchestrating the building of digital infrastructure, digital content and capacity building will be created in the MHRD to look after the e-education needs of both school and higher education.

#### School Structure

- The extant 10+2 structure in school education will be modified with a new pedagogical and curricular restructuring of 5+3+3+4 covering ages 3-18.
- In the new 5+3+3+4 structure, a strong base of Early Childhood Care and Education (ECCE) from age 3 is also included.
- Students of class 6 and onwards will be taught coding in schools as a part of 21st century skills.

#### Exam Structure

- In order to reduce the importance and stress of board exam, exam will be conducted in two parts: Objective and descriptive.
- Exam can be conducted twice a year. Board exam should promote knowledge application rather than rote learning.

#### Small Age Children

- A National Curricular and Pedagogical Framework for Early Childhood Care and Education (NCFECCE) for children up to the age of 8 will be developed by NCERT.
- The planning and implementation of early childhood care and education curriculum (ECCE) will be carried out jointly by the Ministries of HRD, Women and Child Development (WCD), Health and Family Welfare (HFW), and Tribal Affairs.
- Prior to the age of 5 every child will move to a "Preparatory Class" or "Balvatika" that is, before Class 1, which has an ECCE-qualified teacher.
- Pre-school sections covering at least one year of early childhood care and education will be added to Kendriya Vidyalayas and other primary schools around the nation.

#### Gifted Children

- The nutrition and health (including mental health) of children will be addressed, through healthy meals and regular health check-ups.
- NIOS will develop high-quality modules to teach Indian Sign Language, and to teach other basic subjects using Indian Sign Language.

### Learning plan

A look at the key features of the new education policy: ■ R.V.S. PRASAD



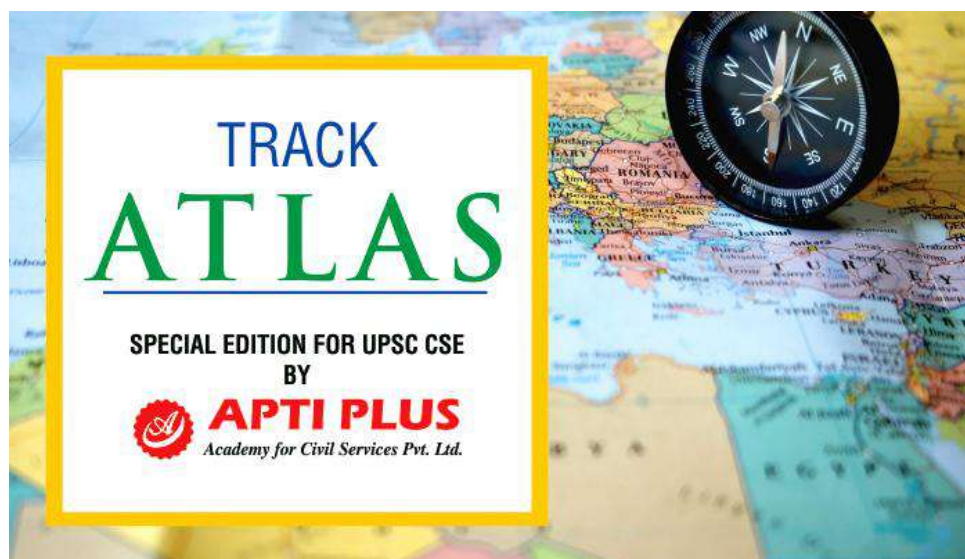
- Public spending on education by States, Centre to be raised to 6% of GDP
- Ministry of Human Resource Development to be renamed Ministry of Education
- Separate technology unit to develop digital education resources

SCHOOL EDUCATION

- Universalisation from age 3 to Class 10 by 2030
- Mission to ensure literacy and numeracy skills by 2025
- Mother tongue as medium of instruction till Class 5 wherever possible
- New curriculum to include 21st century skills like coding and vocational integration from Class 6
- Board exams to be easier, redesigned

HIGHER EDUCATION

- New umbrella regulator for all higher education except medical, legal courses
- Flexible, holistic, multi-disciplinary UG degrees of 3-4 years' duration
- 1 to 2 year PG programmes, no M.Phil
- College affiliation system to be phased out in 15 years



## INDO-BHUTAN RELATIONS

## GS-II INTERNATIONAL RELATIONS

### Context

- NPCI arm to extend BHIM UPI payments system to Bhutan.

### More about news

- National Payment Corporation of India's arm, NPCI International Payments Ltd. (NIPL) has partnered Royal Monetary Authority (RMA) of Bhutan for implementing BHIM UPI in Bhutan.
- The collaboration between NIPL and RMA will **enable acceptance of Unified Payments Interface (UPI) powered BHIM App in Bhutan.**
- And RMA will ensure that the **participating NPCI mobile application through UPI QR transactions is accepted at all RMA acquired merchants in Bhutan.**

### About UPI

- Unified Payments Interface (UPI) is an instant real-time payment system.
- It allows users **to transfer money on a real-time basis**, across multiple bank accounts without disclosing details of one's bank account to the other party.
- In 2020, UPI enabled commerce worth \$457 billion, which is equivalent to approximately 15% of India's GDP.

### Significance

- This facility will **benefit more than 200,000 tourists from India** who travel to Bhutan each year.
- Bhutan will become the **first country to adopt Unified Payment Interface (UPI) standards** for its QR deployment.
- Bhutan will also become the **only country to both issue and accept RuPay cards as well as accept BHIM UPI.**

### Overview of indo-Bhutan relations

- Diplomatic relations** between India and Bhutan were established in 1968 with the establishment of a special office of India in Thimphu.
- Buddhist links:** Common Buddhist links provide long term support to India-Bhutan diplomatic relation and for the regional order.
- The basic framework of India- Bhutan bilateral relations was laid in the Treaty of Friendship and Cooperation signed in 1949 between the two countries, which was revised in February 2007.
- India and Bhutan share a unique and time tested bilateral relationship, characterized by utmost trust, goodwill and mutual understanding.
- The special relationship has been sustained by a tradition of regular high level visits and dialogues between the two countries.
- Government of India has consistently supported the socio-economic development of Bhutan. India has been extending economic assistance to Bhutan's socio-economic development since the early 1960s when Bhutan launched its Five Year Plans.
- India continues to be the principal development partner of Bhutan. For the 12th Five Year Plan, India's contribution of Rs. 4500 cr. will constitute 73% of Bhutan's total external grant component.
- Areas of Assistance:** The key areas of focus of GOI's assistance include agriculture and irrigation development, ICT, health, industrial development, road transport, energy, civil aviation, urban development, human resource development, capacity building, scholarship, education and culture.
- Hydropower diplomacy:** Hydro-power cooperation between the two countries is an example of win-win cooperation. For Bhutan, hydro-power development continues to be a vital catalyst for socio-economic development. The ongoing cooperation between India and Bhutan in the hydro-power sector is covered under the 2006 bilateral agreement for cooperation and its Protocol signed in 2009
- Trade relations:** Major exports from India to Bhutan are mineral products, machinery and mechanical appliances, electrical equipments, base metals, vehicles, vegetable products, plastics and articles.
- The major items of export from Bhutan to India are electricity, ferro-silicon, portland cement, dolomite, carbides of calcium carbides of silicon, cement clinkers, timber and wood products, potatoes, cardamom and fruit products.
- People-to-people ties:** India is the most popular educational destination for Bhutanese students -almost 4000 Bhutanese students are enrolled in Indian Universities at any time, many of whom are also provided scholarship by Govt. of India.
- Cultural ties:** There are vibrant cultural exchanges between the two countries. A number of Bhutanese pilgrims travel to holy Buddhists sites in India. The two countries share an open border with regular exchange of travelers in both directions for work, tourism, shopping, medical care etc.

### Context

- Uzbekistan hosted a high-level International Conference titled “Central and South Asia: Regional Connectivity. Challenges and Opportunities” at Tashkent.
- It was attended by President of Afghanistan, Ministers from Central Asian, West Asian and South Asian countries, including Minister of External Affairs of India.
- Delegates from over 40 countries and about 30 international organizations, and heads of think tanks participated in the conference.



### Central Asian Connectivity

- The Iranian port of Chabahar has the **potential to shift some of the regional dynamics in India's favor**.
- Double landlocked Uzbekistan** has been interested in using the port to expand its trade and transit options.
- Uzbekistan has already developed **rail connectivity into Afghanistan** as a means to link with Iranian railway lines reflects Tashkent's seriousness.
- Other Central Asian states like Kazakhstan have also been interested in exploring such options.
- Given the **geostrategic location of Central Asia**, the region is also witnessing a fair share of great power competition.
- The region is viewed as **Russia's immediate backyard** and Moscow has traditionally maintained a dominant role in relations with Central Asia, **China has steadily strengthened its footprint**. India has also been **pursuing both geopolitical and economic ties** with the region.



### What Chabahar can offer?

- Chabahar has the potential to **shift** some of the regional **dynamics in India's favor**.
- First, it could prove to be a **gateway to Central Asia and Eurasia**, which can, most importantly, avoid Pakistan.
- It is seen as an effort at **exploring an alternate option** for Central Asia to China's Belt and Road Initiative (BRI).



### Measures taken to improve ties

- India has made consistent efforts to re-establish linkages with this region and consider Central Asia a part of the **India's extended neighborhood**. But lack of physical connectivity has proven to be a major hurdle in building trade and economic ties.
- Modi became the first Indian leader to travel to all five Central Asian republics – Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan – in 2015.
- In addition to energy security cooperation, India and Central Asia have both shunned Islamic terrorism and extremist ideology. Fighting cross-border terrorism has become an important common issue shaping their agenda.
- India has also been stepping up defense cooperation with the region, with a defense attaché posted in each of the Indian missions in Central Asia.
- India and Uzbekistan signed a **civil nuclear agreement** in January 2019 and agreed to pursue connectivity projects via the **International North-South Transport Corridor (INSTC)**.



### INSTC

- INSTC is a **multi-modal infrastructure initiative** spanning around 7,200 km.
- It encompasses a network of ship, rail and road routes for transporting freight between **India, Iran, Afghanistan, Central Asia, Azerbaijan, and Europe**, with the goal of creating transport linkages among major cities including Astrakhan, Baku, Bandar Abbas, Moscow, and Mumbai.
- Feasibility studies undertaken so far has shown significant reduction of transportation costs, to the tune of \$2,500 per 15 tons of cargo.
- India is “pitching for” Uzbek participation in the INSTC connectivity project.

## OPEC

## GS-II INTERNATIONAL RELATIONS

### Context

- The OPEC+ group of countries had, entered into a **two-year agreement**, which entailed **steep cuts in crude production to deal with a sharp fall in the price of oil as a result of the Covid-19 pandemic**.

### What is the background?

- As a result of the Covid-19 pandemic the price of Brent crude hit an 18-year low in April 2020 as the economic activity around the world crashed
- OPEC+, maintained lower levels of production despite crude oil prices reaching pre-Covid levels.
- Saudi Arabia, announced a further cut in production** of 1 million barrels per day for the February-to-April period, which **helped boost rising prices even further**.
- The OPEC+ group ran into sharp criticism from developing economies, including India, for deliberately maintaining low supply levels to raise prices.
- In April, OPEC+ **agreed to gradually increase crude production** as prices reached \$64.5 per barrel including a phased end to Saudi Arabia's 1 million barrel per day cut in production by July.

### What is the issue?

- The UAE agreed that there was a need to increase crude oil production from August.
- But did not agree to a condition by the OPEC Joint Ministerial Monitoring Committee (JMMC) that the **two-year production agreement be extended by six months**.
- The UAE's key objection is the **reference output used to calculate the total production** apportioned to each oil-exporting country.
- The UAE noted that the baseline reference production levels were unfair.

### How will this impact India?

- If the UAE and other OPEC+ nations do not reach an agreement to increase production in August, expected relief in the form of lower crude oil prices could be delayed.
- India is currently facing record-high prices of petrol and diesel, which is impacting its economic growth.

### About OPEC

- The Organization of the Petroleum Exporting Countries is an **intergovernmental organization** of 13 countries.

- A larger group called **OPEC+** was formed in late 2016 to have more control on the global crude oil market
- **Mission:** To "coordinate and unify the petroleum policies of its member countries and ensure the stabilization of oil markets, in order to secure an efficient, economic and regular supply of petroleum to consumers, a steady income to producers, and a fair return on capital for those investing in the petroleum industry."
- The current OPEC members are: Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, the Republic of the Congo, Saudi Arabia, the United Arab Emirates and Venezuela. Former OPEC members are Ecuador, Indonesia and Qatar.
- OPEC+ came into existence in late 2016 as a **means for the top oil-exporting nations to exert control over the price of the precious commodity.**
- OPEC+ is an **amalgamation of OPEC and 10 other oil-exporting nations** such as Russia and Kazakhstan.

## SHANGHAI COOPERATION ORGANISATION (SCO)

## GS-II INTERNATIONAL RELATIONS

### Context

- Defence Minister attended the Shanghai Cooperation Organisation (SCO) at Dushanbe, Tajikistan.
- The geo-strategic location of India makes it both a **Eurasian land power as well as a stakeholder in the Indo-Pacific.**
- Terrorism is the most serious threat to international peace and security.
- The pandemic had affected nations, civil societies and citizens in multiple ways, it is a warning sign of how non-traditional security challenges like **pandemics, climate change, food security, water security and associated societal disruptions could impact national and international landscape.**
- **Non-traditional threats and a new technology** have combined to form a whole new spectrum of sub-conventional security issues.
- India's initiative on **coalition for disaster resilient infrastructure (CDRI)** is an example of how countries were coming together to **create and share capabilities to deal with humanitarian assistance and disaster relief issues.**
- India supported and participated in the SCO activities, including in defence cooperation programme, reflecting its commitment to work closely within the SCO framework.



### What is SCO?

- It is a **Eurasian political, economic, and security alliance.**
- The original five nations, with the exclusion of Uzbekistan, were previously members of the **Shanghai Five group.**
- Since then, the organisation has expanded its membership to eight countries when **India and Pakistan joined SCO as full members on 9 June 2017 at a summit in Astana, Kazakhstan.**
- **The Heads of State Council (HSC)** is the supreme decision-making body in the SCO.
- It is the **largest regional organisation** in the world in terms of **geographical coverage and population, covering three-fifths of the Eurasian continent** and nearly half of the human population.
- The SCO is widely regarded as the **"alliance of the East"**, due to its growing centrality in Asia-Pacific, and has been the primary security pillar of the region.
- The **Regional Anti-Terrorist Structure (RATS)**, headquartered in Tashkent, Uzbekistan, is a **permanent organ of the SCO**, which serves to **promote cooperation of member states against the three evils of terrorism, separatism and extremism.**

### Criticisms of the SCO

- It is used by member states to **shield each other from international criticism regarding human rights violations.**
- SCO is struggling to emerge as a cohesive organisation because it **lacks coherence on account of China's pre-pondering influence.**



## India-SCO

- It is the only regional grouping in the vast Eurasian space.
- SCO provides a robust platform for connecting with countries of Central Asia with whom India shares millennia of vibrant, multifaceted linkages.
- Central Asia and Afghanistan are vital for India's security, meeting its energy requirements, connectivity, trade and economic progress and growth.
- India through its active participation has strengthened greater trade, economic and cultural cooperation within SCO by putting human beings at the center of SCO activities.
- India's initiatives have emphasised its commitment to expanding its partnership with SCO by playing a proactive, positive and constructive role in the organisation.

## US WAR IN AFGHANISTAN

## GS-II INTERNATIONAL RELATIONS

### Context

- US combat troops prepare to leave Afghanistan.
- US military has left **Bagram Airfield in Afghanistan** after nearly 20 years.
- The facility was the epicenter of the war to oust the Taliban and hunt down the al Qaeda perpetrators of the 9/11 terrorist attacks on America.
- The exit is part of President Joe Biden's plan to withdraw American troops from Afghanistan by September 11, the 20th anniversary of the terrorist attack on the twin towers of the World Trade Center and the Pentagon.

### Why did the U.S. invade Afghanistan?

- After the September 11, 2001 terrorist attacks, U.S. President George W. Bush declared war on Afghanistan, which was then ruled by the Taliban.
- The Taliban regime had turned down U.S. demand to hand over al-Qaeda leaders, including Osama bin Laden, who plotted the attacks.
- Inside Afghanistan, the NATO coalition troops led by the U.S. dislodged the Taliban regime and established a transitional government.
- The U.S. rejected an offer from the Taliban to surrender and vowed to defeat the insurgents in every corner of Afghanistan.
- Other western powers helped Afghanistan to build a **centralised democratic system** and institutions. But that neither ended the war nor stabilised the country.

### Why is the U.S. pulling back?

- The U.S. had reached the conclusion that the war is unwinnable.
- President Barack Obama, had promised to bring American troops back home from Afghanistan. But the U.S. wanted a face-saving exit.
- In 2015, Obama had sent a representative to the first-ever meeting between the Taliban and the Afghan government that was hosted by Pakistan.
- Later, President Donald Trump appointed a special envoy for Afghanistan, to directly negotiate with the Taliban.
- It led to the **Doha 2020 agreement**, between the U.S. and the insurgents.
- In the agreement, the Trump administration promised that it would withdraw all American troops from Afghanistan by May 1, 2021.
- President Joe Biden endorsed the Trump-Taliban deal, but pushed the deadline for withdrawal to September 11.

### What are the terms of the Trump-Taliban deal?

- The Doha deal dealt with four aspects of the conflict – **violence, foreign troops, intra-Afghan peace talks and the use of Afghan soil by terrorist groups** such as al-Qaeda and the Islamic State.
- According to the agreement,
  - **Taliban promised to reduce violence, join intra-Afghan peace talks and cut all ties with foreign terrorist groups**
  - **U.S. pledged to withdraw all its troops, roughly 12,000 at the time of the signing of the agreement in February 2020, by May 1, 2021.**

### What lies ahead for Afghanistan after U.S. exit?

- After the agreement was signed, the U.S. put pressure on the Afghan government to release thousands of Taliban prisoners – a key Taliban precondition for starting intra-Afghan talks.
- Talks between Taliban representatives and the Afghan government began in Doha in September 2020 but did not reach any breakthrough.
- At present, the **peace process is frozen**.
- The Taliban reduced hostilities against foreign troops but continued to attack Afghan forces even after the agreement was signed.



- Kabul maintains that the **Pakistan support for the Taliban is allowing the insurgents to overcome military pressure and carry forward with their agenda.**

#### What does Pakistan want?

- Pakistan was one of the three countries that had recognised the Taliban regime in the 1990s.
- The Taliban captured much of the country with help from Pakistan's ISI (Inter-Services Intelligence.)
- After the 9/11 attacks, Pakistan, under pressure from the Bush administration, cut formal ties with the Taliban and joined America's war on terror.
- But Pakistan played a double game.
- It provided shelter to the Taliban group, to raise money and recruits, plan military strategy and stage a comeback in Afghanistan.
- The fractious Kabul government, faced with corruption allegations, incompetence, and the excesses of the invading forces, made matters easier for the Taliban.
- A violent military takeover of Afghanistan by the Taliban is expected.
- Pakistan wants to **check India's influence in Afghanistan** and bring the Taliban to Kabul.
- But a violent takeover, like in the 1990s, would lack international acceptability, leaving Afghanistan unstable for a foreseeable future.
- In such a scenario, **Pakistan could face another influx of refugees from Afghanistan** and a strengthening of anti-Pakistan terror groups, such as the Tehrik-i-Taliban.

#### Why is India reaching out to the Taliban?

- India made contacts with the Taliban in Doha.
- In the past, India chose not to engage the Taliban (New Delhi had backed the Northern Alliance) and the costs were dear when the Taliban was in power. This time, New Delhi is testing another policy.
- This signals **acknowledgement from the Indian side that the Taliban would play a critical role in Afghanistan in the coming years.**
- India has three critical areas in dealing with the Taliban.
  - protecting its investments**, which run into billions of rupees, in Afghanistan
  - preventing a future Taliban regime from being a pawn of Rawalpindi;**
  - making sure that the **Pakistan-backed anti-India terrorist groups do not get support from the Taliban.**

#### Is the Afghanistan government doomed?

- The American intelligence community has concluded, that Kabul could fall within six months.
- American withdrawal has **turned the balance of power in the battleground in favour of the Taliban.**
- There could be three scenarios, any nation planning to deal with Afghanistan should be prepared for all three scenarios.
  - A political settlement in which the Taliban and the government agree to some power-sharing mechanism and jointly shape the future of Afghanistan. As of now, this looks like a remote possibility.
  - Two, an all-out civil war may be possible, in which the government, economically backed and militarily trained by the West, holds on to its positions in key cities and the Taliban expand its reach in the countryside, while other ethnic militias fight for their fiefs. This is already unfolding.
  - A third scenario would be of the Taliban taking over the country.

## BRICS COUNTER TERRORISM ACTION PLAN

## GS-II INTERNATIONAL RELATIONS

### Context

- The 6th meeting of the **BRICS Counter Terrorism Working Group** was held virtually under the **Chairship of India.**
- The main outcome of the meeting was the **finalisation of the BRICS Counter Terrorism Action Plan** containing **specific measures to implement the BRICS Counter Terrorism Strategy** adopted by BRICS Leaders in 2020.
- The Action Plan is aimed **at further strengthening result oriented cooperation** between BRICS countries in areas such as preventing and combating terrorism, radicalisation, financing of terrorism, misuse of internet by terrorists, and curbing travel of terrorists.



### What is BRICS? How did these countries come together?

- It is an **informal group of states** comprising the Federative Republic of **Brazil**, the Russian Federation, the Republic of **India**, the People's Republic of **China** and the Republic of **South Africa.**



- It is actually a forum than a traditional-type organization with **rigid membership and regulations**.
- Originally the first four were grouped as "BRIC" (or "the BRICs"), before the **induction of South Africa in 2010**.
- At the **Fortaleza Summit (2014)**, in Brazil, the **New Development Bank (NDB) and the Contingent Reserve Arrangement (CRA) were created**.
- Among other areas of collaboration, matters pertaining to drug trafficking is an important area of cooperation among the BRICS member states.

#### What challenges BRICS is facing?

- Disagreements between its members.
- Slow progress shown on the ground when it comes to implementation of initiatives make it quite vulnerable to criticism.
- The development trends of the BRICS nations are not very similar, as there is a huge difference in the economic structure of the member countries.
- The members also have differences over the UN Security Council (UNSC) reforms. It will be tough for the member countries to make a consensus on contemporary global issues.
- The burden of the NDB cannot be shared equally, as the size of the economy of each member varies with great magnitude. So, it is inevitable that the disputes will arise in sharing the burden of NDB.

#### BRICS and COVID-19

- Most of its programs and mechanisms proved to be effective during the pandemic.
- The **BRICS Science, Technology and Innovation (STI) Framework Programme**, helped scientists and researchers to effectively exchange their findings to better facilitate a common response.
- It worked better than other global governance institutions amidst the ongoing COVID crises.
- There was **no blame-game or pointing fingers within BRICS**, rather there is only a common vision for intensifying cooperation, including in sectors like healthcare, social welfare.
- BRICS has progressed on developing a common position on the most important matters of the global economy and security.

#### Way Ahead

- It is now important for the BRICS nations to engage in the grouping at the highest level **to change the world order to counter the US supremacy**.
- BRICS forum should be effectively utilized for consultation, coordination and cooperation on contemporary global issues of mutual interest and promoting mutual understanding.
- The future of BRICS depends on the adjustment of the internal and external issues of India, China and Russia.
- Mutual communication between India, China and Russia is important for moving ahead.

## NORTHERN IRELAND PROTOCOL

## GS-II INTERNATIONAL RELATIONS

#### Context:

- U.K. want to renegotiate the Northern Ireland Protocol

#### What is Britain proposing?

- The Britain administration informed the European Union (EU) that it wants to renegotiate the Brexit deal's Northern Ireland Protocol.
- The **EU has ruled out a renegotiation**, but says it is open to "practical, flexible solutions".

#### What's behind Northern Ireland Protocol?

- The sovereign territory of the U.K. includes **England, Wales, Scotland**, and what is known as **Northern Ireland**, which occupies a portion of the island of Ireland.
- Ireland has long seen **tensions between the Catholics/Nationalists**, who want a unified Irish republic, and the Protestants/Unionists, who are loyal to the British crown.
- The long and violent conflict between the two sides – known as **The Troubles** – ended with the 1998 **Good Friday Agreement**, whose fragile peace rests on a principle that Brexit has now disrupted: **there won't be a border between Northern Ireland and Ireland**.
- Northern Ireland is the only part of the U.K. that shares a land border with the EU, as Ireland is an EU member-state.
- Brexit took the **U.K. out of the EU's customs union**.
- It created a problem whose solution needed two seemingly contradictory outcomes: **preserving the sanctity of the EU's single market, as well as that of the U.K.'s domestic market**.
- The **Protocol's solution** was **to avoid a customs check** on the island of Ireland. Instead, it envisaged a 'sea border' at the ports of Northern Island.
- Certain goods – meant only for Northern Ireland but not for Ireland, which falls within the EU market – would undergo checks here before entering the island.

### Why does the U.K. want changes?

- The **creation of an economic barrier** between the British mainland and Northern Ireland has affected the free flow of goods between the two.
- Businesses in Northern Ireland have been complaining about **cumbersome paperwork and compliance costs**.
- Some British companies would like to avoid the hassle altogether by withdrawing supplies to Northern Ireland.
- Apart from the economic irritants, Brexit seems to **have resurrected old sensitivities about political identity, with the Unionists questioning why they alone – among U.K. citizens – should suffer differential treatment**.
- The U.S. – which helped broker the 1998 Agreement – **has warned the U.K. against disturbing the fragile peace over Brexit**.

### What is Britain proposing?

- The U.K. is telling the EU, “Trust us to protect your single market.”
- **It has proposed five changes to the Protocol:**
- no more checks on goods moving from mainland Britain to Northern Ireland where a business self-certifies that its products are not meant for use in the EU;
- a dual regime wherein goods made to either U.K. standards or EU standards can circulate anywhere in Ireland; removal of the need for any ‘export declarations’ on goods going from Northern Ireland to Great Britain;
- rewriting of the clause in Article 10 that requires the U.K. subsidies that affect trade with Northern Ireland to comply with EU rules; and finally,
- Ending the right of EU institutions such as the European Court of Justice to enforce the Protocol.

### What lies ahead?

- These proposals would be **unacceptable to the EU**, as they **outsource the enforcement of the Protocol** – and the European customs union – entirely to the U.K.
- Only **last year that the U.K. signed the Protocol**, and given that nothing has changed since then, the **EU will insist that the U.K. honor the deal**.
- The two sides will certainly seek a solution through talks.
- But if talks fail, the U.K. **could invoke Article 16**, which allows the unilateral suspension of a part of the agreement in extreme circumstances.
- In such a scenario, the economic barrier might shift to a land border on the island, which would **basically shred the 1998 Agreement, and the peace that came with it**.

## INDIA-MALDIVES RELATIONS

## GS-II INTERNATIONAL RELATIONS

### Context

- The “India Out campaign” in Maldives.

### More about news

- The 'India Out' campaign started last year as on-ground protests in the Maldives, is widely spreading across social media platforms.
- The Indian High Commission in the Maldives has sought government action and greater security.
- These “attacks are motivated, malicious and increasingly personal” and indicated that they could potentially “damage the time-tested and mutually beneficial bilateral relations between India and the Maldives.
- The anti-India campaign is a protest against the Indian’s military presence in the country.
- Reports are being published in Maldives media alleging that the present incumbent government is **allowing India to establish a military base in the island by signing secret agreements, in exchange for financial assistance or other material benefits**.
- This allegation is made against the government because the leader of the current ruling party Mohamed Nasheed urged India to intervene militarily to restore peace and democracy in 2018.
- Progressive Party of Maldives (PPM) of former President Abdulla Yameen and its coalition partner People’s National Congress (PNC) are trying **to mobilize people against the current government by spreading misleading propaganda against India**.
- Indiaout campaign was launched by the opposition coalition **PPM and PNC both on the street as well as on social media demanding the expulsion of Indian military personnel present in the country**.

### India’s reaction

- India’s requested to take action against local media and have repeatedly urged people to not spread hate against India.
- Foreign ministry’s urged the media not to affect bilateral relations and, as per **article 29 of the Vienna Convention on Diplomatic Relations**, it is the responsibility of the Maldives to treat the diplomats with due respect, and take all appropriate steps to prevent any attack on freedom, and dignity of foreign diplomats.

## India-Maldives bilateral Relations

- India and Maldives are neighbors as they share a maritime border. Relations have been friendly and close in strategic, economic and military cooperation. India continues to contribute to maintaining security on the island nation.

### Historical relations

- Both nations' were Britain colonies.
- India was among the **first to recognize Maldives after its independence in 1965** and to establish diplomatic relations with the country. India established its mission at Malé in 1972.
- India and Maldives share ethnic, linguistic, cultural, religious and commercial links steeped in antiquity and enjoy cordial and multi-dimensional relations.

### Political relations

- India and Maldives have consistently supported each other in multilateral fora such as the **UN, the Commonwealth, the NAM and the SAARC**.
- High connectivity:** High People-to-People contacts, as Air India operates daily flights to Malé from Thiruvananthapuram, Bangalore and Chennai.
- Tourism:** The proximity of location and improvements in air connectivity in recent years has led to a very substantial increase in the number of Indians visiting Maldives for **tourism** (around 33,000) and business.
- Soft diplomacy:** India is a preferred destination for Maldivian for **education, medical treatment, recreation and business**.
- Diaspora:** Indians are the **second largest expatriate community in the Maldives**.

## Why Maldives matters to India?

### Strategic location:

- Maldives holds strategic importance for India under the Modi government's '**Neighborhood First**' policy due to its location in the Indian Ocean.
- The **Eight Degree Channel** is one of the major maritime lanes of the world.
- Stability, maturity and democratic systems** in the Maldives can ensure peace and security in the Indian Ocean.



## Major challenges

### Chinese influence

- India has been quite apprehensive of the growing Chinese influence in Maldives even as it continues to give utmost priority to the island nation.
- There have been growing concerns regarding China's role in the Maldivian economy through so-called "**debt-trap diplomacy**."
- Maldives incurred a debt of about **\$1.4 billion** owing to loans from China to finance several of its infrastructure projects.
- Maldives and China had also entered into a **free trade agreement**.

### India's position in Male crisis

- During the pro-Beijing regime of their former President Abdulla Yameen, ties between the nations got strained. In fact, there came a point in 2018 when **India even contemplated a military intervention**.

## Measures taken so far

- After coming to power for the second time in May last year, Prime Minister Modi's first international destination was Maldives. He was also the **only head of state to attend Maldives President Ibrahim Mohamed Solih's** swearing-in ceremony in November 2018, when he came to power ousting Yameen.
- India has also **offered a \$1.4-billion development assistance package to Maldives**, which is being utilised in several projects.
- 30 years ago, in 1988, an intervention by the Indian armed forces - codenamed '**Operation Cactus**' - trounced an attempted coup on the island nation. On November 3, 1988, when mercenaries attacked the Maldives, India was the first to respond.
- In 2004, when the tsunami hit Maldives, Indian naval ships were dispatched to assist rescue operation.
- During the **Male water crisis**. Within four hours Indian Navy and Air Force vessels delivered water.

## Way forward

- Past learning's:** Despite repeated calls for intervention, India firmly avoided military action against the Yameen regime. New Delhi thoughtfully coordinated its diplomatic response with other stakeholders, and put enormous pressure on Yameen to hold the presidential elections in a fair and transparent manner. This patience seems to have yielded a positive outcome as India finds itself in an advantageous situation now.
- Cautious approach:** India needs to remain careful if it wants to avoid a Nepal-like situation, where New Delhi's perceived interference in Nepal's internal affairs had turned the Nepali people against India. Having a lighter diplomatic footprint is the only way forward in the Maldives.'



## COVID-19 VACCINES AND RARE BLOOD CLOTS

## GS-II HEALTH

### Context

- Some COVID-19 vaccines have been linked to dangerous but incredibly rare blood clots.
- Now a small study by researchers' report in 'Nature Journal' is revealing new details on how those clots form.

### About

- Vaccine-induced antibodies attach to a protein called platelet factor 4, or PF4, spurring platelets to form clots.
- The vaccine-induced condition is similar to what happens with heparin, a blood thinner that can also attach to PF4.
- When heparin binds to PF4, some people's immune systems then attack the bound molecules, a condition called heparin-induced thrombocytopenia also characterized by clotting.
- This hints that heparin and COVID-19 vaccines cause blood to clot in similar ways.

### Components of Blood

#### Plasma

- Plasma constitutes 55% of total blood volume.
- Composed of 90% water, salts, lipids and hormones, it is especially rich in proteins (including its main protein albumin), immunoglobulins, clotting factors and fibrinogen.
- Plasma performs several functions: transporting blood cells and nutrients; regulating the body's water and mineral salts; irrigating tissues; providing a defence against infections; and coagulating blood.
- Red blood cells, white blood cells and platelets are suspended in plasma.

#### White Blood Cells

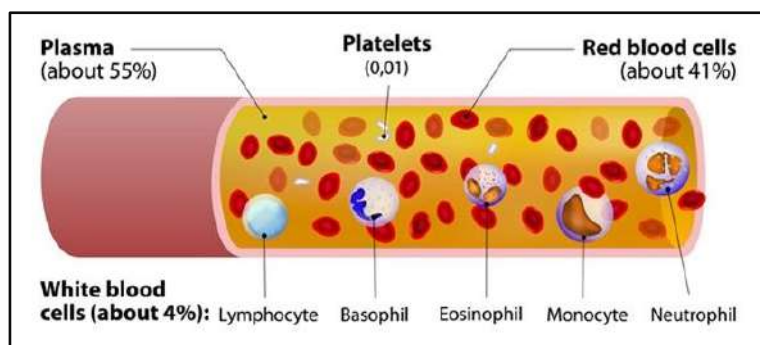
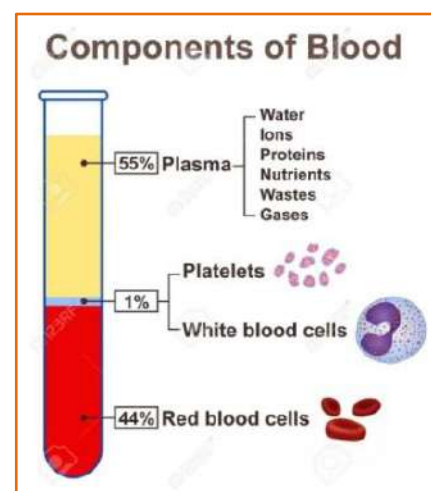
- There are between 6,000 and 8,000 white cells per cubic millimetre of blood.
- White cells, slightly larger than red cells, are also called leukocytes.
- They purify and protect the body from infections.
- Once an infection is detected in any part of the body, the while cells move in to fight it.

#### Platelets

- Platelets, or thrombocytes, are smaller than the red and white blood cells.
- Platelets play a role in blood coagulation and wound healing.
- When a blood vessel ruptures, platelets combine with fibrin, derived from fibrinogen, to form a clot.

#### Red Blood Cells

- A drop of blood the size of a pinhead contains approximately 5 million red blood cells (erythrocytes).
- They are small biconcave disks without a nucleus and get their red colour from an iron-containing protein called hemoglobin.
- Red cells make up between 37% and 43% of blood volume in women and between 43% to 49% in men.
- Red blood cells carry oxygen throughout the body.

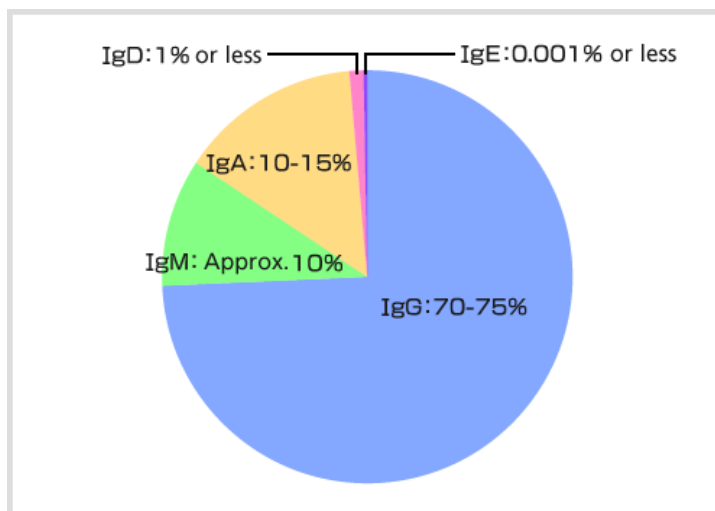


### Antibodies and its Types

- Antibodies, also referred to as immunoglobulins, are glycoproteins naturally produced in response to invading foreign particles (antigens) such as microorganisms and viruses.
- They play a critical role in the immune system's defense against infection and disease.

<b>IgG</b>	It is the only antibody that can pass through the placenta, and IgG transferred from the mother's body protects a newborn until a week after birth. IgG widely distributed to the blood and tissue, and protects the body.
<b>IgM</b>	IgM has a key role in the initial immune system. It is distributed to the blood.
<b>IgA</b>	It is distributed to serum, nasal discharge, saliva, breast milk and bowel fluid.
<b>IgD</b>	IgD is present on the surface of B cells and plays a role in the induction of antibody production.
<b>IgE</b>	IgE is related to immunity reactions to parasites, and has recently become known as a key factor of allergies such as pollinosis.

## Population of 5 types of antibodies in Human Blood (%)



## LAMBDA VARIANT

## GS-II HEALTH

### Context

- Another variant of SARS Cov-2, called Lambda, is increasingly being seen by scientists and health experts as a new emerging threat.

### About

- World Health Organization designated the Lambda variant, previously known by its formal scientific name C.37, as the seventh and newest "variant of interest".
- The designation as a **"variant of interest" means that the genetic changes involved are predicted to affect transmissibility, disease severity, or immune escape.**
- It is also an acknowledgement of the fact that the variant has caused significant community transmission in multiple countries and population groups.
- Lambda variant, has now been detected in more than 25 countries and it is feared to be **more transmissible than the original virus.**
- It has been the dominant variant in Peru and other countries of South America.
- The Lambda variant **has not yet been found in the Indian population**, but has recently been detected in the UK and other European countries.

### Variants of Interest

- There are currently seven variants, including the Lambda that the WHO classifies as "variants of interest".

**New WHO labels for Covid-19 variants**  
The UN health agency uses letters of the Greek alphabet to avoid stigmatising nations where they were first detected

Date identified	Earliest recorded samples
<b>VARIANTS OF CONCERN</b>	
<b>Increase in transmissibility or virulence</b>	
<b>α</b> Alpha B.117	<b>β</b> Beta B.1351
<b>γ</b> Gamma P.1	<b>δ</b> Delta B.16172
Dec 18, 2020	Dec 18, 2020
Jan 11, 2021	May 11, 2021
United Kingdom	South Africa
Brazil	India
<b>VARIANTS OF INTEREST</b>	
<b>Can cause community transmission or multiple clusters, or detected in multiple countries</b>	
<b>ε</b> Epsilon B.1427/B.1429	<b>ζ</b> Zeta P.2
<b>η</b> Eta B.1525	
March 5, 2021	March 17, 2021
March 17, 2021	
United States	Brazil
Multiple countries	
<b>θ</b> Theta P.3	<b>ι</b> Iota B.1526
<b>κ</b> Kappa B.16171	
March 24, 2021	March 24, 2021
April 4, 2021	
Philippines	United States
India	

## MALARIA

## GS-II HEALTH

### Context

- China declared Malaria free by WHO.

### About

- China is the **first country in the WHO Western Pacific Region to be awarded a malaria-free certification** in more than 3 decades.
- Globally, 40 countries and territories have been granted a malaria-free certification from WHO.

- **Recent Declarations:** El Salvador (2021), Algeria (2019), Argentina (2019), Paraguay (2018) and Uzbekistan (2018).

### Malaria Free Status

- Countries that have achieved at least **three consecutive years of zero indigenous cases can apply for WHO certification of their malaria-free status.**

### India and Malaria

- According to the World Malaria Report 2019, **India represents 3% of the global malaria burden.**
- Despite being the highest malaria burden country of the South East Asia region, India reported a decline of 17.6% in 2019 as compared to 2018.
- India has made remarkable progress during the recent years in reducing the malaria incidence.
- In May 2015, the World Health Assembly endorsed the **Global Technical Strategy (GTS) for Malaria Elimination** 2016-2030, which lays down clear global goals, milestones and targets till 2030.
- In accordance with the GTS, the Government of India launched the **National Framework for Malaria Elimination 2016-2030** in February 2016 and the **National Strategic Plan for Malaria Elimination 2017-2022** in July 2017 with WHO support.
- India has a vision of a **malaria free country by 2027** and **elimination by 2030.**
- The WHO has also identified 25 countries with the potential to eradicate malaria by 2025 under its 'E-2025 Initiative'.

### The Disease

- Malaria is caused by single-celled microorganisms of the **Plasmodium group parasites.**
- The disease is most commonly spread by an infected **female Anopheles mosquito.**
- The mosquito bite introduces the parasites from the mosquito's saliva into a person's blood.
- The parasites travel to the liver where they mature and reproduce.
- Five species of Plasmodium can infect and be spread by humans.
- Most deaths are caused by **P. falciparum, whereas P. vivax, P. ovale, and P. malariae** generally cause a milder form of malaria.
- The species **P. knowlesi** rarely causes disease in humans.
- Malaria is predominantly found in **the tropical and subtropical areas of Africa, South America as well as Asia.**
- **Symptoms:** fever, tiredness, vomiting, and headaches. In severe cases, it can cause yellow skin, seizures, coma, or death.
- Malaria is **preventable as well as curable.**
- **Vaccine:** RTS,S vaccine.

### China's Malaria Elimination Strategy in brief

#### **1-3-7 Strategy: The strategy refers to:**

- A one-day deadline to report a malaria diagnosis,
- Confirming a case and determining the spread by the third day, and
- Measures taken to stop the spread by the seventh day, along with continued surveillance in high-risk areas.

## MONKEY B VIRUS

## GS-II HEALTH

### Context

- China has reported the first human infection case with Monkey B virus (BV).

### What is Monkey B virus?

- The virus, initially isolated in 1932, is an alphaherpesvirus enzootic in macaques of the genus Macaca.
- Monkey B virus is the only identified old-world-monkey herpesvirus that **displays severe pathogenicity in humans.**

### How is it transmitted?

- The infection can be transmitted via direct contact and exchange of bodily secretions of monkeys and has a fatality rate of 70 per cent to 80 per cent.
- Macaque monkeys commonly have this virus, and it can be found in their saliva, feces, urine, or brain or spinal cord tissue.

### When can a human get infected with B virus?

- Humans can get infected if they are bitten or scratched by an infected monkey; get an infected monkey's tissue or fluid on broken skin or in eyes, nose, or mouth.

### Symptoms

- Flu-like symptoms such as fever and chills, muscle ache, fatigue and headache, small blisters.
- As the disease progresses, the virus spreads to and causes inflammation (swelling) of the brain and spinal cord, brain damage, damage to the nervous system and in extreme cases, death.



### Is there a vaccine against B virus?

- No. Currently, there are no vaccines that can protect against B virus infection.

### Who are at higher risk for infection?

- The virus might pose a potential threat to laboratory workers, veterinarians, and others who may be exposed to monkeys or their specimens.

### Are there any cases of human-to-human transmission?

- Till date, only one case has been documented of an infected person spreading B virus to another person.

## BIRD FLU

## GS-II HEALTH

### Context

- An 11-year-old boy died of H5N1 avian influenza in Delhi. This is the first recorded death due to the bird flu in India this year.

### What is bird flu?

- Bird flu or avian influenza is a disease caused by avian **influenza Type A viruses** found naturally in wild birds worldwide.
- The virus can **infect domestic poultry including chickens, ducks, turkeys and there have been reports of H5N1 infection among pigs, cats, and even tigers in Thailand zoos.**
- Avian Influenza type A viruses are classified based on two **proteins** on their surfaces - **Hemagglutinin (HA) and Neuraminidase(NA).**
- There are about **18 HA subtypes and 11 NA subtypes.** Several combinations of these two proteins are possible e.g., H5N1, H7N2, H9N6, H17N10, etc.

### Bird flu: Infection in humans

- There have been reports of avian and swine influenza infections in humans including A(H1N1), A(H1N2), A(H5N1), A(H7N9), etc.
- The first report of human H5N1 infection was in 1997.
- The infection is deadly as it has a **high mortality rate of about 60%.**
- The most **common route of virus transmission is direct contact** – when a person comes in close contact with infected birds, either dead or alive.
- Humans can also be affected if they come in contact with contaminated surfaces or air near the infected poultry.
- There is **no sufficient evidence suggesting the spread of the virus through properly cooked meat.**

### Symptoms of avian influenza

- Fever, cough, sore throat, muscle aches, nausea, abdominal pain, diarrhea, vomiting
- Severe respiratory illness
- Neurologic changes (altered mental status, seizures)

### Risk groups

- Children and adults below 40 were seen to be the most affected and mortality was high in 10-19 years olds.

### Bird flu: Human-to-human transmission

- The transmission of the virus from birds to humans is **rare** and sustained human-to-human transmission of the H5N1 virus has not yet been established.

**To know about Flu Viruses Visit:** <https://www.iasgyan.in/blogs/different-types-of-flu-viruses-you-must-know-about>

## MONKEYPOX

## GS-II HEALTH

### Context

- US health officials are now monitoring over 200 people in the United States for monkeypox after an individual who traveled from Nigeria to Texas earlier this month was diagnosed with the disease.
- The first case of monkeypox was discovered in 1958 in a colony of monkeys that were being used to research, hence the “monkey” part of the name.

### Details

- Monkeypox is a **viral zoonotic disease that occurs primarily in tropical rainforest areas of Central and West Africa** and is occasionally exported to other




regions.


- It is caused by monkeypox virus, a member of the Orthopoxvirus genus in the family Poxviridae.
- Monkeypox **belongs to the same family of viruses as smallpox.**
- But Smallpox had a higher fatality rate than monkeypox.
- Smallpox was declared eradicated worldwide in 1980.
- Monkeypox is characterised by **flu-like symptoms and swelling of the lymph nodes,** which gradually progresses to a widespread rash all over the face and body.
- Monkeypox virus is mostly transmitted to people from wild animals such as rodents and primates, but **human-to-human transmission also occurs.**
- It spreads from one person to another via respiratory droplets.
- The **first case of monkeypox in humans was recorded in 1970 in the Democratic Republic of Congo.**
- Scientists have so far discovered two distinct genetic groups of monkeypox virus – **Central African and West African.**
- There is **currently no specific treatment recommended for monkeypox.**
- **Vaccination against smallpox was about 85% effective in preventing monkeypox.**
- Thus, prior childhood smallpox vaccination may result in a milder disease course.

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## GENERAL STUDIES - III

### OECD TAX PROPOSALS

### GS-III ECONOMY

#### Context

- 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 actually make their sales instead of simply where they are headquartered
- Pillar Two, **which establishes a global minimum effective tax rate of 15 percent** determined on a country-by-country basis.

#### Global Minimum tax

- Countries would **change their tax laws so that if their companies' 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 percent to 24 percent.
- 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.
- 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 labor – 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.**

#### Philosophy behind the proposals

- Pillar One will **ensure a fairer distribution of profits and taxing rights among countries with respect to 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, infrastructure.**
- These are the **measures necessary to help optimize the strength and the quality of the post-COVID recovery.**

#### Benefits for the 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 the India

- The complexity is **writ large with international tax community and leading experts being equally sceptical on the pragmatic success of these proposals.**
- Furthermore, its **application requires real-time information sharing and conjoint implementation** by the 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 more 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 vindicates 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 need for subject to tax rule to stop treaty shopping.

#### About Base Erosion and Profit shifting

- Base erosion and profit shifting refers 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.

## UNEMPLOYMENT RATE

## GS-III ECONOMY

#### Context

- The unemployment rate for the week ended July 11 rose 34 basis points (bps) from the previous week to 7.64%, as improved labour participation raised the need for jobs.

#### Labour Force participation rate

- The LPR is an age-specific proportion between persons either working or actively seeking work and the total population in the working age group, usually 15 years and above.

#### Unemployment rate

- Unemployment rate is a ratio between persons who are not currently employed but are actively searching for a job, and the total labour force.

#### Types of Unemployment

##### Disguised Unemployment

- It is a condition where more people are working than is necessary. And if some are removed, output is unaffected.
- People are apparently engaged in agricultural activities in Indian villages, for example, where the majority of the unemployment is in this type.

##### Underemployment

- It is a condition in which people who are working but contribute less to production than they are capable of.
- For example, a diploma holder in engineering who, due to a lack of suitable employment, begins selling shoes may be considered underemployed.

##### Open Unemployment

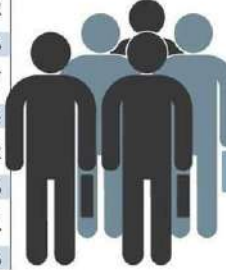
- Under this category, all those who have no work to do fall in this.
- They are able to work and also willing to work, but there is no work for them.
- This unemployment is in the nature of involuntary idleness.
- Such unemployment can be seen and counted in terms of the number of such persons. Hence, it is called open unemployment.

##### Cyclical Unemployment

- It is a result of the business cycle, where unemployment rises during recessions and declines with economic growth.
- Associated with the downswing and depression phases of the business cycle, it is to be found in capitalist or market oriented developed economies.

Week ended	All-India	Urban	Rural
May 23, 2021	14.73	17.41	13.52
May 30, 2021	12.15	17.88	9.58
June 6, 2021	13.62	14.4	13.27
June 13, 2021	8.7	9.7	8.23
June 20, 2021	9.35	10.3	8.92
June 27, 2021	8.72	8.98	8.6
July 4, 2021	7.3	8.57	6.71
July 11, 2021	7.64	8.9	7.06

Source: CMIE



- Falling income lowers the demand for goods and services. As a result, the economy produces less than it is capable of, aggravating further the employment situation.

#### Frictional Unemployment

- Frictional unemployment happens due to improper adjustment between the supply of labour and demand for labour.
- This type of unemployment characterizes developed economies as they push towards further development. At a higher level of development, many changes take place in the industrial structure of these economies, with old industries, contracting and dying out, and new industries coming up.
- Individuals by choice go unemployed as they expect better job prospects than what are available to them and which they consider below their qualification and less remunerative.
- In such situation, it is necessary that workers move from industry to industry. In between the time of leaving and joining, the time for which the workers get no work is a period of unemployment, known as frictional unemployment.

#### Seasonal Unemployment

- Seasonal unemployment is the unemployment caused by seasonal variations in production or demand or both.
- When the workers engaged in a particular work or occupation, get employment only for a limited period and remain idle for the remaining period, it is called seasonal unemployment. It is very common in Indian agriculture.

#### Demographic Unemployment

- Demographic unemployment occurs when the number of **new workers entering the labour force** through the natural increase or inward migration **exceeds the number leaving the workforce**.
- Demographic unemployment is, to a great extent, similar to structural unemployment and is very common in India. It is so because the rate of growth of population in India is much higher than that of employment opportunities.

#### Technological Unemployment

- Technological unemployment is the unemployment caused by technical progress; the skills of particular types of worker are made redundant due to the changes in the methods of production, usually by substituting machines for manual services.

### **Causes of Unemployment in India**

Important causes of unemployment in India may be summarized as follows:

#### Jobless Growth

- Economic growth is usually expected to generate employment. However, in India, most of the economic growth has been jobless.
- Economic growth could not create many jobs in India.

#### Increase in Labour Force

- Over the years, the mortality rate has declined rapidly without a corresponding fall in birth rate and the country has, thus, registered an unprecedented population growth. This was naturally followed by an equally large expansion in the labour force.

#### Inappropriate Technology

- In India, while capital is a scarce factor, labour is available in abundant quantity.
- Under these circumstances, the country should have labor-intensive techniques of production not only in industries but also in agriculture. In western countries, where capital is in abundant supply, use of automatic machines is both rational and justified, while in India, on account of the abundance of labour, this policy results in large unemployment.

#### Inappropriate Education System

- The education system in India is defective and it does not aim at the development of human resources. The curriculum and syllabus taught in schools and colleges, is not as per the current requirements of the industries.

### **Consequences of Unemployment In India**

- Unemployment is the root of a number of social and economic problems. Some of the vital problems are as under:

#### Poverty

- Poverty is the **immediate consequence of unemployment** because when a person is unemployed, he earns nothing and becomes poor.

#### Income Inequalities

- Unemployment causes income inequalities also.
- Indian **economy is beset with gross economic inequalities**. There are inequalities in income, consumption etc.

#### Under-Utilization of Resources

- An important **economic consequence of unemployment is that a lot of resources available in the country remain under-utilized**. India has vast natural resources, but we are unable in utilizing these resources to the desired Extent.

#### Social Problems

- Unemployment is the cause of a number of social problems, mainly because of two reasons: firstly, an unemployed person has nothing to do. He has no work to engage with. This **situation causes dispute, misunderstanding, quarrels, etc.** Secondly, an **unemployed person has no source of income. In most of the cases, such persons fail to provide required food, clothes, shelter, medicines, etc. for themselves and their family. It forces them to do what they do not like to do and should not do. It causes crimes of theft, dacoity, robbery etc.**

### Remedial Measures

The measures that can help us in eradicating or minimizing Unemployment:

#### Expanding Volume of Work

- Solution to the problem of **unemployment lies in enlarging the opportunities for work**. This needs to be completed to clear the backlog of unemployment and to provide jobs to the large additions being made to labour-force.
- The **work to be expanded has to be both in the sphere of wage employment and self-employment**.
- The **ultimate avenue of more employment has to be found in the industrial sector, as also in the service sector**.

#### Raising Capital Formation

- It is also necessary that the accumulation of capital is stepped up.
- It **helps employment expansion in two principal ways**: One, it becomes possible to maintain the existing activities, as also to expand the current activities and to set up new ones.
- Secondly, **capital formation directly generates employment in the capital goods sector**. This also provides capital goods for the production of consumer goods and services.

#### Appropriate Mix of Production Techniques

- It is also necessary to choose such a combination of capital-intensive and labor-intensive technologies of production may generate maximum employment.
- **Labour-intensive activities such as cottage/household activities and also many agricultural operations, provide employment but capital-intensive technologies, are, by and large, more employment-creating**, labour when employed in capital intensive industries, give rise not only to capital goods but also generate employment in industries which provide inputs to them.
- Hence, the right mix of technologies which may provide maximum employment at a higher wage rate and provide a surplus for further investment.

#### Special Employment Programmes

- Till the economy matures to a level where everyone finds the job as described above, it is necessary, **as an interim measure, to undertake special employment programmes for those who do not get benefit from this type of growth in the short run**. The need for supplement programmes is all the more important for poor people, residing mostly in rural areas and small towns. Specific employment programmes to suit specific group of people and specific areas.

## CREDIT RATINGS

## GS-III ECONOMY

### Context

- S&P Global Ratings has kept India's sovereign rating unchanged at the lowest investment grade of 'BBB-'. Based on forecasts of an economic recovery following the resolution of the COVID-19 pandemic, S&P has kept the rating outlook for India at stable.
- S&P has projected a 9.5% GDP growth in the current fiscal year and a 7.8% GDP growth in the following year.

### About Credit Ratings

- Credit ratings **map the probability of default and therefore reflect the willingness and ability of borrower to meet its obligations**.

### Indian Strength

- Zero sovereign default history.
- Extremely low foreign currency denominated debt of the sovereign
- Comfortable size of its foreign exchange reserves that can pay for the short term debt of the private sector as well as the entire stock of India's external debt including that of the private sector.

### Biasness in Credit Rating Agency

- CRAs downgraded East Asian crisis countries more than what would have been justified by these countries' worsening economic fundamentals. This adversely affected the supply of international capital to these countries.
- Sovereign credit ratings tend to be reactive, especially for emerging market economies, with significantly higher probability of downgrade as well as higher size of downgrade as compared to developed economies.
- CRAs give higher ratings to developed countries regardless of their macroeconomic fundamentals.
- Subjective component of S&P, Moody's and Fitch ratings tends to be large, especially for low-rated countries.
- S&P and Fitch are further shown to find it more difficult to upgrade African countries relative to other developing countries, for any given improvement in ability and willingness to repay debts.
- Findings suggest that respective home country, countries with linguistic and cultural similarity, and countries with higher home-bank exposure received higher ratings than justified by their political and economic fundamentals.



### Indian Concern

- India is a negative outlier and is currently rated much below expectation for its level of general government gross debt (as per cent of GDP).
- India is a negative outlier, rated much below expectation for its level of CPI inflation.
- India **remains a negative outlier, currently rated much below expectation for its level of cyclically adjusted primary balance** (per cent of potential GDP).
- India is a **negative outlier, currently rated much below expectation for its level of current account balance** (as per cent of GDP).
- India is a **negative outlier and is currently rated much below expectation for its level of political stability**.
- India is **again a negative outlier, currently rated much below expectation for its level of rule of law**.
- India is a negative outlier and is rated much below expectation for its level of control of corruption.
- India continues to be a negative outlier and is currently rated much below expectation for its level of short-term external debt (as per cent of reserves).

### Does INDIA'S SOVEREIGN CREDIT RATING REFLECT ITS WILLINGNESS AND ABILITY TO PAY? NO!

- India is again a negative outlier, rated below expectation for the numbers of years since last sovereign default (which is zero for India) within its sovereign credit ratings cohort.
- India's ability to pay can be gauged not only by the extremely low foreign currency denominated debt of the sovereign but also by the comfortable size of its foreign exchange reserves that can pay for the short term debt of the private sector.
- India's sovereign external debt as per cent of GDP stood at a mere four per cent as of September 2020.
- Moreover, 54 per cent of India's sovereign external foreign currency denominated debt was owed to multilaterals and IMF as of end-March 2020 (DEA).
- India's forex reserves stood at US\$ 584.24 as of January 15, 2021 (RBI), greater than India's total external debt (sovereign and non-sovereign) of US\$ 556.2 bn as of September 2020 (DEA).

### Policy implications

- Economics Survey 2020-21 found evidence of a systemic under-assessment of India's fundamentals as reflected in its low ratings over a period of at least two decades.
- India's fiscal policy must, therefore, not remain beholden to such a noisy/biased measure of India's fundamentals and should instead reflect Gurudev Rabindranath Thakur's sentiment of a mind without fear.

## DISTRICT MINERAL FUND

## GS-III ECONOMY

### Context

- Recently, Centre has denied Odisha government to transfer district mineral fund in the non-priority areas. It has asked the State to strictly adhere to the provisions of DMF Rules formulated under the Mines and Minerals (Development and Regulation) Act, 1957.

### Background

- The lopsided equation of poverty and **social benefits have failed some of India's richest mining districts** for decades.
- **Mining has benefited mining companies, individual miners and governments**, not the communities living there.
- After years of deliberations and negotiations in 2015, the country's central mining law, the Mines and Minerals (Development and Regulation) Act (MMDR) of 1957 was amended and District Mineral Foundation (DMF) was instituted.
- The DMF is a non-profit statutory 'Trust' for every Indian district affected by mining-related operations, which should "work for the interest and benefit of persons, and areas affected by mining-related operations"

### Composition and functions

- Composition and Functions of the **DMF is prescribed by the State Governments taking guidelines** from Article 244 of Indian Constitution, fifth and sixth schedules,
- Funds **every mining lease holder of will pay a fraction of royalty, not exceeding one-third of the royalty**, to the DMF as per rates prescribed by Central Government.
- This **fund will be used for welfare of the people affected in the mining** affected areas.
- The Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY) will be implemented by the DMFs of the respective districts using the funds accruing to the DMF.

### Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY)

The overall objective of PMKKKY scheme is

- To **implement various developmental and welfare projects/programs in mining affected** areas, and these projects/ programs will complement the existing ongoing schemes/projects of the State and Central Government.

- To **minimize/mitigate the adverse impacts, during and after mining, on the environment, health and socio-economics of people in mining districts.**
- To **ensure long-term sustainable livelihoods for the affected people in mining areas.**

#### Associated Challenges

- The Centre also observed that **states have been found transferring DMF funds to their own treasury and consolidated funds, and even to the Chief Minister's Relief Fund and other schemes.**
- This, according to the mines ministry, **is in violation of Section 9B of Mines and Minerals (Development and Regulation) Act that guides the DMF.**
- Ever since its establishment in 2015, the **DMF has been portrayed as the saviour of communities tribals mostly that have benefitted little from mineral exploration and development in the regions they inhabit.**
- Six years down the line, there are **instances galore where DMF funds have gone to areas that have little or no bearing on the lives of the vulnerable population.**

#### Way Forward

- The latest order by the Centre also echoes the same because putting huge financial resources to uses other than what they are mandated for defeats the whole purpose of the DMF's creation.
- Mineral development comes at a huge social and environmental cost, but communities living in these ore-bearing landscapes must be the principal beneficiary of the funds because they are the ones who bear the brunt but they aren't benefited greatly.

## SAGARMALA

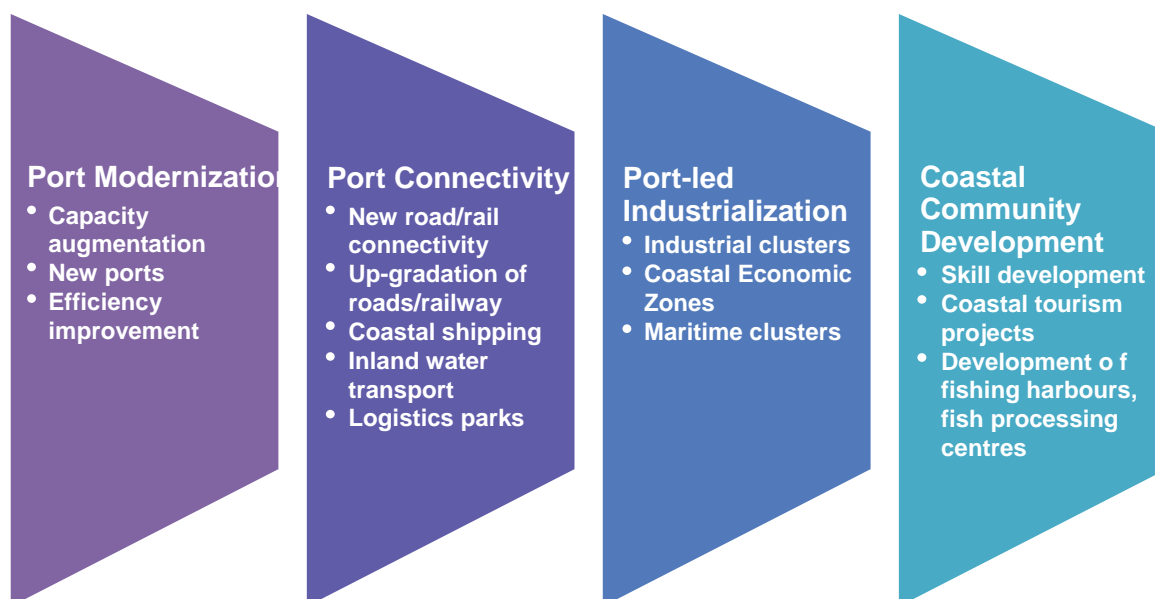
GS-III ECONOMY

#### Context

- Ro-Ro & Ro-Pax ferry projects have been taken under Sagarmala Projects.

#### About Sagarmala Projects

- Sagarmala intends to reduce the logistics costs for foreign and domestic trade, leading to an overall cost savings of INR 35,000 to INR 40,000 crore annually by 2025. It moreover aims to double the share of water transportation in the transportation modal mix.



## BOT MODEL

GS-III ECONOMY

#### Context

- Modern Bus Terminus are being developed based on Build-operate-transfer and Hybrid annuity model mechanism.

#### Hybrid Annuity Model

- The Hybrid Annuity Model (HAM) is a cross between the EPC and the BOTANNUITY models. The cost of the project is split 40:60 between the government and the private player in this model.
- The private player is responsible for building and handing over the roads to the government, which will raise tolls (if desired) – **maintenance is the private player's responsibility until the annuity period ends.**

- The government pays a fixed amount of **economic compensation (called annuity, similar to the BOT ANNUITY model of the past)** to a private player for a set period of time (normally 15 years, though it is flexible).
- The contract is awarded to **the private player who offers the lowest annuity** (in bidding).
- The government covers the majority of the major risks in this model, including land acquisition, clearances, operation, toll collection, and commercial, while the risks of inflation and cost overruns are shared in proportion to the project cost sharing.
- However, **the private sector is still exposed to construction and maintenance risks** (delays from the government side in clearances and land acquisition have chances to enhance the degree of risks private players are exposed to).

#### BOT-TOLL

- The 'Build-Operate- Transfer-Toll' was one of the earliest models of PPP. Other than sharing the project cost (with the Government), the **private bidder was to build, maintain, operate the road, and collect toll on the vehicular traffic**.
- The bid was given to the private company offering to share maximum toll revenue to the government. The private party **used to cover "all risks" related to— land acquisition, construction (damage), inflation, cost over-runs** caused by delays and commercial. The government was responsible for only regulatory clearances.
- Due to **inherent drawbacks, this model proved to be unsustainable for the private bidder**—undue delay in land acquisition due to litigation, cost over-runs and uncertainties in traffic movement (commercial risk)—made the road projects economically unviable.

#### BOT-ANNUITY

- This was an improvement over the BOT-TOLL model, which sought to reverse private companies' declining interest in road projects by reducing risk for private players.
- Apart from sharing project costs, the private player was to build, maintain, and operate road projects without being responsible for collecting traffic tolls.
- The private players were offered a fixed amount of money annually (called 'annuity') as compensation—the party bidding for the minimum 'annuity' used to get the project. Toll collection was the responsibility of the Government.
- This was different from the **previous model (BOT-TOLL) in one sense— private players were not having any commercial risk (traffic)—but they remained very much exposed to other risks** (land acquisition delays, inflation, cost overruns, construction).
- Even this model, **over the time proved to be unviable for the private sector** due to the leftover risks they were exposed to.

## DIRECT TAX

## GS-III ECONOMY

### Context

- Net direct tax collection in the 1st quarter of FY 2021-22 is Rs. 2,46,519.82 crore as against Rs. 1,17,783.87 crore during the same period of previous FY 2020-21.

### Different types of direct taxes are

#### Personal Income Tax

- An income tax is a tax which governments impose on individuals within their jurisdiction.

#### Corporate Tax

- Corporate tax is a tax levied on the net income of the company.
- Companies, both private and public which are registered in India under the Companies Act 1956, are liable to pay corporate tax.

#### Dividend Distribution Tax

- The Dividend Distribution Tax is imposed on dividends that a company pays to its shareholders out of its profits.

#### Minimum Alternate Tax

- Minimum Alternate Tax (MAT) was effectively introduced in India by the Finance Act of 1987. It was introduced to tax the 'zero tax companies'. Zero tax companies are such companies which show zero or negligible income to avoid tax nets.
- Under MAT, such companies are taxed a certain percentage of their book profit as taxable income.
- MAT has been brought in to reduce tax avoidance practices followed by some companies to avoid the income tax, though they had the "ability to pay".
- MAT is applicable to all corporate entities, whether public or private.
- MAT is not applicable to:
  - Any income accruing or arising to a company from the life insurance business.
  - Shipping income liable to tonnage taxation.

#### Alternate Minimum Tax

- It is leviable alternative to normal tax.
- AMT is a tax levied on 'adjusted total income' in a FY wherein tax on normal income is lower than AMT on adjusted total income. So, irrespective of normal tax, AMT has to be paid by taxpayers to whom AMT provisions apply.

### Capital Gain Tax

- Capital gain is any profit that is received through the sale of a capital asset (Land, building, house property etc.).
- The tax that is paid on that profit is called capital gains tax.
- Capital gain tax can either be long term (individuals own an asset for a duration of more than 36 months) or short term (In case assets are held for a duration of 36 months or less).

### Securities Transaction Tax (STT)

- Securities Transaction Tax (STT) is a type of financial transaction tax levied in India on transactions done on the domestic stock exchanges.
- The rates of STT are prescribed by the Central/Union Government through its Budget from time to time.
- It is categorized as a direct tax.

### Commodity Transaction Tax (CTT)

- Commodities transaction tax (CTT) is a tax similar to Securities Transaction Tax (STT), levied in India, on transactions done on the domestic commodity derivatives exchanges.
- The concept of CTT was first introduced in the Union Budget 200809.
- CTT aims at discouraging excessive speculation, which is detrimental to the market.

### Direct Tax Code (DTC)

- DTC is the proposed legislative reform of the direct taxation system.
- It seeks to simplify and consolidate all the direct tax of the central government like income tax, gift tax, wealth tax etc.
- It seeks to increase tax revenue by broadening the tax base.
- Features of DTC are:
  - Tax laws will be rewritten in simple and unambiguous language to reduce the scope of misinterpretation.
  - Reduce exemption deduction debate to reduce their scope of misuse.
  - Flexible tax system to make changes in tax provision without amendment in tax law.
- In 2017, the Government set up an expert committee under Akhilesh Ranjan to draft a new Direct Taxes Code. The task force submitted its Report in 2019 which has not been made public.

### Difference between Direct and Indirect Taxes

Direct Tax	Indirect Tax
Direct tax is paid directly by liable person or organization to the government.	Indirect tax is paid indirectly to government. Imposed on income or profits. Imposed on goods and services.
The burden to pay the tax directly falls on the individual.	The burden is shifted to the consumer by the manufacturer or service provider.
Direct taxes are levied based on the paying capacity of the individual.	Indirect Tax does not look at the consumer's ability to pay but is the same for everyone who buys the goods or services.
Direct taxes can be evaded if there is an absence of proper collection administration.	Indirect taxes cannot be escaped from as they are charged automatically on goods and services.
Direct taxation is example of progressive taxation method.	Indirect taxes is example of regressive taxation method.
Income Tax, Wealth Tax, Corporate Tax etc. are the examples of direct taxes.	GST (Goods and Services Tax), Sales Tax etc. are the examples of indirect taxes.

## COMPETITION COMMISSION OF INDIA

## GS-III ECONOMY

### Context

- E-commerce companies **lost their legal battle before the High Court of Karnataka against the Competition Commission of India's order to conduct an investigation into** whether they had entered into anti-competitive agreements in violation of the provisions of the Competition Act, 2002.

### Background

- Competition is the **best means of ensuring that the 'Common Man' or 'Aam Aadmi' has access** to the broadest range of goods and services at the most competitive prices.
- Competition is a **process of economic rivalry between** market players to attract customers.
- With increased competition, producers will have **maximum incentive to innovate and specialize**. This would result in reduced costs and wider choice to consumers.
- A fair competition in the market is essential to achieve this objective.



- Its main goal is to create and sustain fair competition in the economy that will provide a 'level playing field' to the producers and make the markets work for the welfare of the consumers.
- Free and fair competition is one of the pillars of an efficient business environment.

### The Competition Act

- The Competition Act, 2002 was passed by the Parliament in the year 2002.
- The Competition Act, 2002, as amended by the Competition (Amendment) Act, 2007, follows the philosophy of modern competition laws.
- The Act **prohibits anti-competitive agreements, abuse of dominant position by enterprises and regulates combinations (acquisition, acquiring of control and M&A)**, which causes or likely to cause an appreciable adverse effect on competition within India.
- In accordance with the provisions of the Amendment Act, **the Competition Commission of India and the Competition Appellate Tribunal have been established.**
- The Competition Commission of India is now fully functional with a Chairperson and six members.
- The provisions of the Competition Act relating to anti-competitive agreements and abuse of dominant position were notified under this Act.

### Objectives

- The objectives of the Act are **sought to be achieved through the Competition Commission of India, which has been established by the Central Government** with effect from 14th October 2003.
- CCI **consists of a Chairperson and 6 Members appointed by** the Central Government.
- It is the duty of the Commission to eliminate practices having adverse effects on competition, promote and sustain competition, protect the interests of consumers and ensure freedom of trade in the markets of India.
- The Commission is also required to give opinion on competition issues on a reference received from a statutory authority established under any law and to undertake competition advocacy, create public awareness and impart training on competition issues.

### Anti-Competitive behaviour by firms and companies

- Foreclosing competitors/ competition.
- Unfair or discriminatory pricing/ conditions.
- Limiting or restricting production of goods or provision of services.
- Limiting or restricting scientific or technical development to the prejudice of consumers.
- Mutual anti-competitive agreements.
- Predatory pricing.
- Denial of market access to others.
- Making conclusions of contracts subject to the acceptance by other parties of supplementary obligations that are unrelated to the original contract.

### Need of the hour

- Firms should fix internal protocols for decision making and information sharing with regard to sensitive financial and commercial information.
- Firms **should create awareness and run regular training programs amongst all employees** handling sensitive financial and commercial information.
- A competition law due diligence should be conducted by firms that have a high market share or perhaps have exclusive rights at ports etc. so as to avoid anti-competitive clauses in agreements with suppliers, vendors and other market players.
- Communication with **competitors with regard to any business discussion should be limited/** restricted as well as recorded properly to mitigate any competition law risk.
- Any pricing below the cost must have **a sound economic rationality to justify its efficiency and business purpose.**

## SKILL DEVELOPMENT

## GS-III ECONOMY

### Context

- Government enumerated the steps taken to improve the skill development of the youth.

### Details

- **Ministry of Skill Development and Entrepreneurship has launched the National Skill Development Mission (NSDM)** to provide the overall institutional framework to rapidly implement and scale up the skill development efforts across India. NSDM envisages to train a minimum of 300 million skilled people by the year 2022.
- The Ministry has been implementing Pradhan Mantri Kaushal Vikas Yojana (PMKVY), Jan Shikshan Sansthan (JSS) Scheme and National Apprenticeship Promotion Scheme (NAPS) for providing short term Skill Development training to the youth

- Ministry of Skill Development and Entrepreneurship promotes establishment of model and aspirational skill centres known as Pradhan Mantri Kaushal Kendra (PMKK) in every district for imparting skill training throughout the country in Public Private Partnership (PPP) mode.
- As on 30.06.2021, 812 PMKKs have been allocated across the country, out of which 721 PMKKs have been established.

Sl.	Scheme	Implemented through	To be set up by Public / Private / PPP	Financial arrangement
1	Pradhan Mantri Kaushal Vikas Yojana (PMKVY)	National Skill Development Corporation (NSDC)	Set up by private / public organization	Cost of training and certification borne
2	Jan Shikshan Sansthan (JSS)	Jan Shikshan Sansthan	Non-Government Organization	Cost of training and certification borne
3	National Apprenticeship Promotion Scheme (NAPS)	Industrial Establishments	Both public and private	Stipends for apprentices

### About National Skill Development Mission

- Aim:** To create convergence across sectors and States in terms of skill training activities.
- To consolidate and coordinate skilling efforts
- Expedite decision making across sectors to achieve skilling at scale with speed and standards.
- Implementation Agency:** It will be implemented through a streamlined institutional mechanism driven by Ministry of Skill Development and Entrepreneurship (MSDE).
- Seven sub-missions have been proposed initially to act as building blocks for achieving overall objectives of the Mission. They are:
  - Institutional Training, (ii) Infrastructure, (iii) Convergence, (iv) Trainers, (v) Overseas Employment, (vi) Sustainable Livelihoods, (vii) Leveraging Public Infrastructure.

### Objective of the mission

- Build **capacity for skill development in critical un-organised sectors** (such as the construction sector, where there few opportunities for skill training) and provide pathways for re-skilling and up-skilling workers in these identified sectors, to enable them to transition into formal sector employment.
- Ensure sufficient, high quality options for long-term skilling, bench marked to internationally acceptable qualification standards**, which will ultimately contribute to the creation of a highly skilled workforce.
- Develop a network of quality instructors/trainers in the skill development ecosystem by establishing high quality teacher training institutions.
- Leverage existing public infrastructure and industry facilities for scaling up** skill training and capacity building efforts.
- Offer a passage for overseas employment through specific programmes mapped to global job requirements and bench marked to international standards.
- Enable pathways for transitioning between the vocational training system and the formal education system**, through a credit transfer system.
- Promote convergence and co-ordination** between skill development efforts of all Central ministries/Departments/States/implementing agencies.
- Support weaker and disadvantaged sections of society** through focused outreach programmes and targeted skill development activities.

### About Pradhan Mantri Kaushal Vikas Yojana (PMKVY)

- Pradhan Mantri Kaushal Vikas Yojana (1.0) was launched in 2015 to provide **free skill training avenues to youths of India**.
- PMKVY 2.0 Approved for another four years (2016-2020) to benefit 10 million youth Allocated Budget 12,000 Crores
- Implementing agency:** It is implemented by National Skill Development Corporation (NSDC)
  - NSDC is a **not-for-profit public limited company** incorporated under section 25 of the Companies Act, 1956 (corresponding to section 8 of the Companies Act, 2013). Ministry of Skill Development & Entrepreneurship (MSDE) holds 49% of the share capital of NSDC, while the private sector has the balance 51% of the share capital.
  - NSDC aims to promote skill development by catalyzing creation of large, quality and for-profit vocational institutions.
  - The National Skill Qualification Framework (NSQF)** is a competency-based framework that organizes all qualifications according to a series of levels of knowledge, skills and aptitude.
- Objective of this Skill Certification Scheme is to enable a large number of Indian youth to take up industry-relevant skill training that will help them in securing a better livelihood.

- Individuals with prior learning experience or skills will also be assessed and certified under Recognition of Prior Learning (RPL).

#### About Jan ShikshanSansthan

- Jan ShikshanSansthan (formerly known as ShramikVidyapeeth) provide vocational skills to non-literate, neo-literates as well as school drop-outs by identifying skills that have a market in the region of their establishment.

#### Target Group

- Socio-economically backward and educationally disadvantaged groups of rural/urban population.
- Main target include non-literate, neo-literates, person education upto 8th standard, school drop-outs, in the age group of 15-35 years.
- Priority given to women, SC, ST, OBC and Minorities in rural areas and urban slums.

#### Features

- Polyvalent approach takes into account; learning needs, convenience of place and time of learners and trainers.
- Course content, duration, methods, instructional arrangements and financial (CSR supported / Fee based trainings)
- Livelihood cell to be encouraged the beneficiaries for self and wage employment and linkages with national / state portal for promotion of employment and job melas etc.
- Courses having NSQF Compliant which has production, service and IT oriented.
- Life Enrichment Education part of Skill training programme. Digital Literacy and life skills are also incorporated across the course curriculum.
- Methodology of teaching includes theory, practical. Livelihood experience / apprenticeship, systematic evidence based internal assessment system, online certification, common branding.
- Training of trainers through National Skill Training Institutes



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## STOCK LIMITS ON PULSES

## GS-III AGRICULTURE

### In News

- Central Govt. has imposed stock limit of 200 tonnes per pulse on all pulses except moongheld by wholesalers, retailers, importers, and millers till October 2021.
- The decision is to prevent hoarding and check price rise.

### Details

- An order in this regard has been issued by the Union Food and Consumer Affairs Ministry.
- The **Department of Consumer Affairs** issued the Removal of Licensing Requirements, Stock Limits, and Movement Restrictions on Specified Foodstuffs (Amendment) Order, 2021.
- It prescribes the limits imposed on the stock of a commodity with immediate effect.**
- The order has been issued in exercise of the powers conferred by the **Essential Commodities Act, 1955**
- If the stocks of entities exceed the prescribed limits, it has to be declared on the online portal of the Department of Consumer Affairs.
- Further, the stock has to be brought within the prescribed limit within 30 days of the notification of the order.

### Essential Commodities Act: Definition of an 'essential commodity'

- There is **no specific definition of essential commodities in The EC Act.**
- Section 2(A) of the act states that an "essential commodity" means a commodity specified in the "Schedule" of this Act.
- The Act gives **powers to the central government** to add or remove a commodity in the "Schedule."
- The Centre, if it is satisfied that it is necessary to do so in public interest, can notify an item as essential, **in consultation with state governments.**
- At present, the "Schedule" contains 9 commodities — **drugs; fertilisers, whether inorganic, organic or mixed; foodstuffs, including edible oils; hank yarn made wholly from cotton; petroleum and petroleum products; raw jute and jute textiles; seeds of food-crops and seeds of fruits and vegetables, seeds of cattle fodder, jute seed, cotton seed; face masks; and hand sanitizers.**
- The latest items added to this schedule are **face masks and hand sanitisers**, which were declared essential commodities with effect from March 13, 2020 in the wake of Covid-19 outbreak.
- By declaring a commodity as essential, the government can control the production, supply, and distribution of that commodity, and impose a stock limit.

### Imposing Stock Limits

- Under the amended EC Act, **agri-food stuffs can only be regulated under extraordinary circumstances** such as war, famine, extraordinary price rise, and natural calamity.
- However, any action on imposing stock limits will be based on the price trigger.
- Thus, in case **of horticultural produce, a 100 per cent increase** in the retail price of the commodity over the immediately preceding 12 months or the average retail price of the last five years, whichever is lower, will be the trigger for invoking the stock limit for such commodities.
- For non-perishable agricultural foodstuffs, the price trigger will be **a 50 per cent increase** in the retail price of the commodity over the immediately preceding 12 months or the average retail price of the last five years, whichever is lower.
- The **essential Commodities Act 2020 removed cereals, pulses, oilseeds, edible oils, onion and potatoes from the list of essential commodities.**

### Need for imposing stock limits: The dangers of hoarding/cartelization

- Hoarding creates real-economy shortages of goods.
- It eliminates competition and leads to monopoly.
- A process of speculation, self-fulfilling prophecies, and inflation is generated through hoarding.
- Poorest is at risk of hunger if the cycle of inflation continues beyond a point in essential goods.
- In India, cartelization is a civil offence **prohibited under the Competition Act, 2002**

Cartel is one such collusive engagement. It is an informal association among the firms. Under cartel, the firms agree about the total output to be produced by each firm, the price charged by the firms or sharing of markets. In this way they avoid competition, reduce costs and get more profits by tacitly charging high price.



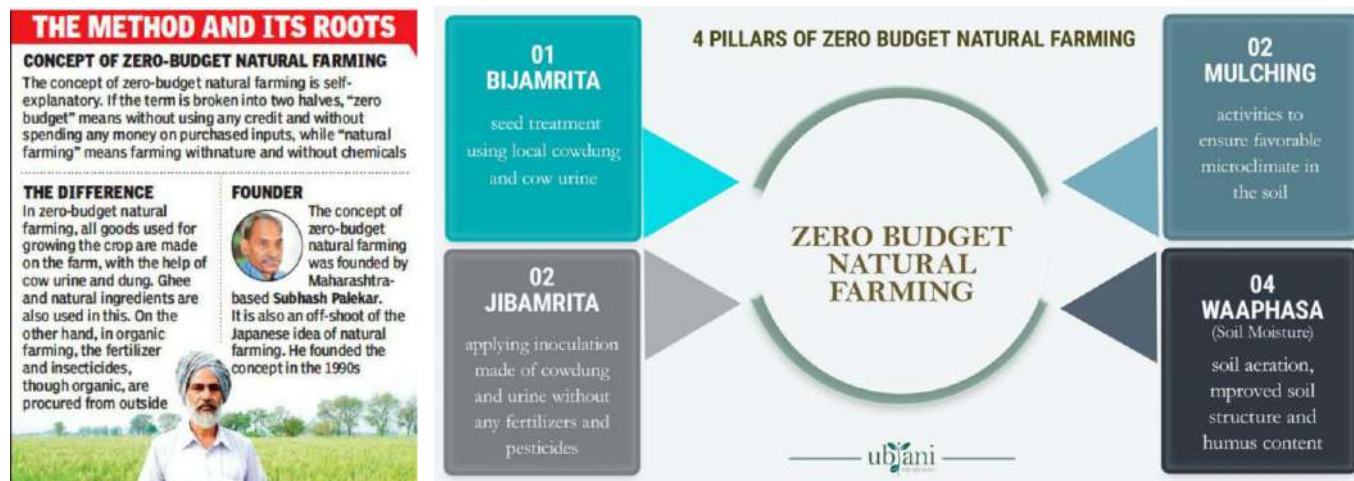
## COMMUNITY-MANAGED NATURAL FARMING (APCNF)

## GS-III AGRICULTURE

### Context

- Previously known as Zero Budget Natural Farming (ZBNF) is now Andhra Pradesh Community-managed Natural Farming (APCNF).

### About



### Why is ZBNF necessary?

- From the (NSSO) National Sample Survey Office data, **70% plus of farmers spend more they earn, and most farmers have debt.**
- The indebtedness level is around 90% in states like Andhra Pradesh and Telangana, where each household has an average debt of Rs 1 lakh.
- To achieve the promise of the central government to double the income of farmers by 2022, one factor being considered is natural farming methods zero budget natural farming.

### Why is ZBNF important in a nutshell

- Farmers depend on loans.
- The economic survey has highlighted the ecological benefits.
- Cost of farming inputs is rapidly increasing.
- The number of farmer's suicide cases is growing continuously.
- The demand for safe food increased among customers.
- Unstable market price.

### Advantages of Zero Budget Natural Farming

- Zero budget natural farming reduces the initial cost of farmers.
- Farmer's income automatically increases.
- The soil ecosystem improves.
- Cow dung adds soil value. It is full of nutrients value and available locally.
- Bacteria of cow dung decompose the organic matter in soil and make soil for the plants.
- It requires less electricity and water.
- ZBNF improves the productivity of the soil.
- It decreases the disease attack risk on the crop.

### Disadvantages of Zero Budget Natural Farming

- This farming method used in some parts of India.
- The type of farming being debated, and there is not much scientific research under evaluation.
- This farming technique used in negligible areas.

### Zero Budget Natural Farming V/S Organic Farming

S/N	Zero Budget Natural Farming(ZBNF)	Organic Farming
1	No external fertilizers are used in ZBNF.	Organic fertilizers such as compost, cow dung, and vermicompost are used in organic farming.
2	There is no tilling and no mixing. It requires natural ecosystems.	It requires basic agro methods like tilling, plowing, mixing, etc.
3	It is low-cost farming due to the local biodiversity.	It is expensive due to the need for bulk manures.

## SUGARCANE INDUSTRY

## GS-III AGRICULTURE

### Context

- The sugarcane production in Maharashtra may go up by at least 237 lakh tonnes this year.

### About Sugarcane

- Grown in tropical and subtropical regions, sugarcane is the world's largest crop by production quantity, with 1.8 billion tonnes produced in 2017.
- The plant is also grown for biofuel production, especially in Brazil, as the canes can be used directly to produce ethyl alcohol (ethanol).

### Historical Background

- India has a long tradition of manufacturing sugar.
- References of sugar making by the Indians are found even in the **Atharva Veda**.
- India is rightly called the **homeland of sugar**. But in ancient times, gur and khandsari were made.
- Also, Cane was cut in pieces - crushed under heavy weight - juice thus obtained was boiled and stirred, till it turned solids.
- Solids of uneven shape and size were called **sarkaran**, a **Sanskrit term of 'gravel'**.
- Modern word '**sugar**' is **derived from the word Sarkara**.
- Thus, India has been the original home for sugarcane as well as sugar manufacture.
- Modern sugar industry came on the Indian scene only in the middle of the 19th century, when it was introduced **by the Dutch in North Bihar in about 1840**.

### Legislations

- "**Sugar Industry Protection Act**" was passed by the Indian Legislature in 1932.
- Under this act, protection was granted to the indigenous sugar industry.
- With enforcement of Sugar Protection Act, within a period of four years country became self-sufficient in sugar by 1935.

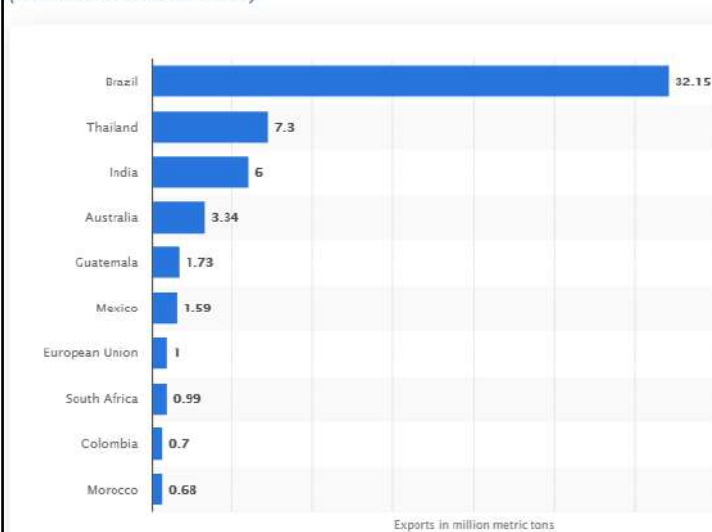
### Geographical Distribution of Sugar Industry in India

- Uttar Pradesh:** It is the leading producer of sugar in India and one of the largest sugar industries in the Indian economy.
- Bihar, Punjab, Haryana, Maharashtra, Karnataka**
- Tamil Nadu:** This state is responsible for 10% of the total sugar production in India.
- Andhra Pradesh:** Along with Sugar Production it is regarded as the '**granary of the south**' and once it was called as '**Rice Bowl of India**'

### Top 10 Largest Sugarcane Producing States in India

S.NO	STATE	AREA (LAKH HECTARES)	YIELD (TONNES/ HECTARE)	PRODUCTION (LAKH TONNES)
1.	Uttar Pradesh	21.72	62.4	1,333
2.	Maharashtra	9.36	77.4	753
3.	Tamil Nadu	2.32	107	375
4.	Karnataka	4.10	84.6	346
5.	Andhra Pradesh	1.91	78	149
6.	Bihar	2.66	56.8	122
7.	Gujarat	1.80	65	95.3
8.	Haryana	1.30	73	93.4
9.	Punjab	0.96	70	66
10.	Uttarakhand	1.22	61.2	64.3

### Principal sugar exporting countries in 2020/2021 (in million metric tons)



COUNTRY/ REGION	PRODUCTION (MILLION METRIC TONNES, MMT)
Brazil	29.61
India	27.40
EU-28	17.39
China	10.41
Thailand	8.27
Russia	7.59
USA	7.25
Mexico	5.34
Pakistan	4.80
Australia	4.18

### Top 10 sugar importers in 2020.

1. United States
2. Indonesia
3. China
4. Italy
5. Malaysia
6. Bangladesh
7. Nigeria
8. Algeria
9. South Korea
10. India

### North India vs. South India Sugar Industry (Why sugar industry is shifting from North to South)

- A brief description of differences between the sugar industry of the northern and peninsular India is given below:
  - Peninsular India has tropical climate which **gives higher yield per unit area** as compared to north India.
  - The **sucrose content is also higher in tropical variety** of sugarcane in the south.
  - The **crushing season is also much longer in the south** than in the north.

For example, crushing season is of nearly four months only in the north from November to February, whereas it is of nearly 7-8 months in the south where it starts in October and continues till May and June.

- The co-operative sugar mills are better managed in the south than in the north.
- Most of the mills in the south are new which are equipped with modern machinery.

### Problems of Sugar Industry

- Sugar industry in India is plagued with several serious and complicated problems which call for immediate attention and rational solutions. Some of the burning problems are briefly described as under:

#### Low Yield of Sugarcane:

- Although India has the largest area under sugarcane cultivation, the yield per hectare is extremely low as compared to some of the major sugarcane producing countries of the world.
- For example, India's yield is **only 64.5 tones/hectare as compared to 90 tonnes in Java and 121 tonnes in Hawaii.**
- This leads to low overall production compared to capacity or potential.

#### Short crushing season:

- Manufacturing of sugar is a seasonal phenomenon with a short crushing season varying normally from 4 to 7 months in a year.
- The mills and its workers remain idle during the remaining period of the year, thus creating financial problems for the industry as a whole.

#### Fluctuating Production Trends:

- Sugarcane has to compete with several other food and cash crops like cotton, oil seeds, rice, etc.
- Consequently, the land available to sugarcane cultivation is not the same and the total production of sugarcane fluctuates.
- This affects the supply of sugarcane to the mills and the production of sugar also varies from year to year.

#### Low rate of recovery:

- The average rate of recovery in India is **less than ten per cent** which is quite low as compared to other major sugar producing countries.
- For example recovery rate is as high as 14-16 per cent in Java, Hawaii and Australia.

#### High cost of Production

- High cost of sugarcane, inefficient technology, uneconomic process of production and heavy excise duty result in high cost of manufacturing.
- The production cost of sugar in India is one of the highest in the world.

#### Small and uneconomic size of mills

- Most of the sugar mills in India are of small size with a capacity of **1,000 to 1,500 tonnes per day.**
- This makes large scale production uneconomic. Many of the mills are economically not viable.

#### Old and obsolete machinery

- Most of the machinery used in Indian **sugar mills**, particularly those of Uttar Pradesh and Bihar is **old and obsolete**, being 50-60 years old and needs rehabilitation.

- But low margin of profit prevents several mill owners from replacing the old machinery by the new one.

#### Competition with Khandsari and Gur

- Khandsari and gur have been manufactured in rural India much before the advent of sugar industry in the organised sector.
- Since khandsari industry is free from excise duty, it can offer higher prices of cane to the cane growers.
- Further, cane growers themselves use cane for manufacturing gur and save on labour cost which is not possible in sugar industry.
- It is estimated that about **60 per cent of the cane grown in India is used for making khandsari and gur** and the organised sugar industry is deprived of sufficient supply of this basic raw material.

#### Regional imbalances in distribution

- Over half of sugar mills are located in Maharashtra and Uttar Pradesh and about 60 per cent of the production comes from these two states.
- On the other hand, there are several states in the north-east, Jammu and Kashmir and Orissa where there is no appreciable growth of this industry. This leads to **regional imbalances** which have their own implications.

#### Low per capita consumption

- The per capita annual consumption of sugar in India is only **16.3 kg as against 48.8 kg in the USA.**, 53.6 kg in U.K., 57.1 kg in Australia and 78.2 kg in Cuba.
- The world average of about 21.1 kg. This result in low market demand and creates problems of sale of sugar.

#### FRP vs SAP

- The central government declares a min price of sugarcane that called Fair Remunerative Price (FRP) and state Governments have also right to declare their own price which is called State Advisory Price (SAP).
- Generally SAP is more than FRP which pose the **conflict that which is fair price for both farmers and mills.**

#### Falling Sugar Prices

- According to the Indian Sugar Mills Association, the FRP of sugarcane rose 50.9% from Rs 139.12 per quintal in 2010-11 to Rs 210 per quintal in 2013-14.
- However, sugar prices fell 21% from Rs 3,765 per quintal in January 2010 to Rs 2,962 per quintal in August 2014.
- Lower margins have made companies heavily dependent on debt.

#### Min Distance Criterion

- To ensure decent supply of sugarcane to each sugar mill, the central government has prescribed a minimum radial distance of **15 km between any two sugar mills.**
- But this criterion help to create the **monopoly of mill owner over a large area as 15 km radial distance** is large in number and ultimately led to **exploitation of farmers especially where landholding is smaller.**
- Also this regulation **prohibits innovation and investment by entrepreneurs.**

#### Unpaid dues to Farmers

- India's sugarcane dues accruing to farmers have remained stubbornly high despite. The sugarcane growers are being exploited by not paying their due arrears.
- For instance, in Uttar Pradesh, sugarcane farmers have not been paid for 20200. Further they get 'zero price' receipts for 2021.

#### High Export prices

- Exporting the surplus from India is not easy because of the burden of very high cost of sugarcane, pushing up the costs of sugar.
- For a comparison, Indian cane prices are 70-80% higher than that in Brazil.

#### Measures to resolve the issues

##### Implementing Rangarajan Committee Recommendations:

- **Removing Distance Norm:** In order to increase competition and ensure a better price for farmers, the Committee recommended that the distance norm be reviewed. Removing the regulation will ensure better prices for farmers and force existing mills to pay them the cane price.
- **Reviewing Revenue Sharing Policy:** States should not declare their own SAP. The pricing shall be done on basis of scientific and economically viable principles. The committee suggested that sharing of revenue generated under sugarcane supply chain shall be divided on basis of 70:30 to farmers and mill owners respectively. This method will be applicable for by products as well. The payment shall be paid to farmers in two installments:
  - First Floor or FRP should be paid to farmers at time of purchase of sugarcane,
  - Second, balance should be paid after final price of sugar decided and sold by mill.
- **Duties:** Import and export duty should not be more than 10%.
- **Long term agreements:** States should encourage development of market-based long-term contractual arrangements, and phase out cane reservation area.
- **Exports and Byproducts:** No more outright bans on sugar exports. No restrictions on sale of by-products and prices should be market determined.

#### Other suggestions

- **Price Rationalization:** Cane-pricing policies need immediate rationalization and brought in tune with global practices, for Indian sugar industry to export the surplus successfully.



- **Ethanol Blending:** The new national policy on Biofuels 2018, expands the scope of raw material for ethanol production by allowing use of Sugarcane Juice. Ethanol production should be promoted. Such diversion will cut oil import bills and bring profits for sugar industry. A win-win situation. Brazil, the world's biggest sugarcane producer, depends on ethanol, and not sugar, as the main revenue source from sugarcane and blends 27 per cent ethanol with petrol.

The new Biofuel Policy 2018 has fixed a target of achieving 20 per cent ethanol blending with petrol by 2030.

- **R&D:** Intense Researches should be funded for developing high yielding, early maturing, frost resistant and high sucrose content varieties of sugarcane.
- **Crushing Season:** Increase the crushing season by sowing and harvesting sugarcane at proper intervals in different areas adjoining the sugar mill. This will increase the duration of supply of sugarcane to sugar mills.
- **Yield:** Intense research is required to increase the sugarcane production in the agricultural field.
- **Production Cost:** Production cost can be reduced through proper utilisation of by- products of the industry.

For example, bagasse can be used for manufacturing paper pulp, insulating board, plastic, carbon cortex etc. Molasses comprise another important by-product which can be gainfully used for the manufacture of power alcohol.

- **Technology:** There is a dire need of **Technological upgradation** in age old mills to improve efficiency in production.
- **Export promotion:** Tweaking of policies to boost exports when Domestic consumption is less than production.
- **Diversification:** Mills should be **incentivized to produce more alcohol and its export should be deregulated**. This will improve the economic situation of the mills.
- **SSI:** More steps like **Sustainable Sugarcane Initiative**. SSI provides practical options to farmers for improving the productivity of their land, water and labour, all at the same time. SSI is a set of practices based on principles for producing 'More with Less' in agriculture. Example: Reducing overall pressure on water resources -- Highly relevant for water guzzling Sugarcane crop.

### Conclusion

- Mere infusion of capital will not revive the ailing Industry.
- The need of the hour is to reform the Sugar industry fundamentally but bringing long term solutions and addressing structural issues.

## APMC AND 2020 FARM ACTS

## GS-III AGRICULTURE

### Context

- APMCs from Maharashtra's pulses growing districts have announced an indefinite strike.

### About

- An Agricultural Produce Market Committee (APMC) is a **marketing board established by state governments** in India.
- It ensures that farmers are safeguarded from exploitation by large retailers, as well as ensuring the farm to retail price spread does not reach excessively high levels.
- APMCs are regulated by states through their adoption of a **Agriculture Produce Marketing Regulation (APMR) Act**.

### Features of APMC

- Facilitating contract farming model.
- Special market for perishables
- Allowing farmers and private persons to set up their own market.
- Relaxation of licensing norms.
- Single market fee
- APMC revenue to be used for improving market infrastructure.

**Note:** However, **not all states have passed the bill**. Some states have passed but neither framed rules nor notified it. Thus, inter-state barriers continue.

### Shortcomings in APMC system

- Monopoly of APMC
- Cartelization
- High Commission, taxes and levies on farmers by APMCs
- Blockage of payment to farmers by agents and arhatiyas (middlemen).
- Entry Barriers – License fee in these markets are highly prohibitive.
- Politicization of APMCs

### Recent Reforms

- Until 2020, the first sale of agriculture produce could occur **only at** the market yards (mandis) of APMCs.

- However, after 2020 the passing of the **Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act**, **allowed farmers to sell outside APMC mandis as well as across different states of India.**

### The Acts

- The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act
- The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Act; and
- The Essential Commodities Amendment Act' under which the monopoly of middlemen in APMCs is sought to be abolished and move towards creation of a free market.

**Salient features of The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020**

- ✓ Farmers can now sell their agricultural produce at a place of his choice at a better price, increasing the number of potential buyers
- ✓ Essential crops like onion and potato along with food grains, oilseeds and pulses crops have been excluded from the list of Essential Commodities Act
- ✓ Farmers can make deals with licensed traders from other states as well
- ✓ This will increase competitiveness in the market and farmers will get good prices for their produce
- ✓ Under this Bill, any merchant having a PAN number is eligible for trade
- ✓ Farmers or traders can engage in trade within a state or with other states through electronic trading platforms
- ✓ This bill will promote the concept of 'One Nation One Market' and allow farmers to sell their produce across the country

**Salient features of The Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Ordinance, 2020**

- ✓ Farmers will now be able to enter into direct agreements or commercial agreements for sale of produce with companies producing food products, wholesalers, retailers and exporters etc.
- ✓ After the sale of produce is decided with a company or businessman, the buyer will be responsible for providing necessary means or inputs for good crop yield
- ✓ Proper agricultural machinery and equipment will be arranged by the buyer
- ✓ The buyer will provide technical guidance and advice to the farmer and must take full or partial responsibility for crop risks
- ✓ During crop production, the crop will continue to be owned by the farmer and the crop will be insured and the farmer will also be able to take loans from financial institutions if needed
- ✓ Crop grown under the agreement shall be exempted from the rules and laws relating to the sale of agricultural produce and the provisions of the Essential Commodities Act

2020

**Regulations under the Essential Commodities Act, 1955:**

<ul style="list-style-type: none"> <li>(i) Regulating by licenses, permits, etc. the production, storage, transport, distribution, disposal, acquisition, use or consumption of an essential commodity;</li> <li>(ii) Increasing cultivation of food grains;</li> <li>(iii) Controlling prices;</li> <li>(iv) Prohibiting the withholding from sale of any essential commodity;</li> <li>(v) Requiring a stockholder to sell any essential commodity to the Government;</li> <li>(vi) Regulating or prohibiting any commercial or financial transactions in food items or cotton textiles which may be detrimental to the public interest;</li> <li>(vii) Collecting any information;</li> <li>(viii) Requiring production of books of accounts etc; and</li> <li>(ix) Any incidental matters</li> </ul>	<p><b>Problems due to restrictions:</b></p> <ul style="list-style-type: none"> <li>➤ Most of the provisions in this Act have become irrelevant in the context of having achieved self-sufficiency in production.</li> <li>➤ They hamper the market from performing its productive and commercial role.</li> <li>➤ A large number of permits and licences are required to be obtained from the authorities under the Essential Commodities Act and periodically returns have to be submitted and inspections carried out, which add to transaction costs.</li> <li>➤ Some notifications under the same Act restrict movement of goods from the surplus states to deficit states.</li> <li>➤ These controls and restrictions, which include the ever present threat of arrest, act as disincentives to production and distribution of essential commodities by organised companies that can exploit economies of scale.</li> </ul>
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**Justification for Regulations:**  
These controls have been traditionally justified on the grounds that they are necessary to control hoarding and other types of speculative activity.

**Essential Commodities Act**

**Key Features:**

- ✓ Cereals, pulses, oilseeds, edible oils, onion and potatoes to be removed from list of essential commodities
- ✓ Will remove fears of private investors of excessive regulatory interference
- ✓ Freedom to produce, hold, move, distribute and supply will lead to harnessing economies of scale
- ✓ Help attract private sector/foreign direct investment in agriculture sector
- ✓ Will help drive investment in cold storages and modernization of food supply chain

### Essential Commodities (Amendment) Ordinance, 2020

- It amends the Essential Commodities Act, 1955.
- The Ordinance seeks to increase competition in the agriculture sector and enhance farmers' income.
- It aims to liberalise the regulatory system while protecting the interests of consumers.

### Regulation of food items

- The Act **empowers the central government to designate certain commodities** (such as food items, fertilizers, and petroleum products) as essential commodities.
- The central government may regulate or prohibit the production, supply, distribution, trade, and commerce of such essential commodities.
- The central government may regulate the supply of certain food items including cereals, pulses, potato, onions, edible oilseeds, and oils, only under extraordinary circumstances.



- These include: (i) war, (ii) famine, (iii) extraordinary price rise and (iv) natural calamity of grave nature.

#### Imposition of stock limit

- The Act empowers the central government to regulate the stock of an essential commodity that a person can hold.
- The Ordinance requires that imposition of any stock limit on certain specified items must be based on price rise.
- **A stock limit may be imposed only if there is:**
  - 100% increase in retail price of horticultural produce; and
  - 50% increase in the retail price of non-perishable agricultural food items.
- **The increase will be calculated over the price prevailing immediately preceding twelve months, or the average retail price of the last five years, whichever is lower.**
- The Ordinance provides that any stock limit will not apply if stock held by such person is less than the:
  - overall ceiling of installed capacity of processing, or
  - demand for export in case of an exporter.

**Note:** The provisions of the Ordinance regarding the regulation of food items and the imposition of stock limits will not apply to any government order relating to the Public Distribution System or the Targeted Public Distribution System.

#### Exhibit 12: Agri reforms: Structurally positive

Agri Reform Bills	Pros	Cons
The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Bill, 2020	Permits sale of farm produce outside of APMC mandis  Farmers will not be charged any cess or levy outside the mandis  Permits inter-state trade of farm produce	State's will lose revenues from respective mandis. While the bill proposes to eliminate the middleman, however farmers across different state fear that the system will lead to demise of MSP regime
The Farmers (Empowerment & Protection) Agreement of Price Assurance and Farm Services Bill, 2020	This ordinance facilitates "contract farming", which is when farmers enter into direct contracts with those who wish to buy farm produce, doing away with the middlemen - State APMC-appointed or otherwise - altogether	Chances of disputes may rise given Corporates would be more interested in dealing with group of farmers as such and not with individual farmers.  It's much easier from a corporate point of view to deal with an agent
The Essential Commodities (Amendment) Bill, 2020	Deregulates the production, storage and sale of several food items including cereals, pulses, edible oils and onions, except in the case of extraordinary circumstances.  It can bring in fresh investment from FDI and big corporates in providing infrastructure: eg. cold storage	The Act can be invoked if prices of perishables rise by 100% or of non-perishables by 50%.  This effectively legalises hoarding, which can be disastrous for the prices of critical items like vegetables and pulses.

Source: Edelweiss Research

#### Conclusion

- The Exclusion of middlemen benefits farmers only when they have a well-formed infrastructure like markets, arduous storage facilities, electricity supply, and a link to food processing companies who could compete to buy their produce.
- The government should also provide **statutory backing to the MSP** and government procurement in **order to counter the insecurities of farmers.**
- The new Acts have the potential to improve farm incomes, attracts investment and technology.
- They may prove to be revolutionary but the government needs to address farmers' concerns and put an end to their uncertainties.

## FAZIL MANGO, APEDA & GI TAG

## GS-III AGRICULTURE

#### Context

- A consignment of GI certified Fazil mango variety sourced from West Bengal's Malda district was exported to Bahrain.

#### About

- GI certified Khirsapati, Lakhanbhog, Fazli, Amrapali and Chausa (all sourced from Malda), Langda from West Bengal's Nadiya, and Uttar Pradesh's Dussheri are the nine types of mangoes which were exported.
- The mangoes were sourced from farmers by APEDA.
- APEDA has been conducting virtual buyer-seller meets and festivals to promote mango exports.



- For the first time in this season, India has shipped GI certified Banganapalli and other variety Survarnarekha mangoes sourced from farmers of Andhra Pradesh recently.

### Mango

- Mango in India is also referred to as 'king of fruits' and referred to as Kalpavriksha (wish granting tree) in ancient scriptures.
- India is by far the world's largest producer**, producing around 20 million tonnes of mango annually.
- In 2019, global production of mangoes was 56 million tonnes, led by India with 46% (26 million tonnes) of the world total. The second-largest source is Indonesia.
- Though India is the largest producer of mangoes, **it accounts for less than 1% of the international mango trade**; India consumes most of its own production.

### APEDA

- Agriculture and processed food production export Development Authority (APEDA) is an apex body that promotes export trade of agricultural products in India.
- Set-up by the **Ministry of Commerce and Industry**, APEDA was formed under the act passed by parliament in 1985.
- APEDA is mandated with the responsibility of export promotion and development of the following scheduled products:
  - Fruits, vegetables and their products
  - Meat and meat products
  - Poultry and poultry products
  - Dairy products
  - Confectionery biscuits and Bakery products
  - Honey, jaggery and sugar products
  - Cocoa and its products, Chocolates of all kinds.
  - Alcoholic and non-alcoholic beverages
  - Cereal and cereal products
  - Groundnuts peanuts and walnuts
  - Pickles, papads and chutney
  - Guar gum
  - Floriculture and its products
  - Herbal and Medicinal plants
- The above product categories are almost covered 50% of all Agriculture products exported from India.
- APEDA has also been entrusted with the responsibility to **monitor import of sugar**.

### GI Tag

- A geographical indication or GI is a sign used on products that have a specific geographical origin and possess qualities or a reputation that are due to that origin.
- Geographical Indications are part of the intellectual property rights that comes **under the Paris Convention for the Protection of Industrial Property**.
- In India, Geographical Indications registration is administered by the **Geographical Indications of Goods (Registration and Protection) Act of 1999**.
- This tag **is valid for a period of 10 years** following which it can be renewed.
- GI tags are covered under World Trade Organization.
- Geographical indications are typically used for agricultural products, foodstuffs, wine and spirit drinks, handicrafts, and industrial products.
- It is basically an assurance that the product is coming from that specific area. It's kind of trademark in the international market.
- Karnataka has the highest number of GI tags i.e. 47** products followed by Tamil Nadu (39). Some of the major products that have got GI tag are: Mysore Silk of Karnataka.
- Products that recently got GI tags are
  - Kashmir Saffron
  - Gorakhpur Terracotta
  - Manipur Chak-Hao
  - Jharkhand Sohrai – Khovar Painting
  - Telangana TeliaRumal

### Benefits of registration of Geographical Indications

- It confers legal protection to Geographical Indications in India
- Prevents unauthorised use of a Registered Geographical Indication by others
- It provides legal protection to Indian Geographical Indications which in turn boost exports.
- It promotes economic prosperity of producers of goods produced in a geographical territory.

### How a geographical indication is different from a trade mark?

- A trade mark is a sign which is used in the course of trade and it distinguishes goods or services of one enterprise from those of other enterprises.
- Whereas a geographical indication is an indication used to identify goods having special characteristics originating from a definite geographical territory.

### Complete List of GI Tags in India

<https://www.iasgvan.in/blogs/complete-list-of-geographical-indications-gi-tags-in-india-as-of-2021>



## CROPPING SEASONS IN INDIA

## GS-III AGRICULTURE

### Context

- Kharif sowing lagging by 10%.

### About

- India has three cropping seasons – **Rabi, Kharif and Zaid.**
- Rabi season contributes nearly 50% of the food grain production in India.

**Note:** India is the world's largest producer of milk, pulses and jute, and ranks as the second largest producer of rice, wheat, sugarcane, groundnut, vegetables, fruit and cotton.

Rabi	Kharif	Zaid.
(i) Winter cropping season is known as Rabi.	(i) Wet summer cropping season is known as Kharif.	(i) Dry summer cropping season is known as Zaid.
(ii) Rabi crops are sown in winter from October to December.	(ii) Kharif crops are grown with the onset of monsoon in June.	(ii) Zaid is a short intervening cropping season in between rabi and kharif season
(iii) The crops are harvested in summer from April to June.	(iii) The crops are harvested in September-October.	(iii) The crops are grown in summer months (March to May).
(iv) Availability of precipitation during winter months due to western disturbances helps in the success of these crops.	(iv) These crops have high water requirement either from monsoon rain or by irrigation.	(iv) They are irrigated crops.
(v) Wheat, barley, peas, gram and mustard are examples of crops growing in Rabi season.	(v) Paddy, maize, jowar, bajra, tur (arhar) moong, urad, cotton, jute, groundnut and soyabean are examples.	(v) Watermelon, muskmelon, cucumber, vegetables and fodder crops are examples of crops growing in Zaid season.

### Top Crop Producing States in India

Largest Producer in India	State	Largest Producer in India	State
Paddy	West Bengal	Saffron	Jammu & Kashmir
Wheat	Uttar Pradesh	Onion	Maharashtra
Sugarcane	Uttar Pradesh	Cashew nuts	Maharashtra
Potato	Uttar Pradesh	Garlic	Madhya Pradesh
Groundnut	Gujarat	Black pepper	Kerala
Tea	Assam	Cotton	Gujarat
Coffee	Karnataka	Bamboos	Assam
Jute	West Bengal	Litchis	Bihar
Tobacco	Andhra Pradesh	Small cardamom	Kerala
Bananas	Tamil Nadu	Large cardamom	Sikkim
Cassava	Tamil Nadu	Chilli	Andhra Pradesh

## PRADHAN MANTRI FASAL BIMA YOJANA

## GS-III AGRICULTURE

### Context

- Assam's Agriculture department has set an ambitious target for enrolling five lakh farmers under Pradhan MantriFasalBimaYojana.

### About PMFBY

- The Pradhan MantriFasalBimaYojana (PMFBY) **launched in 2016** is an insurance service for farmers for their yields.
- It was formulated **in line with One Nation-One Scheme**

- It aims to reduce the premium burden on farmers and ensure early settlement of crop assurance claim for the full insured sum.
- PMFBY aims to provide a comprehensive **insurance cover against failure of the crop** thus helping in stabilising the income of the farmers.
- The Scheme **covers all Food & Oilseeds crops and Annual Commercial/Horticultural Crops** for which past yield data is available. The scheme is implemented by empanelled general insurance companies.
- **Selection** of Implementing Agency (IA) is done by the **concerned State Government** through bidding.
- The scheme is compulsory for loanee farmers availing Crop Loan /KCC account for notified crops and voluntary for other others. The scheme is being **administered by Ministry of Agriculture**.
- **Premium:** The prescribed premium is 2% to be paid by farmers for all Kharif crops and 1.5% for all rabi crops.
- In the case of annual commercial and horticultural crops, the premium is 5%.
- Premium cost over and above the farmer share was equally subsidized by States and GoI.
- However, central government shared 90% of the premium subsidy for North Eastern States to promote the uptake in the region.

#### PMFBY 2.0

- The central government had revamped PMFBY in the 2020 Kharif season.

#### Features are

- Enrolment is **100% voluntary for all farmers from 2020 Kharif**.
- **Centre's premium subsidy:** 30% for unirrigated areas/crops and 25% for irrigated areas/crops.
- States/UTs have option to select any number of additional risk covers/features.
- Insurance companies have to now spend 0.5% of the total premium collected on information, education and communication (IEC) activities.

## MAIZE AND SOYABEAN

## GS-III AGRICULTURE

#### Context

- Soil moisture deficiency has raised the prospect of re-sowing of some rain-dependent kharif crops, including maize and soyabean.

#### Maize

- Globally, maize is known as queen of cereals because it has highest genetic yield potential among the cereals.
- **Soil Type:** Fertile well-drained alluvial or simply red loams free of coarse elements and full off nitrogen are ideal soils for maize cultivation. Maize can be grown on wide range of soils including loamy sand to clay loam.
- **Top Maize Producing States:** Karnataka > Maharashtra > Madhya Pradesh > Tamil Nadu >Telangana
- India is the **seventh largest producer worldwide**.
- The **U.S.** is by far the world's largest producer and exporter of corn.

CLIMATE			
			
Temperature	Rainfall	Sowing Temperature	Harvesting Temperature
25°C - 30°C	50-100cm	25°C - 30°C	30-35°C

#### Soyabean

- Soybean grows well in warm and moist climate.
- A temperature of 26 to 30°C appears to be the optimum for most of the varieties.
- Soil temperatures of 15.5°C or above favor rapid germination and vigorous seedling growth.
- A lower temperature tends to delay the flowering.
- **In 2020, Brazil overtook the United States as the leading soybean producing country.**
- Production of soybean in India is dominated by **Maharashtra and Madhya Pradesh which contribute 89 per cent** of the total production.

#### MACS 1407

- Indian scientists recently developed a new Soy Bean variety called the "MACS 1407".
- It is a **high yielding variety** that gives 39 quintals per hectare.
- The new variety takes only 104 days to mature and 43 days for 50% flowering.
- The seeds have 41% protein and 19.81% oil content.
- The stem of the new Soybean variety is thick. This provides higher pod insertion, which is, till seven centimetres.
- It has **good resistance for pod shaking**. This makes it highly suitable for mechanical harvesting.

- Their germinability is high.
- The variety is best suited for the rain fed regions of North East India.
- It is resistant to pests such as leaf miner, leaf roller, girdle beetle, stem fly, white fly, aphids and defoliators.
- It is resistant to vagaries of monsoon.

**Read: Major Cropping Seasons in India:** <https://www.iasgyan.in/daily-current-affairs/cropping-seasons-in-india#:~:text=India%20has%20three%20cropping%20seasons%20E2%80%94%20Rabi%2C%20Kharif%20and%20Zaid.>

## SILK AND RESHA MANDI

## GS-III AGRICULTURE

### Context

- Indian Institute of Technology Guwahati researchers conducted extensive scientific field research on Eri and Muga Silk from a Design Management perspective.
- More than 12,000 sericulture farmers in Karnataka, Tamil Nadu, Andhra Pradesh and Maharashtra currently use the artificial intelligence-based application, ReshaMandi.
- Reshamandi is helping sericulture farmers get better prices for their produce to ensuring quality of cocoons and yarn to reelers, weavers and retailers.

### Silk

- Silk is a natural fiber that consists of fibroin, which is the protein some insects secrete to make cocoons.
- Essentially, the fiber is the material these insects produce to make their cocoons and nests.

### Sericulture

- Sericulture, the production of raw silk by means of raising caterpillars (larvae), particularly those of the domesticated silkworm (*Bombyx mori*).
- China is said to be the origin of sericulture. In India the cultivation dates back to 140 AD.

### Types of Silk

- India produces all the four types of silk i.e.
  1. Mulberry silk (91.7%);
  2. Tasar silk (1.4%);
  3. Eri silk (6.4%); and
  4. Muga silk (.5%)
- **Mulberry Silk** - Mulberry silk is the softest and the most durable fabric.
- **Eri Silk** - Another name for eri silk is peace silk because its production does not include the killing of silkworms. It is heavier and more durable in comparison to mulberry silk.
- **Tasar Silk** - India and Japan produce this variety of silk. Green silkworms are the producer of Tasar silk.
- **Spider Silk** - It is the most expensive variety of silk. Manufacturers use spider silk to produce microscopes, bulletproof vests, etc.
- **Muga Silk** - The natives of Assam produce this variety of fabric using semi-domesticated muga silkworms.
- **Sea Silk** - Another name for sea silk is mussel silk since species of mussel of the Mediterranean Sea produce it.
- **Coan Silk** - Silkworms, which feed on oak, pine, and juniper trees produce coan silk. This variety is found in Greece, Turkey, and Italy.



State	Silk Centre
Andhra	Dharmavaram, Pochampalli, Venkatagiri, Narainpet
Assam	Sualkuchi
Bihar	Bhagalpur
Gujarat	Surat, Cambay
Jammu & Kashmir	Srinagar
Karnataka	Bangalore, Anekal, Ilkal, Molakalmuru, Melkote, Kollegal
Chattisgarh	Champa, Chanderi, Raigarh
Maharashtra	Paithan
Tamil Nadu	Kanchipuram, Arni, Salem, Kumbhakonam, Tanjavur
Uttar Pradesh	Varanasi
West Bengal	Bishnupur, Murshidabad, Birbhum

Central Silk Board is a statutory body established under the Central Silk Board Act, 1948. It functions under the aegis of Union Ministry of Textile. It is a national organization for overall development of silk sector in India.

## SPECIAL LIVESTOCK SECTOR PACKAGE

## GS-III AGRICULTURE

### Context

- In order to further boost growth in livestock sector and thereby making animal husbandry more remunerative in Animal Husbandry Sector, the Government has approved implementation of a Special Livestock Sector Package.

### About

- As per this, all the schemes of the Department will be merged into three broad categories as:
  - Development Programmes** which includes Rashtriya Gokul Mission, National Programme for Dairy Development (NPDD), National Livestock Mission (NLM) and Livestock Census and Integrated Sample Survey (LC & ISS) as sub-schemes,
  - Disease Control programme** renamed as **Livestock Health and Disease Control (LH & DC)** which includes the present Livestock Health and Disease Control (LH & DC) scheme and National Animal Disease Control Programme (NADCP) and
  - Infrastructure Development Fund** wherein, the Animal Husbandry Infrastructure Development fund (AHIDF) and the Dairy Infrastructure Development Fund (DIDF) are merged and the present scheme for support to Dairy Cooperatives and Farmer Producer Organizations engaged in Dairy activities is also included in this third category.

### Rashtriya Gokul Mission

- Rashtriya Gokul Mission (RGM) was launched in December 2014 for development and conservation of indigenous breeds through selective breeding in the breeding tract and genetic upgradation of nondescript bovine population.
- Rashtriya Gokul Mission will be implemented through the **"State Implementing Agency (SIA viz Livestock Development Boards)**.
- The scheme comprises of two components namely National Programme for Bovine Breeding (NPBB) and National Mission on Bovine Productivity (NMBP).

### Objectives of RGM

- Development and conservation of indigenous breeds;
- Breed improvement programme for indigenous breeds so as to improve the genetic makeup and increase the stock;
- Enhancing milk production and productivity of bovine population by increasing disease free high genetic merit female population and check on spread of diseases ;
- Upgrading nondescript cattle using elite indigenous breeds like Gir, Sahiwal, Rathi, Deoni, Tharparkar, Red Sindhi
- Distribution of disease free high genetic merit bulls for natural service;
- To bring all breedable females under organised breeding through AI or natural service using germ plasm of high genetic merits;
- To arrange quality Artificial Insemination (AI) services at farmers' doorstep;
- To create e-market portal for bovine germplasm for connecting breeders and farmers;
- To increase trade of livestock and livestock products by meeting out sanitary and phyto sanitary (SPS) issues;
- To select breeding bulls of high genetic merit at a young age through application of genomics.

### Initiatives under Rashtriya Gokul Mission

- Awards** for encouraging farmers/breeder societies to rear Indigenous breeds of bovines:
  - Gopal Ratna awards:** for farmers maintaining the best herd of Indigenous Breed and practicing best management practices.
  - Kamdhenu awards:** for best managed Indigenous herd by Institutions/Trusts/ NGOs/ Gaushalas or best-managed Breeders' societies.
- National Kamdhenu Breeding Centre:** to develop and conserve Indigenous Breeds in a holistic and scientific manner.
- Gokul Gram:** These are integrated cattle development centers, 'Gokul Grams' to develop indigenous breeds including up to 40% nondescript breeds (belonging or appearing to belong to no particular class or kind).
- E-PashuHaat:** An e-market portal connecting breeders and farmers, for quality- disease-free bovine germplasm.
- National Bovine Genomic Center for Indigenous Breeds (NBGC-IB)** for selection of breeding bulls of high genetic merit at a young age using highly precise gene-based technology.
- Advanced Reproductive Technology:** In-vitro Fertilization (IVF)/ Multiple Ovulation Embryo Transfer (MOET) and sex-sorted semen technique to improve the availability of disease-free female bovines.
- PashuSanjivni:** to estimate bovine productivity by registration of bovine animals in milk production.

### Significance of revised program

- The revised and realigned scheme component related to Rashtriya Gokul Mission is crucial for development and conservation of indigenous breeds and would also contribute in improving the economic condition of the rural poor as most of the low producing indigenous breeds are with small and marginal farmers and landless labourers.
- The aim would be to deliver quality breeding inputs at the farmers' doorstep.



- Implementation of RGM is crucial to enhance milk production and productivity of bovines, thereby making dairying more remunerative to poor farmers of the country.

## KISAN SARATHI APP

## GS-III AGRICULTURE

### Context

- Recently, Agriculture Minister launched the Information Communication and Technology (ICT) based platform “KisanSarathi App.”

### About

- Through this platform, farmers can interact and avail personalised advisories on agriculture and allied areas directly from the respective scientists of Krishi Vigyan Kendra (KVKs).
- The app was launched to facilitate farmers to get 'right information at right time' in their desired language.
- Through this platform, officials at various levels can view and monitor daily activities such as farmer registration, live calls, messages, advisories given and pending.

### Significance

- KisanSarathi initiative will be highly valuable not only in addressing the location-specific information needs of the farmers but also in agricultural extension, education and research activities of ICAR.

### Krishi Vigyan Kendra

- KVK is an integral part of the National Agricultural Research System (NARS).
- It aims at assessment of location specific technology modules in agriculture and allied enterprises, through technology assessment, refinement and demonstrations.
- The first KVK was established in 1974 in Pondicherry.
- The KVK scheme is 100% financed by Govt. of India.

### Mandate of KVKs

- On-farm testing to assess the location specificity of agricultural technologies under various farming systems.
- Frontline demonstrations to establish production potential of technologies on the farmers' fields.
- Capacity development of farmers to update their knowledge and skills on modern agricultural technologies.
- To work as Knowledge and Resource Centre of agricultural technologies
- Provide farm advisories using ICT and other media means on varied subjects of interest to farmers

### ICAR

- The Indian Council of Agricultural Research (ICAR) is an autonomous body responsible for co-ordinating agricultural education and research in India.
- It reports to the Department of Agricultural Research and Education, Ministry of Agriculture.
- The Union Minister of Agriculture serves as its president.
- It is the largest network of agricultural research and education institutes in the world.

## HORTICULTURE PRODUCTION

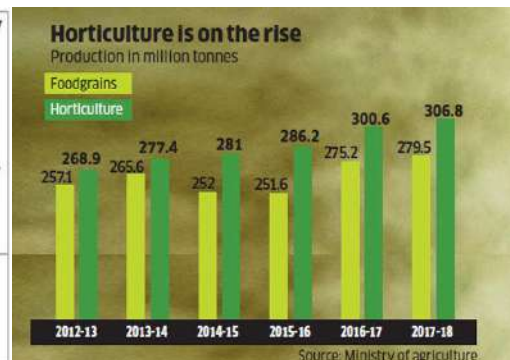
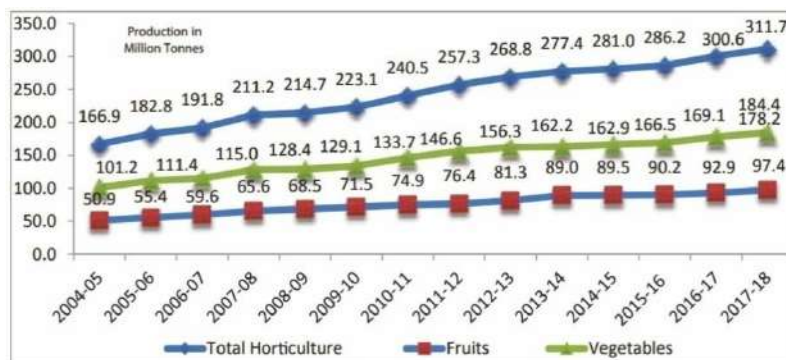
## GS-III AGRICULTURE

### Context

- India is expected to have the highest ever horticulture production of 329.86 million tonnes in 2020-21, up by 2.93% over previous year.

### India's position in production of horticulture crops

- It ranks second in fruits and vegetables production in the world, after China.
- Its horticulture production has increased by 30 per cent in the last five years.
- India is the second largest producer of fruits and vegetables in the world with first rank in the production of Banana, Mango, Lime & Lemon, Papaya and Okra.



### Top State and their percent (%) Share in Production

Fruit	
State	Share
Andhra Pradesh	15.63%
Maharashtra	12.05%
Uttar Pradesh	10.82%
Vegetable	
Uttar Pradesh	15.40%
West Bengal	15.03%
Madhya Pradesh	9.52%
Plantation Crops	
Kerala	33.48%
Karnataka	27.30%
Tamil Nadu	23.42%
Flower	
Tamil Nadu	17.33%
Andhra Pradesh	15.40%
Karnataka	11.63%
Spices	
Madhya Pradesh	14.67%
Rajasthan	14.09%
Andhra Pradesh	13.54%

### Challenges in the Horticulture Sector

- Minimum Support Price (MSP) is not applicable to this sector.
- Lack of machinery and equipment.
- High price fluctuations.
- Lack of good cold chain storage and transport networks.

### Initiatives taken

- **Horticulture Area Production Information System (HAPIS)** - a web enabled information system by which data from the states/districts is reported. This minimizes the time-lag and maximizes the coverage area.
- **Coordinated programme on Horticulture Assessment and MANagement using geoinformatics (CHAMAN)** - to develop scientific methodology for estimation of area & production under horticulture crops. **Method used:** Remote Sensing and Sample Survey Techniques.
- **Mission for Integrated Development of Horticulture (MIDH)** is a Centrally Sponsored Scheme for the holistic growth of the horticulture sector. Under MIDH, Government of India (GOI) contributes 60%, of total outlay for developmental programmes in all the states except states in North East and Himalayas, 40% share is contributed by State Governments. In the case of North Eastern States and Himalayan States, GOI contributes 90%. **Schemes under it are:** National Horticulture Mission (NHM); Horticulture Mission for North East and Himalayan States (HMNEH); National Horticulture Board (NHB); Coconut Development Board (CDB) & Central Institute of Horticulture (CIH), Nagaland.

### Way Ahead

- Science and technology-led advancement
- Improvement in quality seeds & plants and bringing newly introduced cultivators that ensures quick and efficient cultivation process.
- Imparting the meaningful education related to Horticulture to upscale youth knowledge regarding various government schemes and modern equipment and machinery.
- Adopt post-harvest management exercises to enhance the value of fruits in the long run.

- Value addition is the process that meets the requirements of nutritional security. It boosts the economic value of Horticulture crops.
- Organizing Research & Development Programmes at National level.
- Establishing a better long-distance transportation network should be a task of utmost importance to ensure smooth and hindrance-free transportation of fresh Horticultural produce.
- Preserved cultivation, hydroponic & aeroponic should get enfolded for polishing up productivity along with the quality of produce.

**NFWPIC****GS-III AGRICULTURE****Context**

- Union Agriculture and Farmers Welfare Minister inaugurated the office of National Farmers Welfare Program Implementation Committee.

**About**

- The National Farmers Welfare Program Implementation Committee would act as a project monitoring unit for the implementation of
  1. PM-KisanYojana,
  2. KisanMaandhanYojana,
  3. Agriculture Infrastructure Fund and
  4. other schemes of the Department of Agriculture and Farmers Welfare.

**Pradhan MantriKisanSammanNidhi (PM-KISAN) scheme**

- Under the PM-KISAN scheme launched in 2019, the government is providing Rs 6,000 in three equal installments to 14 crore farmers annually.
- The amount is directly transferred into the bank accounts of the beneficiaries through direct benefit transfer (DBT) mode.
- The scheme defines family as husband, wife and minor children.
- The fund of Rs 2,000 is directly transferred to the bank accounts of the farmers/farmer's family.

**Who is eligible for PM Kisan scheme?**

- Landholding farmers' families with cultivable landholding in their names can apply under this scheme
- Farmers from both the urban and rural areas
- Small and marginal farmers families

**Who is not eligible for PM Kisan scheme?**

- Institutional landholders
- Present or retired officers and employees of state/central government as well as PSUs and government autonomous bodies.
- Beneficiaries with higher economic status are not eligible.
- Those who pay income tax
- Farmer families holding constitutional posts
- Professionals like doctors, engineers and lawyers
- Retired pensioners with a monthly pension of over Rs 10,000

**Pradhan MantriKisanMaanDhanYojana (PM-KMY)**

- Government launched the Pradhan MantriKisanMaanDhanYojana (PM-KMY) in 2019 with a view to provide social security to Small and Marginal Farmers in their old age.

**Benefits**

- A minimum fixed pension of Rs.3,000/- is provided to the small and marginal farmers, on attaining the age of 60 years.
- It is a voluntary and contributory pension scheme.
- The eligible farmer is required to contribute to a Pension Fund between Rs.55 to Rs.200 per month depending on the entry age.
- The Central Government also contributes in equal amount to the Pension Fund.

**Eligibility**

- Small and Marginal Farmer (SMF) - a farmer who owns cultivable land upto 2 hectare as per land records of the concerned State/UT.
- Age of 18- 40 years

**Agriculture Infrastructure Fund**

- Read in Short News Articles

## BHARTIYA PRAKRITIK KRISHI PADHATI (BPKP)

## GS-III AGRICULTURE

### Context

- Government is implementing BhartiyaPrakritikKrishiPadhati (BPKP) as a sub scheme of ParamparagatKrishiVikasYojana (PKVY) since 2020-21 for the promotion of traditional indigenous practices.

### About

- The scheme mainly emphasizes on exclusion of all synthetic chemical inputs and promotes on-farm biomass recycling with major stress on biomass mulching; use of cow dung-urine formulations; plant-based preparations and time to time working of soil for aeration.
- Under BPKP, **financial assistance of Rs 12200/ha for 3 years** is provided for cluster formation, capacity building and continuous handholding by trained personnel, certification and residue analysis.

### ParamparagatKrishiVikasYojana

- It is an elaborated component of Soil Health Management (SHM) of major project National Mission of Sustainable Agriculture (NMSA).
- Under PKVY Organic farming is promoted through adoption of organic village by cluster approach and PGS certification.

### Expected outcomes

- Promotion of commercial organic production through certified organic farming.
- The produce will be pesticide residue free and will contribute to improve the health of consumer.
- It will raise farmer's income and create potential market for traders.
- It will motivate the farmers for natural resource mobilization for input production.

### Components

- Adoption of Participatory Guarantee System (PGS) certification through cluster approach.
- Adoption of organic village for manure management and biological nitrogen harvesting through cluster approach.

#### What is the PGS, and how does it work?

- Participatory Guarantee Systems (PGS), are "locally focused quality assurance systems. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange." They represent an alternative to third party certification. PGS enable the direct participation of producers, consumers and other stakeholders in certifying produce and in:
  - the choice and definition of the standards
  - the development and implementation of certification procedures
  - the certification decisions
- Participatory Guarantee Systems are also referred to as "participatory certification"

## MSP TO FARMERS

## GS-III AGRICULTURE

### Context

- Information pertaining to MSP was given in a written reply by the Union Minister of Agriculture and Farmers Welfare Shri Narendra Singh Tomar in RajyaSabha.

### 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 lesser price than the cost incurred.

### Details

- Government of India announces Minimum Support Prices (MSP) for **23 major agricultural commodities** of Fair Average Quality (FAQ) each year in both the Crop seasons.
- It does so after taking into account the **recommendations of the Commission for Agricultural Costs and Prices (CACP)**.
- Government also extends remunerative price to farmers through its

**EXPRESS explained.**

**HOW ARE MSPs DETERMINED?**

The Centre fixes MSPs for every kharif and rabi cropping season based on recommendations of the Commission for Agricultural Costs and Prices (CACP)

When a farmer grows a crop, he incurs costs, some of it explicit and some implicit or unpaid. The CACP considers the following costs:

1	2	3
A2	A2+FL	C2
Covers all cash and in kind expenses incurred by farmers on seeds, fertilisers, chemicals, hired labour, fuel, irrigation, etc	Actual costs plus an imputed value of unpaid family labour	Includes 'A2+FL' along with revenues forgone on owned land (rent) and fixed capital assets (interest)



various interventions schemes.

### Calculating MSP

- Since 2009, the Commission for Agricultural Costs and Prices fixes the MSP of a crop based on:
  1. cost of production
  2. demand
  3. supply
  4. price fluctuations
  5. market price trends
  6. different costs and
  7. international market prices
  8. agricultural wage rate

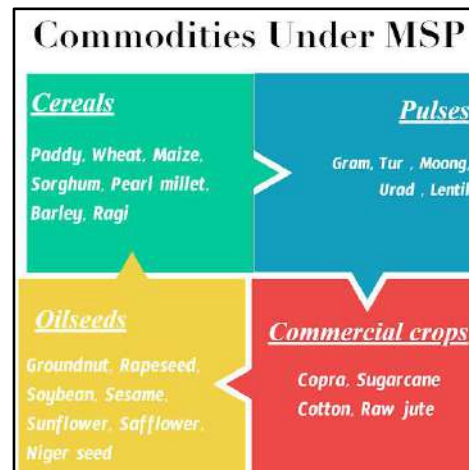
### Procurement

- 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 of MSP: Pros, Cons & what can be done better?

#### Pros of MSP

- Tool to fight Price volatility
- It is a one-price policy guaranteeing assured pay. Protects the farmers from any sharp fluctuations in price.
- Increases disposable income of farmers.
- Procurement for public distribution system and buffer stock for food security comes from this policy.
- 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.



### Issues with MSP

- Hiking the MSP without investing in infrastructure is just a short-term play.
- MSP covers numerous costs such as the cost of sowing (A2) and labour (FL).
- Experts have suggested that it should be based on comprehensive costs (C2), which also include land rent costs.
- MSP paves way for inflationary effects on the economy.
- Interference by the government kills the competition.
- Leads to loss of government treasury.
- MSP is a nationwide single price policy. However, the actual costing for production varies from place to place, more severely so in areas lacking irrigation facilities and infrastructure. Thus, not all farmers have equal benefits.
- Lack of awareness in farmers about MSP. They end up being exploited by middlemen.
- MSP is notified for 23 crops, but effectively ensured only for two-three crops.
- MSP has not increased commensurately with increase in cost of production.
- Thus, MSP while still being significant is not the only go-to solution for solving all farmer woes.

### Way Ahead

- 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.
- Swaminathan Commission prescribed MSP 50 per cent above C2.
- 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' schemes for the farmers called 'BhavantarBhugtanYojana' (BBY) in 2017.

## AGRICULTURE EXPORTS

## GS-III AGRICULTURE

### Context

- India has entered the top 10 list of the countries exporting agricultural produce in the year 2019 with a sizable share in the export of rice, cotton, soya beans and meat – **WTO Report on the trends in world agricultural trade in the past 25 years.**

### Key Statistics

- India with 3.1% share in global Agri exports, replaced New Zealand as the **9th largest exporters across the globe.**
- The United States of America (USA), which topped the list in 1995 with 22.2% share of world Agri export, was overtaken by the European Union (EU) in 2019 with 16.1% global Agri share.
- India is the **third-largest cotton exporter (7.6%)**, and the **fourth-largest importer (10%) in 2019.**
- In the largest traded Agri product, soya beans, India (0.1%) has a meagre share, but was **ranked ninth in the world.**
- In the “meat and edible meat offal” category, **India secured 8th rank in the world** with a global share of 4%.
- India’s **share of foreign value-added content in its Agri exports** clocked **3.8%** share primarily due to high tariffs on Agri imports to boost the domestic markets and local farmers.

	Value
	2019
<b>Exporters</b>	
European Union	639
Extra-EU Exports	224
United States of America	165
Brazil	89
China	82
Canada	65
Thailand	43
Indonesia	42
Argentina	40
India	37
Mexico	36

**Top 10 exporters and importers of agricultural products, 2019 (Billion dollars)**

## PHOSPHORUS ROCKS

## GS-III AGRICULTURE

### Context

- India to explore indigenous deposits of phosphatic rock, a step towards becoming AatmaNirbhar in fertilizer production,” informed Minister of Chemicals and Fertilizers.

### What are phosphorus rocks?

- Phosphorus rocks or phosphate rocks are unprocessed ores.
- Phosphate rock deposits can be sedimentary or igneous.

### Where is it found?

- Phosphate rock are mined from sedimentary deposits formed by the deposition of phosphate-rich materials in marine environments.
- Large sedimentary deposits are located in **China, Middle East, Northern Africa, and the United States.**
- Meanwhile, the igneous deposits are mined in Brazil, Canada, Finland, Russia, South Africa, and Zimbabwe.

### Phosphorus in India

- Phosphate rocks are majorly produced only from two States in India, **namely Rajasthan and Madhya Pradesh.**
- Currently, there exists **30 lakh MT of phosphorite deposits in the country.**
- These deposits are available in Rajasthan, central part of peninsular India, Hirapur (Madhya Pradesh), Lalitpur (Uttar Pradesh), Mussoorie syncline, and Cuddapah basin (Andhra Pradesh).
- Of the total reserves, **34% are in Jharkhand**, 31% in Rajasthan, 19% in Madhya Pradesh, 8% in Uttar Pradesh and Uttarakhand each, respectively.

### Uses

- For making calcium phosphate nutritional supplements for animals,
- For making chemicals for industrial use.
- For the **production of fertilizers for agriculture.**
- Worldwide, more than **85% of the phosphate rock mined is used to manufacture phosphate fertilizers.**
- All common fertilizers have an “N-P-K” rating. Phosphorus is the “P” in fertilizers, which is essential for plants.

### Importance of Phosphorus in Agriculture

- Important for plant’s growth and helps in retaining decaying soil fertility.
- Facilitates the storage and transfer of energy throughout the plant.

- Plays a major role in photosynthesis and energy transfer in plants.
- Essential for the production of seed and root formation.
- Promotes early plant maturity and stalks strength. It is also resistant to plant root diseases.

#### Significance

- Phosphorus reserves, if found, can be a game-changer.
- **Boost to domestic industry:** The exploration of indigenous deposits of phosphatic rocks is a major step towards a self-reliant India, as phosphate reserves, if found can help in reducing the import dependency India has at present. It will also boost the domestic fertilizer industry.
- **To benefit farmers:** Indigenous reserves of phosphatic rock and potash will not only be advantageous to the indigenous industries but will also cater to the needs of Indian farmers with the production of fertilizers like DAP, SSP, NPK, and MOP.
- **To reduce import dependency:** Rock phosphate is the key raw material for DAP and NPK fertilizers. Currently, India is 90% dependent on imports for this raw material. The volatility in international prices also affects the domestic prices of fertilizers, which in turn, hinders the progress and development of the agriculture sector in the country and puts extra pressure on the farmers.
- **Promote employment:** In addition to this, it will also give a positive kick to employment in the country.
- **Optimize consumption:** China, USA, Morocco, Russia, and India are the leading consumers of phosphate rocks. India has been striving to achieve optimum consumption of phosphorus. The reserves would only help in achieving this mission and help in optimizing the consumption of rock phosphate.

#### Conclusion

- Indigenous deposits of phosphoric will help save the country money that now goes out of the country in form of import.
- Phosphatic reserves mean **India can reduce its dependency on other countries and become self-reliant in the fertilizer sector too.**

### PPM-KMY

### GS-III AGRICULTURE

#### Context

- More than 21.40 lakh farmers have so far joined the voluntary pension scheme for small and marginal farmers Pradhan Mantri Kisan Maan-Dhan Yojana (PM-KMY), Union Agriculture Minister Narendra Singh Tomar said.

#### About

- The Government launched the Pradhan Mantri Kisan Maan-Dhan Yojana (PM-KMY) **in 2019** with a view to provide social security to Small and Marginal Farmers in their old age.

#### Benefits

- Under this scheme, **a minimum fixed pension of Rs.3,000/-** is provided to the small and marginal farmers, subject to certain exclusion criteria, on attaining the age of 60 years.
- It is a **voluntary and contributory pension scheme**.
- The eligible farmer is required to contribute to a Pension Fund between **Rs.55 to Rs.200 per month depending on the entry age**. The **Central Government also contributes in equal amount to the Pension Fund**.

#### Eligibility

- Small and Marginal Farmer (SMF) - a farmer who owns cultivable land **upto 2 hectare as per land records** of the concerned State/UT.
- Age of 18- 40 years

#### Farmers who are not eligible for the scheme

- SMFs covered under any other statutory social security schemes such as National Pension Scheme (NPS), Employees' State Insurance Corporation scheme, Employees' Fund Organization Scheme etc.
- Farmers who have opted for Pradhan Mantri Shram Yogi Maan-Dhan Yojana (PM-SYM) administered by the Ministry of Labour & Employment
- Farmers who have opted for Pradhan Mantri Laghu Vyapari Maan-dhan Yojana (PM-LVM) administered by the Ministry of Labour & Employment.
- **All Institutional Land holders; and**
- Former and present holders of constitutional posts
- Former and present Ministers, Mayors of Municipal Corporations, former and present Chairpersons of District Panchayats.
- All serving or retired officers and employees of Central/ State Government (**Excluding Multi Tasking Staff / Class IV/Group D employees**)
- All Persons who paid Income Tax in last assessment year.
- Professionals like Doctors, Engineers, Lawyers, Chartered Accountants, and Architects

## COMPULSORY FORTIFICATION OF RICE

## GS-III AGRICULTURE

### Context

- India is considering **compulsory fortification of rice from 2024** as a significant percentage of the population continues to suffer from malnutrition and anaemia.
- The government is likely to announce a policy to help industry ramp up production of rice fortified with iron, folic acid and Vitamin B12.

### Food Fortification

- Fortification is the **practice of deliberately increasing the content of an essential micronutrient, i.e. vitamins and minerals (including trace elements) in a food**, so as to improve the nutritional quality of the food supply and provide a public health benefit with minimal risk to health.
- For example, adding iodine and iron to edible salt.

### What is the need for Fortification in India?

- Malnutrition is the primary reason behind **69 per cent of deaths of children** below the age of five in India, according to a **UNICEF's The State of the World's Children 2019 report**.
- The report further states that **every second child in India, under five years of age, is affected by some form of malnutrition**.
- Malnutrition prevents brain development, body growth, immune systems from working effectively, and increases lifelong risk of disease and disability.
- India is ranked at 103 out of 119 countries on **Global Hunger Index, 2017**.
- Over **70 percent of India's population still consumes less than 50 percent of RDA for micro-nutrients**.
- One third of population which is suffering from vitamin and micro-nutrient deficiencies globally, are in India**.
- The control of micronutrient deficiencies is an essential part of the overall effort to fight hunger and malnutrition.
- India has been implementing a variety of strategies to address anaemia and micronutrient deficiencies which include iron-folic acid supplementation, vitamin A supplementation, nutrition health education to encourage dietary diversity, and others. However, the anaemia levels continue to be high.
- This, therefore, requires the introduction of strategies such as food fortification which are evidence based, tried and tested in other parts of the world.

1	Vitamin A	Helps against Night blindness;
2	Vitamin D	Supports strong bones;
3	Vitamin B12	Important for maintaining normal functioning of Nervous system and blood formation;
4	Folate & Folic acid	Important for foetal development and blood formation;
5	Iron	Fights Anemia;
6	Iodine	Required for normal growth, thyroid and brain function;
7	Zinc	Supports a healthy immune system;
8	Thiamine	Required for normal nerve and heart function;
9	Riboflavin	Necessary to release the energy from food;
10	Niacin	Necessary to release the energy from food;
11	Pyridoxine	Necessary to release the energy from food.

### Rice Fortification

- Rice is a staple consumed regularly in the preparation of many common local dishes.
- Micronutrient deficiencies of public health significance are widespread in most countries consuming high levels of rice; thus rice fortification has the potential to help aid vulnerable populations.
- Rice kernels can be fortified with several micronutrients, such as iron, folic acid and other B-complex vitamins, vitamin A and zinc.
- Similarly, other vital micronutrients can be added to staples like wheat flour, oil, and milk.
- The reason behind choosing staple items is to reach a larger population.

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## MARS 2020 MISSION

## GS-III SCIENCE & TECHNOLOGY

### Context

- Indian-origin Vandii Verma drives Perseverance rover on Mars, says it's incredible.

### About

- Perseverance, nicknamed Percy, is a car-sized Mars rover designed to explore the crater Jezero on Mars as part of NASA's Mars 2020 mission.
- NASA named the landing site Octavia E. Butler Landing.
- The rover also carried the mini-helicopter Ingenuity to Mars, that made the first powered flight on another planet on 19 April 2021.



### Broad Objectives of Mars 2020 Mission

- Looking for habitability:** identify past environments that were capable of supporting microbial life.
- Seeking biosignatures:** seek signs of possible past microbial life in those habitable environments, particularly in specific rock types known to preserve signs over time.
- Caching samples:** collect core rock and regolith ("soil") samples and store them on the Martian surface.
- Preparing for humans:** test oxygen production from the Martian atmosphere.

**Note:** Recently, NASA's Mars Oxygen In-Situ Resource Utilization Experiment (MOXIE) of Perseverance Mission produced oxygen on Mars.

### How did Perseverance produce oxygen on Mars?

- On Mars, carbon dioxide makes up ~96% of the gas in the planet's atmosphere.
- Oxygen is only 0.13%, compared to 21% in Earth's atmosphere.
- Like a tree on Earth, MOXIE inhales carbon dioxide and exhales oxygen.
- To produce oxygen, MOXIE separates oxygen atoms from carbon dioxide molecules.
- It does so by using heat at a temperature of around 800 degrees Celsius, and in the process also produces carbon monoxide as a waste product, which it releases in the Martian atmosphere.
- A technology demonstrator, MOXIE is designed to generate up to 10 grams of oxygen per hour, and is placed inside the Perseverance rover.
- Future oxygen generators that descend from its technology need to be about 100 times larger to support human missions on Mars.

### Why is producing oxygen on the Red Planet so important?

- A substantial amount of oxygen supply on Mars is essential for crewed missions that plan to go there- not just for astronauts to breathe but for rockets to use as fuel while coming back to Earth.
- For four astronauts to take off from Mars, a future mission would require around 7 metric tons of rocket fuel and 25 metric tons of oxygen.
- In contrast, astronauts living and working on Mars would require far less oxygen to breathe, maybe around one metric ton.
- It will be an enormous challenge to haul the 25 metric tons of oxygen from Earth to Mars for the return journey.
- This job would become significantly easier if the liquified oxygen can be produced on the Red Planet.

## STEM CELL RESEARCH

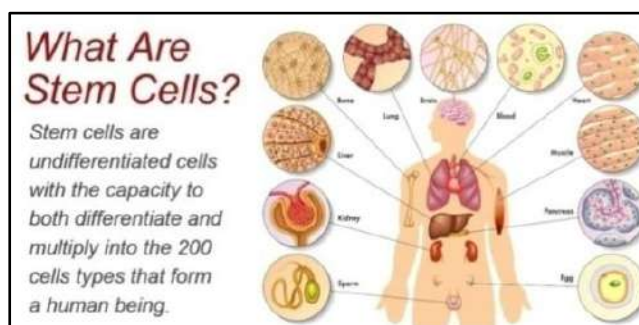
## GS-III SCIENCE & TECHNOLOGY

### Context

- Indian stem cell and developmental biologist Prof. Maneesha S Inamdar has been part of the WHO Expert Advisory Committee on Developing Global Standards for Governance and Oversight of Human Genome Editing.

### About

- Stem cells are the body's raw materials — cells from which all other cells with specialized functions are generated.
- No other cell in the body has the natural ability to generate new cell types.
- They are found in both embryonic and adult organisms.
- They serve as a repair system for the body.



### Embryonic stem cells

- Embryonic stem cells supply new cells for an embryo as it grows and develops into a baby.
- These stem cells are said to be pluripotent, which means they can change into any cell in the body.

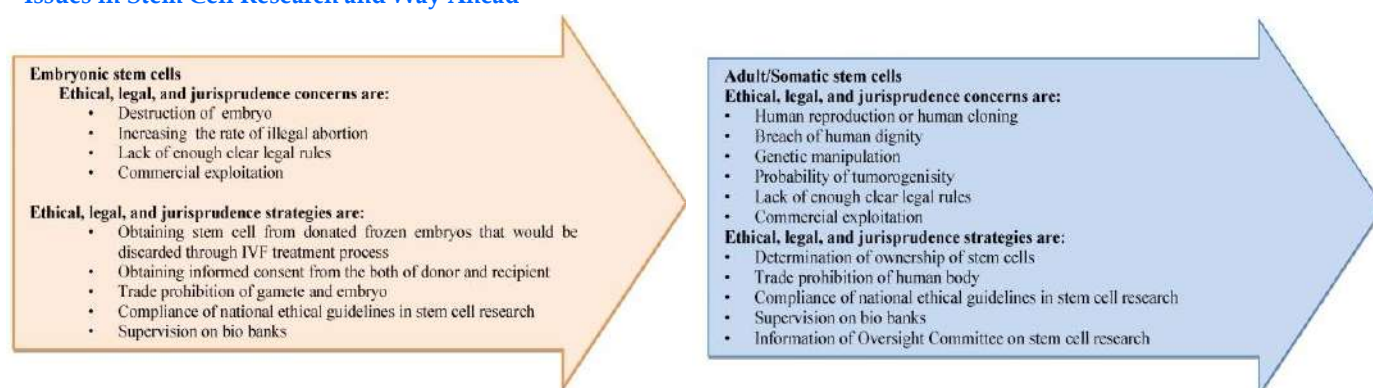
### Adult stem cells

- Adult stem cells supply new cells as an organism grows and to replace cells that get damaged.
- Adult stem cells are said to be multipotent, which means they can only change into some cells in the body, not any cell, for example:
- Blood (or 'haematopoietic') stem cells can only replace the various types of cells in the blood. Skin (or 'epithelial') stem cells provide the different types of cells that make up our skin and hair.

### Why are stem cells useful?

- Helps us understand the basic biology of how living things work and what happens in different types of cell during disease.
- Therapy – to replace lost or damaged cells that our bodies can't replace naturally.
- Grow new cells in a laboratory to replace damaged organs or tissues
- Correct parts of organs that don't work properly
- Research causes of genetic defects in cells
- Research how diseases occur or why certain cells develop into cancer cells
- Test new drugs for safety and effectiveness

### Issues in Stem Cell Research and Way Ahead



## SOLAR STORM

## GS-III SCIENCE & TECHNOLOGY

### Context

- A fierce solar storm is moving towards the Earth at a speed of 1.6 million kilometers per hour.
- It is feared that this storm may hit the Earth today, due to which there may be a power failure around the world.

### About

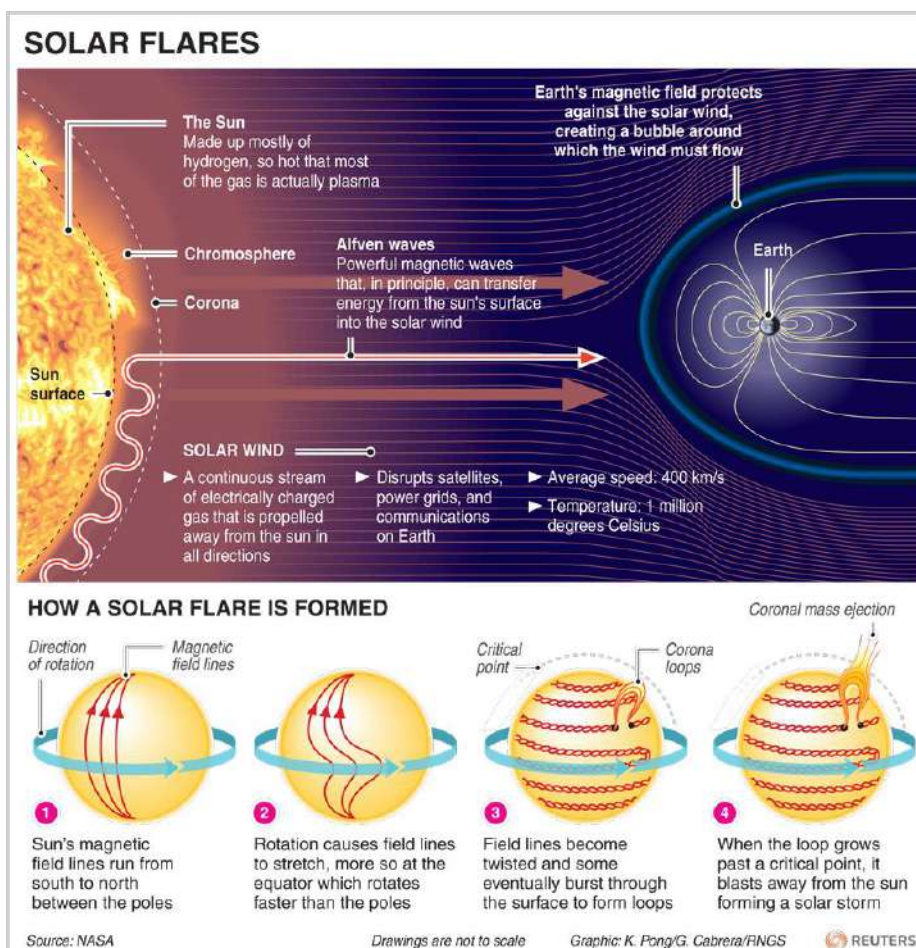
- NASA has classified this flare as an X1.5-class flare.
- X-class denotes the most intense flares, while the number provides more information about its strength.
- An X2 is twice as intense as an X1, an X3 is three times as intense, etc.

### Impact

- Satellite signals can be interrupted due to this collision.
- It can also have a direct effect on radio signals, communication and weather.
- It can cause interference in GPS navigation, mobile phone signals and satellite TV, current in power lines can be increased.

**Note:** However, this is rarely the case because the Earth's magnetic field acts as a protective shield.

- A solar storm in March 1989 caused a nine-hour blackout Hydro-Québec's electricity transmission system in Canada.
- Due to the solar storm, people living at the North or South Pole will be able to see a view of beautiful celestial lighting (auroras) at night.



## THERMOELECTRIC POWER GENERATION

## GS-III SCIENCE & TECHNOLOGY

### Context

- Researchers have developed a new low-cost electrical contact material for thermoelectric devices that is stable at high temperature.

### Background

- Thermoelectric materials **convert thermal energy directly into electricity** through a process that involves a solid-state electron and photon diffusion process.
- Though the principle is known for two centuries, it had limited utility as most known thermoelectric materials' **energy conversion efficiency is very low.**
- Nanotechnology brought innovations to improve the efficiency of materials, but the mass-market application of such innovations has remained restricted due to the **low device conversion efficiency of 6-10%.**
- This makes the electricity produced costlier than other technologies.

### Advantages of Thermo Electrical Generators

- Reliable source of energy
- Environment-friendly
- Have high scalability, which means they can be applied to heat source of any size
- Lower the production cost
- Recycle wasted heat energy

### Limitations of Thermo Electrical Generators

- Low energy conversion efficiency rate
- Require relatively constant heat source
- Lack of industry education about thermoelectric generators
- Slow technology progression

### Recent discovery

- Researchers from the International Advanced Research Centre for Powder Metallurgy & New Materials (ARCI), an **autonomous institute of the Department of Science & Technology**, have designed and developed thermoelectric modules using **lead telluride (PbTe) and magnesium stannite silicide (Mg<sub>2</sub>Si<sub>1-x</sub>Sn<sub>x</sub>) compounds.**



- This gives more than **10% conversion efficiency**.

### Applications of Thermo Electrical Generators

- The heat source of the thermoelectric generator serves as a radioactive element for many space probes including the Mars Curiosity rover.
- Solar cells employ only the high frequency part of radiation, and the low frequency heat energy is wasted.
- Thermoelectric devices integrated with these solar systems **can convert the wasted heat energy into useful electricity**.
- Waste heat produced from cars and other automobiles, microprocessors and industrial processes can be harvested using thermoelectric generator, thereby increasing the efficiency of the systems.
- It can be used to power lights, fans, and several instruments like guard alarm systems, greenhouses, radio receivers and TV sets.

### Conclusion

- The following factors continue to accelerate the search for technologies of generating electrical power
  - The limited availability of primary energy resources,
  - increasing concern of environmental issues of emissions and
  - the growing global demand for conserving energy
- Thermoelectric power generators have now emerged as a promising alternative green technology owing to their potential to directly convert waste-heat energy into electrical power.
- The application of this alternative green technology in converting waste-heat energy into electrical power can improve the overall efficiencies of energy conversion systems.
- Currently, a large amount of waste heat is discharged from industry including power utilities and manufacturing plants.
- Hence, most of the research activities have been directed towards the utilization of industrial waste heat.
- Research on thermoelectric generators is needed to focus on finding suitable thermoelectric materials that can withstand higher temperatures of various industrial heat sources at a feasible cost with good performance.

## RIGHT TO REPAIR MOVEMENT

## GS-III SCIENCE & TECHNOLOGY

### Context

- In recent years, countries around the world have been attempting to pass effective 'right to repair' laws.
- But large tech companies, including Apple, Microsoft, Amazon and Tesla, have been lobbying against the right to repair.

### Issue

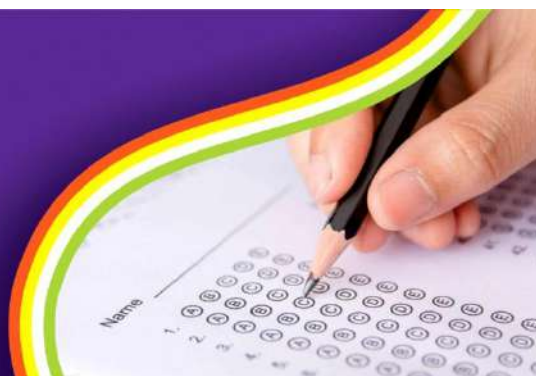
- The average consumer purchases an electronic gadget, knowing that it will very quickly become obsolete as its manufacturer releases newer, shinier, and more amped up versions of the same device.
- **Result:** Consumer is at the mercy of manufacturers who make repairs inaccessible for most, by dictating who can fix the device and making it an inordinately expensive affair.

### Significance of the Movement

- The goal of the movement is to get companies to make spare parts, tools and information on how to repair devices available to customers and repair shops to increase the lifespan of products and to keep them from ending up in landfills.
- Electronic manufacturers are encouraging a **culture of 'planned obsolescence'** – which means that devices are designed specifically to last a limited amount of time and to be replaced.
- This, leads to immense pressure on the environment and wasted natural resources.
- Mining and manufacturing materials used to make an iPhone “represent roughly 83 per cent of its contribution to the heat-trapping emissions in the atmosphere throughout its life cycle” - Manufacturing data released by Apple.
- The Movement **will also help boost business for small repair shops**, which are an important part of local economies.

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**CHILD SOLDIER RECRUITER LIST****GS-III SECURITY & DEFENSE****Context**

- US puts Pakistan, Turkey on Child Soldier Recruiter List.

**Child Soldier Recruiter List**

- The **US Child Soldiers Prevention Act (CSPA)** requires the publication in the **annual Trafficking in Persons (TIP) report** a list of foreign governments that have recruited or used child soldiers during the previous year
- Child Soldier Recruiter designation could result in **restrictions on certain security assistance and commercial licensing of military equipment**.
- Pakistan, Turkey, Afghanistan, Myanmar, Democratic Republic of the Congo, Iran, Iraq, Libya, Mali, Nigeria, Somalia, South Sudan, Syria, Venezuela and Yemen countries are added to the list.

**Role of UN**

- The United Nations, has identified the recruitment and use of child soldiers as among six “grave violations” affecting children in war.
- UN has established numerous monitoring and reporting mechanisms and initiatives to combat this practice.

**So, who is a child soldier?**

- The recruitment or use of children below the age of 15 as soldiers is prohibited by both the **UN Convention on the Rights of the Child (CRC) and the additional protocols to the Geneva Conventions**.
- It is considered as a **war crime under the Rome Statute of the International Criminal Court**.
- The **Optional Protocol to the CRC** on the involvement of children in armed conflict prohibits kids under the age 18 from being compulsorily recruited into state or non-state armed forces or directly engaging in hostilities.
- The United States is a party to the Optional Protocol.

**Convention on the Rights of the Child (CRC)**

- The CRC was adopted in 1989 and entered into force on September 2, 1990.
- Currently, 193 countries have ratified the CRC including India.
- The CRC requires state parties to **“take all feasible measures” to ensure that children under 18 are not engaged in direct hostilities**.
- It further **prohibits the state parties** from recruiting **children under 15 into the armed forces**.
- In 2000, the UN Committee on the Rights of the Child adopted the **Optional Protocol** to the Convention on the Rights of the Child on the involvement of children in armed conflict.
- While the CRC requires states to refrain from using children under 15 in direct hostilities, the **Optional Protocol raises this age to 18**.
- Valuable and necessary tools to establish international norms as they **raise awareness regarding human rights abuses**.
- However, these treaties are limited in scope and nature, and **they tend to be idealistic rather than practicable**.
- The UN’s mechanisms only bind state parties that ratify the treaties. It has **no authority over countries that are not parties to the convention or are non-state entities**, such as rebel militias recruiting child soldiers.
- It also relies on the signatories themselves to implement its doctrines and prevent human rights abuses around the world.
- Therefore, most of the responsibility in preventing such abuses lies with the individual countries themselves.
- While the **UN has no police power mechanism to enforce its decisions**.
- Therefore, the CRC and its Optional Protocol are limited by the signatories’ willingness to comply. Somalia, for example, is a signatory but it hasn’t ratified the convention.

**What are prohibited for countries in the list?**

- The following types of security assistance are prohibited for countries that are in the list:
  - Licenses for direct commercial sales of military equipment
  - Foreign military financing for the purchase of defense articles and services, as well as design and construction services
  - International military education and training
  - Excess defense articles
  - Peacekeeping operations
- The countries will also not be eligible for the US Department of Defence’s “train and equip” authority for building the capacity of foreign defense forces.

**CYBER-ESPIONAGE****GS-III SECURITY & DEFENSE****Context**

- Pakistan-linked hackers are targeting critical infrastructure PSUs in India, a report says.

**Report findings**

- An advanced persisted threat (APT) group with links to Pakistan is targeting critical Indian infrastructure of public enterprises, according to a report by cybersecurity firm Seqrite.
- Firms related to telecommunications, finance and power have been targeted.
- The research firm suspects the attack to be a **cyber-espionage campaign** launched to get access to sensitive information to gain a competitive advantage against India.
- As part of the campaign, attackers are sending out **phishing emails** with government-themed documents in an attempt to lure targets into opening the attachments.
- The malicious actors have enhanced the attack tools and methods, as compared to last year, to make detection difficult, it noted.
- The final payload can capture sensitive information including screenshots, keystrokes, and files from affected system. It can also execute commands specified as part of instructions from C2 servers.
- The group can potentially **steal critical intel from the government agencies and their subsequent bodies.**

**What is Cyber Espionage?**

- Cyber espionage, or cyber spying, is a **type of cyber-attack in which an unauthorized user attempts to access sensitive or classified data or intellectual property (IP) for economic gain, competitive advantage or political reasons.**

**Why is Cyber Espionage Used?**

- Cyber espionage is primarily used as a means to **gather sensitive or classified data, trade secrets or other forms of IP** that can be used by the aggressor to create a competitive advantage or **sold for financial gain.**
- In some cases, the breach is simply intended to cause **reputational harm** to the victim by exposing private information or questionable business practices.
- They may also be deployed in conjunction with **military operations or as an act of cyber terrorism or cyber warfare.**
- The impact of cyber espionage, when it is part of a broader military or political campaign, **can lead to disruption of public services and infrastructure, as well as loss of life.**

**Cyber Espionage Targets**

- The most common targets of cyber espionage include **large corporations, government agencies, academic institutions, think tanks or other organizations** that possess valuable IP and technical data that can create a competitive advantage for another organization or government.
- Targeted campaigns can also be waged against individuals, such as prominent political leaders and government officials, business executives and even celebrities.

**Cyber spies most commonly attempt to access the following assets**

- Research & Development data and activity
- Academic research data
- IP, such as product formulas or blueprints
- Salaries, bonus structures and other sensitive information regarding organizational finances and expenditures
- Client or customer lists and payment structures
- Business goals, strategic plans and marketing tactics
- Political strategies, affiliations and communications
- Military intelligence

**Common Cyber Espionage Tactics**

- Most cyber espionage activity is categorized as an **advanced persistent threat (APT).**
- An APT is a **sophisticated, sustained cyber attack** in which an intruder establishes an undetected presence in a network in order to steal sensitive data over a prolonged period of time.
- An APT attack is carefully planned and designed to infiltrate a specific organization and evade existing security measures for long periods of time.

## Cyber espionage vs. cyberwarfare

### CYBER ESPIONAGE

Not inherently military-related but may be initiated by government-backed intelligence organizations.

Perpetrated to gain an economic, political, security, business or technological edge.

Attack vectors include downstream software from supply chain partners.

Focused on stealthy attacks that can last for months or longer.

### CYBERWARFARE

More likely to be initiated by military commanders.

Perpetrated to disrupt the activities of organizations and nation-states for strategic economic or military purposes.

Attack vectors include critical infrastructure.

More likely to focus on quick attacks aimed at causing damage.

### Cyber Espionage Detection, Prevention and Remediation

- There are many cyber security and intelligence solutions available to assist organizations in better understanding the threat adversaries, their attack techniques and the tradecraft they regularly employ.
- Sensor Coverage: Organizations should deploy capabilities that provide their defenders with full visibility across their environment, to avoid blind spots that can become a safe haven for adversaries.
- Technical Intelligence: Leverage technical intelligence, when conducting event correlation, potentially highlighting events on the network that may have otherwise gone undetected.
- Threat Intelligence: Threat intelligence assisted with threat actor profiling, campaign tracking and malware family tracking.
- Threat Hunting: Adopting Human-based threat hunting alongwith their cybersecurity technology.
- Service Provider: Partnering with a best-of-breed cybersecurity to have assistance responding to a sophisticated cyber threat.

## KASEYARANSOMWARE

## GS-III SECURITY & DEFENSE

### Context

- **Kaseya IT management software**, commonly used in Managed Service Provider (MSP) environments, **hit by another in a series of supply-chain hacks**.
- Kaseya handles large enterprise and small businesses globally, so it has the potential to spread to any size or scale business.
- It is a colossal and devastating **supply-chain attack**.

### What is Ransomware?

- It is a type of **malicious software** (malware) that threatens to publish or blocks access to data or a computer system, usually by encrypting it, until the victim **pays a ransom fee to the attacker**.
- Ransomware attacks began to soar in popularity with the **growth of crypto-currencies**, such as Bitcoin.
  - Cryptocurrency is a digital currency that uses encryption techniques to verify and secure transactions and control the creation of new units.
  - Beyond Bitcoin, there are other popular cryptocurrencies that attackers prompt victims to use, such as Ethereum, Litecoin, and Ripple.

### Examples of Ransomware

- WannaCry
- NotPetya
- CryptoLocker
- Bad Rabbit

### How to Prevent Ransomware Attacks?

- **Defend your email against Ransomware** – Email phishing

### How Ransomware Works

Ransomware is malware that holds your data and privacy hostage for money. Your small actions make a big difference in stopping ransomware attacks. Follow the steps to see how it works, and how your small actions can stop the attackers.



#### Click Wisely

When you receive an unexpected or out of the ordinary message, be suspicious. If the message came from someone you know, verify the message by calling or texting the sender to see if it's legit. If it's from a service or website, skip the link and go directly to the official page.



#### Apply Updates

When you apply updates, your computer is not compatible with the cyber criminal's tool kits. The malware simply will not work.



#### Know Your Data

When your data is backed up, you don't have to worry about paying a criminal for access to your pictures and files. A good backup protects you from all sources of data loss, from cyber attack and theft to everyday things like spilled coffee or a power surge.

and spam are the main way that ransomware attacks are distributed. Secure Email Gateways with targeted attack protection are crucial for detecting and blocking malicious emails that deliver ransomware.

- Defend your mobile devices against Ransomware using **mobile device management (MDM) tools**, that can analyze applications on users' devices and immediately alert users and IT to any applications that might compromise the environment.
- **Monitoring server, network and back up** key systems can reduce the risk of a crashed or encrypted machine causing a crucial operational bottleneck.



## ESSENTIAL DEFENCE SERVICES BILL

## GS-III SECURITY & DEFENSE

### Context

- Minister of State for Defence introduced the Essential Defence Services Bill in the Lok Sabha.

### What is the Essential Defence Services Bill?

- It is aimed at **preventing the staff of the government-owned ordnance factories from going on a strike**.
- It mentioned that that it is meant to **"provide for the maintenance of essential defence services so as to secure the security of nation and the life and property of public at large and for matters connected therewith or incidental thereto"**.
- Indian Ordnance Factories is the oldest and largest industrial setup which functions under the **Department of Defence Production of the Ministry of Defence**.
- The ordnance factories form an integrated base for indigenous production of defence hardware and equipment, with the **primary objective of self reliance in equipping the armed forces with state of the art battlefield equipment**.

### What does it allow the government to do?

- It empowers the government to **declare services mentioned in it as essential defence services** "the cessation of work of which would prejudicially affect the production of defence equipment or goods; or the operation or maintenance of any industrial establishment or unit engaged in production of goods or equipment required for any purpose connected with defence; or repair or maintenance of products connected with defence".
- It also **prohibits strike and lockouts in "any industrial establishment or unit engaged in essential defence services"**.

### Why does the government feel its need?

- In June 2020, the government announced **corporatisation of the Ordnance Factory Board**, under which the 41 factories ammunition and other equipment to the armed forces will become part of seven government owned corporate entities.
- The government has claimed that the move is aimed at improving the efficiency and accountability of these factories.
- The Bill mentioned that there is a threat, that the employees of these factories can go on a strike against the decision.

### Who will it affect?

- It has a direct bearing on around 70,000 employees of the 41 ordnance factories around the country, who are unhappy with the corporatisation of OFB, fearing that it will impact their service and retirement conditions.
- If passed it will come into effect retrospectively from June 30, when the ordinance was promulgated.

## CYBER CRIMES

## GS-III SECURITY & DEFENSE

### Context

- With the enhanced use of cyber space, the number of cyber crimes, including financial frauds and crimes relating to women, is also increasing.

### Legal scenario

- **'Police' and 'Public Order' are State subjects** as per the **Seventh Schedule** of the Constitution of India.
- **States/UTs** are primarily responsible for the **prevention, detection, investigation and prosecution of crimes** including cyber crime through their Law Enforcement Agencies (LEAs).
- The LEAs take legal action as per provisions of law against the offenders.



### Measures taken so far

- The Central Government **supplements the initiatives of the State Governments** through advisories and financial assistance under various schemes for their capacity building.
- Ministry of Home Affairs has provided **financial assistance** to all the States & UTs under **Cyber Crime Prevention against Women & Children (CCPWC) scheme** to support their efforts for setting up of cyber forensic-cum-training laboratories, training, and hiring of junior cyber consultants.
- Cyber forensic-cum-training laboratories have been commissioned in 18 States.
- The Central Government has taken steps for spreading awareness about cyber crimes, issuance of alerts/ advisories, capacity building/ training of law enforcement personnel/ prosecutors/ judicial officers, improving cyber forensic facilities etc.
- The Government has established **Indian Cyber Crime Coordination Centre (I4C)** to provide a framework and eco-system for LEAs to deal with the cyber crimes in a comprehensive and coordinated manner.
- The Government has launched the **National Cyber Crime Reporting Portal** ([www.cybercrime.gov.in](http://www.cybercrime.gov.in)), to enable public to report incidents pertaining to all types of cyber crimes, with a special focus on cyber crimes against women and children.
- A **toll-free number 155260** has been operationalised to get assistance in **lodging online cyber complaints**.
- **Citizen Financial Cyber Fraud Reporting and Management System** module has been launched for immediate reporting of financial frauds and to stop siphoning off fund by the fraudsters.

## ASSAM-MIZORAM BORDER DISPUTE

## GS-III SECURITY & DEFENSE

### Context

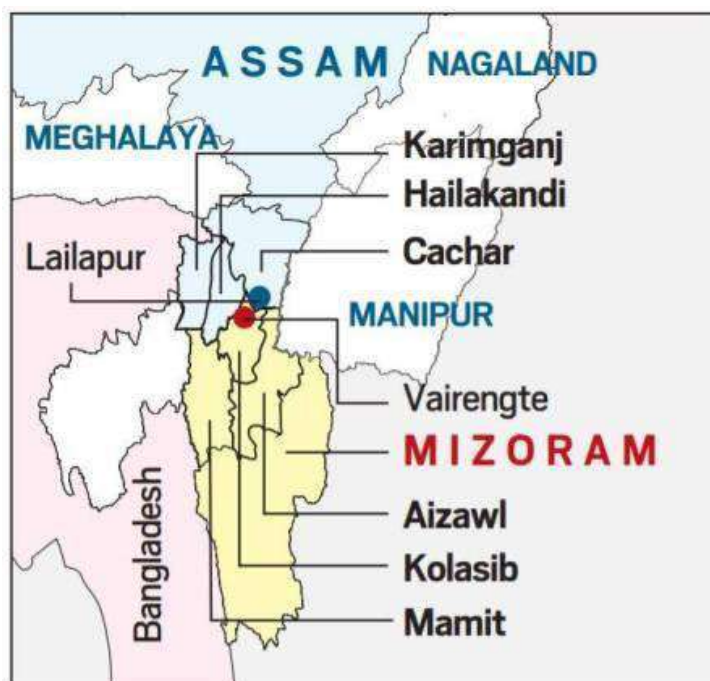
- At least five Assam Police personnel were killed after the old boundary dispute between Assam and Mizoram exploded in violent clashes at a contested border point.
- The violence spotlights the long-standing inter-state boundary issues in the Northeast, particularly between Assam and the states that were carved out of it.

### What led to the violence and clashes?

- According to an agreement between governments of Assam and Mizoram some years ago, **status quo should be maintained** in no man's land in the border area.
- However, people from Lailapur broke the status quo and allegedly constructed some temporary huts. People from Mizoram side went and set fire on them.
- Mizoram's civil society groups blame "illegal Bangladeshis" (alleged migrants from Bangladesh) on the Assam side creating all this trouble.

### What is the genesis of the boundary dispute?

- The boundary between present-day Assam and Mizoram, 165 km long dates back to the colonial era, when Mizoram was known as Lushai Hills, a district of Assam.
- The dispute stems from a **notification of 1875** that **differentiated the Lushai Hills from the plains of Cachar**, and another of 1933, that demarcates a boundary between the Lushai Hills and Manipur.
- Mizoram believes the boundary should be demarcated on the basis of the 1875 notification, which is derived from the **Bengal Eastern Frontier Regulation (BEFR) Act, 1873**.
- In Demarcation notified in 1933, **Mizo society was not consulted** and the Assam government follows the 1933 demarcation, and that is the point of conflict.



### About Mizoram

- Mizoram is a state in northeastern India, with Aizawl as its seat of government and capital city.
- It is the southernmost landlocked state, sharing borders with three of the Seven Sister States of old Assam, namely **Tripura, Assam and Manipur**.
- The state also shares a 722-kilometre (449 mi) border with the neighbouring countries of **Bangladesh and Myanmar**.



## LAWS ON SURVEILLANCE IN INDIA

## GS-III SECURITY & DEFENSE

### Context

- Pegasus and the laws on surveillance in India

### Background

- An international group of news publications are reporting that a **spyware known as Pegasus** has been used to spy on politicians, journalists, and activists, primarily in 10 countries.
- Reports the Pegasus Project, suggest that in India, at least 40 journalists, Cabinet Ministers, and holders of constitutional positions were possibly subjected to surveillance.

### What do we know about Pegasus?

- Pegasus can take **multiple routes to reach a target's phone**.
- Its earliest avatars used **spear phishing, a hit-or-miss method** in which a malicious link is embedded in a message customized to entice the target to click.
- However, it has now evolved to **include "zero-click" attacks**, where the target need not take any action for the phone to be infected.
- In 2019, WhatsApp released a statement saying that Pegasus could enter phones via calls made on the platform, even if they were not attended.
- Pegasus uses "exploits", or weaknesses, in Android and Apple phones to enter phones; and many of these exploits are reportedly **"zero day", which means it is not a weakness that the device manufacturers are aware of**.
- Pegasus can also be **delivered over the air from a nearby wireless transmitter**, or manually inserted if the target phone is physically available.
- Once inside the phone, **Pegasus seeks "root privileges"**.
- Root privileges is a **level of control over the phone that is beyond what a regular user has**.
- It enables Pegasus to **set up shop within the phone** and establish communications with its controllers through an anonymised network of internet addresses and servers.
- It can then start transmitting any data stored on the phone to its command-and-control centres.
- This level of control also means Pegasus can turn on the phone's cameras and microphones to turn it into a spying device without the owner's knowledge.

### Who are its clients?

- The NSO Group, which developed Pegasus officially claims it has 60 clients in 40 countries,
- Its clients have interests primarily in 10 countries: Azerbaijan, Bahrain, Kazakhstan, Mexico, Morocco, Rwanda, Saudi Arabia, Hungary, **India** and the United Arab Emirates.
- Pegasus is graded as a cyberweapon** and can be **sold only to authorised government entities** as per Israeli law, most reports have suggested that the governments in these countries are the clients.

### Who has been targeted?

- The NSO has stated that **Pegasus is not a tool for mass surveillance**.
- The stated **aim of Pegasus is to fight crime and terrorism**, the database also has the numbers of over 200 journalists worldwide, including 40 from Indian media houses.

### What do Indian laws outline?

- Section 5(2) of The Indian Telegraph Act, 1885**, states that the government can intercept a "message or class of messages" when it is "in the interests of the sovereignty and integrity of India, the security of the State, friendly relations with foreign states or public order or for preventing incitement to the commission of an offence".
- The **Rule 419A of the Indian Telegraph Rules, 1951** was added to the Telegraph Rules in 2007 after the verdict in the People's Union for Civil Liberties (PUCL) vs Union of India case in 1996, in which the Supreme Court said **telephonic conversations are covered by the right to privacy, which can be breached only if there are established procedures**.
- Under Rule 419A, **surveillance needs the sanction of the Home Secretary at the Central or State level**, but in "unavoidable circumstance" can be **cleared by a Joint Secretary or officers above**, if they have the Home Secretary's authorization.
- In the **K.S. Puttaswamy vs Union of India verdict of 2017**, the Supreme Court further reiterated the need for oversight of surveillance, stating that it should be **legally valid and serve a legitimate aim of the government**.
- The court also said the **means adopted should be proportional to the need for surveillance**, and there should be **procedures to check any abuse of surveillance**.
- The second legislation **enabling surveillance is Section 69 of the Information Technology Act, 2000**, which deals with **electronic surveillance**.

- It facilitates government “interception or monitoring or decryption of any information through any computer resource” if it is in the interest of the “sovereignty or integrity of India, defence of India, security of the State, friendly relations with foreign States or public order” or for preventing or investigating any cognizable offence.

**Are India's laws on surveillance a threat to privacy?**

- The **procedure for electronic surveillance** as authorised by Section 69 is detailed in the Information Technology (Procedure and Safeguards for Interception, Monitoring and Decryption of Information) Rules, 2009.
- These rules are **very broad and allow even the redirection of traffic to false websites or the planting of any device to acquire any information.**
- Use of Pegasus is **illegal as it constitutes unauthorised access under Section 66 of the Information Technology Act.**
  - o **Section 66** prescribes punishment to anyone who gains unauthorised access to computers and “downloads, copies or extracts any data”, or “introduces or causes to be introduced any computer contaminant or computer virus,” as laid down in Section 43.





## VULTURE CONSERVATION

## GS-III ENVIRONMENT & ECOLOGY

### Context

- Conservation plan chalked out after 150 vultures spotted in **Bihar's Valmiki Tiger Reserve**.
- Different species of vultures including Egyptian vulture (*Neophron percnopterus*), Griffon vulture (*Gyps fulvus*), White-rumped vulture (*Gyps bengalensis*) and Himalayan griffon (*Gyps himalayensis*) were among the 150 individuals spotted in VTR.
- The state government has been planning to create a diclofenac-free zone for conservation of vultures in areas bordering Nepal.

### Why vultures are important to protect nature?

- Human race has encountered many viruses like COVID-19, our rich biodiversity plays a huge role in keeping the germs at check.
- Of the many organisms, **vultures, as carcass feeders**, play a significant role. The scavenger birds **hold the key for a natural mechanism of infection control**.
- Vultures are the scavengers who do the **work of cleaning up, and keeping the ecosystem healthy**. The beauty is, **despite feeding on infected carcass, vultures do not get infected**.
- The acids in their stomach are potent enough to kill the pathogen. Thus, the **chain of infection is broken**. It invisibly controls the spread of harmful pathogens causing deadly anthrax, cholera, foot and mouth disease, rabies and distemper.
- The birds also **prevent the contamination of water sources**, especially in the wild.
  - When animals die near watering hole, there is an imminent danger of contamination resulting in a quick spread of infections and mass death.
  - But vultures devour the carcasses in totality thereby preventing a tragic mishap.

### In India, we have nine species of vultures

- One can spot the **long-billed vulture (Indian vulture)**, **red-headed vulture**, **white-rumped vulture** and the **Egyptian vulture** in the Nilgiris Biosphere of the Western Ghats.
- In the last four years, the population has grown by may be 10 percent. Restoring the population is an uphill task as **vultures are slow breeders**.
- If they become extinct, there will be a huge ripple effect. Other scavengers like rats and dogs may take over, temporarily, but with that comes problems like increased incidence of rabies.
- According to scientific studies, a veterinary, non-steroidal, anti-inflammatory drug called **diclofenac** administered to cattle had **led to a catastrophic decline of vulture species in the South Asian region**.
- Though diclofenac is now banned, other equally harmful drugs are still in use," he adds. Bharathidasan, however, is hopeful that vultures will be back in large numbers and circling the blue skies.

### Declining population

India has nine species of vultures, six of which are found in Assam



#### Vultures of the genus 'Gyps'

- Oriental white-backed (Assam, critically endangered)
- Long-billed (critically endangered)
- Slender-billed (Assam, critically endangered)
- Himalayan griffon (Assam, winter visitor from Himalayas)

- Eurasian griffon (Assam, winter visitor from Himalayas)

#### Single representative species

- Egyptian
- Bearded
- Cinereous (Assam)
- King (Assam, critically endangered)

### BIRD'S EYE VIEW

#### 9 RECORDED SPECIES:

Oriental white-backed, long-billed, slender-billed, Himalayan, red-headed, Egyptian, bearded, cinereous and the Eurasian Griffon.

(4 CRITICALLY ENDANGERED, 1 ENDANGERED, 3 NEAR THREATENED)

#### THE CRISIS:

A massive dip in vulture populations came into limelight in the mid-90s, and in 2004 the cause of the crash was established as diclofenac, a veterinary nonsteroidal anti-inflammatory drug.



### WHAT NEXT AFTER 2006 PROJECT:

- Testing of nonsteroidal anti-inflammatory drugs on vultures, development of new NSAIDs
- Covering two more species in the breeding programme that earlier focussed on 3 critically

endangered species

- Additional conservation breeding centres and four rescue centres planned across India

- Nationwide vulture survey once in four years



## HARITDHARA

## GS-III ENVIRONMENT & ECOLOGY

### Context

- Indian Council of Agricultural Research (ICAR) institute has developed a feed supplement that reduces emissions and also boosts milk production.

### About HaritDhara

- HaritDhara acts by decreasing the population of protozoa microbes in the rumen, responsible for hydrogen production and making it available to the archaea for reduction of CO<sub>2</sub> to methane.

### Need of it

- Belching cattle, buffaloes, sheep and goats in India emit an estimated 9.25 million tonnes (mt) to 14.2 mt of methane annually, out of a global total of 90 mt-plus from livestock.
- An average lactating cow or buffalo in India emits around 200 litres of methane per day, while it is 85-95 litres for young growing heifers and 20-25 litres for adult sheep.
- Feeding **HaritDhara can reduce these by a fifth.**
- HaritDhara roughly costs Rs 6/kg and it is to be fed only to animals aged above three months having fully functional rumen.
- It also changes the composition of the volatile fatty acids that are the end-products of rumen fermentation (along with hydrogen and CO<sub>2</sub>).

### Methane gas

- Methane is gas that is **found in small quantities in Earth's atmosphere.**
- Methane is the **simplest hydrocarbon**, consisting of one carbon atom and four hydrogen atoms.
- Methane is flammable, and is used as a fuel worldwide. It is a **principal component of natural gas.**
- It's global warming potential is **25 times of carbon dioxide (CO<sub>2</sub>)** over 100 years, making it a more potent greenhouse gas.
- Methane is produced by **animals having rumen**, the first of their four stomachs where the plant material they eat – cellulose, fibre, starch and sugars – gets fermented or broken down by microorganisms prior to further digestion and nutrient absorption.
- Carbohydrate fermentation leads to production of CO<sub>2</sub> and hydrogen.**

### 2019 Livestock Census

- The 2019 Livestock Census showed **India's cattle population at 193.46 million, along with 109.85 million buffaloes, 148.88 million goats and 74.26 million sheep.**
- Being largely fed on agricultural residues – wheat/paddy straw and maize, sorghum or bajrastover – ruminants in India tend to produce 50-100% higher methane than other country counterparts.

## MARINE PLASTIC POLLUTION

## GS-III ENVIRONMENT & ECOLOGY

### Context

- The Central Pollution Control Board's (CPCB) Annual Report on Implementing the Plastic Garbage Rules, 2016 is released.
- It found that total plastic waste generated in 2018-19 was **3,360,043 tonnes per year** (roughly 9,200 tonnes per day).
- Plastic waste contributes about **5-6 per cent of total solid waste generated** in India.
- Only nine per cent of all plastic waste has ever been recycled.** Approximately 12 per cent has been burnt, while the remaining **79 per cent has accumulated in landfills.**

### Problem of marine plastic pollution can be tackled as follows

- Designing a product:** Identifying plastic items that can be replaced with non-plastic, recyclable, or biodegradable materials is the first step. Find alternatives to single-use plastics and reusable design goods by working with product designers.
- Pricing:** Plastics are inexpensive because they are made with substantially subsidised oil. **Price structures that reflect the adverse impacts of plastic consumption and promote alternative materials or reused and recycled plastics are necessary.**
- Technologies and Innovation:** Developing tools and technology to assist governments and organisations in measuring and monitoring plastic garbage in cities.
  - 'Closing the loop' project of the **United Nations Economic and Social Commission for Asia and the Pacific** assists cities in developing more inventive policy solutions to tackle the problem. A similar approach can be adopted in India.
- Promoting a plastic-free workplace:** All catering operations should be prohibited from using single-use plastics. All single-use goods can be replaced with reusable items or more sustainable single-use alternatives.
- Producer responsibility:** Extended responsibility can be applied in the retail (packaging) sector, where producers are responsible for collecting and recycling products that they launch into the market.
- Municipal and community actions:** Beach and river clean-ups, public awareness campaigns explaining how people's actions

contribute to marine plastic pollution (or how they may solve it) and disposable plastic bag bans and levies.

- **Multi-stakeholder collaboration:** Government ministries at the national and local levels must collaborate in the development, implementation and oversight of policies, which includes participation from industrial firms, non-governmental organisations and volunteer organisations.

### Conclusion

- Solving the problem of marine plastic involves a **change in production and consumption habits, which would help meet the Sustainable Development Goals (SDGs)**. The central UN SDGs that deal with marine plastics are SDG 12 and SDG 14.
- Identifying hotspots for plastic leakage can assist governments in developing effective policies that address the plastic problem directly.

## BLACK LEOPARD

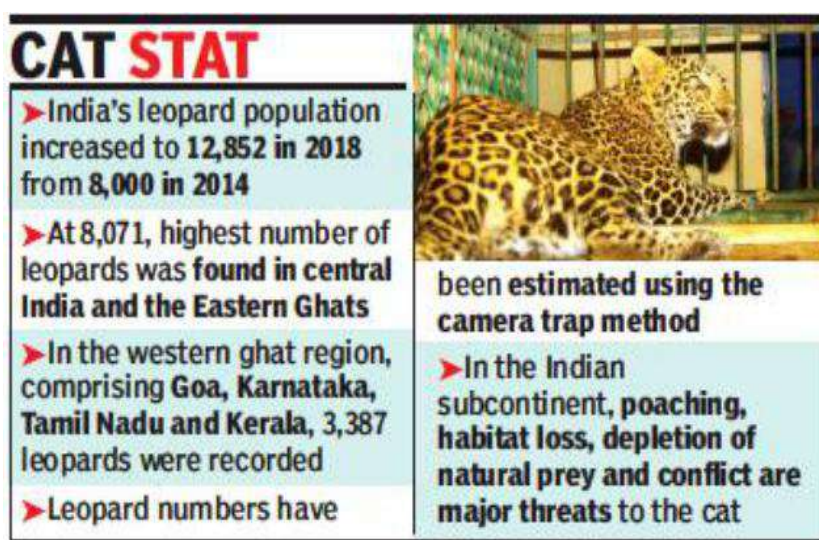
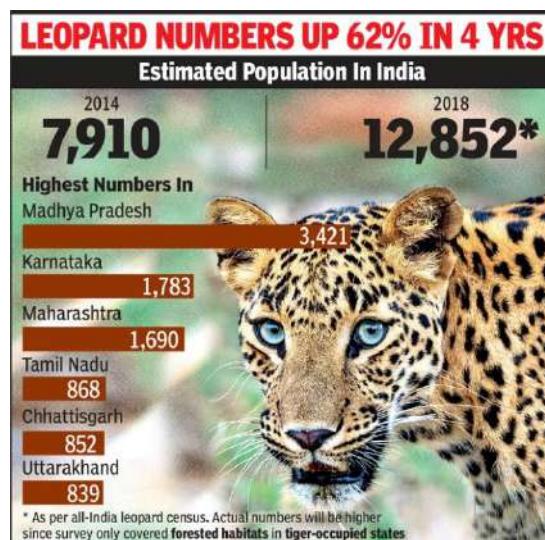
## GS-III ENVIRONMENT & ECOLOGY

### Context

- A **rare melanistic leopard**, popularly called **black leopard**, was spotted in the the Navegaon Nagzira Tiger Reserve (NNTR) in the Gondia district of Maharashtra.
- Sightings of the black leopard were earlier reported in the Tadoba Andhari Tiger Reserve and the Pench Tiger Reserve in the state.
- The high amount of pigmentation – **melanin**, causes the animal to appear black.

### Status of leopards in India, 2018

- Status of leopards in India, 2018, mentions that the country has 12,852 leopards.
- This study focused mostly on forested habitats where tigers are found, as it was a by-product of the all-India tiger estimate.
- Hence, other leopard habitats such as rocky outcrops, smaller dry forests, higher elevation habitats in the Himalayas, agricultural landscapes (coffee, tea, areca nut, sugarcane plantations) where leopards are known to be found in good numbers were not a part of this exercise.
- Similarly, much of Northeast India was excluded from the study.
- Hence, the area studied by itself does not represent a true pan-India leopard population, as vast stretches of leopard habitats have been excluded from the study.



### Misleading picture

- The claim that "leopard numbers increased by 60%" is quite misleading.
- In 2014, the study estimated a minimum leopard population of 7,910 individuals from 18 different Indian States covering a study area of 92,164 square kilometers.
- In 2018, the study was expanded to 21 States with a study area of 121,337 square kilometers, which shows a spatial increase in the size of the study area by 25%.



## About leopard

### SPOTTING LEOPARDS

India has conducted its first leopard census and come out with a count of the feline species this month. Leopards are found pan-India, except deserts and the marshy Sunderbans, unlike the other big cats. Here's knowing leopards better without getting too close to them



**India is the only country in the world to boast of five big cat species: the lion, tiger, Indian leopard, snow leopard and the clouded leopard**

**Indian leopard**

**Status** | Near threatened. It is also called the common leopard. According to WWF, "within the 17 tiger-bearing states, the leopard occupies nearly double the area occupied by tigers"

**Fast facts**

- Leopards don't need much water. They survive from the moisture they get from eating their prey
- Leopards are great hunters and can run at a speed of 58kmph, jump forward 20 feet and leap 10 feet straight up
- Leopards are able to climb trees, even when carrying heavy prey. One reason why they sometimes take their prey up in the trees is to ensure lions or hyenas can't steal them
- Leopards can hear up to five times better than the average human
- Though classified as a roaring cat, leopards usually bark when they have something to say
- A leopard's spots are called rosettes because they look like roses. Their pattern is unique for every individual leopard, much like a human's fingerprints
- Black panthers actually leopards with melanism — wherein the entire coat of the animal, including the spots, is black — and not separate species as they are widely believed to be

**Wild Love**

During the National Geographic programme, 'Eye of the Leopard', a wild leopard killed a baboon in order to feed herself. However, upon noticing an infant baboon clinging to the dead baboon, the leopard amazingly carried the infant up to the safety of the tree to guard her from hyenas. She groomed and cuddled the baby throughout the night, caring for him/her as she would her own cub



- Main threats: Habitat loss due to mining and quarrying, poaching for body parts, mortality due to vehicular collisions, retaliatory killing due to human-leopard conflict and accidental deaths due to snares set for catching wild prey.

## About Melanism

### ALL ABOUT MELANISM

- Black panther in Asia and Africa is black leopard (*Panthera Pardus*), and the one in the US is black jaguar (*Panthera Onca*)
- Black panther same species as a normal-coloured panther with a high amount of pigment (melanin) causing the animal to appear to be black. Melanism occurs because of a recessive gene mutation
- Condition is caused by agouti gene which regulates distribution of black pigment within hair shaft
- Closer look at a panther's coat will reveal characteristic spots of leopard and jaguar, hiding under a cloak of excess



The leopard was recorded in camera traps during Phase IV estimation in NNTR in February

<p>melanin in what is called 'ghost striping'.</p>	<p>A black panther cub may be born even if both parents are normal coloured</p>
<p>➤ Black panthers found in states like Kerala, Karnataka, Chhattisgarh, Maharashtra, Goa, Tamil Nadu, Assam, Arunachal Pradesh, and Odisha</p>	<p>➤ Normal-colored leopard can carry recessive melanistic gene. Often, a black leopard cub is born along with fair-colored cubs. If both parents are black, the leopard cubs are always black</p>
<p>➤ Melanism hereditary but is not necessarily passed on directly to the next generation,</p>	

## Nawegaon-Nagzira Tiger Reserve (NNTR)

- It was notified as 46th tiger reserve of India on 12th December, 2013.
- Its 5th Tiger reserve of Maharashtra.

## TIGERS IN INDIA

## GS-III ENVIRONMENT & ECOLOGY

### Context

- On the occasion of International Tiger Day, Prime Minister reiterated India's commitment to ensuring safe habitats for its tigers and nurturing tiger-friendly eco systems.
- International Tiger Day is marked on **July 29** with an aim to promote a global system for protecting the natural habitats of tigers and to raise public awareness and support for tiger conservation issues.

### India and its Tiger's

- India's strategy of tiger conservation attaches topmost importance to involving local communities.
- India is **home to over 70% of the tiger population globally.**
- India is **home to 51 tiger reserves spread across 18 States and the last tiger census of 2018 showed a rise in the tiger population.**
- India achieved the **target of doubling of tiger population four years ahead of schedule of the St. Petersburg Declaration on tiger conservation.**

### Tiger census

- The detailed report of the **4th All India Tiger Estimation** is unique in the following ways;
  - Abundance index of co-predators** and other species has been carried out, which hitherto was restricted only to occupancy.
  - Sex ratio of tigers** in all camera trap sites has been carried out for the first time.
  - Anthropogenic effects on tiger populations have been elaborated in a detailed manner.
  - Tiger abundance within pockets in tiger reserves has been demonstrated for the first time.
- The report compares information obtained from tiger surveys of 2006, 2010 and 2014 with data obtained from the 2018-19 review to estimate population trends at country and landscape scales, patch colonization and extinction rates.

### About the survey

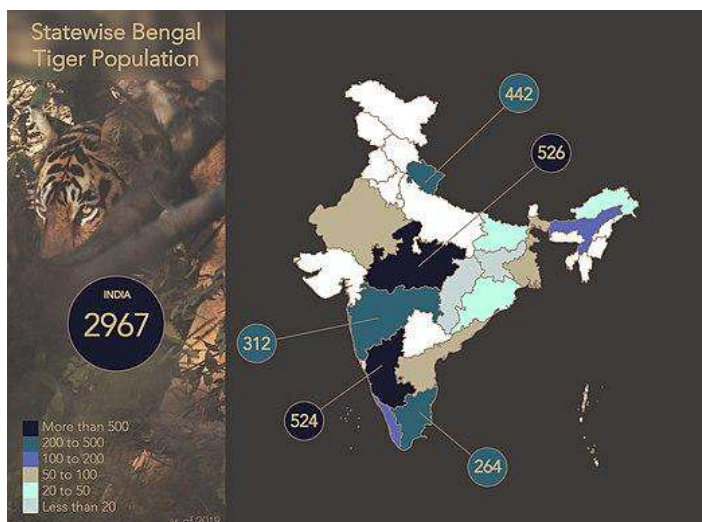
- The **quadrennial** tiger estimation is steered by the **National Tiger Conservation Authority** with technical support from the Wildlife Institute of India and implemented by state forest departments.
- The All India Tiger Estimation 2018 has entered the Guinness World Record for being the world's largest camera trap wildlife survey.

### Royal Bengal Tiger

- It forms a specific population of the *Panthera tigris tigris* subspecies that is **native to the Indian subcontinent.**
- Threats:** poaching, loss and fragmentation of habitat.
- IUCN Status:** Endangered.
- Protected under **schedule 1** of Wildlife Protection Act.

### Project Tiger

- This tiger conservation programme launched in April 1973 by the Government of India during Prime Minister **Indira Gandhi's tenure.**
- Aim:** Ensuring a viable population of Bengal tigers in their natural habitats, protecting them from extinction, and preserving areas of biological importance as a natural heritage forever.
- From 9 tiger reserves since its formative years, the Project Tiger coverage has increased to **50** at present, spread out in 18 of our tiger range states.
- The tiger reserves are constituted on a **core/buffer strategy.**
  - Core areas** have the legal status of a **national park or a sanctuary.**
  - Whereas, buffer or **peripheral areas** are a mix of forest and non-forest land, managed as a multiple use area.
- The government has set up a **Tiger Protection Force** to combat poachers and funded relocation of villagers to minimize human-tiger conflicts.





### National Tiger Conservation Authority

- It was established in 2005 following a recommendation of the Tiger Task Force, to reorganise management of Project Tiger and the many Tiger Reserves in India. It is the overarching body for conservation of tigers in India.

### Structure of NTCA

- Environment Minister is the Chairman of the NTCA.**
- Below chairman are eight experts or professionals having qualifications and experience in wildlife conservation and welfare of people including tribals, apart from three Members of Parliament (1 Rajya Sabha, 2 Lok Sabha).
- The Inspector General of Forests, in charge of project Tiger, serves as ex-officio Member Secretary.

### Functions

- Its main administrative function is **to approve the Tiger Conservation Plan prepared by the State Governments** and then evaluate and assess various aspects of sustainable ecology and disallow any ecologically unsustainable land use such as, mining, industry and other projects within the tiger reserves.
- As per the WLPA, every State Government has the authority to notify an area as a tiger reserve.
- However, the Tiger Conservation Plans sent by state government need to be approved by the NTCA first.
- Alternatively, Central Government via NTCA may advise the state governments to forward a proposal for creation of Tiger Reserves.

### Other Functions of NTCA are as follows

- Regulation and standardization of tourism activities
- Provide for management focus and measures for addressing conflicts of men and wild animals.
- Provide information on protection measures.
- Ensure that the tiger reserves and areas linking one protected area or tiger reserve with another protected area or tiger reserve are not diverted for ecologically unsustainable uses, except in public interest and with the approval of the National Board for Wild Life and on the advice of the Tiger Conservation Authority.
- Facilitate and support the tiger reserve management in the State.
- Ensure critical support including scientific, information technology and legal support for better implementation of the tiger conservation plan.
- TX2 stands for “**Tigers times two**”, signalling the goal to **double the population of wild tigers by 2022**.
- India and Bhutan are among 13 countries working towards TX2, a goal that the **World Wildlife Fund (WWF)** had set through the **Global Tiger Initiative, Global Tiger Forum** and other critical platforms.
- The number of the striped cat in the Indian Manas increased from nine in 2010 to 25 in 2018 while that in the Bhutan Manas more than doubled from 12 in 2008 to 26 in 2018.

### Global Tiger Initiative (GTI)

- The Global Tiger Initiative (GTI) was launched in 2008 as a **global alliance** of governments, international organizations, civil society, the conservation and scientific communities and the private sector, with the **aim of working together to save wild tigers from extinction**.
- In 2013, the scope was broadened to **include Snow Leopards**.
- The GTI's founding partners included the World Bank, the Global Environment Facility (GEF), the Smithsonian Institution, Save the Tiger Fund, and International Tiger Coalition (representing more than 40 non-government organizations).
- The initiative is led by the 13 tiger range countries (TRCs).

### Global Tiger Forum

- The Global Tiger Forum (GTF) is the **only inter- governmental international body** established with members from willing countries to embark on a global campaign to protect the Tiger.
- The GTF was formed in 1993 on recommendations from an international symposium on Tiger Conservation at New Delhi, India.
- The GTF is focused on saving the remaining 5 sub-species of Tigers distributed over 13 Tiger Range countries of the world.

### Context

- At Leaders' Summit on Climate, LEAF Coalition, came up with a \$1 billion fund plan that shall be offered to countries committed to arrest the decline of their tropical forests by 2030.

### About LEAF Coalition plan

- LEAF Coalition's proposal is a **step forward in saving forests, 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 incentivizes 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 (mha) 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 early months of the year in states like Odisha, Uttarakhand, Madhya Pradesh and Mizoram among others.

### What leading 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 urbanisation and commercialisation of forest produce** are the main causes behind rampant deforestation across tropical forest.

### Forest and indigenous tribes

- Policy makers around the world have emphasised the **role of indigenous tribes and local communities in checking deforestation.**
- These communities understand the need to protect forests as their survival and livelihood is dependent on forest.
- But the governments of developing countries swiftly avoid protection of forests and rights of forest dwellers.

### Rights of forest dwellers in India

- Government of India has not been forthcoming in recognising 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, 1927** aim to give forest officials the power to take away 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, that are reluctant to recognise the contributions of their forest dwelling populations in mitigating climate change.

### What can be done now?

- The first step is 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 in order to fight climate change.

## DETERGENT FOOTPRINT

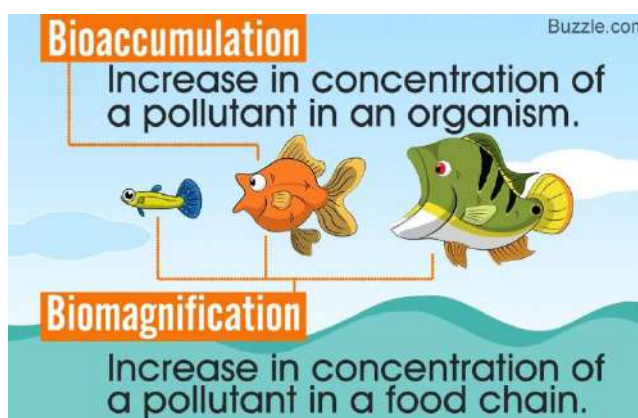
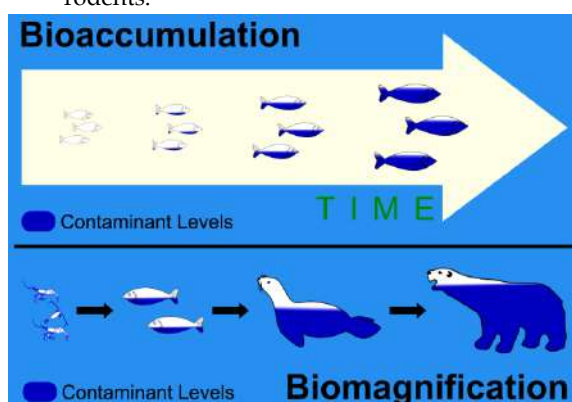
## GS-III ENVIRONMENT & ECOLOGY

### Context

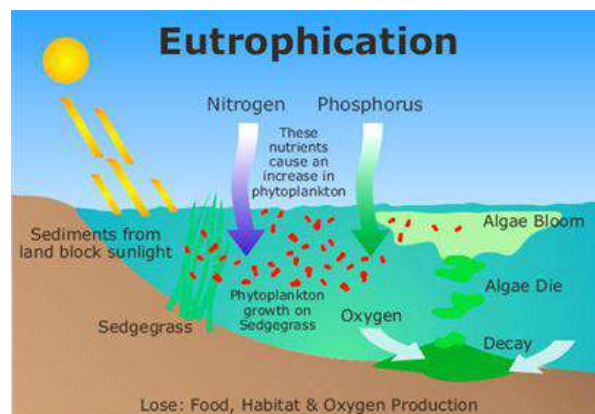
- Detergent footprint is polluting aquatic ecosystems.

### How detergents are polluting water bodies?

- Many of the chemical substances present in detergents that are disposed in water bodies are toxic and hazardous.
- The per capita detergent consumption in India is around 2.7 kilogram per year.
- **Nonylphenol**, a hazardous chemical present in detergents, is known to enter water bodies and the food chains. It bio-accumulates and can pose serious environmental and health risks.
- It has been detected in human breast milk, blood and urine, and is associated with reproductive and developmental effects in rodents.



- Detergents also contain **oxygen-reducing substances** (ie, a chemical compound that readily transfer oxygen atoms) that may cause severe damage to the fishes and other marine animals.
- Detergents are capable of **destroying the external mucus layers** that protect the fish from bacteria and parasites, causing severe damage to the gills.
- Mostly fish die when detergent concentrations are near 15 parts per million (ppm); however, detergent concentrations as low as 5 ppm will kill fish eggs.
- The detergents contain **suspected carcinogens**, and **ingredients that do not fully biodegrade**.
- Drinking water contaminated with detergents can be hazardous to human health.
- A few more harmful components of detergents, which are **anthropogenic components such as herbicides, pesticides and heavy metal concentrations** (like zinc, cadmium and lead) can cause the water to grow murky. This **blocks out light and disrupting the growth of plants**.
- **Turbidity also clogs the respiratory system** of some species of fishes. Pathogens from these toxic water bodies cause diseases, some fatal, in human or animal hosts diseases.
- Many laundry detergents contain approximately **35 to 75 per cent phosphate salts**.
- Phosphates can cause a variety of water pollution problems. For example, phosphate tends to inhibit the biodegradation of organic substances.
- **Non-biodegradable substances cannot be eliminated** by public or private wastewater treatment.
- Some phosphate-based detergents can also cause **eutrophication**.
- Phosphate-enrichment can cause the water body to become choked with algae and other plants.
- **Eutrophication** deprives the water of available oxygen, causing the death of other organisms.



### Measures taken to reduce detergent footprints

- In Belgium, phosphates are restricted for use in household detergents since 2003.
- The Bureau of Indian Statistics (BIS) has **set the standard of phenolic compounds** in drinking water {0.001 milligram per litre

(mg/L)} and surface water (5.0 mg/L).

#### What can be done?

- The use of **ecofriendly and biodegradable detergents** should be encouraged to lower our laundry footprints.

## KONDAPALLI RESERVE FORESTS

## GS-III ENVIRONMENT & ECOLOGY

#### Context

- Tension mounted in Kondapalli reserve forests with the Telugu Desam Party (TDP) leaders planned to visit the forests, alleging illegal mining.

#### About the Kondapalli Reserve Forest:

- It is a reserved forest in the Krishna district of the Indian state of **Andhra Pradesh**.
- It is under the protection of Andhra Pradesh Forest Department.
- Tellaponiki softwood** is found in the forest, which is useful in making the **Kondapalli Toys**.

#### What is a reserve forest?

- Forest reserves are portions of state lands where **commercial harvesting of wood products is excluded to capture elements of biodiversity** that can be missing from sustainably harvested sites.
- A reserved forest is the forests accorded a certain degree of protection.
- The term was first introduced in the **Indian Forest Act, 1927 in British Raj**, to refer to certain forests granted protection under the British crown in British India.
- Land rights** to forests declared to be Reserved forests are typically **acquired and owned** by the **Government of India**.
- Unlike national parks of India or wildlife sanctuaries of India, **reserved forests are declared by the respective state governments**.
- In Reserved forests, rights to **all activities** like hunting, grazing, etc. are **banned** unless specific orders are issued otherwise.
- The first Reserve Forest Of India was **Satpura National Park**.
- Protected forests are of two kinds - **demarcated protected forests and undemarcated protected forests**, based on whether the limits of the forest have been specified by a formal notification.

#### What is the process of earmarking the land as a forest?

- Under Section 4 of The Indian Forest Act, 1927, the **state government can "constitute any land a reserved forest" by issuing a notification in the Official Gazette**, "declaring that it has been decided to constitute such land a reserved forest", and "specifying, as nearly as possible, the situation and limits of such land"
- The government **must also appoint a Forest Settlement Officer (FSO)** "to inquire into and determine the existence, nature and extent of any rights alleged to exist in favour of any person in or over any land comprised within such limits or in or over any forest-produce, and to deal with the same".
- The FSO will seek suggestions and objections from residents and others within 45 days of initiating the process.
- After taking into account the suggestions and objections, the process of turning the land into a reserved forest will be completed.
- Thereafter, the area will be protected from any construction.

## STANDARD OPERATING PROCEDURE (SOP)

## GS-III ENVIRONMENT & ECOLOGY

#### Context

- The Standard Operating Procedure (SOP) issued by the Ministry of Environment, Forests and Climate Change to deal with environmental violations.

#### About Standard Operating Procedure (SOP)

- It includes stiff penalties — including **shutting down projects and demolition of projects** that have failed to acquire environmental clearance.
- They result of **orders from the National Green Tribunal**, which earlier this year directed the ministry to put in place penalties and an SOP for green violations.
- It **gives powers to government agencies** such as the CPCB, state pollution control boards and state environment impact assessment authorities **to identify** such violations and take penal action against them.
- In 2017, the ministry had initiated a **six-month amnesty scheme on penalising green violations**, which was later extended.
- The SOPs refer to two categories of green violations —
  - 'Violations' involving cases where construction work, including expansion of an existing project, has begun without the project proponent having acquired environmental clearance; and



- o **'Non-Compliance'** in which prior environmental clearance has been accorded to the project, but it is in violation of norms prescribed in the approval.
- According to the SOPs,
  - o **projects that are not permissible for environmental clearance are to be demolished.**
  - o projects which are permissible according to environmental law but which have not acquired the requisite clearance are to be shut down.
  - o in cases of expansion of a project, including increase in volume of production, if environmental clearance has not been received, then the government agency can now force the project proponent to revert to the level of construction/manufacturing before the expansion.
  - o permissibility of the project shall be examined from the perspective of whether such activity/project was at all eligible for grant of prior EC.
  - o In Violation cases, 1 per cent of the total project cost incurred up to the date of filing of the application will be levied.
  - o In cases where operations have **commenced without the required environmental clearance, 1 per cent of the total project cost and in addition 0.25 per cent of the total turnover** during the period of violation will be levied.

#### Significance of this move

- It is an **acknowledgement** by the ministry that **despite EIA rules** being in place for seven years, most projects seem to continue to **fall outside** the prescribed environmental norms and are therefore violators.
- It gives **"immense power" to the ministry** in determining the violator and the offence.

#### Associated Concerns

- This will **institutionalize the violations** on the basis of the polluter pays norm.
- This is **not an amnesty scheme** but actually makes the process of **first violating and then paying a penalty** and getting away with the violation a routine affair, which is in **direct contradiction** to the premise of the EIA.
- This gives **scope for violators**, especially the big players, to negotiate with the ministry.
- These are very substantive changes and needed to have been included in the new EIA draft as an amendment with public discourse, which the ministry has circumvented by issuing it as an Office Memorandum.

## FLY ASH

## GS-III ENVIRONMENT & ECOLOGY

#### Context

- NTPC Ltd has invited Expressions of Interest (EoI) for the sale of fly ash from the designated ports of the Middle East and other regions.
- The company aims to utilise 100 per cent of the fly ash generated as a by-product at its coal-fired power plants.
- The fly ash generated at NTPC stations is ideal for use in the manufacture of cement, concrete, concrete products, cellular concrete products and for bricks, blocks and tiles.
- To promote the use of fly ash bricks in building construction, NTPC has set up **Fly Ash brick manufacturing Plants** at its coal-based plants.

#### What is Fly ash?

- Fly ash is a **fine gray powder** consisting mostly of spherical, glassy particles that are produced as a byproduct in coal-fired power stations.
- Fly ash has pozzolanic properties, it **reacts with lime to form cementitious compounds.**
- It is commonly known as a **supplementary cementitious material.**
- Fly ash is also known as flue-ash or simply ash.

#### Application or uses of Fly Ash

Fly ash is suitable for a wide variety of applications and uses, including:

- Concrete
- Dams
- Flowable fill
- Mines
- Landfills
- Geopolymer concrete

### Health and environmental impact of fly ash

- Fly ash comprises **toxic heavy metals** like nickel, cadmium, arsenic, chromium, lead.
- Minute, poisonous fly ash particles can accumulate in the respiratory tract, and cause **gradual poisoning**
- 80,000–1,15,000 premature deaths in India in 2011–12 due to **emissions from coal power plants** – of them 10,000 were children under the age of five
- 20 million cases of **respiratory ailments** can be directly linked to exposure to fly ash
- Fly ash contains 100 times **more radiation than nuclear waste**
- Ash sludge from coal power plants in the Rann of Kutch has led to **destruction** of mangroves, drastic reduction in crop yields, and pollution of groundwater

## MONKEY B VIRUS

## GS-III ENVIRONMENT & ECOLOGY

### Context

- China has reported the first human infection case with Monkey B virus (BV) after a Beijing-based veterinarian was confirmed with the same a month after he dissected two dead monkeys
- The vet's case marks the first human infection case with BV identified in China.
- First identified in 1932, the virus is learnt to have infected only 50 people till 2020, of which 21 died.

### What is Monkey B virus?

- It is an **alphaherpes virus enzootic** in macaques of the genus Macaca.
- B virus is the **only identified old-world-monkey herpesvirus** that displays severe pathogenicity in humans.

### How is it transmitted?

- The infection can be transmitted via **direct contact and exchange of bodily secretions** of monkeys and has a fatality rate of 70 per cent to 80 per cent.
- Macaque monkeys **commonly have this virus**, and it can be found in their saliva, feces (poop), urine (pee), or brain or spinal cord tissue.
- The virus may also be found in cells coming from an infected monkey in a lab.
- B virus can survive for hours on surfaces, particularly when moist.

### When can a human get infected with B virus?

- Humans can get infected if they are
- bitten or scratched** by an infected monkey;
- get an infected monkey's tissue or fluid on broken skin or in eyes, nose, or mouth;
- scratch or cut oneself on a contaminated cage or other sharp-edged surface or
- get exposed to the brain (especially), spinal cord, or skull of an infected monkey.

### Symptoms

- Symptoms typically start within one month of being exposed to B virus, but could appear in as little as three to seven days.
- The first indications of B virus infection are typically **flu-like symptoms** such as fever and chills, muscle ache, fatigue and headache, following which an infection person may develop small blisters in the wound or area on the body that came in contact with the monkey.
- Other symptoms of the infection include shortness of breath, nausea and vomiting, abdominal pain and hiccups.
- As the disease progresses, the virus spreads to and causes inflammation (swelling) of the brain and spinal cord, leading to neurologic and inflammatory symptoms such as pain, numbness, itching near the wound site; issues with muscle coordination; brain damage and severe damage to the nervous system and in extreme cases, death.

### Is there a vaccine against B virus?

- No. **Currently, there are no vaccines** that can protect against B virus infection.

### Who are at higher risk for infection?

- The virus might pose a potential threat to laboratory workers, veterinarians, and others who may be exposed to monkeys or their specimens.

### Are there any cases of human-to-human transmission?

- Till date, only one case has been documented of an infected person spreading B virus to another person.

## QUALITY OF WATER IN WATERBODIES

## GS-III ENVIRONMENT & ECOLOGY

### Context

- Microbes from human, animal excreta found above desirable limits in Yamuna
- The report submitted to the Union Ministry of JalSakti also stated that in the absence of a "minimum environmental flow" (flow of water) of the Yamuna in Delhi.
- "Minimum environmental flow for the dilution of the polluted water in the Yamuna in Delhi is required to meet the desired water quality levels in the river for bathing purpose i.e. BOD<3 mg/l and DO>5 mg/l," the report read.
- The 22 km stretch of Yamuna from Wazirabad to Okhla in Delhi, accounts for about **80% of the pollution load in the river.**

### Assessment of water quality

- The **Central Pollution Control Board (CPCB)** in 2018 identified 351 polluted river stretches in India.

- The assessment of water quality for identification of polluted river stretches found that 31 states and Union territories (UT) had rivers and streams that did not meet the water quality criteria.
- These states / UTs have to submit their action plans for the same.

#### The key water-quality indicators

- **Dissolved oxygen (DO):** The DO test measures the amount of oxygen dissolved in the water. Oxygen is essential for both plants and animals, but high levels in water can be harmful to fish and other aquatic organisms.
- **Water temperature:** Aquatic organisms are dependent on certain temperature ranges for optimal health. Temperature affects many other parameters in water, including dissolved oxygen, types of plants and animals present and the susceptibility of organisms to parasites, pollution and disease.
- **pH:** A pH test measures the alkalinity or acidity of water. A pH of 7 is neutral, below 7 is acidic and above 7 is basic or alkaline. Acid rain, from auto exhaust or other pollutants, causes a drop in the pH.
- **Escherichia coli (E. coli):** E. coli is a fecal coliform bacteria that comes from human and animal waste. The Environmental Protection Agency uses E. coli measurements to determine whether fresh water is safe for recreation. Disease-causing bacteria, viruses and protozoans may be present in water that has elevated levels of E. coli. Levels of E. coli can increase during flooding. E. coli is measured in number of colony forming units.
- **Specific conductance:** The specific conductance test measures the ability of water to pass an electrical current. Conductivity in water is affected by inorganic dissolved solids such as chloride, sulfate, sodium, calcium and others. High conductance readings also can come from industrial pollution or urban runoff, such as water flowing from streets, buildings and parking lots.
- **Nitrates:** Nitrogen is a nutrient necessary for growth of all living organisms. The CRWN nitrogen tests measure nitrate (NO<sub>3</sub>-N). Excessive amounts of nitrates increase algae growth. Algae can rob the water of dissolved oxygen and eventually kill fish and other aquatic life.
- **Transparency:** Transparency measures how far light can penetrate a body of water. Sunlight provides the energy for photosynthesis and determines the depth at which algae and other plants can grow, defining the ecological make-up of a water body. A change in water clarity may be noticed after heavy rains, as silt and debris can run off, causing the visibility to decrease.



#### Ways to improve quality of water in waterbodies

- public involvement in planning and decision processes;
- detection and elimination of illicit discharges to storm sewers;
- reduction of pollutants in stormwater runoff from construction sites;
- management of post-construction runoff from new development and redevelopment;
- pollution prevention and good housekeeping; and
- public education and outreach.

## COMMISSION FOR AIR QUALITY MANAGEMENT

## GS-III ENVIRONMENT & ECOLOGY

#### Context

- To **focus on research, identification and resolution of problems** surrounding the **air quality index**, the government tabled in the Lok Sabha a bill on the **commission for air quality management in National Capital Region (NCR) and adjoining areas Bill, 2021**.
- It will apply to the NCR and the areas adjoining to the NCR in the States of Haryana, Punjab, Rajasthan and Uttar Pradesh, where any source of pollution is located, causing adverse impact on air quality in the NCR.
- The Commission for Air Quality Management in National Capital Region and Adjoining Areas Ordinance, 2020 was promulgated by the President of India on the October 28, 2020.
- The bill seeks to replace the ordinance, provides for the constitution of the commission for air quality management in NCR and adjoining areas.



## NEW BOSS TO FIGHT BAD AIR



### BEFORE CENTRAL BODY, WHO?

**EPCA**

- > Supreme Court-backed Environment Pollution (Prevention and Control) Authority on the job since 1998
- > Mandated to protect and improve quality of environment
- > Assisted SC in matters related to noise pollution, hazardous waste, etc, too
- > Drew power from the Environment (Protection) Act, 1986, and implemented various mitigation measures through CPCB

### OTHERS

- > Several committees and task forces - both at Centre and NCR states - dealt with air pollution
- > Union environment ministry worked as a coordination body
- > High-level task force, led by principal secretary to PM, reviewed action taken

### EPCA and all such committees now stand dissolved with the ordinance

The issue will now be handled by a powerful statutory authority - Commission For Air Quality Management in NCR and Adjoining Areas

### COMMISSION TO ADDRESS THREE BROAD ISSUES

- Monitoring of air pollution
- Research and innovation
- Enforcement of laws after such monitoring

### COMMISSION TO HAVE CHAIRPERSON PLUS 17 MEMBERS

**Key Functions** | Take mitigation measures through central/state agencies

Entertain complaints for protecting and improving air quality	Regulate or prohibit activities that may cause or increase air pollution	Lay down parameters for air quality and for emissions or discharge of pollutants	Restrict industrial operation that may cause air pollution
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**CPCB AND SPCBS WILL CONTINUE TO DEAL WITH AIR POLLUTION. HOWEVER, THE COMMISSION'S ORDERS PREVAIL IN CASE OF CONFLICT**

### PENALTY PROVISIONS

- > Non-compliance punishable with a jail term up to 5 years or fine up to Rs 1 crore, or both
- > Appeal can be made only before NGT

**DIRECT CLOSURE OF POLLUTING INDUSTRIES**

**STOP OR REGULATE SUPPLY OF WATER OR ELECTRICITY TO ERRING INDUSTRIES**

#### What is the need?

- To evolve and implement a **consolidated approach for monitoring, tackling and eliminating** the causes for air pollution.
- For identifying, specifying and rigorously enforcing measures for elimination and mitigation of air pollution
- For limiting and controlling or eliminating the activities of stubble burning, vehicular pollution, industrial emissions, road dust, biomass burning and urban construction.
- To have a **statutory authority with appropriate powers**, and charged with the duty of taking comprehensive measures to tackle air pollution on a war footing with power to coordinate with concerned States and the Central government and issue directions to statutory authorities established under various laws.
- To focus on all sources of air pollution including power, agriculture, transport, industry, residential and construction.
- Three sub-committees will assist the commission, including
  - sub-committee on monitoring and identification;
  - sub-committee on safeguarding and enforcement; and
  - sub-committee on research and development.

## H5N1 AVIAN INFLUENZA

## GS-III ENVIRONMENT & ECOLOGY

#### Context

- An 11-year-old boy died of H5N1 avian influenza in Delhi.
- This is the **first recorded death due to the bird flu in India** this year.
- In January, bird flu was confirmed in several states with thousands of birds, including migratory species, being found dead.

#### What is bird flu?

- Bird flu or avian influenza is a disease caused by **Avian influenza Type A viruses** found naturally in wild birds worldwide.
- The virus can **infect domestic poultry** including chickens, ducks, Turkeys and there have been reports of H5N1 infection among pigs, cats, and even tigers in Thailand zoos.
- Avian Influenza type A viruses are classified based on **two proteins on their surfaces - Hemagglutinin(HA) and Neuraminidase(NA).**
- There are about 18 HA subtypes and 11 NA subtypes. Several combinations of these two proteins are possible e.g., H5N1, H7N2, H9N6, H17N10, etc.



### Bird flu: Infection in humans

- There have been reports of avian and swine influenza infections in humans including A(H1N1), A(H1N2), A(H5N1), A(H7N9), etc.
- The first report of human H5N1 infection was in 1997 and currently, over 700 human cases of Asian Highly Pathogenic Avian Influenza A (HPAI) H5N1 virus have been reported to the World Health Organisation from 16 countries.
- The infection is deadly as it has a high mortality rate of about 60%.
- The most common route of virus transmission is direct contact – when a person comes in close contact with infected birds, either dead or alive.
- Humans can also be affected if they come in contact with contaminated surfaces or air near the infected poultry.
- There is no sufficient evidence suggesting the spread of the virus through properly cooked meat.

### Symptoms of avian influenza

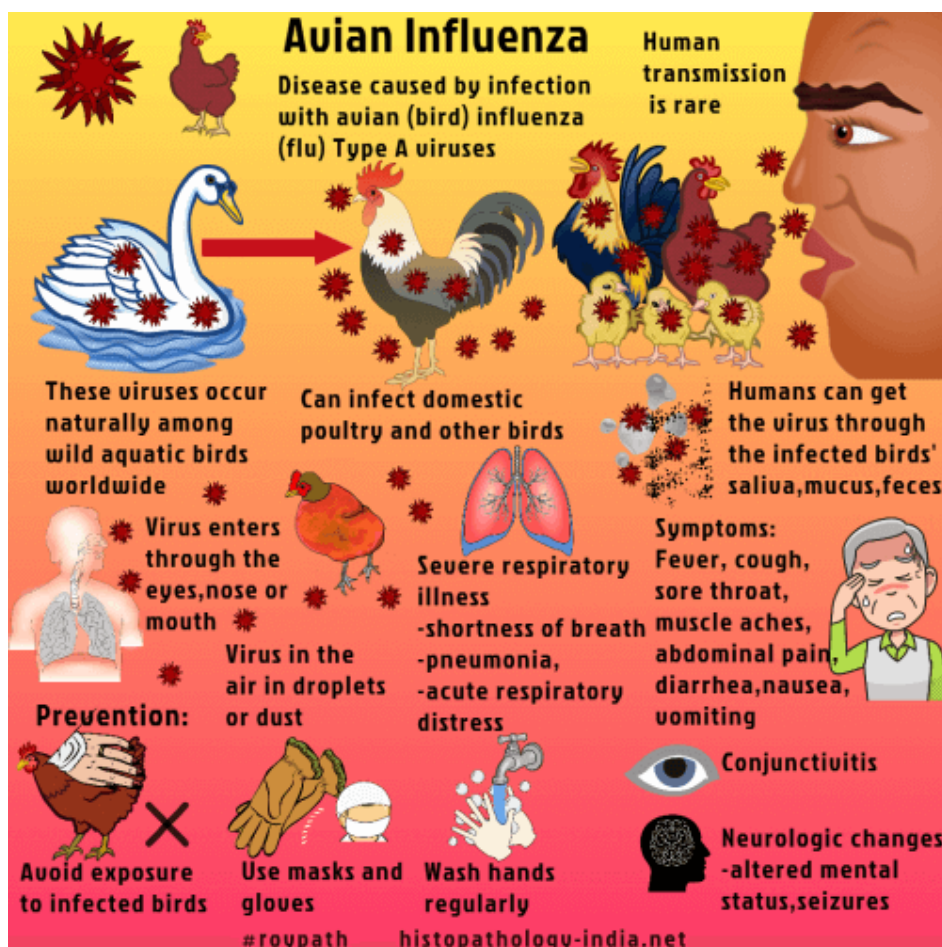
- Signs and symptoms of avian influenza A virus infections in humans have ranged from mild to severe influenza-like illness.
- \* Fever, cough, sore throat, muscle aches, nausea, abdominal pain, diarrhea, vomiting
- \* Severe respiratory illness (e.g., shortness of breath, difficulty breathing, pneumonia, acute respiratory distress, viral pneumonia, respiratory failure)
- \* Neurologic changes (altered mental status, seizures)

### Risk groups

- Children and adults below 40 were seen to be the most affected and mortality was high in 10-19 years olds.

### Bird flu: Human-to-human transmission

- Human-to-human transmission of the H5N1 virus is very rare.
- The transmission of the virus from birds to humans is rare and sustained human-to-human transmission of the H5N1 virus has not yet been established.
- But then people working closely with poultry must take precautionary measures and maintain proper personal hygiene.



## FOREST LAND

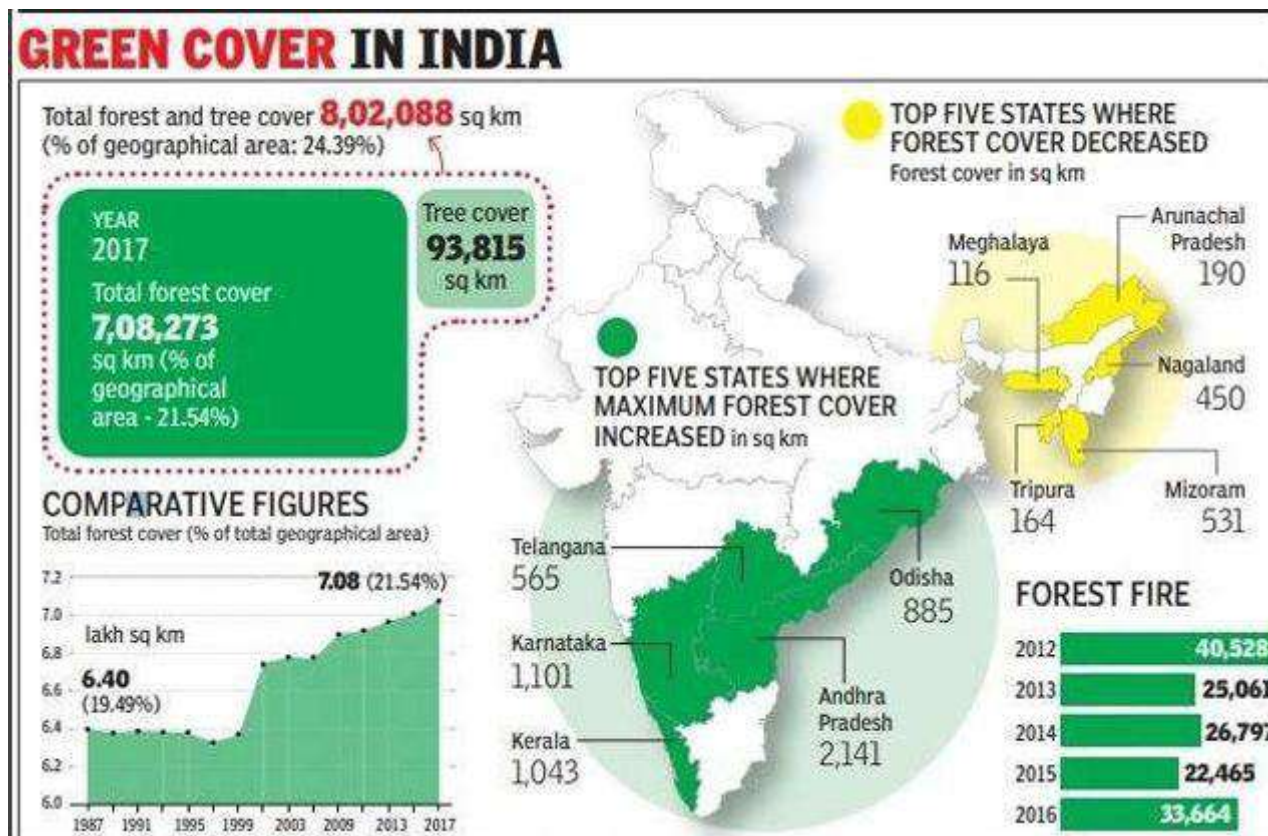
## GS-III ENVIRONMENT & ECOLOGY

### Context

- Minister for Environment, Forests and Climate Change informed Rajya Sabha that the **recorded forest area in the country is 7,67,419 sq km, as surveyed by the India State of Forest Report, 2019.**
- The ministry has so far not quantified the forest area that has been under dispute.

### Forest land in India

- The word 'forest' is **not defined in any Central Forest Act**, namely the Indian Forest Act (1927), or the Forest Conservation Act (1980).
- The term 'forest' is **yet to be defined by the Centre** as the Central government has not laid down any criterion to define forest.
- Out of the recorded forest area in the country, **4,34,853 sq km fall under the Reserved Forests category**, 2,18,924 sq km under the **Protected Forests category**, and 1,13,642 sq km are of **unclassified forests**.



### Forest cover and tree cover

- The Ministry of Environment, Forest & Climate Change defines 'forest cover' in India as "all lands, more than one hectare in area with a tree canopy density of more than 10%", and
- 'Tree cover' as "tree patches outside recorded forest areas exclusive of forest cover and less than the minimum mappable area of one hectare".
- 'Trees outside forest', or TOF as "trees existing outside the recorded forest area in the form of block, linear & scattered size of patches". Since tree cover measures only non-forest patches that are less than 1 hectare, it is only a part of TOF.
- Forest also has legal connotation. An area of land recorded as forest in revenue records or proclaimed to be forest under a forest law or Act is also described as forest.
- Thus, "forest area" is an area recorded as forest in the government records. Often this term is also written as "recorded forest area".
- The recorded forest area is categorized into "Reserved Forest", "Protected Forest" and "Unclassed Forest".
  - Reserved Forest:** An area notified under the provisions of India Forest Act or the State Forest Acts having full degree of protection. In Reserved Forests all activities are prohibited unless permitted.
  - Protected Forest:** An area notified under the provisions of India Forest Act or the State Forest Acts having limited degree of protection. In Protected Forests all activities are permitted unless prohibited.
  - Unclassed Forest:** An area recorded as forest but not included in reserved or protected forest category. Ownership status of such forests varies from state to state.

## Wasteland in India

- As per the **Wasteland Atlas, 2019**, published by the **Ministry of Rural Development**, the total wasteland in the country is 5,57,665.51 sq km.
- Wasteland is defined not as desertified land, but **land that not used for agriculture, commercial use or as forest land**. For instance, it could use grasslands, that are used by communities for grazing.

## State's Power

- State are responsible for categorising forest land, and resolving dispute between these two departments.**
- The **Indian Forest Act, 1927** gives states the rights to notify **Reserved Forests in their areas**.

## Forest rights disputes

- Rights** such as that of grazing of animals are often **not recorded**, and the local community does not need to be consulted if the land were to be reclassified as 'forest' and diverted by the forest department. This often leads to disputes between local communities and governments.
- Most of the disputes over forest areas in the country arise from the **contradictions in the legal status of the land versus its actual use** and status on the ground.
- The Supreme Court in the **Godhvarman case post 1996** ordered for **bringing under purview of the Forest Conservation Act 1980 those forests which fall under the dictionary meaning of 'forests' irrespective of the legal category**.
- SC also instructed the Environment Ministry to clarify the definition and the categories, including which are deemed forests.
- Forest Rights Act, 2006 (FRA 2006) grants forest rights to tribals and other traditional forest dwellers **on all types of classified and unclassified and deemed forests as well**.

## SUSTAINABLE HABITAT

## GS-III ENVIRONMENT & ECOLOGY

### Context

- Union Minister for Power and MNRE inaugurated "Aiming for Sustainable Habitat: New Initiatives in Building Energy Efficiency 2021" as part of 'AzadiKaAmrutMahotsav'.

### Why there is a need for Sustainable Habitat?

- Building sector is **second largest consumer of electricity after industry** but it is expected to become the largest energy consuming sector by 2030.
- That is why, Government of India is focusing on improving energy efficiency across residential as well as commercial building establishments.
- Enhancing the energy-efficiency levels** in residential buildings across the country, can lead to **sustainable habitation**.
- Initiatives like **smart home ecosystems, optimizing energy-efficiency** in any given structure can help to achieve this.

### Initiatives launched included

- Specifying code compliance** approaches and **minimum energy performance** requirements for building services, and verification framework with **Eco Niwas Samhita 2021**.
- Web-based platform '**The Handbook of Replicable Designs for Energy Efficient Residential Buildings**' as a learning tool, to create a **pool of ready-to-use resources of replicable designs** to construct energy-efficient homes in India.
- Creating an **Online Directory of Building Materials** that would envisage the process of **establishing Standards for energy efficient building materials**.
- Announcement of **NEERMAN Awards** (National Energy Efficiency Roadmap for Movement towards Affordable & Natural Habitat), with the goal of **encouraging exceptionally efficient building designs complying with BEE's Energy Conservation Building Codes**.
- Online Star Rating tool for Energy Efficient Homes** created to improve energy-efficiency and reduce energy consumption in individual homes.
- Training of over 15,000 Architects, Engineers and Government officials on Energy Conservation Building Code (ECBC) 2017

### Energy Conservation Building Code

#### What is ECBC?

- The Energy Conservation Building Code (ECBC) was launched in May 2007 by the **Bureau of Energy Efficiency (BEE), Ministry of Power**.
- Its main objective is to **establish minimum requirements for energy efficient design and construction of buildings**.

### Why is ECBC important?

- India's two thirds of the total building stock that will exist in 2030 are yet to be built.
- New buildings possess a great challenge to meeting its increasing energy demand.
- ECBC sets minimum energy efficiency levels for commercial buildings, locking in energy savings for years to come, retaining



occupant comfort, while combating climate change.

#### Is ECBC applicable to all type of buildings?

- The ECBC is **applicable to all buildings or building complexes** that have a connected load of 100 kW or greater, or a contract demand of 120 kVA or greater and used for commercial purposes.
- It is applicable for **both Government and private buildings**.
- The code is **not applicable to Equipment and portions of building systems that use energy primarily for manufacturing processes**.

#### Does water conservation come under the scope of ECBC?

- No, ECBC addresses only energy efficiency of buildings. Water and other aspects are generally covered in green building rating systems.

#### About BEE

- The Government of India has set up the **Bureau of Energy Efficiency (BEE)** on 1st March 2002 under the provision of the Energy Conservation Act, 2001.
- The mission of the Bureau of Energy Efficiency is **to assist in developing policies and strategies with a thrust on self-regulation and market principles with the primary objective of reducing energy intensity of the Indian economy within the overall framework of the Energy Conservation Act, 2001**.

## SOLAR PARKS

## GS-III ENVIRONMENT & ECOLOGY

#### Context

- NTPC Renewable Energy Ltd (NTPC REL), has been given the go-ahead by Ministry of New and Renewable Energy (MNRE) under Mode 8 (Ultra Mega Renewable Energy Power Park) of Solar Park Scheme.
- NTPC REL has plans to **generate green hydrogen** on a commercial scale from this park.

#### More about news

- NTPC successfully commissioned **India's largest Floating Solar** of 10 MW on the reservoir of **Simhadri Thermal Power Plant, Andhra Pradesh**.
- NTPC strides towards building 60 GW Renewable Energy capacity by 2032.
- NTPC Renewable Energy Ltd, a 100% subsidiary of NTPC, will set up **4750 MW renewable energy park** at **Rann of Kutch** in Khavada, Gujarat.
- This will be **India's largest solar park** to be built by the largest power producer of the country.

#### Solar park scheme

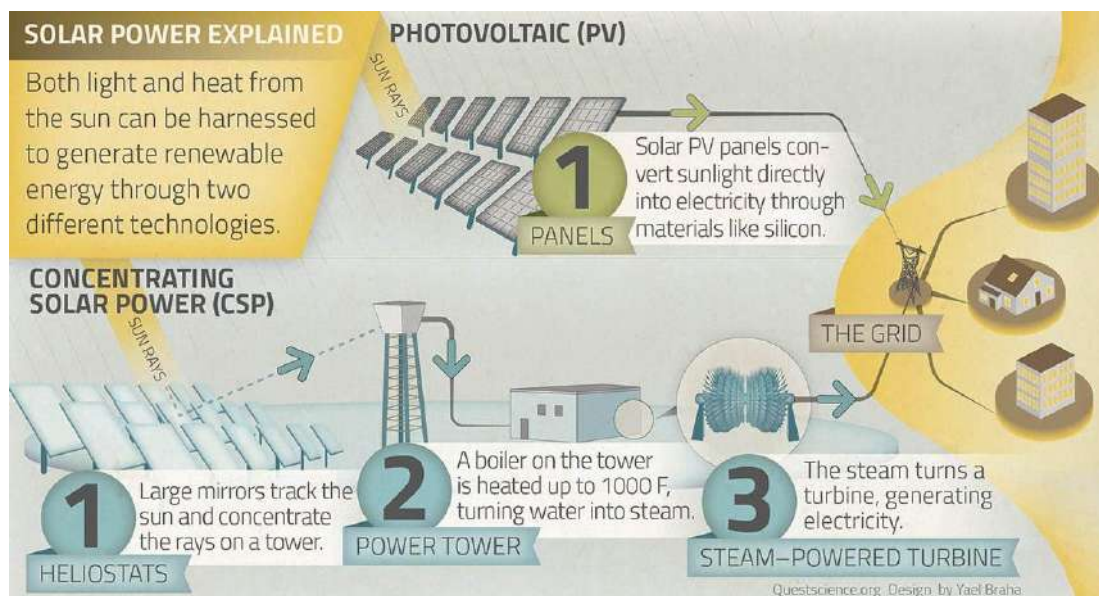
- The Government of India has set a national target of installing 1,00,000 MW grid connected solar power capacity in the country by December, 2022.
- As on 31.10.2019, a total grid connected solar power generation capacity of 31,696 MW has been set up in the Country, projects of 17998 MW capacity are at various stages of installations.
- Most of the Solar power projects in the country have been/are being set up with private investment.
- The scheme for "Development of Solar Parks and Ultra Mega Solar Power Projects" was rolled out by Ministry of New & Renewable Energy on 12-12-2014.
- Under this scheme, it was proposed to set up at least 25 Solar Parks and Ultra Mega Solar Power Projects targeting over 20,000 MW of solar power installed capacity within a span of 5 years starting from 2014-15.
- Under the scheme, the Ministry provides Central Financial Assistance (CFA) of up to Rs. 25 lakh per solar park for preparation of Detailed Project Report (DPR).
- Beside this, CFA of up to Rs. 20.00 lakh per MW or 30% of the project cost, including Grid-connectivity cost, whichever is lower, is also provided on achieving the milestones prescribed in the scheme.
- The scheme facilitates and speed up installation of grid connected solar power projects for electricity generation on a large scale.
- All the States and Union Territories are eligible for getting benefit under the scheme.
- The capacity of the solar parks shall be 500 MW and above. However, smaller parks are also considered.

### Policy Nitty Gritty

States will earn ₹0.02/unit of power produced at solar parks	Developers will bear this fiscal incentive, but can add it to tariff
--	--

SECI will start payment security fund to ensure regular payment of dues by discoms





### Solar Parks in India

Ministry of new and renewable energy has planned to set up 25 solar parks in the next five years

Gujarat	750MW	Banaskantha
MP	750MW + 750MW	Rewa
Telangana	100MW	Mehboob Nagar
Andhra Pradesh	2500MW	Anantpur, Kadapa and Kurnool
Karnataka	1000MW	Mulwar, Bijapur
UP	600MW	Jalaun, Sonbhadra, Allahabad
Meghalaya	50MW	University of Science & Technology, 9th Mile, near Guwahati
J&K	7500MW	Leh and Kargil
Punjab	1000MW + 1000MW	District-wise land identified
Rajasthan	700MW+1000MW+, 1000MW+1000MW	Bhadla and Jaisalmer
Tamil Nadu	500MW	Location yet to be identified
Odisha	1000MW	Location yet to be identified



## KUTCH BUSTARD SANCTUARY

## GS-III ENVIRONMENT & ECOLOGY

### Context

- The government has said there are **no Great Indian Bustards in Kutch Bustard Sanctuary** in Gujarat Kutch, a claim that has raised eyebrows among conservationists and wildlife enthusiasts.

### Great Indian Bustards and their habitats

- GIBs are the **largest among the four bustard species** found in India, the other three being **MacQueen's bustard**, **lesser florican** and the **Bengal florican**.
- GIBs' historic range included much of the Indian sub-continent but it has now shrunk to just 10 per cent of it.
- Among the **heaviest birds with flight**, GIBs prefer **grasslands as their habitats**.
- Being terrestrial birds, they **spend most of their time on the ground** with occasional flights to go from one part of their habitat to the other.
- They **feed on insects, lizards, grass seeds** etc.
- GIBs are considered the **flagship bird species of grassland** and hence barometers of the health of grassland ecosystems.

## PRESENT GIB POPULATION

State	Birds
Rajasthan	128
<b>Gujarat</b>	<b>10</b>
Maharashtra	8
Karnataka & AP	10

### THREATS

- Fatal collision with power-lines
- Nest predation by native predators (fox, mongoose, crow, monitor lizard) and free-ranging dogs
- Hunting in Pakistan
- Agricultural expansion
- Pesticide prevalence (food reduction and contamination),
- Grazing pressure
- Plantation of shrubs and tree species in grasslands,
- Poor land-use policies
- Habitat Loss



### POPULATION DECLINE

- GIB population fell by 90% in the 50 years since 1969
- Population size was 1,260 individuals in 1969
- Fell to 745 in 1978
- 600 in 2000
- 250 around 2011
- Less than 150 GIB in 2019

### On the brink of extinction

- Central government had told the 13th Conference of Parties to the United Nations Convention on Migratory Species of Wild Animals (CMS) held in Gandhinagar, that the **GIB population in India had fallen to just 150**.
- Of them 128 birds were in **Rajasthan**, 10 in Kutch district of **Gujarat** and a few in **Maharashtra, Karnataka and Andhra Pradesh**.
- Pakistan is also believed to host a few GIBs.
- Due to the species' **smaller population size**, the International Union for Conservation of Nature (IUCN) has categorised GIBs as **critically endangered**, thus on the brink of extinction from the wild.

### Threats

- Scientists have been pointing out **overhead power transmission lines** as the biggest threat to the GIBs. Birds due to their **poor frontal vision, can't detect powerlines** in time and their weight make in-flight quick manoeuvres difficult.
- Change in landscape by way of farmers cultivating their land**, which otherwise used to remain fallow due to frequent droughts in Kutch.
- Cultivation of cotton and wheat instead of pulses and fodder are reasons for falling GIB numbers.

### Why no bustard in KBS?

- KBS is a tiny sanctuary notified in 1992 and spread over just two square kilometres (sqkm).
- But its **eco-sensitive zone** covers most of present-day core GIB habitat.
- Kutch Bustard Sanctuary is also known as **Lala-Parjan Sanctuary, is located in Gujarat, India**. This sanctuary is one of the two great Indian bustard sanctuaries in Gujarat; the other one is in **Jamnagar**.
- It was declared as a sanctuary, specifically for the conservation of the great Indian bustard, the heaviest flying bird.
- The main bird species of the sanctuary, the **great Indian bustard, locally called "Ghorad,"** is a **Schedule I bird** under the Indian Wildlife Protection Act of 1972.
- The sanctuary lies in the **ecological zone of the semi desert region**. Hence, the climate is arid, rainfall is meagre and erratic, with an average annual precipitation of 384 millimetres (15.1 in).
- The creation of this safe-haven for the birds led to an increase in the GIB population in KBS—from 30 in 1999 to 45 in 2007.
- But **windmills and powerlines** started coming up right on the borders of the sanctuary from 2008 onward and GIB numbers started dwindling.



### Supreme Court's intervention

- In response to a petition, the Supreme Court ordered that **all overhead power transmission lines in core and potential GIB habitats in Rajasthan and Gujarat should be undergrounded.**
- The SC also formed a **three-member committee**, including Devesh Gadhvi, the member of the bustard specialist group of IUCN, to help power companies comply with the order.

### Conservation measures

- In 2015, the Central government launched the **GIB species recovery programme.**
- Under the programme, the WII and Rajasthan forest department have jointly set up **conservation breeding centres** where GIB eggs harvested from the wild are incubated artificially and hatchlings raised in controlled environment.

## GROSS ENVIRONMENT PRODUCT

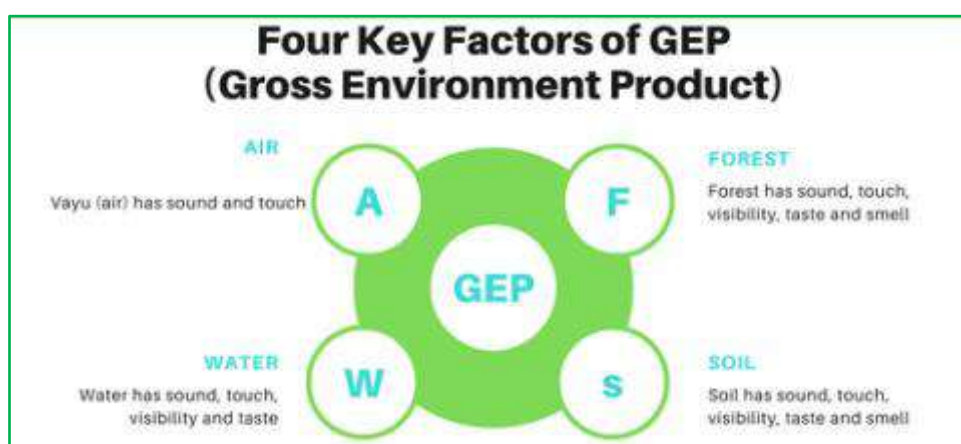
## GS-III ENVIRONMENT & ECOLOGY

### Context

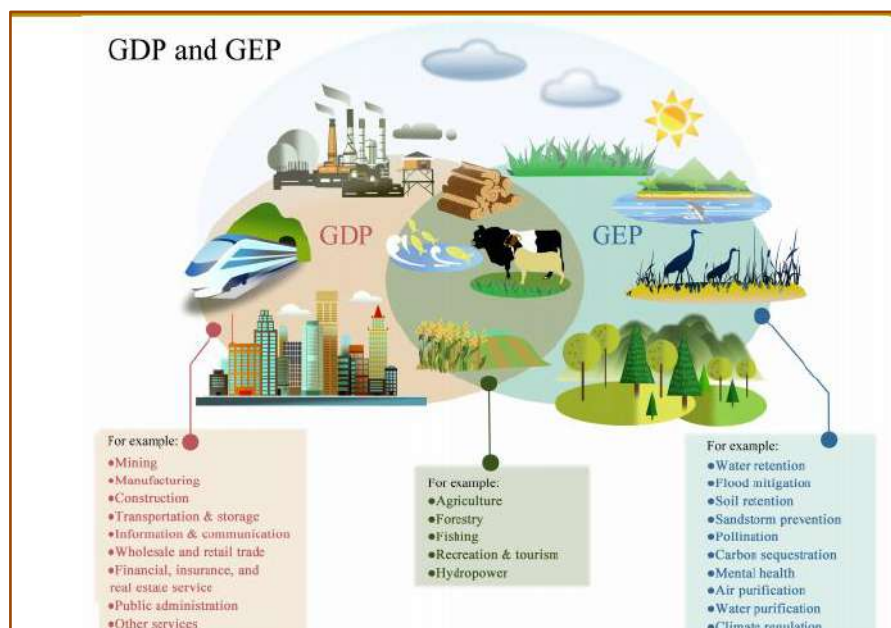
- Uttarakhand will initiate the valuation of its natural resources in the form of 'Gross Environment Product' along the lines of Gross Domestic Product (GDP).

### Environment services

- The term "**ecosystem services**" was coined in 1981 to attract academics towards 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 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:
  - Degradation of ecosystem services,
  - increased risks of non-linear changes and
  - the exacerbation of poverty for some groups of people.



### GDP vs GEP





### The Himalayan context

- The Himalayas contribute **substantially to the sustainability of the Gangetic Plains** where 500 million people live.
- According to the recommendation of 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.**

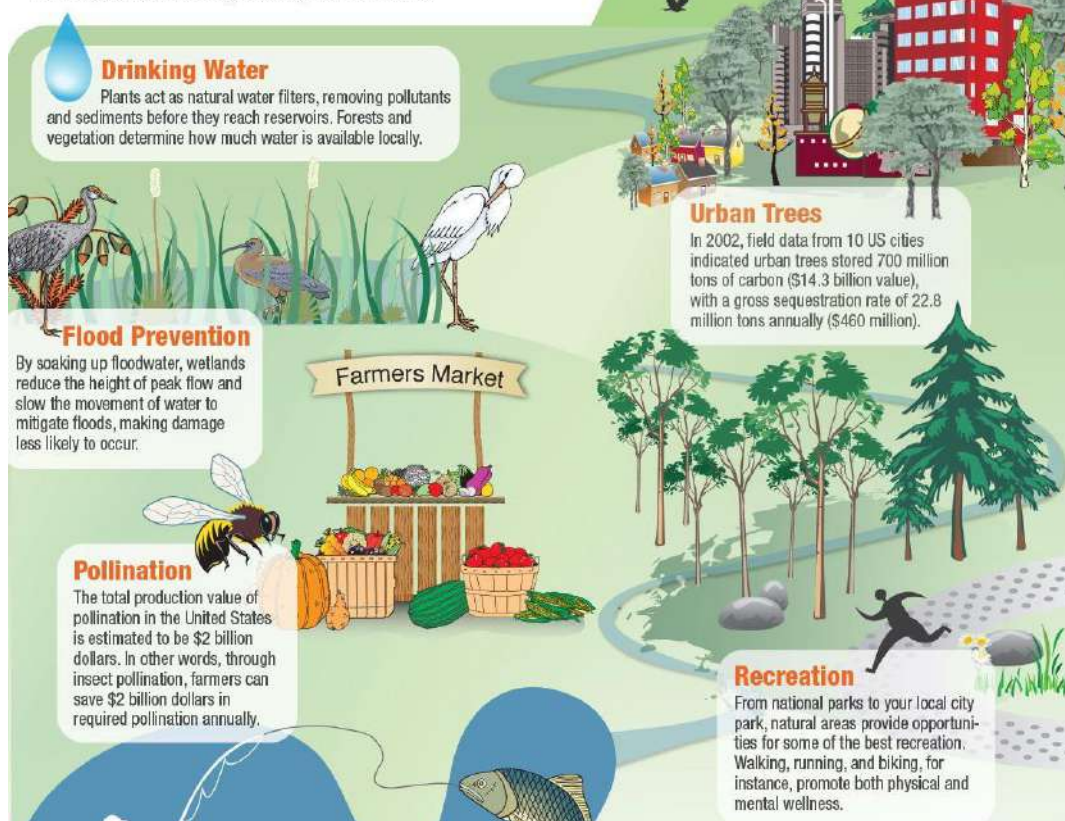
## Ecosystem Services

Ecosystem services benefit us in myriad ways.

- **Provisioning services:** drinking water, oil, and natural gas
- **Regulating services:** climate regulation, decomposition, and water purification
- **Supporting services:** nutrient cycling, photosynthesis, and soil creation
- **Cultural services:** recreation and creative inspiration

### Gross Domestic Product

In 2009, the ecosystem services value (ESV) was an estimated \$149.61 trillion for the entire biosphere. (The world GDP was approximately \$71.75 trillion.) Marine systems contributed approximately 75.15% of the ESV.



"FIT FOR 55"

GS-III ENVIRONMENT & ECOLOGY

### Context

- European officials are **preparing legislation to wean one of the world's biggest and most polluting economies off fossil fuels** far more quickly than other nations have pledged to do.
- The proposals could include **phasing out coal as an electricity source** as well as **imposing tariffs on polluting imports** — an idea with the potential to set off global trade disputes.
- It is designed to **swiftly reduce the emissions of planet-warming gases** and meet an **ambitious climate goal.**
- The 27-nation bloc has said **it will cut its emissions of greenhouse gases by 55% by 2030**, compared with 1990 levels.
- The legislation is expected to be in sharp contrast to vague aspirations by various other countries to neutralize their emissions by midcentury.

### "Fit for 55"

- The proposals, known as "Fit for 55," will take many months to negotiate among the 27 member countries and the European Parliament before becoming law.
- It will most certainly invite scrutiny of Europe's own reliance on extracting and burning fossil fuels in its own territories, from oil and gas drilling in the North Sea to coal mining in countries like Germany and Poland.

### Border carbon adjustment tax

- The most contentious element is **border carbon adjustment tax**, that would impose tariffs on the greenhouse gas emissions associated with products imported from outside the European Union.
- It would **protect European companies** from goods made in countries with less stringent climate policies.
- Among the products that it could target steel, cement, iron and fertilizers.
- It could not only shake up global trade and invite a dispute over protectionism in the World Trade Organization, but it could also create **new diplomatic fault lines** before international climate talks taking place in Glasgow.

### Response of other countries

- China and India have publicly criticized the idea of a carbon border tax.
- Japan isn't keen.
- United States
  - It has said it is evaluating the idea of its own carbon border tax. It is in a **tricky position** with respect to a prospective European border tax.
  - It is keen to restore **trans-Atlantic alliances**, including on climate change. With no prospect of carbon pricing legislation in the United States, several U.S. companies could be vulnerable.
- European Union
  - It would be **contentious within the European 27-country bloc** itself.
  - Efforts to phase out the sales of new internal combustion engine cars for instance are likely to face objections from some European carmakers.
  - Efforts to phase out coal from electricity generation are likely to face opposition from countries with large coal operations, like Poland and Hungary.

## GANGA BASIN INITIATIVE

## GS-III ENVIRONMENT & ECOLOGY

### Context

- Capacity Building Initiative on Making Water Sensitive Cities In Ganga Basin Launched

### 'Making water sensitive cities in Ganga basin' initiative

- This new capacity building initiative aimed at **improving river health/flows was launched by National Mission for Clean Ganga (NMCG) in association with Centre for Science and Environment (CSE)**.
- It focus on capacity building and action research for promoting sustainable urban water management for improved river health in Ganga basin cities.
- It will engage all the stakeholders which includes, SPMGs (State Program Management Group, NamamiGange), Municipal corporations, Technical & research constants, international organizations and local grassroot communities.
- This initiative is part of the series of ongoing efforts by NMCG aimed to **ensuring convergence** of the NamamiGange Mission with national flagship urban missions (AMRUT, Smart Cities, SwachhBharat Mission, HRIDAY, NULM) and other missions (AtalBhujalYojana, JalJeevan Mission, Jal Shakti Abhiyan) at state /city level across Ganga basin states.
- **Key focus areas** of the programme will be
  - Water Sensitive Urban Design and Planning
  - Urban Water Efficiency and Conservation
  - Decentralized Wastewater Treatment and Local Reuse
  - Urban Groundwater Management and
  - Urban Waterbodies / Lake Management.
- Jal Shakti Ministry's '**Catch the Rain**' initiative for rain water harvesting connected community with water bodies in cities.

### There is a need of

- A framework for integration between Urban Built Form including landscape and urban water cycle.
- Cities have largely been held responsible for the deteriorated state of rivers, and therefore, need to play a vital role in the rejuvenation efforts as well.
- **Mainstreaming river sensitive approach** while planning for the cities. The "**River Cities Alliance**" will provide a unique platform for river cities to collaborate for collectively achieving river rejuvenation through sustainable development and capacity building.
- Returning to roots and **bringing back the traditional knowledge of rainwater harvesting** sharing the examples of Alhar -



Pyne system of Bihar, wells in forts of Rajasthan and Cascade tanks of South India etc.

#### Water Sensitive Urban Design and Planning (WSUDP)

- It is an **emerging urban development paradigm** aimed to **minimize hydrological impacts** of urban development on environment.
- This includes the
  - method of planning and designing urban areas for optimum utilization of water (a precious resource)
  - reduce the harm caused to our rivers and creeks and
  - focuses on entire management of entire water systems (drinking water, storm water run-off, waterway health, sewerage treatment and re-cycling).

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## LIGHTNING

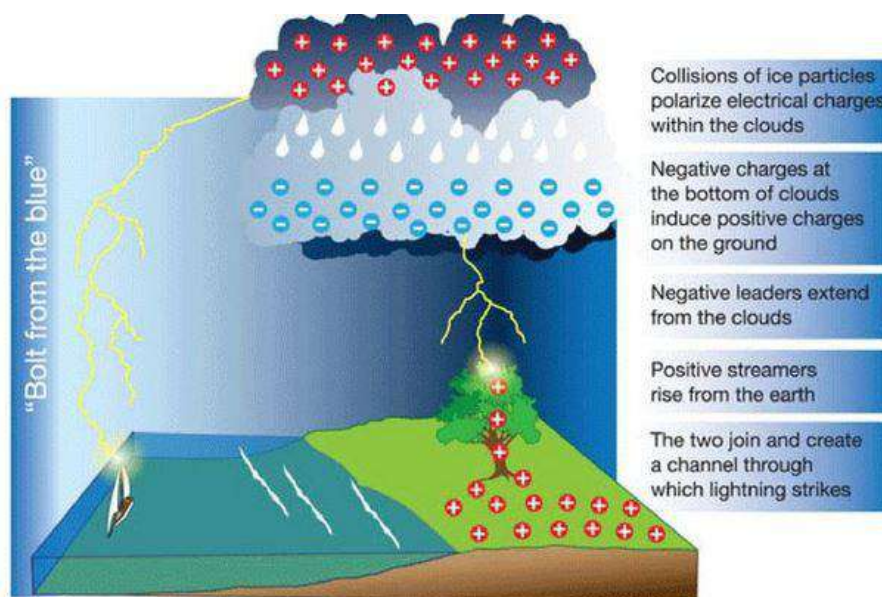
## GS-III DISASTER MANAGEMENT

### Context

- At least 30 people were killed in separate incidents of lightning in various parts of the country in the past 24 hours.

### What is Lightning?

- Lightning is a very rapid – and massive – discharge of electricity in the atmosphere, some of which is directed towards the Earth's surface.
- These discharges are generated in giant moisture-bearing clouds that are 10-12 km tall.
- The base of these clouds typically lies within 1-2 km of the Earth's surface, while their top is 12-13 km away.
- Temperatures towards the top of these clouds are in the range of minus 35 to minus 45 degrees Celsius.



### Impact of lightning

- As a whole, **India sees 2,000-2,500 lightning deaths every year on average.**
- Lightning is the **biggest contributor to accidental deaths due to natural causes.**
- A few years ago, over 300 people were reported killed by lightning in just three days.
- In 2019, 8,145 deaths in the country attributable to forces of nature.
- Of these, **35.3% deaths were reported due to 'lightning'**, 15.6% deaths due to 'heat/sun stroke' and 11.6% deaths due to 'flood' – NCRB data.

### Reasons behind rise in lightning led disaster

- Experts have warned of a rise in lightning disaster partly **due to the cascading effects of global warming.**
- Research has attributed flow of air, amount of aerosol, geophysical location and temperature variations as the key factors.
- Higher particulate matter pollution and loss of vegetation** is also making urban areas more susceptible to lightning strikes.
- Annual lightning deaths had risen nearly two and a half times from the late 1960s to 2019 which is directly linked to the climate crisis that increased moisture over land due to warming.
- Severity and frequency of thunderstorm/dust storms are expected to shoot up further due to increasing global temperature.

### Concerns

- Lightning remains among the least studied atmospheric phenomena in the country.**
- Just one group of scientists, at the Indian Institute of Tropical Management (IITM) in Pune, works full-time on thunderstorms and lightning.
- Occurrences of lightning are not tracked in India**, and there is simply not enough data for scientists to work with.
- Often, safety measures and precautions against lightning strikes do not receive as much publicity as other natural disasters such as earthquakes.

### Steps needed to be taken

- Fatalities due to extreme **weather need to be taken into consideration in the context of climate.**
- Aerial Optical Depth (AOD), which captures how much sunlight is obstructed from reaching the earth's surface by aerosols, has a positive correlation with lightning strikes.
- More green cover** also decreases the chances of a deadly lightning strike.
- Common Alert Protocol (CAP) system** to warn people about impending thunderstorm and lightning strikes.
- Prediction tools for thunderstorm/lightning apps for farmers and urban areas.



- There is a need for a **National Lightning Resilience Programme**.



**ETHICS IN THE AGE OF SURVEILLANCE****GS-IV ETHICS****Introduction**

- At least 40 Indian journalists, along with members of Parliament, judges and others were supposedly targeted by Pegasus Spyware that infiltrates smartphones and turns them into surveillance devices.
- This article provides a brief overview of surveillance ethics.

**Tracing the roots of Surveillance Ethics**

- Jeremy Bentham's idea of the Panopticon is the first reference to "Surveillance Ethics" in the modern period.
- The Panopticon was to be a prison, comprising a circular building.
- In the centre was a tower in which the prison supervisor would live and monitor the inmates.
- This would encourage the inmates to be self-disciplined and well-behaved.
- The prospect of living in this way would deter inmates and those who visited the prison from wanting to commit crimes.
- George Orwell's Novel: 1984 extended the Panopticon to encompass the whole of society.
- As the inmates of the Panopticon were reminded of the supervisor's presence by the loudspeaker, so citizens in Orwell's vision were told repeatedly that "Big Brother is watching you".
- Panopticon was revisited by Michel Foucault in the book "Discipline and Punish".
- Foucault's particular concern was with the use of power and its increasing bureaucratization in the modern period.
- Foucault argued, the prison would deprive inmates of their freedom whilst attempting to discipline and reform them.

**Arguments in favor of Surveillance**

- **Increase Public Safety:** Just like surveillance on our private property improves our home security, public surveillance increases public safety.
- **Reduces Crime Rate:** It can keep an eye out for crimes as well as act as a deterrent.
- **Stops Terrorist Attacks**
- Captures "precrime" data
- It helps authorities to track criminals down.
- Encourages good behavior
- Provide Evidence & Gather Clues
- Acts as reassurance

**Arguments against surveillance**

**"A child born today will grow up with no conception of privacy at all. They'll never know what it means to have a private moment to themselves an unrecorded, unanalysed thought. And that's a problem because privacy matters, privacy is what allows us to determine who we are and who we want to be."** – Edward Snowden

**Threat to Privacy**

- Privacy defines people by giving them a degree of autonomy and protecting dignity.
- Through keeping our vulnerabilities private, we maintain a level of personal safety and security.
- **Surveillance stifles that autonomy of choice, dignity and safety.**
- **Examples of Invasion of Privacy**
- **Google violated children's privacy laws**
- A California federal court received a lawsuit from two children suing Google that G Suite for Education platform unlawfully collects biometric data from kids who use it.
- **Cambridge Analytica Case**
- Personal data belonging to millions of Facebook users was collected **without their consent** by British consulting firm **Cambridge Analytica**, predominantly to be used for political advertising for Donald Trump.
- **Violates Basic Human Rights:** The Supreme Court declared the **right to privacy under Article 21 as a fundamental right** protected under the Indian Constitution.
- **Against International Human Rights Declarations:** Article 12 of Universal Declaration of Human Rights (1948) states that "No one shall be subjected to arbitrary interference with his privacy, family, home or correspondence nor to attack upon his honour and reputation."

**Social Sorting**

- The purpose of surveillance is to sort people into categories for ends which are either good or ill.
- The danger, however, is that **social stereotypes are carried over into these categories** that may be institutionalized.
- For example, a recent study found that CCTV operators were disproportionately monitoring the young, the male and ethnic minorities "for no obvious reason" (Norris & Armstrong 1999).
- That is, in the absence of suspicious behavior they were choosing to focus their attention on these categories of people.
- The result is that anyone falling into these categories is more likely to be caught if doing something wrong than someone else, thus **perpetuating the stereotype**.



### Function Creep

- Function creep involves extending the use of a technology from the cause for which it was initially intended to a different cause.
- Thus surveillance technology can be easily abused.
- For example, information collected can potentially be used as a form of blackmail.
- Another example is voyeurism and stalking.

### Deepfakes

- Deepfakes are media representations of people saying and doing things they didn't actually say or do.
- To make a deepfake, someone records a photo, audio clip, or video of someone and then swaps out his or her likeness for another person's.
- Examples of deepfakes include a video in which Belgium's Prime Minister Sophie Wilmès links COVID-19 to climate change.
- A video of the President of Gabon was a deep fake that helped instigate a failed coup.

### Disinformation propaganda

- For example, a 2019 Senate Select Committee on Intelligence (SSCI) report confirmed that Russian-backed online disinformation campaigns exploited systemic racism to support Donald Trump's candidacy in the 2016 election.

### Racist AI can reflect our own biases

- Amazon scrapped its internal recruitment AI once it came to light that it was biased against women.

### Chilling Effects

- Suspicion may lead to cynicism as to how the state will employ its surveillance technology.
- The knowledge of the accumulation and possession of these data by the state may disincline some citizens from engaging even in legitimate activities, to avoid notice by the state.
- These so-called "chilling effects" are at odds with human rights and democratic practice and can lead to behavioural uniformity and a stifling of creativity.
- It can turn the state into a dictatorial regime.

### Other concerns

- |  |   |
|--|---|
| • Disturbs the Balance of Power between citizens and state disproportionately. | • Undermines the rule of law  |
| • Exacerbates distance between surveillant and the group surveilled.           | • Increases societal "paranoia"   |
| • Freezes free speech  | • Narrows choices through creation of algorithmic "echo chambers"                                   |
| • Might lead to an autocratic state.   | • Increases supply side manipulation  |
| • Diminishes Trust and Autonomy  | • Information asymmetry (supply side high, demand side low)   |
| • Creates a "Big Brother" society  | • Doubts about Effectiveness  |
| • Creates a "nanny state"  | • Expensive: High maintenance and costs of these systems is not justified by their limited results. |
| • Brings into disrepute the role of government                                 |   |
| • Blurs moral and legal boundaries   |   |

### Way Ahead

- The concept of necessity can limit surveillance from being undertaken arbitrarily or prematurely.
- An authority may not monitor anyone at any time.
- Surveillance must rather be required by the circumstances of the case.
- A strict regulatory framework needs to be laid down and implemented for conducting Ethical Surveillance.
- John Lango (Metaphysics and Ethics Specialist) has suggested two criteria for necessity:
  - The feasibility standard and the
  - Awfulness standard.
- The first occurs when there is sufficient evidence to suggest that there is no feasible alternative.
- The second when the alternatives are worse than the proposed course of action.
- When one of these criteria is met the action of surveillance may be deemed necessary.
- Given the harms of surveillance, it should therefore be avoided if there are less harmful alternatives

## SHORT NEWS ARTICLES

### GS-I CULTURE & HISTORY

#### Indira Gandhi National Center (IGNCA)

##### Context

- Refurbished Janpath building for Indira Gandhi National Center for Arts was inaugurated by Minister of State(I/C) for Culture and Tourism.
- Till the time the permanent building of IGNCA is constructed, the center has been temporarily shifted to the Janpath Hotel building. This is due to Central Vista redevelopment.

##### About

- Indira Gandhi National Centre for the Arts (IGNCA), New Delhi is a premier government-funded arts organization in India.
- It is an **autonomous institute under the Union Ministry of Culture.**
- Indira Gandhi National Center (IGNCA) for the Arts is home to invaluable collections of artifacts, manuscripts, books, paintings, sculptures, and all that reflect the heritage of Indian culture.

#### Kalbeliya Dance

##### Context

- Recently, due to Covid-19-Pandemic an app called chendavia is gaining popularity among the students of kalbeliya dance.

##### About

- Kalbeliya is a tribe from Rajasthan, India, there is also a dance of the same name.
- Their traditional occupation is catching snakes and trading snake venom. Hence, the dance movements and the costumes of their community bear a resemblance to that of the serpents
- The dance is an integral part of their culture and performed by men and women.
- Kalbeliya dance and songs are now in UNESCO's representative list of the Intangible Cultural Heritage of Humanity from the year 2010.
- Kalbeliya dance is one of the most sensuous dance among all Rajasthani dances.



##### List of the Intangible Cultural Heritage of Humanity

- UNESCO established its Lists of Intangible Cultural Heritage with the aim of ensuring better protection of important intangible cultural heritages worldwide and the awareness of their significance.
- The list was established in 2008 when the 2003 Convention for the Safeguarding of the Intangible Cultural Heritage took effect.

13 ICH traditions recognised by UNESCO			
1.	Tradition of Vedic chanting, 2008	8.	Buddhist chanting of Ladakh: recitation of sacred Buddhist texts in the trans-Himalayan Ladakh region, Jammu and Kashmir, India, 2012
2.	Ramlila, the traditional performance of the Ramayana, 2008	9.	Sankirtana, ritual singing, drumming and dancing of Manipur, 2013
3.	Kutiyattam, Sanskrit theatre, 2008	10.	Traditional brass and copper craft of utensil making among the Thatheras of Jandiala Guru, Punjab, India, 2014
4.	Ramman, religious festival and ritual theatre of the Garhwal Himalayas, India, 2009	11.	Yoga, 2016
5.	Mudiyettu, ritual theatre and dance drama of Kerala, 2010	12.	Nowruz, 2016
6.	Kalbeliya folk songs and dances of Rajasthan, 2010	13.	Kumbh Mela, 2017
7.	Chhau dance, 2010		

#### Indian Army Memorial in Italy

##### In News

- During his visit to the UK and Italy, Indian Army Chief Manoj Naravane will inaugurate the Indian Army Memorial at Cassino in Italy, about 140 km away from Rome.
- The memorial commemorates 900 Indian soldiers who took part in the effort to liberate Italy in World War II.

##### What was happening in Italy in WWII?

- Under Benito Mussolini, Italy had joined Nazi Germany in 1936 and in 1940 it entered WWII (1939-1945) against the Allies.
- But in 1943, Mussolini was overthrown and instead, Italy declared war on Germany. The invasion of Italy by the Allies coincided with an armistice that was made with the Italians.

### What was India's involvement in World War II?

- Indian Army was the largest volunteer force during WWII, with over 2.5 million Indians participating.
- These troops fought the Axis powers (Germany, Italy and Japan) as part of the Allies.
- Three infantry divisions of the Indian Army took part in the Italian campaign.
- These were the 4th, 8th and 10th Indian Divisions.

## Madurai Malli

### Context

- Consignments of **Geographical Indications (GI) certified Madurai malli** and other traditional flowers such as button rose, lily, chamanthi and marigold were exported from Tamil Nadu to the US and Dubai.

### About

- Madurai Malli is jasmine flower which is known for its powerful, mysteriously attractive fragrance.
- It is known as Madurai Malli because of its place of origin namely Madurai.
- Madurai has emerged as a major market for the malligai grown in its neighbourhood, and has evolved into the '**jasmine capital of India**'.
- GI protection will prevent producers of similar flowers in other regions from using the specific tag and helps growers in the specific region preserve their identity in the local and global market.



## Silambam

### Context

- Recently, an Indian named Ganesan Sandhirakasan has won the top prize in a government-initiated competition for migrant workers in Singapore for his performance of Silambam.

### About

- Silambam is a weapon-based Indian martial art.
- This style is mentioned in Tamil Sangam literature.
- The World Silambam Association is the official international body of Silambam.
- References in the Silappadikaram and other works of the Sangam literature show that Silambam has been practiced since at least the 4th century BC.
- The term silambambu referred to a particular type of bamboo from the Kurinjimala (kurinji hills) in present-day Kerala.
- Thus silambam was named after its primary weapon, the bamboo staff.
- It may have earlier used for self-defense and to ward off animals in the Kurinji hills and later evolved into the present-day martial art.
- The ancient city of Madurai formed as the point of focus of Silambam's spreading.
- The Silambam staff was acquired by the Egyptians, Greeks and Romans and was spread back to the Middle East, Europe and North Africa.



## Kashi Annapurna Temple

### Context

- Prime Minister, Shri Narendra Modi has expressed deep grief over the passing away of Kashi Annapurna Temple Mahant Shri Rameshwar Puriji.

### About

- It is one of the most famous Hindu temples in the holy city of Varanasi.
- This temple has great religious importance in Hinduism and is dedicated to the goddess Annapurna.
- Annapurna is the Hindu goddess for nourishment and is a form of the goddess Parvati.
- The current Annapurna Mandir was constructed in the 18th century by Maratha Peshwa Bajirao I.
- The temple is constructed in Nagara architecture.

## Bonalu Festival

### Context

- 'Bonalu' festivities to begin in Telangana.

### About

- 'Bonalu' is a traditional folk festival celebrated every year in the Telugu month of Ashadham (falling in June/July), in the twin cities of Hyderabad and Secunderabad, and some other parts of Telangana state.
- The Bonalu festival involves devotees offering the traditional 'bonam' (derived from





Bhojanam, meaning meals) to the goddess Mahankali at 25 temples.

- The origin of this festival can be traced back to the 18th Century in the erstwhile Hyderabad State.
- Other major festivals of Telangana: Bathukamma Festival and SammakkaSarajata.

## National Archives of India

### Context

- Culture Minister G. Kishan Reddy said the National Archives' records related to freedom fighters would be digitised within a year as a part of the commemoration of 75 years of Independence next year.

### About

- The National Archives of India (NAI) is a repository of the non-current records of the Government of India and holds them in trust for the use of administrators and scholars.
- It was originally established as the Imperial Record Department in 1891, in Calcutta, the capital of British India.
- In 1911 the Department was transferred to the new capital, New Delhi.
- It functions as an attached Office of the Department of Culture under the Ministry of Culture.
- In 1998 it was declared as the "Museum of the National Archives" and opened to the general public.
- This museum provides a representative overview of the multifarious holdings of the National Archives, and promotes a common man's interest in archival holdings.

## Urdu

### Context

- Vice President of India received the book 'Urdu Poets and Writers - Gems of Deccan' authored by senior journalist, Shri J.S. Ifthekhar.
- The book traces the rich literary and cultural traditions of Deccan, right from the time of Muhammad QuliQutb Shah, the founder of Hyderabad, to the present times.

### About

- Urdu is an Indo-Aryan language spoken chiefly in South Asia.
- It is the official national language and lingua franca of Pakistan.
- In India, Urdu is an Eighth Schedule language whose status, function, and cultural heritage is recognized by the Constitution of India.
- It is one of the official languages in states like Kashmir, Telangana, UP, Bihar, New Delhi and West Bengal.
- The National Council for Promotion of Urdu Language (NCPUL) is an autonomous body under the Ministry of Education.
- It was set up to promote, develop and propagate Urdu language. The Council started its operation in Delhi in 1996.
- In Nepal, Urdu is a registered regional dialect.

## Kesaria Buddha Stupa

### Context

- The world-famous Kesaria Buddha stupa in east Champaran district of Bihar is waterlogged following floods in some parts of the district.

### About

- The original Kesariya stupa dates to the time of Ashoka (circa 250 BCE), as the remains of a capital of a Pillar of Ashoka were discovered there.
- The current stupa dates to the Gupta Dynasty between 200 AD and 750 AD.
- The local people call this stupa "Devala", meaning "house of god".
- Gold coins bearing the seal of the famous emperor Kanishka of the Kushan dynasty (AD 30 to AD 375) were discovered from here.
- The stupa's exploration had started in the early 19th century after its discovery led by Colonel Mackenzie in 1814.
- Foreign travelers, Faxian (Fahien) and XuanZang (Hsuan Tsang), had visited this place.
- The ASI (Archaeological Survey of India) has declared it a protected monument of national importance.



## Jagannath temple

### Context

- RathYatra begins.

### About

- The temple was constructed in the 12th century by King AnatavarmanChodaganga Deva of the Eastern Ganga Dynasty.
- The temple is sacred to all Hindus, and especially in those of the Vaishnava traditions.
- Many great Vaishnava saints, such as Ramanujacharya, Madhvacharya,



**Nimbarkacharya, Vallabhacharya and Ramananda were closely associated with the temple.**

- It is also of particular significance to the followers of GaudiyaVaishnavism, whose founder, ChaitanyaMahaprabhu, was attracted to the deity, Jagannath, and lived in Puri for many years.
- The Jagannath Temple in Puri was called the "White Pagoda".
- The temple is a part of Char Dham (others Badrinath, Dwaraka, Puri, Rameswaram).
- The idol of Jagannatha is made of wood which is ceremoniously replaced in every twelve or nineteen years by using sacred trees.
- During its annual RathaYatra or Chariot festival, in which the three principal deities (Jagannath, Balabhadra and Subhadra) are pulled on huge and elaborately decorated temple cars.

## Kumaraswami Kamaraj

### Context

- Prime Minister NarendraModi has paid homage to K. Kamaraj on his birth anniversary.

### About

- KumaraswamiKamaraj was an Indian independence activist and politician.
- He served as the Chief Minister of Madras State (Tamil Nadu) from 1954 to 1963.
- He was the founder and the president of the Indian National Congress (Organisation).
- He was widely acknowledged as the "Kingmaker" in Indian politics during the 1960s.
- He also served as the president of the Indian National Congress for two terms.
- As the president of the INC, he was instrumental in steering the party after the death of Jawaharlal Nehru.

### Kamraj Plan

- In 1963 he suggested to Nehru that senior Congress leaders should resign from ministerial posts to take up organisational work.
- This suggestion came to be known as the Kamaraj Plan, which was designed primarily to dispel from the minds of Congressmen the lure of power, creating in its place a dedicated attachment to the objectives and policies of the organisation.

## Prashad Scheme

### Context

- Prime Minister, Shri NarendraModi inaugurated various development projects in Varanasi which includes Tourist Facilitation Centre under the Project "Development of Varanasi Under PRASHAD Scheme – Phase II"

### About

- The 'National Mission on Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive' (PRASHAD) is a Central Sector Scheme fully financed by the Government of India.
- It was launched by the Ministry of Tourism in the year 2014-15 with the objective of integrated development of identified pilgrimage and heritage destinations.
- Aim: Infrastructure development such as entry points, area Lighting with renewable sources of energy, parking, drinking water, toilets, waiting rooms, first aid centers, rain shelters, Telecom facilities, internet connectivity etc.

### Cities Identified Under PRASAD Scheme

1. Amritsar (Punjab).
2. Kedarnath (Uttarakhand).
3. Mathura (Uttar Pradesh).
4. Ajmer (Rajasthan).
5. Varanasi (Uttar Pradesh).
6. Gaya (Bihar).
7. Kamakhya (Assam).
8. Dwaraka (Gujarat).
9. Puri (Odisha).
10. Amaravati (Andhra Pradesh).
11. Kanchipuram(Tamil Nadu).
12. Velankanni (Tamil Nadu).

## Tipu Sultan

### Context

- Tipu Sultan is at the centre of controversy in the Brihanmumbai Municipal Corporation over attempts to name a garden after him in Govandi, a suburb in Eastern Mumbai.

### About

- Tipu Sultan was the ruler of the Kingdom of Mysore based in South India.
- He introduced a number of administrative innovations during his rule, including a new coinage system and calendar and a new land revenue system which initiated the growth of the Mysore silk industry.
- He expanded the iron-cased Mysorean rockets and commissioned the military manual Fathul Mujahidin.

- He deployed the rockets against advances of British forces and their allies during the Anglo-Mysore Wars, including the **Battle of Pollilur and Siege of Seringapatam**.
- Tipu's conflicts with his neighbours included the Maratha-Mysore War which ended with the signing of the **Treaty of Gajendragad**.
- In the Third Anglo-Mysore War, he was forced into the **Treaty of Seringapatam**, losing a number of previously conquered territories, including Malabar and Mangalore.
- He sent emissaries to foreign states, including the **Ottoman Empire, Afghanistan, and France**, in an attempt to rally opposition to the British.
- In the Fourth Anglo-Mysore War, a combined force of British East India Company troops supported by the Marathas & the Nizam of Hyderabad defeated Tipu.

## Kadambini Ganguly

### Context

- On 18 July 2021, Google celebrated Ganguly's 160th birthday with a doodle on its homepage in India.

### About

- Kadambini Ganguly (1861 – 1923) was one of the first Indian female doctors who practiced with a degree in Western medicine, alongside other pioneering women such as Anandibai Joshi.
- Ganguly was the first woman to gain admission to Calcutta Medical College in 1884, subsequently trained in Scotland, and established a successful medical practice in India.
- Kadambini became the first woman to pass the University of Calcutta entrance examination.
- It was partly in recognition of her efforts that Bethune College first introduced FA (First Arts), and then graduation courses in 1883.
- She and Chandramukhi Basu became the first graduates from Bethune College, and in the process became the first female graduates in the country and in the entire British Empire.

## Historic Urban Landscape Project

### Context

- In Madhya Pradesh, Gwalior and Orchha cities have been selected by UNESCO under '**Historic Urban Landscape Project**', which was started in the year 2011, for the inclusive and well-planned development of fast-growing historical cities while preserving the culture and heritage.

### About

- UNESCO's '**Historic Urban Landscape**' project for Gwalior and Orchha cities of the state was launched through video conferencing.
- Six cities of South Asia, including Ajmer and Varanasi in India are already involved in this project.
- Orchha and Gwalior have been included as the 7th and 8th cities.
- The cities will be **jointly developed by UNESCO, Government of India and Madhya Pradesh by focusing on their historical and cultural improvement**.

### Significance

- This project will help MP tourism get a new dimension. Additional employment opportunities will also be created along with the development of tourism.
- By implementing the plan being made by UNESCO, full care of the culture, history, nature, traditions and heritage of the cities will be taken in the sustainable development of the cities.

The Historic Urban Landscape approach moves beyond the preservation of the physical environment and focuses on the entire human environment with all of its tangible and intangible qualities. It seeks to increase the sustainability of planning and design interventions by taking into account the existing built environment, intangible heritage, cultural diversity, socio-economic and environmental factors along with local community values.

## Chandra Shekhar Azad

### Context

- Prime Minister, Shri Narendra Modi has paid tributes to Chandra Shekhar Azad on his Jayanti.

### About

- Chandra Shekhar Azad was an Indian revolutionary **who reorganised the Hindustan Republican Association (HRA) under its new name of Hindustan Socialist Republican Association (HSRA)**.
- **Political Ideology:** Liberalism, Socialism, and Anarchism



- HRA was a revolutionary organization established in 1924 by Sachindranath Sanyal, Narendra Mohan Sen and Pratul Ganguly. It was an offshoot of Anushilan Samiti. **Members:** Bhagat Singh, Chandra Shekhar Azad, Sukhdev, Ram Prasad Bismil, Roshan Singh, Ashfaqulla Khan, Rajendra Lahiri.
- HSRA was established in 1928 at Feroz Shah Kotla in New Delhi by Chandra Shekhar Azad, Ashfaqulla Khan, Bhagat Singh, Sukhdev Thapar and Jogesh Chandra Chatterjee.

- In December 1921, Mahatma Gandhi launched the **non-cooperation movement**. Azad **took part in the movement** and he was arrested by the British. When Azad was produced before a judge, he gave his name as "Azad" which means "free" in Urdu.
- He was involved in
  - Kakori Train Robbery of 1925,
  - the shooting of J. P. Saunders at Lahore in 1928 to avenge the killing of Lala Lajpat Rai, and,
  - attempt to blow up the Viceroy of India's train in 1929.
- He used to fondly recite a Hindustani couplet, his only poetic composition: 'Dushmankigolionka hum saamnakarenge. Azad hi rahein hain, azad hi rahenge'

## Chaurasi Koshi Parikrama Marg

### Context

- The central government last week decided to declare the "84 kosparikramamarg" around Ayodhya a national highway.

### About

- Road Transport and Highways Ministry has issued Draft Notification declaring 'Chaurasi Koshi Parikrama Marg' as National Highway in the state of Uttar Pradesh.
- All three parikramas in Ayodhya — the 15 km, 42 km, and about 275 km parikramas — are linked to Lord Ram.
- The Baal Kand of the Valmiki Ramayana mentions that Ayodhya was earlier known as Koshaldesh, initially spread over 48 kos, and was later expanded to 84 kos.
- The 84 kosparikrama is a circumambulation of Koshaldesh, touching all important places associated with the kingdom of Ram.
- The 14 kosparikrama is for the main Ayodhya city of that time, and the 5 kosparikramacircumambulates the inner circle within which the heart of Ram's kingdom was located.

## Amargarh Fort

### Context

- Leaders of the Meena community have accused local Hindu outfits of allegedly trying to tamper with tribal culture and appropriate tribal symbols at Amargarh fort.

### Details

- Members of the Meena community say the Amargarh Fort was built by a Meena ruler predating Rajput rule in Jaipur, and has been their holy site for centuries.
- Inside the fort, there are several deities worshipped by the Meena community such as Amba Devi, Bhairuji and Shiv Parivar.
- The Meenas are classified as a Scheduled Tribe in Rajasthan.
- The present form of the Amargarh Fort was given in the 18th century by Maharaja Sawai Jai Singh II, founder of Jaipur.
- It has always been believed that there was some construction at the place before Jai Singh II built the fort.

## Bhumi Panduga

### Context

- The Koya tribes say this is the last time they are celebrating the 'Bhumi Panduga' festival in their ancestral villages in the close vicinity of the Polavaram irrigation project as they are evacuees now and the government is preparing to shift them to the rehabilitation colonies.

### About

- These are celebrations marking the beginning of farm operations every year.
- For men, hunting is mandatory as part of the festival.
- The catch is distributed among all the families in the hamlet equally during a feast every evening.

### Koya Tribe

- Koya are an Indian tribal community found in the states of **Telangana, Andhra Pradesh, Chhattisgarh and Odisha**.
- The Koyas speak the Koya language, which is a Dravidian language related to Gondi.

## Rudraksha

### Context

- Prime Minister Narendra Modi inaugurates **an international cooperation and convention centre**, also known as 'Rudraksha', in Varanasi built with Japanese assistance.

### About

- As many as 108 Rudraksha have been installed at this convention centre and its roof is shaped like a Shiva Linga.
- The objective of the project is to provide opportunities for social and cultural interactions between people at the international convention centre.
- It is ideal for holding international conferences, exhibitions and music concerts and other events and the gallery is done up with murals depicting Varanasi's art, culture and music.
- It will be an environment-friendly building, accredited by Green Rating for Integrated Habitat Assessment (GRIHA).



### GRIHA

- Green Rating for Integrated Habitat Assessment (GRIHA) Council is an independent, not-for-profit society jointly setup by The Energy and Resources Institute (TERI) and the Ministry of New and Renewable Energy (MNRE), Government of India to promote and administer green buildings in India.
- GRIHA was adopted as the National Rating System for Green Buildings in India by MNRE in 2007.
- It seeks to minimise resource consumption, waste generation and overall ecological/environmental impact of buildings and habitat. GRIHA works on the underlying principle of "What gets measured gets managed".

## GEOGRAPHY

### Laacher See volcano

#### Context

- The Laacher See volcano erupted 126 years earlier than previously assumed, 13,077 years ago.
- This new dating provides decisive insights into climate fluctuations at the end of the last ice age.

#### About

- Laacher See, is a volcanic caldera lake with a diameter of 2 km in Rhineland-Palatinate, Germany.
- It is in the Eifel mountain range, and is part of the East Eifel volcanic field within the larger Volcanic Eifel.

### Global Cryosphere

#### Context

- The global cryosphere shrank by about 87,000 square kilometers per year on average, between 1979 and 2016 as a result of climate change.

#### About

- The cryosphere is an all-encompassing term for those portions of Earth's surface where water is in solid form, including sea ice, lake ice, river ice, snow cover, glaciers, ice caps, ice sheets, and frozen ground (which includes permafrost).
- The cryosphere plays a significant role in the global climate and in climate model response to global changes.
- The term deglaciation describes the retreat of cryospheric features.
- The cryosphere holds almost **three-quarters of Earth's fresh water**, and in some mountainous regions, dwindling glaciers threaten drinking water supplies.

### Last Ice Area

#### Context

- Arctic's 'Last Ice Area' shows earlier-than-expected melt.

#### About

- Part of the Arctic is nicknamed the "Last Ice Area," because floating sea ice there is usually so thick that it's likely to withstand global warming for decades.
- It's called the Last Ice Area for a reason. It was kind of stable.
- So, scientists were shocked last summer when there was suddenly enough open water for a ship to pass through.
- While scientists have said most of the Arctic could be free of summer sea ice by mid-century, the Last Ice Area was not part of that equation.
- The main cause for the sudden ice loss was extraordinary strong winds that pushed the ice out the region and down the coast of Greenland.
- In the past, thicker Wandel Sea ice would have resisted the strong winds, but in 2020 it was thinner and "more easily broken up and pushed out.
- Another part of the Last Ice Area, off Canada's Ellesmere Island, had open waters after the July 2020 collapse of part of the Milne ice shelf.



**Note:** The Arctic region covers parts of eight countries: Canada, Greenland, Iceland, Norway, Sweden, Finland, Russia, and the United States.



## Haiti

### Context

- Haiti's security forces were locked in a fierce gun battle with assailants who assassinated President Jovenel Moïse at his home.

### About

- Haiti is a country located on the island of Hispaniola in the Greater Antilles archipelago of the Caribbean Sea.
- It lies to the east of Cuba and Jamaica and south of The Bahamas and the Turks and Caicos Islands.
- It occupies the western three-eighths of the Hispaniola island which it shares with the Dominican Republic.
- To its south-west lies the small island of Navassa Island, which is claimed by Haiti but is disputed as a United States territory under federal administration.
- Capital:** Port-au-Prince.
- The island was originally inhabited by the indigenous Taíno people, who originated in South America.



## Volcanic Lightning

### Context

- Japan's most active volcanoes, Sakurajima often dazzles with spectacular displays of volcanic lightning set against an ash-filled sky.

### About

- Volcanic lightning is an electrical discharge caused by a volcanic eruption, rather than from an ordinary thunderstorm.
- Volcanic lightning arises from colliding, fragmenting particles of volcanic ash (and sometimes ice), which generate static electricity within the volcanic plume, leading to the name dirty thunderstorm.

## Naitwar Mori Hydro Electric Project

### Context

- The Naitwar Mori Hydro Electric Project has been completed.

### About

- Naitwar Mori Hydro Electric Project is located on the Tons River in Mori, Uttarkashi district of Uttarakhand.
- The Tons River is a major tributary of the Yamuna River in the Ganga basin
- It has the potential to generate 265.5 million units of electricity every year.
- The State of Uttarakhand will get 12% free Power as a Royalty.

## Snowball Earth

### Context

- Scientists at the University of Southampton have discovered that changes in Earth's orbit may have allowed complex life to emerge and thrive during "Snowball Earth".

### About



- The “Snowball Earth” glaciations were a series of ice ages sometime earlier than 650 Mya (million years ago) during the Cryogenian period and Neoproterozoic era of geologic time.
- During these ice ages the entire surface of the planet froze over, all the way from the poles to the equator.
- The most recent snowball episode triggered the evolution of multicellularity.
- **Note:** Scientists have recorded five significant ice ages throughout the Earth’s history: the Huronian (2.4-2.1 billion years ago), Cryogenian (850-635 million years ago), Andean-Saharan (460-430 mya), Karoo (360-260 mya) and Quaternary (2.6 mya-present).
- The Huronian glaciation, triggered the first appearance of oxygen in the atmosphere, the **“Great Oxidation Event”**.

## CaboDelago

### Context

- The European Union has approved a Military Training Mission in Mozambique to support armed forces there to protect the civilian population.
- It aims to train and support the military in restoring security to northern Cabo Delgado, which has been plagued by extreme violence amid Jihadist attacks since 2017.

### Mozambique

- Mozambique borders Tanzania, Malawi, Zambia, Zimbabwe, South Africa, and Eswatini.
- Its long Indian Ocean coastline of 2,500 kilometers faces east to Madagascar.
- The country is divided into two topographical regions by the Zambezi River.
- The country has four notable lakes: Lake Niassa (or Malawi), Lake Chiuta, Lake Cahora Bassa and Lake Shirwa, all in the north.
- Mozambique is rich in natural resources, is biologically and culturally diverse, and has a tropical climate.



### CaboDelago

- Cabo Delgado is the northernmost province of Mozambique.
- Apart from bordering Tanzania, it borders the provinces of Nampula and Niassa.
- The region is an ethnic stronghold of the **Makonde tribe**, with the Makua and Mwani as leading ethnic minorities.

## Kongu Nadu

### Context

- BJP sparked a debate after it made a mention of Kongu Nadu, which is the name for a region that lies in the western part of Tamil Nadu.

### About

- Kongu Nadu is neither a specific administrative or political unit within Tamil Nadu but **a notional area lying in the western part of the state**.
- The name ‘Kongu’ is derived from the Kongu Vellala Gounders, who are an OBC community that is concentrated in these districts.
- Tamil Nadu government says that “the name Kongu Nadu draws its origin from the term ‘Kongu’, meaning nectar or honey” and that the history of this region “dates back to the eighth century”.
- It says that the districts and taluks that comprised Kongu Nadu include Palani, Karur, Dharapuram, Thiruchengodu, Erode, Pollachi, Nammakkal, Salem, Dharmapuri, Nilgiris, Avinashi, Satyamangalam, Coimbatore and Udumalpet.

## Kaman AmaSetu

### Context

- On the occasion of Eid-ul-Zuha and as a gesture for promoting Peace, Harmony & Compassion in the true spirit of the festival, India and Pakistan Armies held a Flag meeting and exchanged sweets at Kaman AmaSetu, Uri & Tithwal Crossing on Kishanganga River in Tangdhar area of north Kashmir’s Kupwara district.

### About

- Kaman amansetu is located **at Uri in North Kashmir**.
- Kaman AmaSetu - Friendship Bridge between India and Pakistan, is also the last point of the India-Pak border in the Uri district.

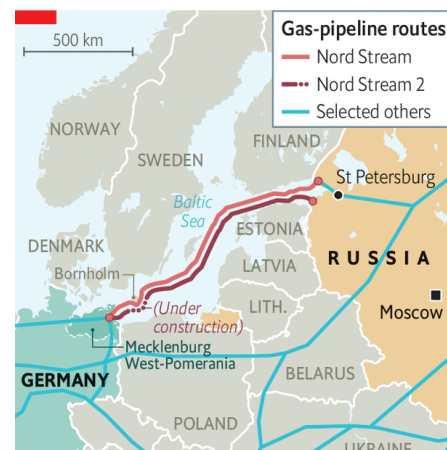
## Nord Stream 2 pipeline

### Context

- The US, which had previously imposed sanctions to prevent the completion of a major new gas pipeline between Russia and Germany, has now signalled its approval for the project.

### About

- In 2015, the Russian energy major Gazprom and five other European firms decided to build **Nord Stream 2, pipeline**. The 1,200-km pipeline **will run from Ust-Luga in Russia to Greifswald in Germany through the Baltic Sea**.
- It will carry 55 billion cubic metres of gas per year.



## Sohra

### Context

- The Union Home Minister Shri Amit Shah, on the second day of his Meghalaya visit, launched the Green Sohra Afforestation Campaign at Sohra (Cherrapunji).

### About

- Cherrapunji or Sohra is a subdivisional town in Meghalaya.
- It **sits on a plateau in the southern part of the Khasi Hills**.
- It is the traditional **capital of kahima Sohra (Khasi tribal kingdom)**.
- Sohra has often been credited as being **the wettest place on Earth**, but for now nearby Mawsynram currently holds that distinction.
- It still holds the all-time record for the most rainfall in a calendar month and in a year, however.
- Despite abundant rainfall, Sohra faces an acute water shortage.
- Soils on the plateau are poor owing to deforestation and washout caused by heavy rainfall.
- There are some interesting living root bridges in villages near Sohra like the **Umshiang root bridge, Mawsaw root bridge, Ritymmenroot bridge and the Double Decker root bridge**.
- Sohra has a **mild subtropical highland climate (Köppen Cwb)**, with monsoonal influences typical of India.

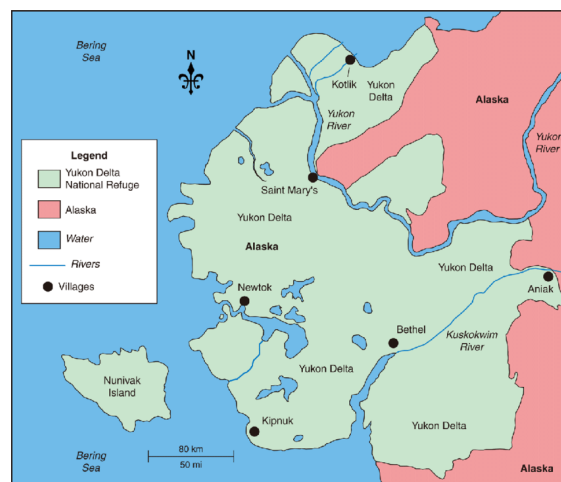
## Yukon Delta

### Context

- A stunning visualization of Alaska's Yukon Delta shows a land in transition as more northern parts of the Arctic are becoming greener.

### About

- The Yukon-Kuskokwim Delta is a river delta located where the Yukon and Kuskokwim rivers empty into the **Bering Sea on the west coast of the U.S. state of Alaska**.
- The delta, which consists mostly of tundra, is **protected as part of the Yukon Delta National Wildlife Refuge**.
- The delta has approximately 25,000 residents. 85% of these are Alaska Natives: Yupik and Athabaskan people.



## Kuthiran Tunnel

### Context

- Union Minister for Road Transport and Highways instructed to open one side of the 1.6-km-long Kuthiran Tunnel in Kerala.

### About

- This is the first **road tunnel in the state and will drastically improve connectivity to Tamil Nadu and Karnataka**.
- The **1.6-km-long tunnel** is designed **through Peechi-Vazhani Wildlife Sanctuary**.
- The road will improve connectivity to important ports and towns in North-South Corridor without endangering wildlife.

## Yarlung-Lamang Road

### Context

- Border Roads Organisation (BRO) has restored connectivity at Yarlung-Lamang road in Arunachal Pradesh.

### About

- The road under **Project Brahmaputra of BRO** was inaugurated on June 17, 2021. The strategically important road is crucial for the Armed Forces personnel posted in forward areas as well as the villages.

## Bagram airbase

### Context

- The last US and Nato forces have left Afghanistan's Bagram airbase.

### Details

- It was the **largest U.S. military base in Afghanistan**. It is located next to the ancient city of Bagram.
- It was the centre of the war against militants for some 20 years. This was informed by the US officials.
- Bagram is at the junction of the Ghorband and Panjshir Valley, near today's city of Charikar, Afghanistan.



## Cyclone and Global Warming

### Context

- The intensity of severe cyclonic storms in the North Indian Ocean region has shown an increasing trend in the past four decades, says a recent study by Indian Scientists.

### Findings

- The increasing intensity of severe cyclonic storms with major socioeconomic implications was due to atmospheric parameters like
  - higher relative humidity,
  - weak vertical wind shear as well as
  - warm sea surface temperature (SST).
  - suppressed outgoing longwave radiation (OLR)
- The above factors exhibited comparable contributions towards cyclogenesis during both El Niño and La Niña phases.
- This indicates the role of global warming in bringing about this increasing trend.
- The study reported an **increased amount of water vapor content in the troposphere, and during the past 38 years** at 1.93 times as compared to the base year 1979.
- During the past two decades (2000-2020), the **La Niña years experienced almost double the number of intense cyclones compared to the El Niño years.**

## Monk Fruit

### Context

- The 'monk fruit' from China, was introduced for field trials in Himachal Pradesh by the Palampur-based Council of Scientific Research and Industrial Technology-Institute of Himalayan Bio-resource Technology (CSIR-IHBT) in Kullu.

### About

- The monk fruit, is known now throughout the world for its intensely sweet taste, and it has been used as **a non-caloric natural sweetener**.
- The sweet taste of monk fruit results primarily from the content of a group of cucurbitane-type triterpene glycosides known as **mogrosides**.
- Extracted mixture of mogrosides is about **300 times sweeter than sucrose or cane sugar**.
- The purified mogroside, has been **approved as a high-intensity sweetening agent in Japan**.
- The non-caloric sweet taste extract is a generally recognized as safe (GRAS) non-nutritive sweetener, flavour enhancer, and food ingredient in the USA.
- The demand for monk fruit is gradually increasing in the international market.
- In spite of high demand, **this crop is cultivated only in China**.
- However, suitable agro-climatic conditions are available in India, particularly in Himachal Pradesh.
- Monk fruit grows in a perennial crop having a life span ranging between four to five years. It shows slow seed germination.



## Mishri variety of Cherries

### Context

- The first commercial shipment of Mishri variety of cherries from Kashmir valley has been exported to Dubai.

### About

- Mishri variety of Cherries contain vitamins, minerals, and plant compounds with health benefits.

### Cherries

- The union territory of **Jammu and Kashmir produces more than 95 per cent of the total country's production of commercial varieties of cherries in the country**.
- It produces four varieties of cherry – Double, Makhmali, Mishri, and Italy.



## Taal Volcano

### Context

- Recently, the Philippines increased the alert level on Taal Volcano to level 3 on a five-level scale after a Phreatomagmatic Eruption (PE) occurred that generated a dark grayish plume, one kilometer high.

### About

- Taal Volcano is the second most active volcano in the Philippines, with 33 recorded historical eruptions.
- The Volcano is a large caldera filled by Taal Lake on Luzon Island in the Philippines (Batanga Province).
- Taal is classified as a "complex" volcano.
- A complex volcano, also called a compound volcano, is the one that consists of two or more vents (points of eruption). Examples - Vesuvius, besides Taal.
- Taal has 47 craters and 4 maars.
- Maars are volcanic craters caused by an eruption occurring when old groundwater is in contact with hot rock or magma.

### The Macolod Corridor

- Taal is a part of the **Macolod Corridor** - a 40-kilometer-wide zone of active volcanic activity in Luzon.

### Why is Philippines prone to volcanoes?

- There are 53 active volcanoes in the Philippines.
- The Philippines lies between the Pacific and Eurasian Plates and this makes it highly vulnerable to typhoons, floods, landslides, volcanic eruptions and earthquakes.
- Philippines lies in the Pacific Ring of Fire.



## GS-II POLITY

## Appointment of Governor

### Context

- Eight states are appointed with new Governors.

### Constitutional Provision Related to Governor

Office of Governor	<ul style="list-style-type: none"> <li>Nominal executive head of the state.</li> <li>Not a part of union executive and is an independent constitutional office.</li> <li>Doesn't serve the Union government and neither is subordinate to it.</li> </ul>
Appointment	<ul style="list-style-type: none"> <li>Indian President appoints Governor for each state by warrant under his hand and seal.</li> <li>no direct or indirect election</li> <li>Based on Canadian Model</li> </ul>
Term of Office	<ul style="list-style-type: none"> <li>No Fixed term: holds the office under the pleasure of the President.</li> <li>President can remove the Governor</li> <li>The grounds upon which he may be removed are not laid down in the constitution.</li> <li>An interregnum is not allowed: There shall always be a governor.</li> </ul>
Constitutional Positions	<ul style="list-style-type: none"> <li>Article 154: There shall always be a governor.</li> <li>Article 163: He will be aided and advised by the Chief Minister and Council of Ministers, unless he is performing a function at his own discretion.</li> </ul>

## Recusal of Judges

### Context

- Justice Chanda has recused himself from hearing the petition filed in the Calcutta High Court by West Bengal Chief Minister Mamata Banerjee challenging the Assembly poll result in Nandigram but imposed a fine of Rs 5 lakh on her.

### About Judges Recusal

- Judges recusal is the act of abstaining from participation in an official action such as a legal proceeding due to a conflict of interest of the presiding court official or administrative officer.

### General Grounds for Recusal

- Interest in the subject matter, or relationship with someone

### Recusal of Judges in Past SC cases:

#### INSTANCE OF RECUSAL OF SC JUDGES

<b>March 8, 2016:</b> Justice J Chelameswar recused from a case pertaining to Bangalore blasts accused Abdul Nazir Maudany	in Babri Masjid case
<b>March 9, 2016:</b> Justice AR Dave's bench said it was unable to hear activist Teesta's anticipatory bail plea and referred it to CJI for listing it before another bench	<b>April 28, 2011:</b> Justices DK Jain and HL Dattu recused from hearing then Sikkim HC Chief Justice PD Dinakaran's petition seeking a stay on Rajya Sabha-appointed inquiry panel against him
<b>March 10, 2016:</b> Justice VG Gowda recused from hearing CBI's plea challenging May 2010 Allahabad HC verdict dropping criminal conspiracy charge against BJP leaders LK Advani	<b>March 2, 2012:</b> Bench of justices HL Dattu and CK Prasad chose not to hear a petition challenging validity of the USD 8.5 million Cairn Energy-Vedanta deal.

who is interested in it.

- Background or experience, such as the judge's prior work as a lawyer.
- Personal knowledge about the parties or the facts of the case.
- Ex parte communications with lawyers or non-lawyers.
- Rulings, comments or conduct.
- No person should be a judge in her own cause.
- In some cases, prejudice is presumed.

#### Reasons behind Recusal

- Free from disabling conflicts of interest
- To dispense justice fairly and fearlessly
- Deliver justice, "without fear or favour, affection or ill-will".
- It underpins twin pillars of independence and impartiality.

## Cabinet Committee

#### Context

- After a large scale rejig of his Council of Ministers, Prime Minister effected some changes in Cabinet committees to reflect the changes with the inclusion of new and elevation of certain older Ministers

#### Constitutionality of the Cabinet Committees

- With the creation of a bicameral Parliament consisting of several representatives of the people, it was deemed desirable that the Cabinet should delegate the overall responsibility regarding detailed parliamentary matters to a small standing committee of the Cabinet, specialising in this task.
- They are extra-constitutional in emergence. In other words, they are not mentioned in the Constitution. However, the **Rules of Business provide for their establishment.**
- They are of two types—**standing and ad hoc.**
- The former are of a permanent nature while the latter are of a temporary nature.

#### Working of the Cabinet Committees

- The ad hoc committees are constituted from time to time to deal with special problems.
- They are disbanded after their task is completed.
- They are set up by the Prime Minister according to the exigencies of the time and requirements of the situation.
- Hence, their number, nomenclature, and composition varies from time to time.
- Their membership varies from three to eight.
- They usually include only Cabinet Ministers.
- However, the non-cabinet Ministers are not debarred from their membership.
- They not only include the Ministers in charge of subjects covered by them but also include other senior Ministers.
- They are mostly headed by the Prime Minister. Sometimes other Cabinet Ministers

#### List of cabinet committees

- In 1990's there were 13 cabinet committees but now there are just 8
  - Cabinet Committee on Political Affairs
  - Cabinet Committee on Economic Affairs
  - Appointments Committee of the Cabinet
  - Cabinet Committee on Security
  - Cabinet Committee on Parliamentary Affairs
  - Cabinet Committee on Accommodation
  - Cabinet Committee on Investment and Growth
  - Cabinet Committee on Employment and Skill Development

#### Role and functions of cabinet committees

- The Political Affairs Committee deals with all policy matters pertaining to domestic and foreign affairs.
- The Economic Affairs Committee directs and coordinates governmental activities in the economic sphere.
- The Appointments Committee decides all higher level appointments in the Central
- Secretariat, Public Enterprises, Banks and Financial Institutions.
- Parliamentary Affairs Committee looks after the progress of government business in the Parliament.

## Parliamentary Sessions

#### Context

- The proceedings of both Houses of Parliament continued to remain paralysed as Opposition members staged protests over a number of issues as the monsoon session had begun.

#### Background

- The president from time to time summons each House of Parliament to meet.
- The maximum gap between two sessions of Parliament cannot be more than six months. In other words, the Parliament should meet at least twice a year.
- There are usually three sessions in a year A. The Budget Session (February to May) B.

- The Monsoon Session (July to September) C. The Winter Session (November to December).
- A 'session' of Parliament is the period spanning between the first sitting of a House and its prorogation (or dissolution in the case of the Lok Sabha).
- During a session, the **House meets everyday to transact business**.
- The period spanning between the prorogation of a House and its reassembly in a new session is called 'recess'.

#### Adjournment

- An adjournment suspends the work in a sitting for a specified time, which may be hours, days or weeks.

#### Adjournment -Sine die

- Adjournment sine die means terminating a sitting of Parliament for an indefinite period. In other words, when the House is adjourned without naming a day for reassembly, it is called adjournment sine die.
- The power to call for Adjournment sine die lies with the presiding officer.

#### Prorogation

- The presiding officer (Speaker or Chairman) declares the House adjourned sine die, when the business of a session is completed.
- Within the next few days, the President issues a notification for prorogation of the session.
- It **not only terminates a sitting but** also a session of the House.

#### Dissolution

- Only the Lok Sabha is subject to dissolution.
- As Rajya Sabha, being a permanent House, is not subject to dissolution.
- Unlike a prorogation, a dissolution ends the very life of the existing House, and a new House is constituted after general elections are held.

## GOVERNANCE

### National Disaster Management Authority

#### Context

- The Supreme Court of India pulled up the National Disaster Management Authority (NDMA), for failing in its duty to recommend ex gratia to the families of those who lost their loved ones due to COVID-19.

#### Background

- The NDMA is the apex body for disaster management in the country.
- It works under the administrative control of the Union Ministry of Home Affairs.
- The Government of India, recognising the importance of disaster management as a national priority, had set up a High Powered Committee in 1999 and a National Committee in 2001 after the Gujarat earthquake, to make recommendations on the preparation of disaster management plans and suggest effective mitigation mechanisms.
- After the Indian Ocean tsunami of 2004, the Government of India took a defining step in the legislative history of the country by enacting the Disaster Management Act, 2005.
- The Act provided for the creation of the National Disaster Management Authority (NDMA) to spearhead and implement a holistic and integrated approach to disaster management in the country.
- The NDMA consists of a chairperson (Prime Minister) and other members, not exceeding nine.

#### Aims and Objectives

- To **promote a culture of prevention, preparedness and resilience** at all levels through knowledge, innovation and education.
- To encourage **mitigation measures based on technology, traditional wisdom** and environmental sustainability.
- To **approve plans prepared by the Ministries or Departments of the Government of India** in accordance with the National Plan.
- To **mainstream disaster management into the developmental planning** process.
- To **establish institutional and techno-legal frameworks to create** an enabling regulatory environment and a compliance regime.
- To ensure an efficient mechanism for identification, assessment and monitoring of disaster risks.
- To lay down policies on disaster management.
- To **develop contemporary forecasting and early warning systems backed** by responsive and failsafe communication with information technology support.
- To **ensure efficient response and relief with a caring approach towards** the needs of the vulnerable sections of the society.
- To undertake reconstruction as an opportunity to build disaster resilient structures and habitat for ensuring safer living.
- To promote a productive and proactive partnership with the media for disaster management.

### Smart City Mission

#### Context

- Planning of smart cities needs gradual change keeping in mind the post pandemic scenarios



## Background

- The Smart Cities Mission was launched by the Hon' Prime Minister on 25 June, 2015.
- The main objective of the Mission is to **promote cities that provide core infrastructure, clean and sustainable environment and give a decent quality of life** to their citizens through the application of 'smart solutions'.
- The Mission aims to **drive economic growth and improve quality of life through comprehensive work on social, economic, physical and institutional pillars** of the city.
- The **focus is on sustainable and inclusive development by creation of replicable models** which act as lighthouses to other aspiring cities.
- **100 cities have been selected to be developed as Smart Cities** through a two-stage competition.

## Various Initiatives under Smart city project

### Indian Urban Pandemic Preparedness And Response (Covid-19)

- Smart Cities Mission (SCM) is actively providing support for rapid response in COVID 19 management.
- The **Integrated Command and Control Centers (ICCC) set up under the mission in various Smart Cities including Bangalore, Pune, Agra and Vadodara to name a few have been transformed into war rooms** for real time monitoring and effective management of the pandemic using technology.
- The mission collated best practices across Smart Cities in fighting COVID 19.

### Capacity Building Framework on the National Urban Learning Platform (NULP)

- The National Urban Learning Platform is a content neutral, scalable and multi-channel platform which can be used for producing and delivering capacity through a 360 degree approach.

### CITIIS

- CITIIS (Cities Investments to Innovate Integrate and Sustain) Challenge was launched in partnership with Agence Française de Développement (AFD) and European Union, **to extend a loan of EUR 100 million for implementation of upto 15 innovative projects selected through an All-India Challenge in four sectors sustainable mobility, public open spaces, urban governance & ICT and social and organizational innovation in low-income settlements.**

### Climate Smart Cities

- Climate SMART Cities Assessment Framework was launched for the 100 Smart cities in order **to incentivize a holistic, climate responsive development.**
- This is a first-of-its-kind **Assessment Framework for cities, aimed at creating a green mind-set in cities** while they plan and undertake various developmental projects.

## Tele-Law programme

### Context

- Tele-Law programme crosses the 9 lakh beneficiaries mark.

### About tele-law Programme

- a portal called 'Tele-Law' will be launched, which will be available across the Common Service Centre (CSC) network.
- This will connect the citizens to legal service providers with the help of technology enabled platforms.
- 'Tele-Law' will enable people to seek legal advice from lawyers through video conferencing available at the Common Service Centres (CSC).
- Additionally, law school clinics, District Legal Service Authorities, voluntary service providers and Non-Government Organisations working on legal aid and empowerment can also be connected through the CSCs anywhere and anytime.
- The National Legal Services Authority (NALSA) will provide a panel of lawyers from State capitals, who will be available through video conferencing to provide legal advice and counselling to the applicants.
- A robust monitoring and evaluation system is also being designed which will help in assessing the quality of legal advice provided and the ensuing benefit to those accessing it.

Tele-law service to be covered by 50,000 CSCs across 28 States and 6 Union Territories of India, through video conferencing/Chat/Telephone.

Preferably women para legal volunteers to be identified and empowered. They would be engaged in CSCs for enabling access to legal aid for rural citizens.

Tele-law model will facilitate legal advices through expert panel of lawyers placed at CSCs and Legal Service Authorities.

### Benefits

- Tele-Law will fulfill our commitment to ensure access to justice & empowerment of the poor.
- The Common Services Centers and Para Legal Volunteers will offer easy legal advice to litigants in rural India making them digitally and financially inclusive.
- Women Para legal volunteer (PLV)s will be encouraged and trained under the Scheme. One thousand women PLVs will work for mainstreaming legal aid services through the CSCs. The aim is to promote women entrepreneurship and empowerment and ensure women participation.
- It has the potential to foster inclusive justice delivery and strengthening rule of law.

## Central Information Commissioner

### Context

- The Supreme Court directed the Central government to place on record the latest information on the appointment of Information Commissioners, vacancies and pendency of cases in the Central Information Commission (CIC).

### Allegations on the government

- “party acolytes” and bureaucrats have been shortlisted and appointed to the CIC in an opaque manner.
- the dissent note was not put on record.
- more than 300 people had applied for Information Commissioner posts. But, the appointed person hasn't even applied for the post.
- pendency of the cases in the CIC has grown to 36000. The RTI Act is being destroyed.

### Court guideline on appointment

- Court had directed in 2019 that the criteria for selection should be formulated and made public.
- the appointment process should be transparent and has to be put in the public domain.

### About Central Information Commissioner

Members	headed by the Chief Information Commissioner and not more than ten Information Commissioners
Tenure	Shall hold office for such term as prescribed by the Central Government or until they attain the age of 65 years
Appointment	By the President on the recommendation of a committee consisting of the Prime Minister as Chairperson, the Leader of Opposition in the Lok Sabha, and a Union Cabinet Minister nominated by the Prime Minister
Reappointment	Not eligible
Functions	<ul style="list-style-type: none"> <li>Order enquiry into any matter on reasonable grounds only (suo-moto power).</li> <li>Secure compliance of its decision</li> <li>power to examine any record under the control of the public authority.</li> <li>Has the power of civil court to summon any authority</li> </ul>

## Pradhan Mantri Awas Yojana

### Context

- According to ICRA, funding of the program may stall the progress of the program.

### About Housing for all

- The mission started in 2015 and will be attained in seven years i.e., during 2015 – 2022.
- Pradhan Mantri Awas Yojna will bring a 'Pucca house' for every family in urban cities with water connection, toilet facilities, 24x7 electricity supply and complete access.

### Objective

- Affordable homes with water connection, toilet facilities, 24x7 electricity supply and complete access.
- 2 crore houses to be built across nation's length and breadth
- Targeting the Lower Income Groups (LIG) and Economically Weaker Section of our society (EWS), basically the urban poor by the year 2022.
- 2 million non-slum urban poor households are proposed to be covered under the Mission.

### Implementation

- will work by providing central assistance to Urban Local Bodies (ULBs) as well as other employed agencies through States/UTs for:
- Building onsite Rehabilitation of the existing slum- inhabitants by commencing private participation for using poor land area as a resource.
- By providing Credit Linked Subsidy
- Initiating Affordable Housing in Partnership
- Granting Subsidy to the beneficiary for individual house construction/enhancement.

## National Ayush mission

### Context

- The Union Cabinet has approved the **continuation of the National Ayush Mission for another five years till 2026.**

### About National Ayush Mission

- Department of AYUSH, Ministry of Health and Family Welfare, Government of India has launched National AYUSH Mission (NAM) during 12th Plan for implementing through States/UTs.

### Objectives

- To provide cost effective AYUSH Services, with a universal access through upgrading AYUSH Hospitals and Dispensaries, co-location of AYUSH facilities at Primary Health Centres (PHCs), Community Health Centres (CHCs) and District Hospitals (DHs).
- To strengthen institutional capacity at the state level through upgrading AYUSH educational institutions, State Govt. ASU & H Pharmacies, Drug Testing Laboratories and ASU & H enforcement mechanism.

- Support cultivation of medicinal plants by adopting Good Agricultural Practices (GAPs) so as to provide sustained supply of quality raw-materials and support certification mechanism for quality standards, Good Agricultural/Collection/Storage Practices.
- Support setting up of clusters through convergence of cultivation, warehousing, value addition and marketing and development of infrastructure for entrepreneurs.

#### Vision of the Mission

- To provide cost effective and equitable AYUSH health care throughout the country by improving access to the services.
- To revitalize and strengthen the AYUSH systems making them as prominent medical streams in addressing the health care of the society.
- To improve educational institutions capable of imparting quality AYUSH education
- To promote the adoption of Quality standards of AYUSH drugs and making available the sustained supply of AYUSH raw-materials.

#### Mandatory Components

- AYUSH Services
- AYUSH Educational Institutions
- Quality Control of ASU &H Drugs
- Medicinal Plants

#### Expected Outcomes

- Improvement in AYUSH education through enhanced number of AYUSH Educational Institutions upgraded.
- Better access to AYUSH services through increased number of AYUSH Hospital and Dispensaries coverage, availability of drugs and manpower.
- Sustained availability of quality raw-materials for AYUSH Systems of Medicine.
- Improved availability of quality ASU & drugs through increase in the number of quality Pharmacies and Drug Laboratories and enforcement mechanism of ASU & drugs.

## National Human Rights Commission

#### Context

- The **National Human Rights Commission (NHRC) committee** formed to investigate complaints of post-poll violence in West Bengal has recommended that cases of heinous crimes be transferred to the Central Bureau of Investigation (CBI).

#### About NHRC

- It was established in 1993 under a legislation enacted by the Parliament, namely, the Protection of Human Rights Act, 1993.
- It is a statutory body.
- NHRC is a multi-member body, which consists of a Chairman and seven other members. Out of the seven members, three are ex-officio member.
- President appoints the Chairman and members of NHRC on recommendation of high-powered committee headed by Prime Minister.
- The Chairperson and the members of the NHRC are appointed for 5 years or until the age of 70 years, whichever is earlier.

## Mid-Day Meal Scheme

#### Context

- A study on the inter-generational benefits of the midday meal scheme published in Nature Communications.

#### Finding of the Report

- By 2016, the prevalence of stunting was significantly lower in areas where the scheme was implemented in 2005.
- The scheme was associated with 13-32% of the improvement in the height-for-age z-scores in India between 2006 and 2016.
- Girls who had access to free lunches provided at government schools had children with a higher height-to-age ratio than those who did not.
- The study noted that interventions to improve maternal height and education must be implemented years before those girls and young women become mothers.
- The linkages between midday meals and lower stunting in the next generation were stronger in the lower socio-economic strata and likely work through women's education, fertility, and the use of health services

#### Evolution of the Scheme

- The concept of mid-day meal scheme is not new in India as its roots can be traced back to pre pre-independence era when British administration initiated a Mid Day Meal Programme for disadvantaged children in Madras Municipal Corporation in 1925.
- Like this many such programmes were initiated in different states.
- In 1953, the Government of Uttar Pradesh started another such scheme.
- Tamil Nadu became the first state in India to introduce a noon meal programme in primary schools.
- In 1984 this scheme was introduced in Gujarat.
- From time to time the meal scheme was taken up by different states and later on it was taken up as a national scheme.
- The Government of India launched the National Programme of Nutritional Support to Primary Education (Commonly known



as Mid-Day Meal Scheme) in 1995 to provide mid-day meals to the children studying at primary stage.

- In 2002, the Supreme Court directed the Government to provide cooked Mid-Day Meals in all Government and Government aided primary schools.
- It was revised in 2004 and 2006 respectively.
- It is the world's largest school meal programme and reaches an estimated 11 crore children across 12 lakh schools in India.

#### Objectives of Mid-Day meal scheme

- Improving the nutritional status of children in classes I – VIII in Government, Local Body and Government aided schools, and Education Guarantee Scheme (EGS) and
- Alternative and Innovative Education (AIE) centers, National Child Labour Project (NCLP) Schools and Madarasa and Maqtabas supported under SarvaShikshaAbhiyan (SSA).
- Encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities.
- Providing nutritional support to children of the elementary stage in drought-affected areas during summer vacation.
- To enhance the enrollment of children in schools.
- To develop the tendency to stay in schools in the children especially during interval and to reduce the drop-out rate.
- To foster the feeling of brotherhood and to develop a positive outlook through co-eating and combined food preparation for the children belonging to different religions and castes.

## Modernisation of Police

### Context

- Recently, government has explained on the modernization of the police force in the parliament.

### About Modernisation of Police

- Modernization of police forces is a continuous and ongoing process.
- 'Police' and 'Public Order' are State subjects under the seventh Schedule to the Constitution of India.
- However, **the Government of India supplements the efforts of the State Governments towards equipping and modernizing of their police forces**, under the centrally sponsored scheme of 'Assistance to States for Modernisation of Police'
- Under this scheme, State Governments are provided central assistance for modernisation of State police forces.

### Implementation of Scheme

- Under this scheme, the States have been provided central assistance for acquisition of advanced weaponry such as INSAS Rifles & AK series rifles; all types of intelligence equipment including Unmanned Aerial Vehicles (UAVs), Night Vision Devices (NVDs), **CCTV Surveillance system & body worn camera systems; modern communication** equipment and state-of-the-art equipment for security / training / forensics / cybercrime / traffic policing.
- Further, **'construction' and 'purchase of operational vehicles' are permitted in the insurgency affected north-eastern States and Left Wing Extremism (LWE) affected districts.** The State Governments are free to include proposals in accordance with their strategic priorities and requirements.
- For the **States which utilize their funds timely, the scheme has unique mechanism** to provide more funds based on their efficiency in timely utilization of funds, in the form of 'better performance incentives'.

### Success of the Scheme

- **Significant technical developments have taken place in the State Police Forces** though they are at different levels of modernization as per their requirements and resources.
- The **major technological developments reported are that of Police forces shifting from analog to digital technology in communication, upgradation of forensic lab equipments** and more lethal weaponry. Body worn cameras and UAVs/drones are being increasingly used by the Police Forces.
- In the field of **investigation, various new technologies are being adopted such as Automatic Finger Print Identification System (AFIS), 3D Crime Scene Scanner etc.**

### Challenges

- However, at present, most of the State Governments have substantial unspent balances out of funds released during earlier years.
- There are capacity constraints at the end of some State Police Directorates in utilizing funds. which are released out of pooled amount of the funds unreleased due to non-furnishing of Utilization Certificates by other States .

### Census 2021

- Due to outbreak of Covid-19, the Census activities have been postponed.

### Census drive

- It will have two phases:
  - 'Population enumeration' phase
  - House Listing and Housing Census
- 'Population enumeration' phase:
  - It will be carried out from February 9 to 28, 2021.
  - It will have the facility of online self-enumeration for the public.
  - Respondent could register online and fill in the details and share the reference number with the enumerators when they arrive.

- o It will not be available in the first phase.
- House Listing and Housing Census
  - o It is to be carried out from April 1 to September 30 this year.
  - o The National Population Register (NPR) will also be updated simultaneously in the first phase.
  - o The information asked would be whether the respondent has access to LPG/PNG connection.
  - o If the person owns a radio, transistor or television has access to the Internet; whether they own a laptop, computer, telephone, mobile phone, among other things.
- 2021 would be the first-ever Census to be conducted with a mixed mode approach
  - o A mobile app (created in-house by the RGI office)
  - o Will have the facility for online self-enumeration for the public during the population enumeration phase.

#### About Census

- The Indian census is the largest administrative and statistical exercise in the world, with more than 30 lakh functionaries and at the cost of about 8700 crore rupees.
- Confidentiality of data is guaranteed by Census Act, 1948.
- **Same law specifies penalty for BOTH public AND census officials** for non-compliance or violation of any provision of the Act.
- The **decennial Census of India has been conducted 15 times as of 2011.**
- It has **been undertaken every 10 years, beginning in 1872 under British Viceroy Lord Mayo**, the first complete census was taken in 1881.

## Official language

#### Context

- There have been demands from time to time for inclusion of Khasi in the Eighth Schedule to the Constitution.

#### Constitutional Provisions

- The Constitutional provisions relating to the Eighth Schedule occur in article 344(1) and 351 of the Constitution.
- **Article 344(1) provides for the constitution of a Commission by the President on expiration of five years from the commencement of the Constitution** and thereafter at the expiration of ten years from such commencement, which shall consist of a Chairman and such other members representing the **different languages specified in the Eighth Schedule to make recommendations to the President for the progressive use of Hindi for official purposes of the Union.**

#### Present status on inclusion of languages in the Eighth Schedule

- As the **evolution of dialects and languages is dynamic, influenced by socioeco-political developments, it is difficult** to fix any criterion for languages, whether to distinguish them from dialects, or for inclusion in the Eighth Schedule to the Constitution of India.
- Thus, **both attempts, through the Pahwa (1996) and Sitakant Mohapatra (2003) Committees to evolve such fixed criteria have not borne fruit.**

#### List of languages in the Eighth Schedule

- The Eighth Schedule to the Constitution consists of the following 22 languages:-
- **Assamese, (2) Bengali, (3) Gujarati, (4) Hindi, (5) Kannada, (6) Kashmiri, (7) Konkani, (8) Malayalam, (9) Manipuri, (10) Marathi, (11) Nepali, (12) Oriya, (13) Punjabi, (14) Sanskrit, (15) Sindhi, (16) Tamil, (17) Telugu, (18) Urdu (19) Bodo, (20) Santhali, (21) Maithili and (22) Dogri.**
- Of these **languages, 14 were initially included in the Constitution. Sindhi language** was added in 1967.
- Thereafter three more languages viz., Konkani, Manipuri and Nepali were included in 1992. Subsequently Bodo, Dogri, Maithili and Santhali were added in 2004.

## Digital Panchayat

#### Context

- The Government has been implementing eGramSwaraj under e-Panchayat Mission Mode Project, as a part of Digital India Program, in the country to revamp the functioning of Panchayats.

#### About E- Panchayat

- The e-Panchayat project holds great promise for the rural masses as it aims to transform the Panchayati Raj Institutions (PRIs) into symbols of modernity, transparency and efficiency.
- This is a one of its kind nationwide IT initiative introduced by Ministry of Panchayati Raj that endeavours to ensure people's participation in programme decision making, implementation and delivery.
- The project aims to automate the functioning of the 2.45 lakh Panchayats in the country.
- The project addresses all aspects of Panchayats' functioning including Planning, Monitoring, Implementation, Budgeting, Accounting, Social Audit and delivery of citizen services like issue of certificates, licenses etc.

#### Objectives

- Automation of internal workflow processes of Panchayats
- Improving delivery of services to citizens
- Capacity building of Panchayat Representatives and Officials
- Social Audit

- Transparency, Accountability, Efficiency and RTI compliance of Panchayats
- Improving Governance of local self-government

#### E-Gramswaraj

- It is a user friendly web-based portal.
- eGramSwaraj aims to bring in better transparency in the decentralised planning, progress reporting and work-based accounting.

#### Benefits of it

- **Monitoring and recording all the work via Gram Swaraj Portal/App** will help speed-up the implementation of projects in village areas.
- As it **will contain the details of ongoing development works and the fund allocated** for the projects, one can access and know about the groundwork.
- All the **details related to PanchayatSachiv and Panch can be viewed on Gram Swaraj Portal**.
- The works of the Ministry of Panchayati Raj will be accessible through Gram Swaraj Portal.
- The Gram Swaraj Portal and application will provide a boost in transparency by decentralized planning of development projects, with progress reports updates and increased accountability.

## SOCIAL JUSTICE

### NIPUN Bharat

- The vision of NIPUN Bharat Mission is to create an enabling environment to ensure universal acquisition of foundational literacy and numeracy.
- It aims that every child achieves the desired learning competencies in reading, writing and numeracy by the end of Grade 3, by 2026-27.
- NIPUN Bharat will be implemented by the Department of School Education and Literacy and a five-tier implementation mechanism will be set up at the National- State- District- Block- School level in all States and UTs.
- It will be implemented under the aegis of the centrally sponsored scheme of SamagraShiksha.

### Study in India Program

#### Context

- Government has said that Study in India -Stay in India program will make India a global destination in education.

#### About Study in India Program

- The Study in India program was integrated by EdCIL (India) Limited, a mini-Ratna Category-I CPSE company based in India. It was Launched in April 2018
- the Study in India interface is a prime intermediary for students to explore, connect, and apply to various top-ranked institutions in the country.
- The **program is currently offering approximately 55,000 seats with more than 35,500 fee waivers** and 2,000 scholarships, with each scholarship valued at INR 250,000. Indian institutes provide technical expertise across a diverse range of courses, from STEM to non-STEM courses,
- It **includes programs in niche disciplines such as Ayurveda, Yoga, and Buddhist Studies**. Institutes under the initiative offer waivers from 25% to 100% tuition fee waivers.
- The **Program cater to NIRF Top 100 institutes in any category except medical institutes**, along with a NAAC accreditation of 3.26 or above and those which have been empaneled by UGC, be it government or private.
- All **institutes fulfilling these criteria, partner with Study in India, including Institutes of Eminence and Institutes of National Importance**.

### Ensuring equal access to education

#### Context

- Recently, government has highlighted steps it took to ensure equal access to education.

#### Details

- A comprehensive initiative called PMeVidya has been started which aims to unify all efforts related to digital/online/on-air education to enable multi-mode access to education.
- The initiative includes all forms of digital modes to provide wide access - DIKSHA (online), SWAYAM (online), SWAYAM PRABHA (TV), other TV Channels including use of Doordarshan and AIR Networks.
- Further, **PRAGYATA guidelines were issued to States/UTs** to facilitate continued education through various modes.
  - The guidelines **inter-alia include situations where internet connectivity is not available or available with very less bandwidth, these resources are shared** through various platforms like television, radio etc that do not depend on internet.
- An Alternate Academic Calendar has been prepared for learning solutions for grade 1 to 12 for both children with and without device.



- Besides these, community radio, worksheets & textbooks supplied to residence of learners, home visits by teachers, community classes, toll free numbers, SMS based requests for audio content, localised radio content for edutainment etc have been used.

## Promotion of IT Based Education

### Context

- Recently, government has highlighted steps it took to promote the IT based education.

### Details

- A comprehensive initiative called PM eVIDYA has been initiated as part of AtmaNirbhar Bharat Abhiyaan on 17th May, 2020, which unifies all efforts related to digital/online/on-air education to enable multi-mode access to education. The initiative includes:
  - DIKSHA (one nation, one digital platform) is the nation's digital infrastructure for providing quality e-content for school education in states/UTs and QR coded Energized Textbooks for all grades are available on it.
  - One earmarked SwayamPrabha TV channel per class from 1 to 12 (one class, one channel).
  - Extensive use of Radio, Community radio and CBSE Podcast- ShikshaVani.
  - Special e-content for visually and hearing impaired developed on Digitally Accessible Information System (DAISY) and in sign language on NIOS website/ YouTube.
- In order to promote online education, UGC has notified necessary regulation, which facilitates the Universities to offer full-fledged Online Program. F
- Further, the current provisions of 20 per cent Online courses in a programme, as per provisions of UGC SWAYAM and ODL Regulations to be enhanced up to maximum 40 per cent for implementation considering "National interest during COVID-19" and also to ensure effective utilization of e-resources.
- Various digital initiatives are also undertaken by Ministry of education viz. SWAYAM ("Study Webs of Active-Learning for Young Aspiring Minds"), SWAYAM Prabha, National Digital Library (NDL), Virtual Lab, e-Yantra, NEAT (National Education Alliance for technology), FOSSEE (Free Open-Source Software for Education) etc to ensure quality education to the students.
- To improve the internet connectivity in rural areas the CSC e-Governance Services India Ltd (CSC-SPV) of MEITY has been assigned the task of providing Fibre to the Home (FTTH) connectivity to the Government Institutions, including schools.
- Central Board of Secondary Education (CBSE) has launched a 'Cyber Security Handbook' to ensure safe and healthy digital habits among students.

## Target Olympic Podium Scheme (TOPS)

### Context

- Olympics are undergoing in the country.

### About the Scheme

- In order to improve India's performance at Olympics and Paralympics, the Ministry of Youth Affairs and Sports started the Target Olympic Podium Scheme (TOPS) in September 2014.
- This was revamped in April 2018 to have a technical support team for managing the TOPS athletes and providing holistic support.
- The scheme is fully functional and has been extending all requisite support to probable athletes identified for the Tokyo-2021, Paris-2024 and Los Angeles-2028 Olympic Games and Paralympic Games **including foreign training, international competition, equipment and coaching camp besides monthly stipend of Rs.50,000/- for each athlete.**
- High priority **category of sports discipline has been identified to put focus** on and incentivize those sports disciplines played in the Olympics in which India has won medals in the last conducted Asian Games as well as Commonwealth Games or in which India has **good chance of winning medals in the upcoming Olympics of 2024 (Paris) and 2028 (Los Angeles).** Presently, **nine sports disciplines viz., (i) Athletics, (ii) Badminton (iii) Hockey (iv) Shooting (v) Tennis (vi) Weightlifting (vii) Wrestling, (viii) Archery and (ix) Boxing** have been categorised as 'High Priority'.
- Target Olympic Podium Scheme (TOPS), which covers the junior and sub-junior athletes also, is a dynamic exercise, **wherein review of performance is done periodically fixing targets and intermediate milestones for individual athletes; and the sportspersons who fail to achieve the targets despite providing additional support and adequate time are dropped from the scheme.**
- Further, on the basis on key performance indicators brought out by the Sports Authority of India (SAI) in collaboration with the National Sports Federations (NSFs), Coaches and other stakeholders, a periodic performance review is conducted for all athletes under the Scheme.

## NIRBHAYA Fund

### Context

- Out of an allocation Rs.6212.85 crore (including Rs. 500 crore allocated to Ministry of Women and Child Development in the year Financial Year 2021-22) till date, under Nirbhaya Fund, a sum of Rs. 4087.37 crore has been disbursed/ released .

### About the Fund

- The Government has set up a dedicated fund Nirbhaya Fund, which can be utilized for projects specifically designed to improve the safety and security of women.
- It is a non-lapsable corpus fund, being administered by Department of Economic Affairs (DEA), Ministry of Finance.
- As per the guidelines, the responsibility of Ministry of Women and Child Development (MWCD) includes
  - nodal Ministry to appraise/ recommend proposals and schemes to be funded under Nirbhaya Fund
  - to review and monitor the progress of sanctioned schemes/ projects in conjunction with the line Ministries/ Departments.

## Cyber Safety of Women and Children

### Context

- Government has highlighted steps taken for cyber safety of women and children.

### Details

- The Government has **launched the National Cyber Crime Reporting Portal ([www.cybercrime.gov.in](http://www.cybercrime.gov.in))** to enable public to report incidents pertaining to all types of cyber crimes, with a special focus on cyber-crimes against women and children.
- A **toll-free number 155260 has been operationalised to assist lodging of online cyber complaints.**
- The Government has **established Indian Cyber Crime Coordination Centre (I4C) to provide a framework and eco-system** for LEAs to deal with the cyber-crimes in a comprehensive and coordinated manner.
- the **Central Government supplements the initiatives of the State Governments through advisories** and financial assistance.
- The Central Government **also takes measures such as issuance of alerts/ advisories, capacity building/ training of law enforcement personnel/ prosecutors/ judicial officers, improving cyber forensic facilities** and spreading awareness about cybercrimes.
- The National Commission for Women (NCW), **has organised webinars and consultations with stakeholders during the year 2020-21 to sensitize them on this issue.**
- Similarly, the National Commission for Protection of Child Rights (NCPCR) has reviewed and compiled the existing literature (guidelines/handbooks) on cyber safety brought out by different Departments/ Organizations along with the legal provisions regarding online safety with the objective of providing a comprehensive overview of different aspects of cyber safety.

## Aanganwadi Services

### Context

- Government has highlighted the targets achieved through aanganwadi services.

### About the Aanganwadi services

- Aanganwadi Services (under Umbrella Integrated Child Development Services Scheme) was launched in 1975 with the objectives
  - to improve the nutritional and health status of children in the age-group 0-6 years;
  - to lay the foundation for proper psychological, physical and social development of the child;
  - to reduce the incidence of mortality, morbidity, malnutrition and school dropout;
  - to achieve effective co-ordination of policy and implementation amongst the various departments to promote child development;
  - to enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.
- All the children in the age group 6 months to 6 years, Pregnant Women and Lactating Mothers are eligible for services under Aanganwadi Services.
- Aanganwadi Services is a self selecting scheme and no targets are fixed for the beneficiaries of either Supplementary Nutrition or Pre-school non-formal education.
- As on 31.03.2021, there are 675.07 lakh children and 156.73 lakh Pregnant and Lactating Mothers receiving Supplementary Nutrition at Aanganwadi Centres.

### Efforts for Supplementary Nutritions

- In order to achieve the Aanganwadi Services objectives, a package of six services comprising
  - Supplementary nutrition;
  - Pre-school non-formal education;
  - nutrition & health education;
  - immunization;
  - health check-up;
  - referral services are provided to the targeted beneficiaries i.e. all children below 6 years, Pregnant Women and Lactating Mothers.

### About ICDS scheme

- It is a centrally sponsored Scheme implemented by States/UTs across the country.
- The responsibility for implementation of ICDS Programme including computerization if any and providing supplementary nutrition under it has and management thereof rests with States/UTs.

### Scheme was launched with the objectives

- To improve the nutritional and health status of children in the age-group 0-6 years;

- To lay the foundation for proper psychological, physical and social development of the child;
- To reduce the incidence of mortality, morbidity, malnutrition and school dropout;
- To achieve effective co-ordination of policy and implementation amongst the various departments to promote child development;
- To enhance the capability of the mother to look after the normal health and nutritional needs of the child through proper nutrition and health education.

## Ensuring Water Security

### Context

- Government has enumerated the steps taken to ensure the water security.

### Details

#### Jal Shakti Abhiyan-I (JSA-I)

- It was launched in 256 water stressed districts of the country in two phases between July to November, 2019.
- Under the Jal Shakti Abhiyan, officers, groundwater experts and scientists from the Government of India worked with State and district officials in these districts to promote water conservation and water resource management by focusing on accelerated implementation of five target interventions:
  - water conservation and rainwater harvesting,
  - renovation of traditional and other water bodies/ tanks,
  - reuse and recharge of bore wells,
  - watershed development
  - intensive afforestation.

#### Jal Shakti Abhiyan: Catch the Rain

- The focused interventions for JSA includes water conservation and rainwater harvesting, renovation of traditional and other water bodies/tanks, reuse and recharge of borewells, watershed development and intensive afforestation.

#### AtalBhujalYojana

- It is a Central Sector Scheme, with focus on community participation, demand side interventions and convergence of ongoing schemes for sustainable ground water management is being implemented from 1 April 2020 in seven States – Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Rajasthan and Uttar Pradesh.
- It is **broadly based on the success stories and verified field initiatives by non-government and civil society organizations** in community led ground water management in various parts of the country.
- Atal Jal is focused on **sustainable ground water management, mainly through strengthening of the capacity of States to manage their ground water on the one hand.**
- It also **focusses improving ground water management with community participation through** preparation of village level water security plans and convergence of various on-going schemes on the other.

### Water Talk

- The “Water Talk” is intended to create awareness, build capacities of stakeholders and to encourage people to become active participants in the conservation and saving of water.
- The “Water Talk” provides a platform wherein, among other Water Talkers (which include academicians, bureaucrats, activists, water experts), Sarpanchs and representatives of NGOs also participate and showcase the best practices in water sector in villages and cities / towns across the country.

#### HarKhetKoPani (HKKP)

- HarKhetKoPani (HKKP) component of PMKSY, Repair, Renovation and Restoration (RRR) of Water Bodies Scheme was launched which aims to revive irrigation potential by improvement and restoration of water bodies by:
  - enhancing the tank storage capacity,
  - increasing ground water recharge,
  - increased availability of drinking water,
  - improvement of catchment of tank commands etc.
- Under the Repair, Renovation and Restoration (RRR) of Water Bodies scheme, since 12th plan onwards, 2,228 schemes are ongoing.

### Other activities

- Best practices of water conservation by various entities including private persons, NGOs, PSUs etc have been compiled and put on the web site of the Ministry for the benefit of general public.
- An interactive link on best practices has also been created for receiving inputs from public, which, after necessary evaluation/validation, are put up on the website for the benefit of the public.

### Comments of Fifteenth Finance Commission

- It has earmarked 60 per cent for national priorities like drinking water supply and rainwater harvesting and sanitation, out of the total grants earmarked for Panchayati Raj Institutions (PRI).
- For fifty Million-Plus cities, two-thirds of allocation of funds under Challenge Fund of Rs. 38,196 crore is meant for meeting service level benchmarks on drinking water supply, rainwater harvesting, water recycling, solid waste management and sanitation.
- The FFC report also emphasises on sustainable and efficient water use and has suggested three ways to reduce and rationalise



water use in agriculture:

- o by replacing free or subsidised power supply for agriculture with direct benefit transfers (DBT),
- o encouraging use of new technologies such as drip, sprinkler, sensor-based irrigation to get more crop per drop, and
- o by conserving and rainwater harvesting to increase the availability of surface as well as of groundwater.
- FFC has recommended incentive-based grants to States that maintain and augment groundwater stock and maintain a check on any fall in the watertable.

## SEED

### Context

- The Department has approved a special scheme namely "Scheme for Economic Empowerment of DNT Communities (SEED)" for welfare of this community having following four components:-
  - o To provide coaching of good quality for DNT candidates to enable them to appear in competitive examinations.
  - o To provide Health Insurance to them.
  - o To facilitate livelihood initiative at community level; and
  - o To provide financial assistance for construction of houses for members of these communities.

### About Denotified Tribe

- The term 'De-notified Tribes' stands for all those communities which were once notified under the Criminal Tribes Acts, enforced by the British Raj between 1871 and 1947.
- These Acts were repealed by the Independent Indian Government in 1952, and these communities were "De-Notified".
- A few of these communities which were listed as de-notified were also nomadic.

### Status in India

- It has been estimated that South Asia has the world's largest nomadic population. In India, roughly 10 per cent of the population is Denotified and Nomadic.
- While the number of Denotified Tribes is about 150, the population of Nomadic Tribes consists of about 500 different communities.
- While the Denotified Tribes have almost settled in various States of the country, the Nomadic Communities continue to be largely nomadic in pursuit of their traditional professions.
- The Government in July 2014 had constituted National Commission for Denotified, Nomadic and Semi-Nomadic Tribes (NCDNT) for a period of three years to prepare a State-wise list of castes belonging to Denotified and Nomadic Tribes and to suggest appropriate measures in respect of Denotified and Nomadic Tribes that may be undertaken by the Central Government or the State Government.
- A Development and Welfare Board for De-notified, Nomadic and Semi-Nomadic communities has also been constituted vide gazette Notification dated 21.02.2019 for Development and Welfare of De-notified, Nomadic and Semi-Nomadic communities.

# INTERNATIONAL RELATIONS

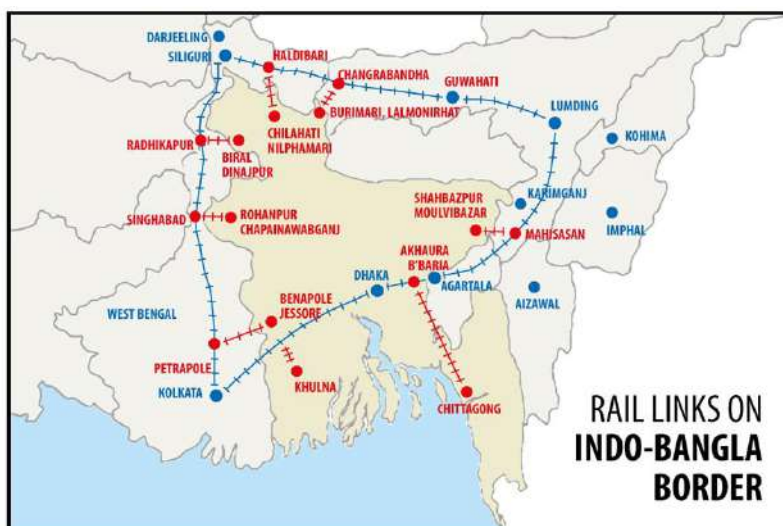
## Chilahati-Haldibari route

### Context

- First goods train on revived Chilahati-Haldibari route to left India for Bangladesh.

### More about news

- The Haldibari-Chilahati train route was opened last year for the operation of the goods train after a gap of 55 years.
- This route was **closed during the India-Pakistan war of 1965**.
- The reopened Haldibari – Chilahati line is the fifth cross-border line to be reinstated, following the:
  - Petrapole, India – Benapole, Bangladesh.
  - Gede, India – Darshana, Bangladesh.
  - Singhabad, India – Rohanpur, Bangladesh, and.
  - Radhikapur, India – Birol, Bangladesh lines.



## The SGP Agreement

### Context

- India, US sign Second Amendment to Statement of Guiding Principles on Triangular Cooperation for global development

### The SGP Agreement

- It was signed in **November 2014**.
- It underscores the contribution of India-US partnership to global stability and prosperity.
- It provides a framework for promoting cooperation between the two countries to meet the developmental aspirations of partner countries, particularly in Asia and Africa.

### The Second Amendment to the SGP Agreement

- It extends the validity of the SGP Agreement up-to 2026.
- It expands the scope of capacity building activities undertaken jointly by India and the United States under this framework.
- It also provides a consultative mechanism for joint biannual monitoring and review of activities undertaken under the SGP.
- Under the Agreement, India and US will continue to offer capacity building assistance to partner countries in multiple sectors, focusing primarily on agriculture, regional connectivity, trade and investments, nutrition, health, clean and renewable energy, and women empowerment.
- The Agreement helps fulfil the joint commitment of both nations to work together and leverage their combined capacities to provide demand-driven development partnership.

## OECD/G20 Inclusive Framework Tax Deal

### Context

- India joins OECD/G20 Inclusive Framework tax deal

### OECD/G20 Inclusive Framework on Base Erosion and Profit Shifting

- It is a solution for **addressing the tax challenges arising from the digitalisation of the economy**.
- It consists of two components-
  - Pillar One- **reallocation of additional share of profit to the market jurisdictions** and
  - Pillar Two -**minimum tax and subject to tax rules**.

### Why India joined this tax deal?

- India's has a greater share of profits in the markets
- Consideration of demand side factors in profit allocation,
- To address the issue of cross border profit shifting and
- To stop treaty shopping
- Needed a consensus solution that is simple to implement and comply.

### About OECD

- The Organisation for Economic Co-operation and Development is **an intergovernmental economic organisation** with 38 member countries.
- It was founded in 1961 **to stimulate economic progress and world trade**.
- OECD members are high-income economies with a very high Human Development Index (HDI) and are regarded as developed countries.
- India is not a member of OECD.**

### About G-20

- It is a forum for finance ministers and central bank governors from nineteen of the world's largest countries as well as the EU.
- Apart from the G7 countries, the G20 comprises **Argentina, Australia, Brazil, China, India, Indonesia, Mexico, Russia, Saudi Arabia, South Africa, South Korea, and Turkey**.
- Together, the G20 countries make up around 80% of the world's economy and two-thirds of the world's population.

## Istanbul Convention on violence against women

### Context

- Turkey's withdrawal from **Istanbul Convention on Violence Against Women** has led to protests across the country.
- Turkey has taken this step despite the **alarmingly high rates of violence and femicide in the country**.

### What is the Istanbul Convention on violence against women?

- The **Council of Europe** established the Istanbul Convention, as a human rights treaty.
- It is the **first legally-binding instrument** which "creates a comprehensive legal framework and approach to combat violence against women" and is focused on preventing domestic violence, protecting victims and prosecuting accused offenders.
- Aim:**
  - to prevent and prosecute all forms of violence against women
  - promote gender equality and
  - ensure protection and rehabilitation of women who are victims of violence.
- The treaty was opened for ratification in May 2011. From the European Union, 34 countries signed this treaty.
- India is **not a party of this convention**.
- Turkey was the first country to ratify the Istanbul convention and incorporated it into its domestic law.

### What are the reasons for Turkey's withdrawal?

- It is claimed that the convention demeans traditional family structure, promotes divorces and encourages acceptance of LGBTQ in the society.
- Government justified the move by stating that
  - Homosexuality – is incompatible with Turkey's social and family values.
  - Turkey's local laws will protect women's rights.

### How have various organisations and the international community reacted?

- **United Nations:** Turkey's withdrawal would undermine the efforts invested so far to prevent and combat violence against women. It may hinder progress towards strengthening of national legislative, policy and institutional frameworks.
- US described the move as “**disappointing**” and a “**disheartening**” step backward in the fight to end violence against women.

## BRICS Culture Ministers' Meet

### Context

- The Minister of State (I//C) for Culture and Tourism, hosted 6th BRICS Culture Ministers' Meeting through video conference.
- **Aim:** advancement and expansion of cultural activities amongst BRICS countries.
- **Theme:** Bonding and Harmonizing Cultural Synergy.

### Highlights of the meet

- It emphasized on collaborations in the field of online exchange of cultural experiences on knowledge of tangible and intangible heritage amongst BRICS countries.
- Importance of culture for establishing vibrant international humanitarian dialogue is emphasized.
- Formation of BRICS Alliance in the field of conservation, preservation and digitization of ancient manuscripts is proposed.
- Need to protect our tangible and intangible cultural heritage through mutual help and support within the BRICS framework in addition to the compliance of prevailing UNESCO Conventions.

### Declaration of the meeting

- It was agreed upon to strengthen and enhance cultural cooperation amongst BRICS Nations in the fields of museums, art galleries, theatre, libraries and promote use of modern technologies to conduct online events to overcome the adverse effects of pandemic like situations.

## India's Afghan investment

### Context

- The Taliban's possible triumph threatens not just India's diplomatic stakes in Afghanistan, but also 20 years and \$3 billion worth of Indian investment in various projects – dams, roads, trade infrastructure.

### Background

- As the Taliban push ahead with **military offensives** across Afghanistan, preparing to take over after the exit of US and NATO forces.
- India faces a situation in which it may have no role to play in that country, and in the worst case scenario, not even a diplomatic presence.
- That would be a reversal of nearly 20 years of rebuilding a relationship that goes back centuries.

### Why Afghanistan matters to India?

- Afghanistan is vital to India's strategic interests in the region.
- It is also perhaps the only SAARC nation whose people have much affection for India.
- After a break between 1996 and 2001, when India joined the world in shunning the previous Taliban regime, one way New Delhi re-established ties with the country was to pour in development assistance.

### India's development assistance

- India built vital roads, dams, electricity transmission lines and substations, schools and hospitals, etc.
- India's development assistance is now estimated to be worth well over \$3 billion.
- And unlike in other countries where India's infrastructure projects have barely got off the ground or are mired in the host nation's politics, it has delivered in Afghanistan.
- The 2011 **India-Afghanistan Strategic Partnership Agreement** recommitted Indian assistance to
  - help rebuild Afghanistan's infrastructure and institutions;
  - education and technical assistance for capacity-building in many areas;
  - encourage investment in Afghanistan; and
  - provide duty-free access to the Indian market.
- **Bilateral trade is now worth \$1 billion.**
- No part of Afghanistan today is untouched by the **400-plus projects that India** has undertaken in all 34 of Afghanistan's provinces. The fate of these projects is now up in the air.

## India's major project in Afghanistan

- **SALMA DAM:** The hydropower and irrigation project, completed against many odds and inaugurated in 2016, is known as the Afghan-India Friendship Dam. The Taliban claim the area around the dam is now under their control.



- **ZARANJ-DELARAM HIGHWAY:** Zaranj is located close to Afghanistan's border with Iran. With Pakistan denying India overland access for trade with Afghanistan, the highway provides an alternative route into landlocked Afghanistan through Iran's Chabahar port.
- **PARLIAMENT:** The Afghan Parliament in Kabul was built by India at \$90 million. A block in the building is named after former PM AB Vajpayee.
- **STOR PALACE:** In 2009, India, Afghanistan, and the Aga Khan Development Network signed a tripartite agreement for its restoration. The Aga Khan Trust for Culture completed the project between 2013 and 2016.
- **POWER INFRA:** Rebuilding of power infrastructure such as the 220kV DC transmission line from Pul-e-Khumri to the north of Kabul, to beef up electricity supply to the capital.
- **HEALTH INFRA:** India has reconstructed a children's hospital. 'Indian Medical Missions' have held free consultation camps in several areas. India has also built clinics.
- **TRANSPORTATION:** India gifted 400 buses and 200 mini-buses for urban transportation, 105 utility vehicles for municipalities, 285 military vehicles for the Afghan National Army, and 10 ambulances for public hospitals in five cities.
- **OTHER PROJECTS:** India has contributed desks and benches for schools, and built solar panels in remote villages, and Sulabh toilet blocks in Kabul.
- **ONGOING PROJECTS:** India had concluded with Afghanistan an agreement for the construction of the **Shatoot Dam** in Kabul district, which would provide safe drinking water to 2 million residents.
  - India pledged \$1 million for another **Aga Khan heritage project**, the **restoration of the Bala Hissar Fort south of Kabul**, whose origins go back to the 6th century.
  - Bala Hissar went on to become a significant Mughal fort, parts of it were rebuilt by Jahangir, and it was used as a residence by Shah Jahan.

## Organisation of Islamic Cooperation (OIC)

### Context

- India said the Organisation of Islamic Cooperation (OIC) **should not allow** itself be "**subverted**" by Pakistan, which may prompt it to interfere in India's internal affairs.

### Why this issue aroused?

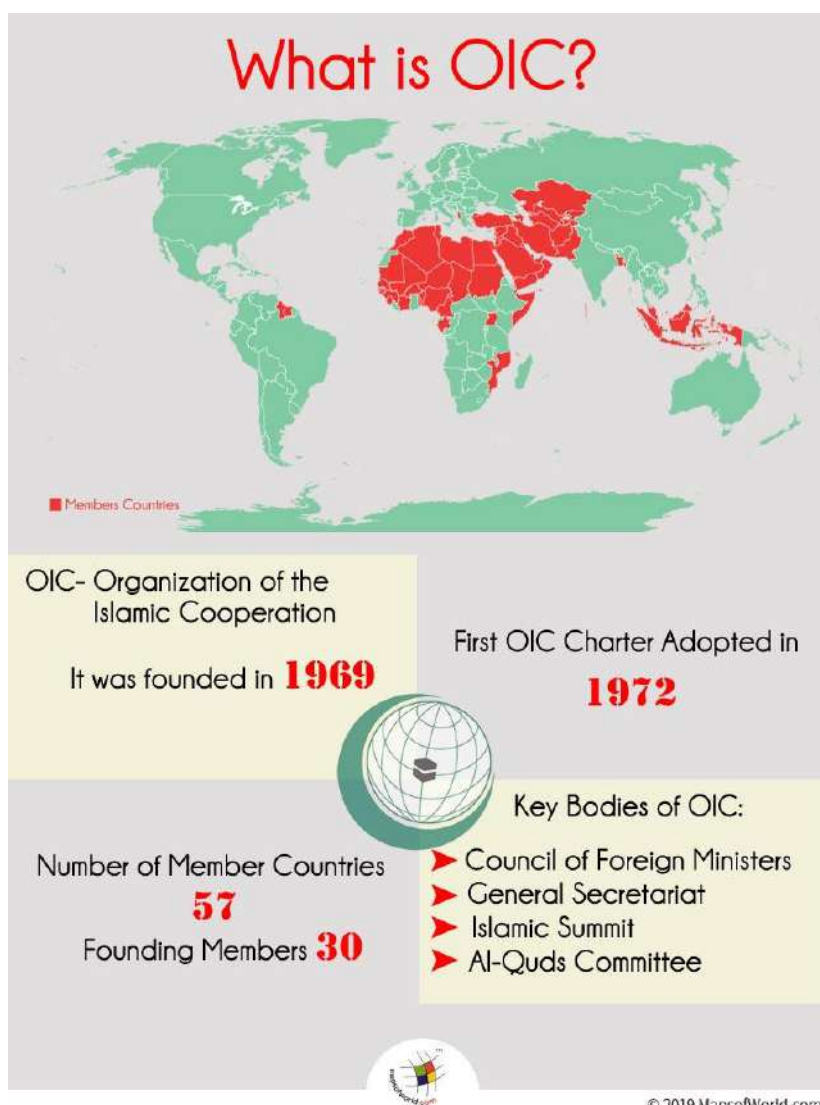
- The discussion between the two sides comes in the context of the reported back channel talks between India and Pakistan that are being assisted by the United Arab Emirates.
- The role of the UAE in moderating India-Pakistan acrimony in regional and world bodies like the OIC and the UN were also noted in the past.
- **India has reached out to various OIC members like the U.A.E., Bangladesh and the Maldives to support New Delhi's position on relevant matters.**

### About Organisation of Islamic Cooperation

- It was formerly known as the Organisation of the Islamic Conference.
- It is an international organization founded in 1969, consisting of 57 member states, with 49 countries being Muslim-majority countries.
- The organisation states that it is "**the collective voice of the Muslim world**" and works to "**safeguard and protect the interests of the Muslim world in the spirit of promoting international peace and harmony**".
- The OIC has **permanent delegations to the United Nations and the European Union**.

### India and OIC

- Islam is the **second-largest religion** in India after Hinduism, with over 200 million Muslims making up approximately 15% of the country's total population.
- India has the **largest Muslim population outside of Muslim-majority or Islamic states**.
- However, India's relationship with Pakistan, has been riddled with hostilities and armed conflict since the 1947 Partition of



India.

- The poor relationship between the two states has had a **direct impact on India-OIC relations** due to **Pakistan's status as a founding member of the organization**.
- India has pushed for the OIC to accept it as a member state, arguing that Indian Muslims comprise 11% of the world's total Muslim population; **Pakistan has staunchly opposed the entry of India into the organization**.
- Pakistan has cited its conflict with India over the **Kashmir region** as the reason for its opposition, and frequently accuses India of perpetrating widespread human rights abuses against Kashmiris in the Indian-administered territory of Jammu and Kashmir, which has witnessed an ongoing militant uprising since the 1980s.

## Nord Stream 2 pipeline

### Context

- The green signal to the Russia-Germany pipeline by U.S.
- The US, had previously imposed sanctions to prevent the completion of this gas pipeline between Russia and Germany.

### Background

- The U.S. and Germany reached a deal on the Nord Stream 2 pipeline- which significantly **increases Europe's energy dependence on Russia**.
- The agreement on one hand wants access to Russia's hydrocarbons, but on the other distrusts President Vladimir Putin, who it holds responsible for **Crimean conflict of 2014** and the alleged **interference in the US elections** of 2016 and 2020.
- The US and Germany said they were "united in their determination to hold Russia to account for its aggression and malign activities by imposing costs via sanctions and other tools."



### What is the Nord Stream 2 pipeline?

- In 2015, the Russian energy major Gazprom and five other European firms decided to build Nord Stream 2, valued at around \$11 billion.
- The 1,200-km pipeline will run from Ust-Luga in Russia to Greifswald in Germany **through the Baltic Sea**, and will carry 55 billion cubic metres of gas per year.
- The under-construction pipeline will run along with the already completed Nord Stream 1 system, and the two together will supply an aggregate of **110 billion cubic metres of gas to Germany per year**.
- The pipeline falls in the **territory of EU members Germany and Denmark**, and is about 98% complete.

### So, why is the pipeline controversial?

- Nord Stream 2 has drawn criticism from the US, which believe that the project would increase Europe's dependence on Russia for natural gas, thus emboldening its leader Vladimir Putin.
- Currently, EU countries already rely on Russia for 40 per cent of their gas needs.
- The project also has opponents in eastern Europe, especially Ukraine, whose ties with Russia have seriously deteriorated in the aftermath of the Crimean conflict in 2014.
- There is an existing land pipeline between Russia and Europe that runs through Ukraine.
- The country feels that once Nord Stream 2 is completed, Russia could bypass the Ukrainian pipeline, and deprive it of lucrative transit fees of around \$3 billion per year.
- Ukraine also fears another invasion by Russia once the new pipeline is operational.
- Russia, has dismissed these fears.
- Germany, has solidly stood behind the Nord Stream 2, despite opposition from allies, with government insisting that it is a commercially beneficial project.

### And, why has the US position changed?

- In December 2019, work on the project was **suspended due to the threat of US sanctions**.
- Many had then predicted that the punitive action could prove to be the pipeline's death knell.
- The pipeline also cast a **shadow on US-Germany relations**, US believe that it could turn Germany into a "hostage of Russia".
- The administration of Democrat Joe Biden, has decided not to kill the energy system with sanctions.
- It has instead gone with the softer option of threatening Russia with consequences should it use the pipeline to harm Ukraine or other countries in eastern Europe.

- The **US-Germany deal** lays out that if **Russia attempts to “use energy as a weapon or commit further aggressive acts against Ukraine,”** Germany will take steps on its own and push for actions at the EU, including sanctions, “to limit Russian export capabilities to Europe in the energy sector.
- The agreement also **requires Germany to “utilise all available leverage” to extend by 10 years** the current Russia-Ukraine gas transit agreement, which expires in 2024, and a contribution of at least **\$175 million to a new \$1 billion “Green Fund for Ukraine”** that aims at improving the country’s energy independence.

## Northern Ireland protocol

### Context

- Britain said that a Brexit treaty on Northern Ireland, called the **Northern Ireland Protocol**, could create problems, it might have to be abandoned if it cannot be rewritten.

### What is the Northern Ireland Protocol?

- The protocol aims to resolve one of the issues created by Brexit i.e. border between Northern Ireland, which is part of the United Kingdom, and the Republic of Ireland, which remains part of the EU.
- This frontier is contested, and parts of it were fortified during the decades of violence known as The Troubles.
- But after a peace deal in the late 1990s, those signs of division have melted away along the open border.
- No one wants checkpoints back, but as part of his Brexit plan, Britain insisted on leaving Europe’s customs union and its single market, which allows goods to flow freely across European borders without checks.
- The protocol sets out a plan to deal with this unique situation.
- It does so by effectively leaving Northern Ireland half inside the European system, and half inside the British one.

### Why doesn't Britain like it?

- The plan means **more checks on goods entering Northern Ireland** from mainland Britain, effectively creating a border down the Irish Sea and dividing the UK. Faced with all the new bureaucracy.
- This has inflamed sentiment among those in Northern Ireland who want the region to remain part of the UK.

### Why is the EU insisting on it?

- EU leaders believe that the bloc’s existential interests are being put at risk.
- For Brussels, the single market is one of its cornerstones. If that is undermined, it could threaten the building blocks of European integration.
- EU wants Britain to sign up to **Europe’s health certification rules to minimize the need for controls**. So far, many of the regulations have been waived during a “grace period,” but that is scheduled to end later this year.

### What would happen if Britain withdrew from the protocol?

- Britain says it has grounds already to deploy an emergency clause known as Article 16 that permits it to act unilaterally, effectively allowing it to suspend parts of the protocol.
- It doesn’t plan to do so for the moment, but the option remains on the table.
- If Britain does this, the European side will most likely accuse Johnson of breaking a treaty. This could lead to retaliation and even a trade war between Britain and the EU.

## OPEC+

### Context

- OPEC+ has decided to **increase overall production** by 4,00,000 barrels per day every month till the remaining portion of the group's 10 million barrel per day production cut announced in April 2020 is completely phased out.
- The final decision will provide for **increases in reference production levels for Saudi Arabia, Russia, UAE, Kuwait and Iraq**.
- OPEC (Organisation of Petroleum Exporting Countries) and its allies led by Russia have agreed to gradually withdraw Covid-related production cuts by September 2022, leading to crude oil prices falling to about \$72 per barrel.
- It also **ends a standoff between the UAE and other OPEC+ countries** on tying an extension of the supply agreement to increases in production.

### What is the background?

- The OPEC+ group of countries had in April 2020, entered into a **two-year agreement**, which entailed steep cuts in crude oil production to deal with a sharp fall in the price of crude oil as a result of the Covid-19 pandemic.
- The price of Brent crude hit an 18-year low of under \$20 per barrel in April 2020 as economic activity around the world crashed as countries dealt with the Covid-19 pandemic.
- Crude oil prices have, however, since recovered to well above the pre-Covid-19 levels leading to India and other developing countries calling for a withdrawal of production cuts.
- The current price of Brent crude is about 39 percent higher than the price of crude at the beginning of the year.
- The sharp increase in crude oil prices has contributed to petrol and diesel prices hitting all-time highs across India.

### What was the standoff between UAE and other OPEC+ countries?

- The initial proposal by OPEC+ countries had tied the gradual increase in production to a six-month extension of the production agreement, which was set to expire in April 2022.
- The **UAE did not agree to the proposal** stating that the reference production levels used to calculate supply quotas for OPEC+ countries did not represent the actual supply capacity of the UAE.



- An increase in supply should not be tied to the proposed extension without a revision in reference production levels.
- The final decision by OPEC+ on withdrawal of production cuts does include an extension of the production agreement to September 2022 but also provides for increases in reference production levels for Saudi Arabia, Russia, UAE, Kuwait and Iraq.

#### How does this impact India?

- The announcement of an increase in production levels coupled with fears of increased mobility restrictions following an increase in Covid-19 cases has led to a pause in the relentless rise of crude oil prices.
- The price of Brent crude had risen to over \$77 per barrel earlier in July over a potential deadlock in OPEC+ negotiations on production levels.
- India has already seen a 21.7 percent increase in the price of petrol and diesel since the beginning of the year.

## Mekong-Ganga Cooperation

### Context

- External Affairs Minister S. Jaishankar addressed the 11th Mekong-Ganga Cooperation meeting comprising six countries – **India, Cambodia, Myanmar, Thailand, Laos and Vietnam**
- He also called for a "collective and collaborative" response to effectively deal with coronavirus pandemic, saying the virus does not respect national boundaries.

### Mekong-Ganga Cooperation

- The MGC initiative comprising six countries – India, Cambodia, Myanmar, Thailand, Laos and Vietnam.
- It was launched in 2000 to boost cooperation in a range of areas including connectivity, tourism and culture.
- For India, the Mekong region is of great importance. India seeks multi-dimensional engagement with the Mekong countries.
- India aim to promote connectivity in the region in the broadest sense of the term including not just physical, but also digital, economic, and people-to-people connectivity.
- Mekong Ganga Cooperation stands on a strong foundation of shared geographical, historical and civilizational ties among the six countries.

## Fighting drug trafficking

### Context

- India has signed **26 bilateral pacts, 15 memoranda of understanding and two agreements on security cooperation** with different countries for combating illicit trafficking of narcotic, drugs and psychotropic substances, besides chemical precursors.
- The Narcotics Control Bureau (NCB) coordinated with various international organisations for sharing information and intelligence to combat transnational drug trafficking.
- They included the SAARC Drug Offences Monitoring Desk; Brazil, Russia, India, China and South Africa (BRICS); Colombo Plan; Association of Southeast Asian Nations (**ASEAN**); ASEAN Senior Officials on Drug Matters (**ASOD**); Bay of Bengal Initiative For Multi-Sectoral Technical and Economic Co-Operation (**BIMSTEC**); United Nations Office on Drugs and Crime (UNODC), and the International Narcotics Control Board (INCB).
- **Sharp vigil, effective surveillance, public cooperation, source-based intelligence, sensitisation of field officials and associated measures** had resulted in a gradual increase in the registration of a number of drug trafficking related cases in the country.

### NCORD system

- For coordination among various Central and State agencies, the **Narco Coordination Centre (NCORD) mechanism** was set up by the MHA in year 2016 for **effective drug law enforcement**.
- This NCORD system has been restructured into a four-tier scheme up to district level on July 29, 2019, for better coordination.

### e-portal 'SIMS'

- "For digitisation of **pan-India drug seizure data**, the MHA has launched an e-portal called '**SIMS**' (**Seizure Information Management System**) in 2019 for all the drug law enforcement agencies under the mandate of **Narcotics Drugs and Psychotropic Substances Act (NDPS)**.
- Directorate of Revenue Intelligence, the Border Security Force, Sashastra Seema Bal, Indian Coast Guard, Railway Protection Force and the National Investigation Agency has also been empowered under the NDPS Act for making drug seizures.
- In order to strengthen surveillance along the border for preventing cross-border drug smuggling, the forces were using latest gadgets and equipment.

## China-South Asia initiative

### Context

- India can join the China-led South Asian initiative for COVID-19 vaccines and poverty alleviation too if it so desires, said Bangladesh Foreign Minister

### About China-South Asia initiative

- It is a china led initiative that leads to the creation of the China-South Asian Countries Emergency Supplies Reserve, and a Poverty Alleviation and Cooperative Development Centre.
- The China-South Asian Countries Poverty Alleviation and Cooperative Development Centre was launched in China and barring India, ambassadors of Afghanistan, Pakistan, Nepal, Sri Lanka, and Bangladesh were invited to China.

- The Center aims to pool strength, integrate resources, and exchange wisdom to support and help the South Asian countries' economic development and livelihood improvement, jointly promoting the cause of poverty reduction.
- It is a minus-India initiative. China has also excluded Bhutan and Maldives.

#### India's position

- India is unlikely to consider this grouping involving China, that could be seen to **dilute its role in the SAARC region**.
- Some experts suggest that it is a **"Minus India" initiative**.
- India is the **only country of all eight SAARC nations that has not requested or accepted Chinese COVID vaccines**.

## HEALTH

### Epstein-Barr virus

#### Context

- Epstein-Barr virus was the first virus linked to human cancers more than 50 years ago.
- Scientists have since discovered other cancer-causing viruses and have developed vaccines for several, but not for Epstein-Barr.

#### About

- The Epstein-Barr virus (EBV), is one of the nine known human herpesvirus.
- EBV is a **double-stranded DNA virus**.
- It is best known as the cause of infectious mononucleosis ("mono" or "glandular fever").
- It is also associated with various non-malignant, and malignant diseases such as Burkitt lymphoma, Hodgkin's lymphoma; gastric cancer etc.
- Infection with EBV occurs by the oral transfer of saliva and genital secretions.
- **No vaccine can protect against the EBV virus**. The best way to avoid catching it is to stay away from anyone who has mono.

### National Ayush Mission

#### Context

- The Union Cabinet has approved the continuation of National AYUSH Mission (NAM).

#### About

- NAM is a Centrally Sponsored Scheme. It was launched in 2014.
- It is being implemented by Ministry of AYUSH.

#### Objectives

- To provide cost effective AYUSH Services,
- Universal access through upgrading AYUSH Hospitals and Dispensaries,
- co-location of AYUSH facilities at Primary Health Centres (PHCs), Community Health Centres (CHCs) and District Hospitals (DHs).
- setting up of new upto 50 bedded integrated AYUSH Hospital,
- AYUSH Public Health programmes and
- operationalization of 12,500 AYUSH Health and Wellness Centres.

#### Mandatory Components

- AYUSH Services
- AYUSH Educational Institutions
- Quality Control of ASU & H Drugs
- Medicinal Plants

### NEIAFMR

#### Context

- The Union Cabinet has given its approval for changing the nomenclature & mandate of North Eastern Institute of Folk Medicine (NEIFM) as North Eastern Institute of Ayurveda & Folk Medicine Research (NEIAFMR).

#### Background

- The NEIFM, Pasighat was established for systemic research, documentation and validation of traditional folk medicine and health practices of the region.
- The objectives for which the Institute was established include
- to function as an apex research centre for all aspect of Folk Medicine,
- to create an interface between traditional healers and scientific research,
- survey, documentation and validation of folk medicine practices,
- remedies and therapies for possible usage in public health care and future research etc.

#### Major Aim

- Imparting quality Education and Research in Ayurveda & Folk Medicine at Pasighat, Arunachal Pradesh.

### Impact

- The inclusion of Ayurveda within the mandate of the Institute will be highly beneficial for the people of North East region for imparting quality education and research in Ayurveda and Folk medicine.
- The institute will also provide opportunities for students of Ayurveda and Folk medicine not only in India but also the neighboring countries such as Tibet, Bhutan, Mongolia, Nepal, China and other Central Asian countries.

## COVID Vaccine Production

### Context

- World Trade Organisation Director-General Ngozi Okonjo-Iweala has said that five member states of WTO alone will account for three-quarters of the entire global output of COVID-19 vaccines this year.

### About

- Production remains highly centralised as about 75 per cent of this year's vaccines appear set to come from five WTO members – India, Germany, US, France and China.
- WTO DG said, 1.1 billion COVID vaccine doses were administered worldwide in June this year.

### Cytomegalovirus (CMV)

- Sporadic cases of cytomegalovirus (CMV) are being reported from Delhi, Pune, Bengaluru making it the latest post-covid complication.

### What is the infection?

- Cytomegalovirus infection is a common herpes virus infection which may or may not have symptoms.
- It is a **double-stranded DNA virus** which remains latent in the body.
- This virus exists in 80-90 per cent of the Indian population, but it never shows any symptoms due to inherent immunity.
- Covid, high dosage of steroids for treatment result in an immuno-compromised situation, giving this virus the opportunity to infect.

### Symptoms

- Fever and fatigue to severe symptoms involving the eyes, brain or other internal organs.
- Gastrointestinal bleeding (blood in stools), diarrhea, swollen glands, mouth ulcers, inflamed liver, and inflammation of the brain (encephalitis).

### Transmission

- CMV spreads between humans via contact with someone who has the disease. Mothers can pass to babies.
- Transmission happens through sexual contact and bodily fluids such as urine, blood, saliva, tears, and feces.
- Treatment
- There is no specific cure for CMV. Medication can suppress the virus.

## Zika Virus

### Context

- Zika virus has infected more than 60 people in Kerala.

### About

- Zika virus, which is similar to dengue fever, yellow fever and West Nile virus, is spread mostly by the bite of an infected Aedes species mosquitoes mainly Aedes aegypti. Aedes mosquitoes usually bite during the day, peaking during early morning and late afternoon or evening, according to the World Health Organization (WHO).
- **Transmission:** Zika can be transmitted through mosquito bites, from a pregnant woman to her foetus, through sexual contact and transfusion of blood and blood products, and organ transplantation.
- **Symptoms:** Fever, rash, conjunctivitis, muscle and joint pain, malaise, and headache, and usually last for two to seven days. Incubation period: 3 to 14 days, according to WHO.
- **Prevention:** There is no vaccine or medicine for Zika.
- The best way to prevent diseases spread by mosquitoes is to protect yourself and your family from mosquito bites.

## GS-III ECONOMY

## Enforcement Directorate

### Context

- Nirav's sister has transferred Rs. 17.25 cr. to govt. account.

### Organisational Setup

- The Directorate of Enforcement, **with its Headquarters at New Delhi is headed by the Director of Enforcement. There are five Regional offices at Mumbai, Chennai, Chandigarh, Kolkata and Delhi headed by Special Directors of Enforcement.**

### Functions

- Investigate contraventions of the provisions of Foreign Exchange Management Act, 1999(FEMA)



- Investigate offences of money laundering under the provisions of Prevention of Money Laundering Act, 2002(PMLA)
  - take actions of attachment and confiscation of property if the same is determined to be proceeds of crime derived from a Scheduled Offence under PMLA,
  - prosecute the persons involved in the offence of money laundering.
- Processing cases of fugitive/s from India under Fugitive Economic Offenders Act, 2018.
- Render cooperation to foreign countries in matters relating to money laundering and restitution of assets under the provisions of PMLA and to seek cooperation in such matters.

## Purchasing Managers Index

- It is an economic indicator that is **calculated from monthly surveys of purchasing managers and supply executives** from specific companies.
- PMI Manufacturing gives an **indication of the economic health of the manufacturing sector**.
- To arrive at PMI, a questionnaire seeking factual information on variables such as new orders, output, employment, supplier deliveries, inventories, new export orders and prices are sent to purchasing managers of business enterprises and they are asked if these factors are above or below the level of the previous month.
- It is **calculated separately for the manufacturing and services sectors** and then a composite index too is constructed.
- A figure **above 50 denotes an expansion while anything below 50 denotes a contraction** in activity.
- The higher the difference from this mid-point of 50, greater the expansion or contraction.
- The **value and movements in the PMI and its components can provide useful insight to business decision makers, market analysts, and investors**, and is a leading indicator of overall economic activity in India.

## Financial Stability Report

### Context

- Last week the Reserve Bank of India **released its latest Financial Stability Report (or FSR)**.

### About Financial Stability Report

- It is published twice each year.
- The FSR is one of the most crucial documents on the Indian economy as it presents an assessment of the health of the financial system.
- As part of the FSR, the RBI also conducts "stress tests" to figure out what might happen to the health of the banking system if the broader economy worsens.
- Each FSR also contains the results of something called the Systemic Risk Surveys.

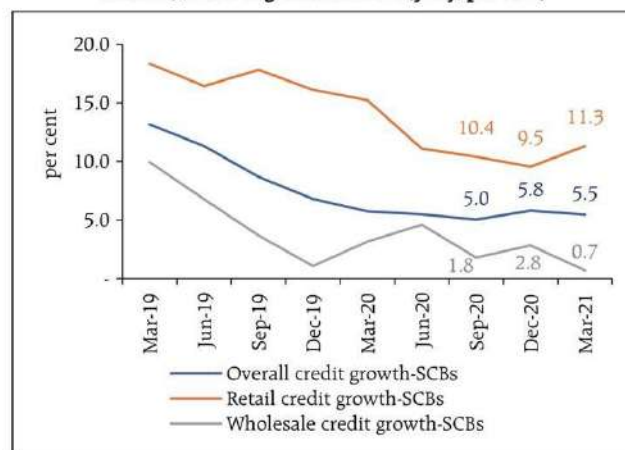
### Objective of the report

- the FSR looks at questions:
- do Indian banks (both public and private) have enough capital to run their operations?
- Are the levels of bad loans (or non-performing assets) within manageable limits?
- Are different sectors of the economy able to get credit (or new loans) for economic activity such as starting a new business or buying a new house or car?
- the FSR also allows the RBI to assess the macro-financial risks in the economy.

### Findings of the report

- the FSR has found that the actual level of bad loans as of March 2021 is just 7.5%.
- However, the FSR is quick to point out that "macro-stress tests" for credit risk show that the GNPA ratio of Scheduled Commercial Banks "may increase from 7.48 per cent in March 2021 to 9.80 per cent by March 2022 .
- relief provided by the RBI in the past year — cheap credit, moratoriums and facilities to restructure existing loans — has contained the number of Indian firms that openly defaulted on their loan repayment.
- Macro economic risks depend upon the evolution of the virus (and its impact on the economy) and decision of central banks the world over (especially the RBI) to raise interest rates (to contain rising inflation) and wind up their cheap money policy.

Chart 1.37: Credit growth in SCBs (y-o-y, per cent)



Source: RBI supervisory returns and staff calculations

Table 1: Sectors adversely affected by COVID-19 and their future prospects

Sector	(per cent of respondents)			
	Prospects of recovery in the next six months			
	Good	Moderate	No change	Bleak
Tourism and Hospitality		27.6 (29.0)	17.2 (16.1)	55.2 (54.8)
Construction and Real Estate	0.0 (5.0)	27.8 (30.0)	27.8 (35.0)	44.4 (30.0)
Aviation	0.0 (5.3)	33.3 (36.8)	11.1 (10.5)	55.6 (47.4)
Retail		62.5 (66.7)	0.0 (16.7)	37.5 (16.7)
Entertainment*		28.6	28.6	42.9

**Note:** Figures in brackets represent per cent of respondents in the previous survey round.

\* Not adjudged as one of the most affected sectors in the previous survey round.

- Providing excess regulatory relief might just help firms that don't deserve to get it because they are inherently inefficient.

## G-Secs

### Context

- Government is selling bonds to raise the money.

### About Government of India Securities (G-Sec)

- A **Government Security (G-Sec)** is a tradeable instrument issued by the Central Government or the State Governments. It acknowledges the Government's debt obligation.
- Such securities are short term (usually called treasury bills, with original maturities of less than one year) or long term (usually called Government bonds or dated securities with an original maturity of one year or more).
- In India, the Central Government issues both, treasury bills and bonds or dated securities
- The State Governments issue only bonds or dated securities, which are called the State Development Loans (SDLs).
- G-Secs carry practically no risk of default and, hence, are called risk-free gilt-edged instruments.

## Khadi Prakritik Paint

### Context

- MSME Minister becomes the brand ambassador of KhadiPrakritik Paint.

### About KhadiPrakritik Paint

- It is an eco-friendly, non-toxic paint with anti-fungal, anti-bacterial properties. Based on cow dung as its main ingredient, the paint is cost-effective and odourless, and has been certified by the Bureau of Indian Standards.
- The paint is free from heavy metals like lead, mercury, chromium, arsenic, cadmium and others.
- It will be a boost to local manufacturing and will create sustainable local employment through technology transfer.
- This technology will increase the consumption of cow dung as a raw material for eco-friendly products and will generate additional revenue to farmers and gaushalas.
- This is estimated to generate additional income of Rs 30,000 (approx.) per annum per animal to farmers/gaushalas.
- Utilization of cow dung will also clean the environment and prevent clogging of drains.

## AEO Programme

### Context

- Launch of online filing of application for Authorised Economic Operators (AEO T2 and AEO T3).

### Authorised Economic Operator (AEO) Programme:

- AEO is a programme under the aegis of the World Customs Organization (WCO) SAFE Framework of Standards to secure and facilitate Global Trade.
- The programme aims to enhance international supply chain security and facilitate movement of legitimate goods.
- AEO encompasses various players in the international supply chain.
- Under this programme, an entity engaged in international trade is approved by Customs as compliant with supply chain security standards and granted AEO status & certain benefits.
- AEO is a voluntary compliance programme.
- It enables Indian Customs to enhance and streamline cargo security through close cooperation with the principle stakeholders of the international supply chain viz. importers, exporters, logistics providers, custodians or terminal operators, custom brokers and warehouse operators.
- The programme is under the Directorate of International Customs, Central Board of Indirect Taxes & Customs (CBIC).

### Structure of the programme

- It is a three-tier programme for importers and exporters i.e. AEO-T1, AEO-T2 and AEO-T3 in the increasing degree of benefits accorded and compliance requirements.
- AEO LO certificates are also provided for entities other than importers and exporters such as warehouse operators and customs brokers.

### AEO Eligibility

- Entity should be established in India.
- Entity's business should be customs-related.
- Should have dealt with minimum 25 customs documents (either Bill of Entry or Shipping Bill) in the last fiscal year.
- Business activity should be there for last 3 financial years preceding the financial year of date of application. However, for newly established businesses, the application can be considered after due verification.
- The Indian AEO Programme was started in 2011 and currently has a membership of about 5000 AEO entities.

## Second Covid-19 Emergency Response Package

### Context

- The Union Cabinet on Thursday approved a ₹23,123 crore package to boost emergency response and healthcare systems.

### Objective of the package

- Package was aimed at preventing the problems observed during the second wave, including lack of transport facilities for

oxygen and shortage of medicines, from happening again.

- This scheme aims to accelerate health system preparedness for immediate responsiveness for early prevention, detection and management, with the focus on health infrastructure development including for paediatric care and with measurable outcomes.

#### Timeline

- The package would be implemented from July 1, 2021 to March 31, 2022.

#### Sharing of Funding

- The Centre's share being ₹15,000 crore and States' share at ₹8,123 crore.

#### Targets

- **Genome sequencing machines** would be provided to the National Centre for Disease Control.
- Would also provide for the expansion of the national telemedicine platform, eSanjeevani, by increasing daily consultations from 50,000 at present to 5 lakh.
- States **would be "supported" to carry out at least 21.5 lakh tests** a day and add 8,800 ambulances.
- The **Centre would provide support to its hospitals**, the All India Institutes of Medical Sciences, and other institutes of national importance.
- **Provide funding for paediatric units in all 736 districts**, and the setting up of 20,000 ICU beds, 20% of which would be "hybrid", that is, for adults as well as children.

## Revenue Deficit

#### Context

- The Department of Expenditure, Ministry of Finance, has released the 4th monthly installment of Post Devolution Revenue Deficit (PDRD) Grant of Rs. 9,871.00 crore to the States.

#### Post Devolution Revenue Deficit Grant:

- The **Post Devolution Revenue Deficit Grant is provided** to the States under Article 275 of the Constitution.
- The grants are released as per the recommendations of the Fifteenth Finance Commission in **monthly installments to meet the gap** in Revenue Accounts of the States post devolution.
- The Commission has recommended PDRD grants to 17 States during 2021-22.

#### About Revenue Deficit

- Revenue deficit arises **when the government's revenue expenditure exceeds the total** revenue receipts.
- This represents that the government's own earnings are not sufficient to meet the day-to-day operations of its departments.
- Revenue deficit turns into borrowings when the government spends more than what it earns and has to resort to the external borrowings.

#### About Revenue Receipts

- Revenue receipts are receipts which neither create liability nor lead to a reduction in assets.
- It is further divided into two heads:
  - Receipt from Tax (Direct Tax, Indirect Tax)
  - Receipts from Non-Tax Revenue

#### About Revenue Expenditure

- Revenue Expenditure is referred to as the expenditure that does not result in the creation of assets reduction of liabilities. It is further divided into two types
  - Plan revenue expenditure
  - Non-plan revenue expenditure

#### Meeting of Revenue deficit

- Through the borrowings or sale of existing assets, the deficit could be met from the capital receipts.
- The government can increase its non-tax or tax receipts.
- The government could try to reduce unnecessary expenditures.

#### Implications of Revenue Deficit

- The Revenue Deficit of the government has several implications, such as, it has to be met from the capital receipts, because of which a government either borrows or sells its existing assets. This brings in a reduction in assets.
- Also, to meet its consumption expenditure, since the government uses capital receipts, it leads to an inflationary situation in the economy.
- With more and more such borrowings, along with interest, the burden to repay the liability also increases which, in the future, results in huge revenue deficits.

## Forex Reserve

#### Context

- The country's foreign exchange reserves swelled by USD 1.013 billion to touch a lifetime high of USD 610.012 billion in the week ended July 2.

#### About Foreign Reserve

- In India, Foreign Exchange Reserves are the foreign assets held or controlled by the country central bank.



- The reserves are made of gold or a specific currency.
- They can also be special drawing rights and marketable securities denominated in foreign currencies like treasury bills, government bonds, corporate bonds and equities and foreign currency loans.

## MIBOR

### Context

- The Reserve Bank of India (RBI) issued an advisory to banks and other financial institutions, asking them to be prepared for the year-end transition from the London Interbank Offered Rate.
- **Banks are also encouraged to cease using the Mumbai Interbank Forward Outright Rate (Mifor)**, published by the Financial Benchmarks India Pvt Ltd (FBIL) and which references the Libor, as soon as practicable and in any event by 31 December.

### About LIBOR

- The **London Interbank Offered Rate (LIBOR)** is a **benchmark interest rate** at which major global banks lend to one another in the international interbank market for short-term loans.
- LIBOR is **administered by the Intercontinental Exchange**, which asks major global banks how much they would charge other banks for short-term loans.
- LIBOR is **being replaced by the Secured Overnight Financing Rate (SOFR)** on June 30, 2023, with phase-out of its use beginning after 2021.

### About MIBOR

- The **Mumbai InterBank Overnight Rate, or MIBOR**, is the overnight lending offered rate for Indian commercial banks.
- **MIBOR is calculated based on input from a panel of 30 banks and primary dealers.**
- MIBOR was first established in 1998, and modeled after the more famous London InterBank Overnight Rate (LIBOR).

## Inflation

### Context

- Wholesale inflation in the country reached 12.07 percent in June, slightly lower than the massive 12.94 percent inflation in May, led by the constant rise in cost of fuel, including petrol, LPG and high speed diesel percolated down into all sectors of the economy.
- India's retail inflation tapered down slightly to 6.26 per cent in the month of June 2021

### About Inflation

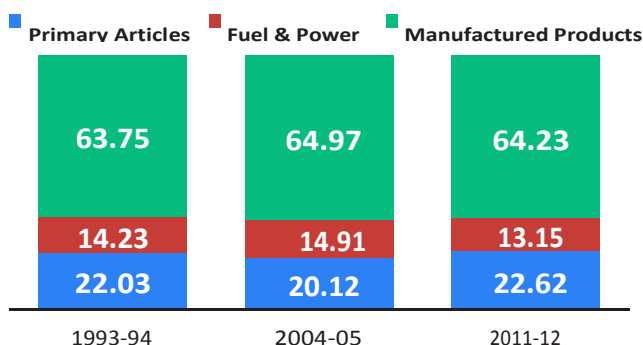
- Inflation refers to a sustained increase in the general price level of goods and services in an economy over a period of time.
- It considers the prices of most goods and services of daily or common use, such as food, clothing, housing, recreation, transport, consumer staples, etc. • Inflation measures the average price change in a basket of commodities and services over time.
- Rate of inflation is the rate of change in general price level which is measured as follows:

### About WPI

- Wholesale Price Index (WPI) measures the changes in the prices of goods sold and traded in bulk by wholesale businesses to other businesses instead of consumers.
- The index basket of the WPI includes commodities falling under the three major groups namely Primary Articles, Manufactured Products and Fuel & Power.
- The WPI basket has a total of 697 items with base year 2011-12:
  - Primary Articles: 117 items
  - Fuel & Power: 16 items
  - Manufactured Products: 564 items
- The prices tracked are mandi price for agricultural commodities, ex-factory price for manufactured products, and examines prices for minerals.
- Weightage given to each commodity covered in the WPI basket is based on the value of production adjusted for net imports.
- WPI basket does not cover services.
- In India, the Office of Economic Advisor (OEA), Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry publishes the WPI.

### The WPI is used for the following purposes

- To give the **estimates of inflation at the wholesale transaction levels for the economy as a whole. It helps in timely intervention** by the monetary authorities to check the inflation particularly in essential commodities before the price increase affects the retail prices.
- **Global investors also consider WPI** as one of the key macro indicators for investment decisions.
- The **Government reviews and revises the base year of the WPI as a regular exercise to capture structural changes occurred in the economy and improve the quality, coverage, and representativeness of the indices.**



- The **base year of All-India WPI has been changed from 2004-05 to 2011-12 in 2017 to bring it in line with** the base year of other macroeconomic indicators like Index of Industrial Production (IIP) and the Gross Domestic Product (GDP).
- The **new series with base year 2011-12=100 was based on the recommendations of the Working Group** which was constituted in 2012 under the chairmanship of Late Dr.SaumitraChaudhuri.
- WPI calculated with 2011-12 base year does not include taxes in order to remove the impact of fiscal policy.

#### About Consumer Price Index (CPI)

- Consumer Price Index (CPI) **measures the inflation at retail level.**
- Consumer Price Index (CPI) is a measure of change in retail prices of goods and services consumed by people in a given area with reference to a base year.

#### The main uses of CPI are the following

- It is widely considered as a barometer of inflation
- Tool for monitoring price stability
- The Reserve Bank of India is now using CPI(Combined) as the as the benchmark for its monetary policy tools like Repo Rate, Reverse Repo Rate.
- According to the Agreement on Monetary Policy Framework signed between the Government and the RBI in 2015 the sole objective of the RBI is price stability and the Consumer Price Index (Combined) is measured as the target inflation.
- Consumer Price Index compiled for four groups of consumers in India
  - CPI for Industrial workers CPI(IW)
  - Consumer Price Index for Urban Non-Manual Employees (UNME)
  - CPI for Agricultural Labourers CPI(AL)
  - CPI for Rural Labourers CPI(RL)

## Initial Public offer

#### Context

- Zomato IPO is coming to market for raising the funds.

#### Means of raising fund in the primary market

##### Initial Public Offer (IPO)

- Initial Public Offer is the process of offering its new securities to the public/ investor for the first time through the issue of prospectus.
- It is **issued only by the unlisted company (a company whose shares are not traded on a stock exchange).**

##### Follow on Public Offer (FPO)

- Follow on Public Offer (FPO) refers to the process where already listed company offers its securities to the public/investor to an offer for sale.
- A follow-on offering is the issuance of additional shares made by a company after an initial public offering (IPO).
- It is also called as the secondary offering.

##### Right Issue

- A listed company offers its new securities only to the existing shareholders in proportion to their existing shareholding.
- In the Right Issue, shares are issued at a discount.

##### Referential Issue

- Under this, a listed company offers its new securities only to a selected class of shareholders.

##### Bonus Issue

- **Bonus shares or issues are additional shares given to the existing** shareholders without any additional cost, in the proportion of their shareholding in lieu of distribution of dividend.

##### Private Placement

- Raising capital by selling the share to a select group of investors, or individual.
- **The advantage of the private placement is saving in marketing expenses.**
- Under this, number of investors who are issued shares cannot be more than 50.

##### Sweat Equity

- Under this, the share is allotted to top management like directors of a company at a highly discounted price in recognition of their outstanding contribution.

## Pradhan Mantri Mudra Yojana

#### Context

- Under Pradhan Mantri Mudra Yojana (PMMY) **over 11.29 crore loans amounting to Rs. 6.41 lakh crore have been disbursed across the country during FY 2019-20 and FY 2020-21**

#### About Pradhan Mantri Mudra Yojana

- The Union Government launched the Pradhan Mantri MUDRA Yojana (PMMY) **on April 8, 2015, to provide loans up to Rs. 10 lakhs to non-farm small/microenterprises and non-corporate.**
- All banks, including Public Sector Banks, Private Sector Banks, Regional Rural Banks (RRBs), State Co-operative Banks, Urban Co-operative Banks, Foreign Banks, and Non Banking Finance Companies (NBFCs)/Micro Finance Institutions (MFIs), are required to lend to non-farm sector income-generating activities with a value of less than Rs.10 lakh under the PMMY.

- These loans are categorized as MUDRA loans under PMMY.

#### Institutional Mechanism

- The government has established a new institution called MUDRA (Micro Units Growth & Refinance Agency Ltd.) to carry out the Scheme's development and refinancing activities, as well as serve as a regulator for the microfinance sector in general.
- PMMY's mission is to provide grants to small businesses that are not corporations. Loan offerings under PMMY

#### Category of Loans

- Shishu: covering loans up to Rs. 50,000/- given with no collateral, at 1% rate of interest/month repayable over a period of 5 years.
- Kishor: cover loans above Rs. 50,000/- and up to Rs. 5 lakh.
- Tarun: cover loans beyond Rs. 5 lakh to Rs. 10 lakh.

#### Approach of PMMY

- Enterprises in the smallest segment must receive at least 60% of the funding. MUDRA Bank's partner intermediaries must strive to adhere to the following general framework:
- First-time entrepreneurs, young entrepreneurs (those under 30 years old), and women entrepreneurs will be welcomed, with special schemes being planned for them.
- Cash flow-based lending would be prioritized over security-based lending. Collateral securities, among other things, must be avoided.
- Repayment commitments shall be flexible and framed in light of the entrepreneur's company cash flows.

#### About Micro Units Development Refinance Agency (MUDRA) Bank

- The Micro Units Development Refinance Agency (MUDRA) Bank is a microfinance refinancing institution. of SIDBI and renamed as MUDRA (SIDBI) Bank.
- The MUDRA Bank is primarily responsible for –
  - Developing policy guidelines for the micro/small enterprise financing industry, as well as registering and regulating MFI organizations.
  - MFI organizations are accredited and rated.
  - Establishing responsible lending policies to avoid indebtedness and to ensure proper client security principles and recovery methods.
  - Creating a standardized set of covenants for last-mile lending to micro and small businesses.
  - Promoting appropriate technological strategies for the final mile.
  - Creating and implementing a Credit Guarantee System to provide loan guarantees to micro-enterprises.
- Creating a **good architecture of Last Mile Credit Delivery to micro businesses** under the scheme of Pradhan Mantri Mudra Yojana.
- MUDRA Bank operates **through regional level financing institutions who in turn connects with last-mile lenders like Micro Finance Institutions (MFIs), Small Banks, Primary Credit Cooperative Societies, Self Help Groups (SHGs), NBFC (other than MFI) and such other lending institutions.**
- In lending, **MUDRA gives priority to enterprises set up by the under-privileged sections of the society** particularly those from the scheduled caste/tribe (SC/ST) groups, first-generation entrepreneurs and existing small businesses.

#### Strategic petroleum reserves (SPR) programme

- Under Phase I of strategic petroleum reserves (SPR) programme, Government of India, through its Special Purpose Vehicle, Indian Strategic Petroleum Reserve Limited (ISPRL), has established petroleum storage facilities with total capacity of 5.33 Million Metric Tonnes (MMT) at 3 locations, namely:
  - Vishakhapatnam (1.33 MMT),
  - Mangaluru (1.5 MMT)
  - Padur (2.5 MMT),
- all the storage facilities have been filled with crude oil.
- The petroleum reserves established under Phase I **are strategic in nature and the crude oil stored in these reserves will be used during an oil shortage event**, as and when declared so by Government of India.
- Under Phase II of the petroleum reserve programme, Government has given approval in July 2021 for establishing two additional **commercial-cum-strategic facilities with total storage capacity of 6.5 MMT underground storages at Chandikhol (4 MMT) and Padur (2.5 MMT) on PPP mode.**

## Natural Gas

#### Context

- Petroleum and Natural Gas Regulatory Board (PNGRB) has authorized approximately 33,764 Km Natural Gas Pipeline Network across the country with the aim to create a national gas grid and increase the availability of natural gas across the country.

#### Steps to Promote clean gas

- Development of City Gas Distribution (CGD) networks supports the availability and accessibility of natural gas in form of **Piped Natural Gas (PNG) to households, industrial uses and Compressed Natural Gas (CNG) for transportation uses.**
- PNGRB has **granted authorization to Indian Gas Exchange Limited to set up and operate Gas Exchange.**
- PNGRB has notified **Unified Tariff Regulations on 23.11.2020 by way of Petroleum and Natural Gas Regulatory Board**



**(Determination of Natural Gas Pipeline Tariff) Second Amendment Regulations, 2020.**

- PNGRB has allowed **any entity to establish and operate LNG Stations in any GA or anywhere else in the country** for dispensing LNG in liquid state, only to the transport sector.
- PNGRB has **notified Guiding Principles for declaring City or Local Natural Gas Distribution Networks as common carrier** or contact carrier Regulations to provide non-discriminatory open access to third party entities.

#### About PNGRB

- PNGRB was established in 2006 under Petroleum and Natural Gas Regulatory Board Act, 2006.
- Its mandate is to regulate refining, transport and marketing of petroleum products.
- It also ensures enough supply across country, foster fair trade, protect consumer interest and authorise companies that will build and operate fuel pipelines.
- The PNGRB consists of Chairperson, a Member (Legal) and three other members.
- It also has power of civil court and bench comprising member (legal) and one or more members nominated by chairperson which decides on disputes arising among downstream companies or with outsiders.

## Drug Policy of India

#### Context

- National Pharmaceutical Pricing Authority (NPPA) has fixed ceiling prices of 355 medicines and 882 formulations for medicines under National List of Essential Medicines, 2015 (Schedule-I of DPCO, 2013).

#### Objectives of Drug Policy

- As per the Modifications in Drug Policy, 1986 announced in September, 1994, the main objectives of the Drug Policy are as under :
  - ensuring abundant availability, at reasonable prices of essential and life saving and prophylactic medicines of good quality;
  - strengthening the system of quality control over drug production and promoting the rational use of drugs in the country;
  - creating an environment conducive to channelising new investment into the pharmaceutical industry with a view to encourage cost-effective production with economic sizes and introducing new technologies and new drugs; and
  - strengthening the indigenous capability for production of drugs.

#### Drugs (Prices Control) Order (DPCO)"

- The Drugs Prices Control Order, 1995 is an order issued by the Government of India under Sec. 3 of Essential Commodities Act, 1955 to regulate the prices of drugs.
- The Order inter alia provides the list of price controlled drugs, procedures for fixation of prices of drugs, method of implementation of prices fixed by Govt., penalties for contravention of provisions etc.
- For the purpose of implementing provisions of DPCO, powers of Govt. have been vested in NPPA. Later, the Drugs (Prices Control) Order (DPCO) 2013 was notified.

#### About National List of Essential medicine:

- The decision about which medicines are essential remains a national responsibility based on the country's disease burden, priority health concerns, affordability **concerns etc. Ministry of Health and Family Welfare, Government of India hence prepared and released the first National List of Essential Medicines** of India in 1996 consisting of 279 medicines.
- This list was subsequently revised in 2003 and had 354 medicines.
- Later in 2011, the list was revised and had 348 medicines.
- Till June 2018, **851 medicines (including 4 medical devices i.e. Cardiac stents, drug eluting stents, condoms and intra uterine devices) are regulated** under Revised Schedule - I based on National List of Essential Medicines, 2015 (NLEM, 2015).

#### Purpose of the National List of Essential Medicines

##### The NLEM may have multiple uses. It can:

- Guide safe and effective treatment of priority disease conditions of a population
- Promote the rational use of medicines
- Optimize the available health resources of a country It can also be a guiding document for:
  - State governments to prepare their list of essential medicines
  - Procurement and supply of medicines in the public sector
  - Reimbursement of cost of medicines by organizations to its employees
  - Reimbursement by insurance companies
  - Identifying the 'MUST KNOW' domain for the teaching and training of health care professionals

#### About NPPA

- **National Pharmaceutical Pricing Authority (NPPA), was established on 29th August 1997** as an independent body of experts as per the decision taken by the Cabinet committee in September 1994 while reviewing Drug Policy.
- The Authority, inter alia, has been entrusted **with the task of fixation/revision of prices of pharmaceutical products (bulk drugs and formulations), enforcement of provisions of the Drugs (Prices Control) Order** and monitoring of the prices of controlled and decontrolled drugs in the country.

#### Enforcement Authorities

- The National Pharmaceutical Pricing Authority, the FDA/ Drugs Controller of the State, and Drugs Inspector of the District **are the enforcing authorities** at National / State/ District Levels.

## Shell Companies

### Context

- Government has identified 2,38,223 companies as shell companies between 2018-2021.

### About Shell Companies

- There is no definition of the term "Shell Company" in the Companies Act.
- It normally refers to a company without active business operation or significant assets, which in some cases are used for illegal purpose such as tax evasion, money laundering, obscuring ownership, benami properties etc.

# AGRICULTURE

## Matsya Setu

### Context

- Govt launches mobile app 'MatsyaSetu' for aqua farmers.

### Developed by

- ICAR-Central Institute of Freshwater Aquaculture (ICAR-CIFA), Bhubaneswar, with the funding support of the National Fisheries Development Board (NFDB), Hyderabad.

### About

- The App will disseminate the latest freshwater aquaculture technologies to the country's aqua farmers.
- MatsyaSetu app has **species-wise/ subject-wise self-learning online course modules**.
- In these modules renowned aquaculture experts explain the basic concepts and practical demonstrations on breeding, seed production and grow-out culture of commercially important fishes.
- Better management practices to maintain soil and water quality, feeding and health management in aquaculture operations have also been provided in the course platform.
- Upon successful completion** of each course module, **an e-certificate can be auto-generated**.
- Farmers can also ask their doubts through the app and get specific advisories from experts.**

The National Fisheries Development Board (NFDB) was established in 2006 **as an autonomous organization** under Department of Fisheries, **Ministry of Fisheries, Animal Husbandry & Dairying**, to enhance fish production and productivity in the country and to coordinate fishery development in an integrated and holistic manner.

## Coconut Development Board (CDB)

### Context

- The government decided to **amend the Coconut Development Board Act, 1979** to make the post of chairman non-executive.

### About

- Coconut Development Board (CDB) is a **statutory body established under the Ministry of Agriculture and Farmers Welfare**.
- Its mandate is the integrated development of coconut cultivation and industry in the country with focus on productivity increase and product diversification.
- Its headquarters is located at Kochi in Kerala.
- The Board came into existence in 1981.

### Amendment

- The post of the chairman will be non-executive and there would be a CEO for executive powers.
- This is a part of its efforts to boost production and productivity in this sector.
- The board **can undertake activities outside the country also**.

## Agar

### Context

- Tripura has initiated steps to promote commercial cultivation of Agar.

### About

- Agar-agar, is a jelly-like substance **obtained from Rhodophyta (rRd algae)**.
- It forms the supporting structure in the cell walls of certain species of algae and is released on boiling.
- Agar has been used as an ingredient in desserts throughout Asia and also as a solid substrate to contain culture media for microbiological work.
- Agar can be used as a laxative, an appetite suppressant, a vegetarian substitute for gelatin, a thickener for soups, in fruit preserves, ice cream, and other desserts, as a clarifying agent in brewing, and for sizing paper and fabrics.

## Agri Stats in News

### In News

- The total contribution of agriculture and its allied sector has **increased 26.8% - from Rs 16,09,198 crore during 2013-14 to Rs**

### 20,40,079 crore during 2020-21 - in terms of value.

- The total agricultural exports have also shown continuous rise.
- The total value of the export of agricultural and allied commodities during the period 2013-14 and 2020-21 was Rs 2,62,778.52 crore and Rs 3,10,338.47 crore respectively showing an increase of 18.1 percent.

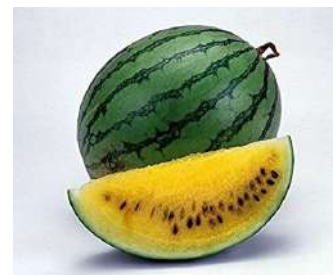
## Yellow Gold 48

### Context

- Last month, German agrochemicals major Bayer commercially launched first-ever yellow watermelon variety called "Yellow Gold 48" in India.

### About Yellow Watermelon

- Yellow watermelon has been developed from superior germplasm.
- It has dark green rind with slight stripes and orange yellow flesh colour.
- Average weight of the fruit is 2.5 -3 kg.
- Yellow Gold 48 have enhanced yield potential, better disease & pest tolerance and higher returns which can benefit watermelon growers.



## Honey Mission Program

### Context

- Under the Honey Mission programme of KVIC, it is proposed to form 8 Self Help Groups benefitting 80 beekeepers in the Bundelkhand Region in the financial year 2021-22.

### About

- The Honey Mission Programme was launched by Khadi & Village Industries Commission (KVIC), under the Ministry of MSME, during 2017-18.
- It is being implemented to promote Bee Keeping activities and provide self-sustaining employment opportunities among farmers, Adivasies and unemployed youth in rural India, especially in economically backward and remote areas.
- Under the programme, beneficiaries are provided with Bee Boxes, live bee colonies, tool kits and training.

### NBHM and SFURTI

- Under National Beekeeping & Honey Mission (NBHM) scheme under Ministry of Agriculture, scientific beekeeping is promoted for holistic growth of the sector, leading to income and employment generation, livelihood support to farm and non-farm households.
- Besides, under 'A Scheme of Fund for Regeneration of Traditional Industries' (SFURTI) implemented by the Ministry of MSME, traditional beekeepers are provided with sustainable employment by organizing them into clusters, and supporting them with new machineries and training.

## Kanjeevaram Silk Saree

### Context

- Award winning artisan weaver, B Krishnamoorthy, is creating a repository with samples of all the designs, patterns and motifs traditional to Kanjeevaram silk sari weaving, preserving fine pieces for posterity.

### About

- The Kanchipuram silk sari is a type of silk sari made in the Kanchipuram region in Tamil Nadu.
- It has been recognized as a Geographical indication by the Government of India in 2005-2006.
- The saris are woven from pure mulberry silk thread.
- Temple borders, checks, stripes and floral (buttas) are traditional designs found on Kanchipuram saris.
- The patterns and designs in the kanchipuramsaris were inspired with images and scriptures in South Indian temples or natural features like leaves, birds and animals.
- These are saris with rich woven mundhi showing paintings of Raja Ravi Varma and epics of Mahabharata and Ramayana.

## Truthful Labelled Seeds

### Context

- The Centre asked the seed industry to bring in transparency in certification of truthful labelled seeds.

### About

- It is the category of seed produced by cultivators, private seed companies and is sold under truthful labels.
- This type of seeds does not come under the purview of the Department of Seed Certification.
- Rather, field standard and seed standard should be maintained as per seed act and certified seed stage.
- Under the seed act, the seed producer and seed seller are responsible for the seed.
- Truthful labelling is compulsory for notified kind of varieties and it is tested for physical purity and germination.
- Notified Variety: After a variety has been released for a zone by the Central Sub-Committee, the Director, HYV, Ministry of Agriculture and Irrigation, notifies the concerned authorities of the states within that zone for seed multiplication and distribution of variety. This is known as notification of variety.

## Difference between certified seed and truthful labeled seed

Certified seed	Truthful labelled seed
Certification is voluntary. Quality guaranteed by certification agency.	Truthful labelling is compulsory for notified kind of varieties. Quality guaranteed by producing agency
Applicable to notified kinds only	Applicable to both notified and released varieties
It should satisfy both minimum field and seed standards	Tested for physical purity and germination
Seed certification officer, seed inspectors can take samples for inspection	Seed inspectors alone can take samples for checking the seed quality.

## Agriculture Infrastructure Fund

### Context

- The Union Cabinet gave its approval to certain modifications in Central Sector Scheme of Financing Facility under '**Agriculture Infrastructure Fund.**'

### Agriculture Infrastructure Fund

- The Agriculture Infrastructure Fund is 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 credit guarantee.
- The duration of the scheme is from FY2020 to FY2029 (10 years).
- Under the scheme, Rs. 1 Lakh Crore will be provided by banks and financial institutions as loans with interest subvention of 3% per annum and credit guarantee coverage under Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) for loans up to Rs. 2 Crores.
- Eligible beneficiaries include farmers, **FPOs, PACS, Marketing Cooperative Societies, SHGs, Joint Liability Groups (JLG), Multipurpose Cooperative Societies, Agri-entrepreneurs, Start-ups, and Central/State agency or Local Body sponsored Public-Private Partnership Projects.**

Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) is jointly set up by Ministry of Micro, Small & Medium Enterprises (MSME), Government of India and Small Industries Development Bank of India (SIDBI) to catalyse flow of institutional credit to Micro & Small Enterprises (MSEs).

### The new modifications

- Eligibility has **now been extended to** State Agencies/APMCs, National & State Federations of Cooperatives, Federations of Farmers Producers Organizations (FPOs) and Federations of Self Help Groups (SHGs).
- For APMCs, interest subvention for a loan upto Rs. 2 crore will be provided for each project of different infrastructure types e.g. cold storage, sorting, grading and assaying units, silos, etc within the same market yard.
- The power has been delegated to Minister of Agriculture & Farmers Welfare to make necessary changes with regard to addition or deletion of beneficiary in such a manner so that basic spirit of the scheme is not altered.
- The period of financial facility has been extended from 4 to 6 years upto 2025-26 and overall period of the scheme has been extended from 10 to 13 upto 2032-33.

## Bhalia Wheat

### Context

- Recently, the first shipment of Geographical Indication (GI) certified Bhalia variety of wheat was exported.

### About

- The GI certified wheat has **high protein content and is sweet in taste.**
- The crop is grown mostly across Bhal region of Gujarat which includes Ahmadabad, Anand, Kheda, Bhavanagar, Surendranagar, Bharuch districts.
- The unique characteristic of the wheat variety is that **it is grown in the rainfed condition** without irrigation.
- The Bhalia variety of wheat received GI certification in 2011.

### Significance

- In 2020-21, the **wheat exports from India witnessed a significant growth of 808 % from previous fiscal.**
- India exported the grain to seven new countries - Yemen, Indonesia, Bhutan, Philippines, Iran, Cambodia and Myanmar during 2020-21.
- This initiative is expected to give further boost to wheat exports from India.

## Pulses in India

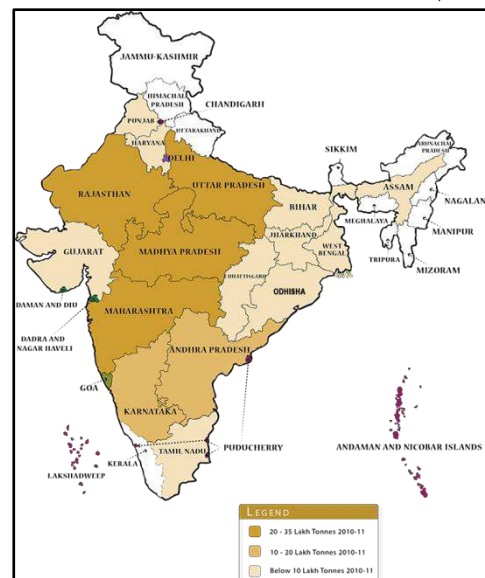
### Context

- Stock limit on Pulses



### About

- India is the **largest producer (25% of global production), consumer (27% of world consumption) and importer (14%)** of pulses in the world.
- Pulses account for around **20 per cent of the area under foodgrains** and contribute around **7-10 per cent of the total foodgrains production** in the country.
- Though pulses are grown in both Kharif and **Rabi seasons, Rabi pulses contribute more than 60 per cent of the total production.**
- Gram is the most dominant pulse** having a **share of around 40 per cent** in the total production followed by Tur/Arhar at 15 to 20 per cent and Urad/Black Matpe and Moong at around 8-10 per cent each.
- Madhya Pradesh, Maharashtra, Rajasthan, Uttar Pradesh and Karnataka are the top five pulses producing States.**
- Temperature:** Between 20-27°C
- Rainfall:** Around 25-60 cm.
- Soil Type:** Sandy-loamy soil.
- Initiatives:** National Food Security Mission for Pulses, Pulses Development Scheme and Technological Mission on Pulses.



## SCIENCE & TECHNOLOGY

### Gamma-Ray Bursts (GRBS)

#### Context

- Researchers derived the spectrum of the very-high-energy gamma-ray afterglow emission of a relatively nearby gamma-ray burst.

#### About

- Gamma-ray bursts (GRBs) are immensely energetic explosions that have been observed in distant galaxies.
- They are the brightest and most energetic electromagnetic events known to occur in the universe.
- Bursts can last from ten milliseconds to several hours.
- After an initial flash of gamma rays, a longer-lived "afterglow" is usually emitted at longer wavelengths (X-ray, ultraviolet, optical, infrared, microwave and radio)
- The intense radiation of most observed GRBs is released **during processes like creation or merging of neutron stars or black holes.**
- All observed GRBs have originated from outside the Milky Way galaxy.
- GRBs were **first detected in 1967 by the Vela satellites.**

### Starlink to provide Internet globally

#### Context

- SpaceX CEO Elon Musk said the Starlink satellite internet service will cover everywhere in the world except polar regions by August.

#### What is Starlink?

- Starlink is a **satellite internet constellation** being constructed by SpaceX providing satellite Internet access.
- The constellation will consist of **thousands of mass-produced small satellites in low Earth orbit (LEO)**, which communicate with designated ground transceivers.

#### Space X

- Space Exploration Technologies Corp. (SpaceX) is an American aerospace manufacturer, space transportation services and communications company.

### Oxyjani

#### Context

- Indian researchers have designed a robust, mobile group oxygen concentrator called Oxyjani.

#### About

- Oxyjani is based on the principles of Pressure Swing Adsorption (PSA) technology.
- The team **replaced lithium zeolites (LiX)** which is usually used in oxygen concentrators, **with sodium zeolites** which does not generate toxic solid waste and can be manufactured in India.
- The concentrator is capable of delivering a range of solutions, conversion of medical air to medical oxygen, and is an entirely off-grid solution including all modules that can facilitate deployment in rural areas.

- Moreover, the **waste from the 13X zeolite plant can be potentially a good agricultural input material.**
- The device is in the range of 30-40 litres per minute (l/min), which is potentially useful for ICU uses too.

## NHP Bhuvan Portal

### Context

- ISRO, Dr. K. Sivan also launched the NHP –Bhuvan portal of NRSC.

### About

- NHP-BhuvanPortal is a repository of information on the initiatives undertaken by NRSC under NHP with a facility to download the reports and knowledge products being developed by NRSC.
- **National Remote Sensing Centre (NRSC)**, Indian Space Research Organization (ISRO), Hyderabad is one of **the Implementing Agency under the National Hydrology Project (NHP).**
- It is carrying out hydrological studies using satellite data and geospatial techniques.

### NRSC

- NRSC under ISRO manages data from aerial and satellite sources.
- NRSC is mostly financed by State and Central Government funds but also do commercial business by selling satellite images and provide Consultancy to various government, private organisations.

### National Hydrology Project

- It was started in 2016 as a **Central Sector Scheme with 100% grant** to implementing agencies on pan India basis.
- It is an initiative of the **Ministry of Jal Shakti and is supported by the World Bank.**
- **Timeline:** 8 years from 2016-17 to 2023-24.
- **Implementing Agencies:** 49 (including 12 from Central Government and 37 from States)
- **Project Components:** Water Resources Monitoring Systems; Water Resources Information Systems; Water Resources Operations and Planning Systems and Institutional Capacity Enhancement.

## NEOWISE

### Context

- NASA's NEOWISE Asteroid-Hunting Space Telescope Gets Two-Year Mission Extension.

### About

- The NEOWISE mission uses a space telescope to hunt for asteroids and comets, including those that could pose a threat to Earth.
- Launched in 2009 as the **Wide-Field Infrared Survey Explorer, or WISE**, the space telescope was originally designed to survey the sky in infrared, detecting asteroids, stars and some of the faintest galaxies in space.
- In 2013, the telescope was taken out of hibernation and re-purposed for the NEOWISE project as an instrument to study near-Earth objects, or NEOs, as well as more distant asteroids and comets.
- During its primary mission, NEOWISE detected more than 158,000 minor planets.

## Fengyun-3E (FY-3E)

### Context

- China successfully launched a new **meteorological satellite, called Fengyun-3E(FY-3E).**

### About

- Fengyun-3E(FY-3E) is designed with a lifespan of eight years.
- It will mainly obtain the atmospheric temperature, humidity and other meteorological parameters for numerical prediction applications, improving China's weather forecast capacity.
- It will also monitor the global snow cover, sea surface temperature, natural disasters and ecology to better respond to climate change and prevent and mitigate meteorological disasters.

## Pegasus spyware

### In News

- Amnesty International, the Forensic Architecture and the Citizen Lab recently launched a database documenting attacks against human rights defenders using the spyware Pegasus.

### About

- Pegasus is spyware that can be installed on devices running some versions of IOS, Apple etc.
- It was developed by **the Israeli cyber-arms firm NSO Group.**
- Pegasus is capable of reading text messages, tracking calls, collecting passwords, mobile phone tracking, accessing the target device's microphone(s) and video camera(s), and gathering information from apps.

Read further details: <https://www.iasgyan.in/blogs/pegasus-spyware-explained>

## Palomar 5

### Context

- Astronomers discovered a Supra-Massive Black Hole Population in a “Fluffy” Star Cluster called Palomar 5 in our Galaxy.

### About

- Palomar 5 is a globular cluster discovered by Walter Baade in 1950.
- A globular cluster is a spherical collection of stars. Globular clusters are very tightly bound by gravity, giving them their spherical shapes and high concentrations of stars toward their centers.

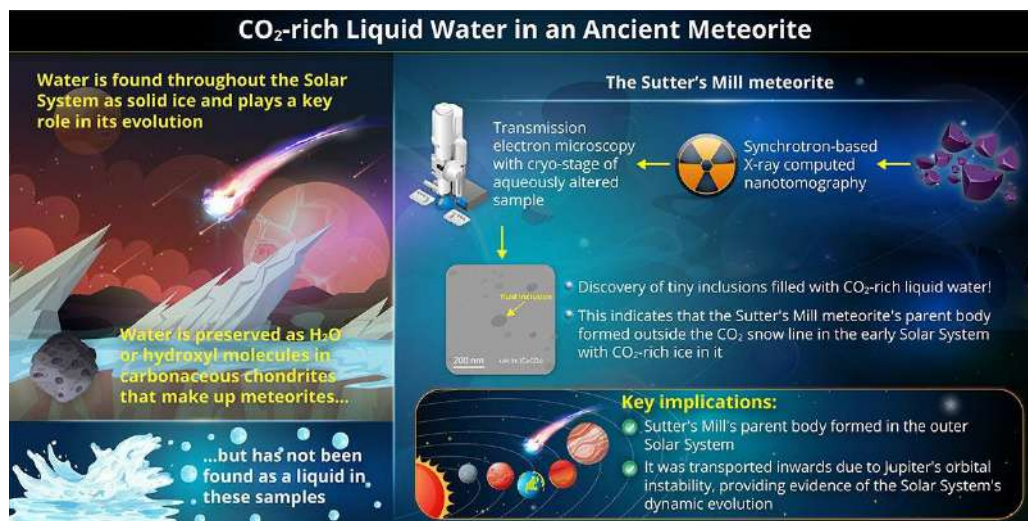
## Sutter's Mill Meteorite

### Context

- Researchers have discovered carbon dioxide-rich liquid water inside a meteorite called Sutter's Mill from an asteroid that formed 4.6 billion years ago.

### About

- This finding suggests that the meteorite's parent asteroid formed beyond Jupiter's orbit before being transported into the inner solar system.
- It further provides key evidence for the dynamics of the Solar System's formation.



## Planetary Conjunction

### Context

- Mars, Venus, Moon are set to align on July 12-13.

### About

- Conjunction is an apparent aligning, meeting or passing of two or more celestial bodies.

### Types of Conjunctions

- As seen from a planet that is superior, if an inferior planet is on the opposite side of the Sun, it is in **superior conjunction** with the Sun.
- An **inferior conjunction** occurs when the two planets lie in a line on the same side of the Sun.
- In an inferior conjunction, the superior planet is "in opposition" to the Sun as seen from the inferior planet.
- A **triple conjunction** is an astronomical event where two planets or a planet and a star meet each other three times in a short period, either in opposition or at the time of inferior conjunction, if an inferior planet is involved.
- The lining-up of three planets is a particular case of **syzygy**.



### What are Superior and Inferior Planets?

- In the Solar System, a planet is said to be inferior or interior with respect to another planet if its orbit lies inside the other planet's orbit around the Sun.
  - In this situation, the latter planet is said to be superior to the former.
  - In the reference frame of the Earth, in which the terms were originally used, the inferior planets are Mercury and Venus, while the superior planets are Mars, Jupiter, Saturn, Uranus and Neptune.
- Dwarf planets like Ceres or Pluto and most asteroids are 'superior' in the sense that they almost all orbit outside the orbit of Earth.

## ACE2

### Context

- A single change in a key viral protein may have helped the coronavirus behind COVID-19 make the jump from animals to people, setting the virus on its way to becoming the scourge it is today – Researchers.
- The mutation appears to help the virus' spike protein strongly latch onto the human version of a host protein called ACE2 that the virus uses to enter and infect cells.

## ACE 2

- Angiotensin-converting enzyme 2 (ACE2) is an enzyme attached to the membrane of cells located in the intestines, kidney, testis, gallbladder, and heart.
- ACE2 lowers blood pressure by catalyzing the hydrolysis of angiotensin II (a vasoconstrictor peptide) into angiotensin.
- ACE2 also serves as the **entry point into cells for some coronaviruses including SARS-Cov 2.**

To know about Mutation Visit: <https://www.iasgyan.in/blogs/bengal-strain-all-about-mutation>

## Baresheet 2 Project

### Context

- Israel's SpaceIL to launch Beresheet-2 moon landing project in 2024.

### About

- The original Beresheet, Hebrew for "Genesis", was a tall, 585-kilogram spacecraft built by Israel.
- It had reached the moon in April 2019, but suffered an engine failure as it prepared to land.
- Beresheet 2 (630 kgs) will be comprised of three adjacent spacecrafts - an orbiter and two landers which are expected to land at two sites on the moon for conducting scientific experiments.
- **Note:** Only Russia, the United States and China have made the 384,000-kilometre journey and landed safely on the Moon.

## Orbital Vs Suborbital Flight

### Context

- Recently, 6 people on Virgin Galactic's VSS Unity Spaceship took a trip to the edge of space known as Super-orbital Flight.

### About

- The main difference between orbital and suborbital flight is the speed at which a vehicle is traveling.
- An orbital spacecraft must achieve what is known as orbital velocity, whereas a suborbital rocket flies at a speed below that.
- Orbital velocity is the speed that an object must maintain to remain in orbit around a planet.
- To orbit 125 miles (200 kilometers) above Earth, a spacecraft must travel at 17,400 mph (28,000 km/h).
- Suborbital flight, in contrast, requires much lower speeds. A suborbital rocket doesn't have the power to achieve orbit.
- Instead, it will fly up to a certain height that depends on its speed, and then come back down once its engines are shut off.
- To reach 125 miles above Earth, a suborbital vehicle needs to fly at a relatively sedate 3,700 mph (6,000 km/h).

## Hubble Telescope

### Context

- NASA plans to fix a glitch that has stopped the Hubble space telescope from being used for science work for more than a month.

### About

- The Hubble Space Telescope was launched into low Earth orbit in 1990 and remains in operation.
- Hubble and its four main instruments observe in the ultraviolet, visible, and near-infrared regions of the electromagnetic spectrum.
- It has recorded some of the most detailed visible light images, allowing a deep view into space.
- Many Hubble observations have led to breakthroughs in astrophysics, such as determining the rate of expansion of the universe.

## NBDriver

### Context

- Researchers at the Indian Institute of Technology (IIT) Madras have developed an Artificial Intelligence-based mathematical model called NBDriver (neighbourhood driver) to identify cancer-causing alterations in cells.

### About

- In this study, the main goal was to discover patterns in the DNA sequences -- made up of four letters, or bases, A, T, G and C surrounding a particular site of alteration.
- The underlying hypothesis was that these patterns would be unique to individual types of mutations -- drivers and passengers.

### Driver Mutation

- A driver mutation is an alteration that gives a cancer cell a fundamental growth advantage for its neoplastic transformation.

### Passenger mutations

- Passenger mutations can be defined as mutations that do not directly drive cancer initiation and progression, as opposed to driver mutations, such as mutations in oncogenes, TSGs or repair genes.

To know about Mutation, Visit: <https://www.iasgyan.in/blogs/bengal-strain-all-about-mutation>

## AMLEX



### Context

- IIT Ropar has developed a first-of-its-kind Oxygen Rationing Device – AMLEX.

### About

- AMLEX is designed to increase the life of medical oxygen cylinders.
- AMLEX supplies a required volume of oxygen to the patient during inhalation and trips when the patient exhales CO<sub>2</sub>.
- This process saves oxygen which otherwise unnecessarily get wasted.

## Space Rice

### Context

- China has harvested the first batch of Space rice from seeds that went to a 23-day lunar voyage with China's Chang'e-5.
- After being exposed to cosmic radiation and zero gravity, these seeds were harvested at the space breeding research centre of the South China Agricultural University.
- The seeds are now 1 centimeter long, reports said.

### What is space rice?

- Rice seeds exposed to the environment in Space may mutate and produce higher yields once planted on Earth.
- China has been taking seeds of rice and other crops to Space since 1987.
- More than 200 Space plant varieties, including cotton and tomatoes, have been approved for planting.

## Titanium alloy

### In News

- The Defence Research and Development Organisation (DRDO) has indigenously developed a High Strength Metastable Beta Titanium Alloy that can be used in forging aerospace structures. The metal contains Vanadium, Iron and Aluminium.
- These alloys are already being used by many developed nations in recent times as a beneficial substitute for the relatively heavier traditional Nickel-Chromium-Molybdenum structural steels to achieve weight savings.
- The high strength beta titanium alloys are unique due to their higher strength, ductility, fatigue, and fracture toughness making them increasingly attractive for aircraft structural applications.

An alloy is an admixture of metals, or a metal combined with one or more other elements. For example, combining the metallic elements gold and copper produces red gold, gold and silver becomes white gold, and silver combined with copper produces sterling silver.

## I-STEM project

### Context

- I-STEM project has been accorded extension for five years, until 2026 and enters its second phase with added features.

### About

- I-STEM is a National Portal launched in 2020, which assists researchers to locate the specific facility(ies) they need for their R&D work.
- The goal of I-STEM is to strengthen the R&D ecosystem of the country by connecting researchers with resources, in part by promoting technologies and scientific equipment development indigenously.

### Key organization

- It is an initiative of Office of the Principal Scientific Adviser to the Govt. of India (PSA, GOI) under the aegis of Prime Minister Science, Technology and Innovation Advisory Council (PM-STIAC) mission.

## PDS 70

### Context

- Scientists for the first time have spotted a moon-forming region around a planet beyond our solar system.

### About

- The researchers used the ALMA observatory in Chile's Atacama desert to detect the disc of swirling material accumulating around one of two newborn planets seen orbiting a young star called PDS 70, located a relatively close 370 light years from Earth.
- The orange-colored star PDS 70, roughly the same mass as our Sun, is about 5 million years old.



## James Webb Space Telescope

### Context

- NASA is set to launch the large infrared James Webb Space Telescope (JWST).

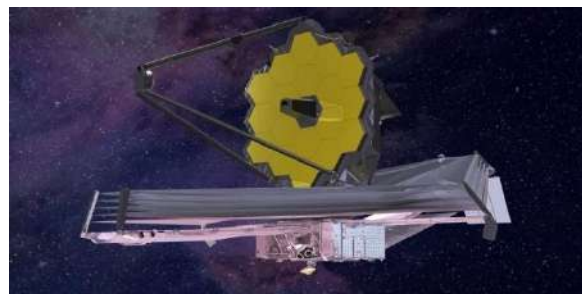
### About

- The James Webb Space Telescope is a joint NASA-ESA-CSA space telescope that is planned to succeed the Hubble Space Telescope.
- JWST will study various phases in the history of the universe, from the formation of solar systems to the evolution of our own Solar System.
- It will be deployed in space near the Sun-Earth L2 Lagrange point.

### Note

- A Lagrange point is a location in space where the combined gravitational forces of two large bodies, such as Earth and the sun or Earth and the moon, equal the centrifugal force felt by a much smaller third body.
- The interaction of the forces creates a point of equilibrium where a spacecraft may be "parked" without coming in the influence of gravitational field of any other body (example Earth or Sun).

To know more about Lagrange Points visit: <https://www.iasgvan.in/blogs/types-of-orbits-explained>



## Biotech-PRIDE

### Context

- Recently, Promotion of Research and Innovation through Data Exchange) Guidelines [Biotech-PRIDE] was released.

### About

- Biotech-PRIDE is developed by Department of Biotechnology (DBT), Ministry of Science and Technology.
- Bio-Grid will be a National Repository for biological knowledge, information and data and will be responsible for enabling its exchange, developing measures for safety, standards and quality for datasets and establishing detailed modalities for accessing data.
- The Biotech PRIDE will be implemented through Indian Biological Data Centre (IBDC) at Regional Centre for Biotechnology supported by Department of Biotechnology.

## EMVÓLIO

### Context

- DBT-BIRAC has developed Emvólio, a refrigeration device.

### About

- Emvólio is a portable, battery-powered medical-grade refrigeration device that improves the efficiency of the immunization by strictly maintaining preset temperature for up to 12 hours, thus enabling the safe and efficient transportation of vaccines to the last mile.

## Stellar Mid-Life Crisis

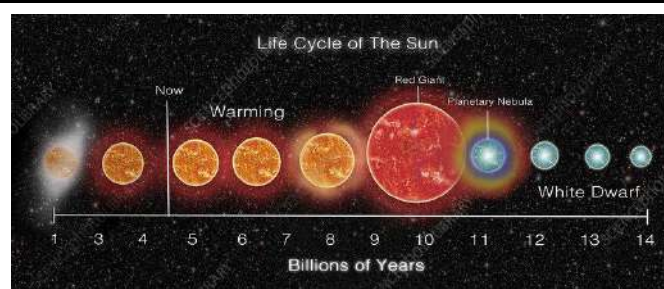
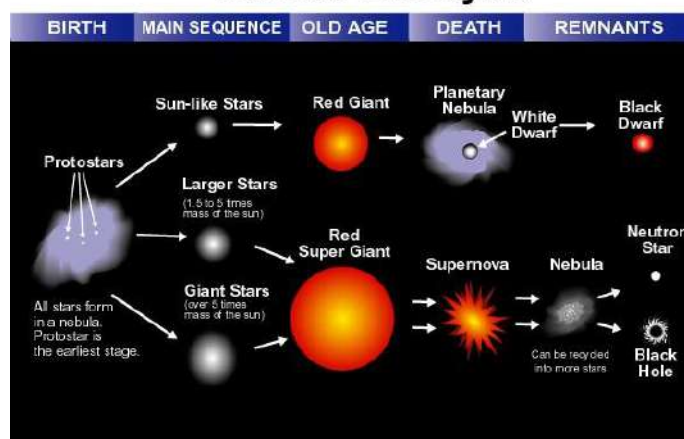
### Context

- A team of astronomers from India and Nepal have detected that stars also go through a midlife crisis.

### What happens when stars reach midlife?

- Spread over billions of years, the development leads to a decline in the numbers of sunspots, flares, outbursts, and similar phenomena in the atmospheres of stars.
- These developments are directly linked to the strength of their magnetic fields.
- At about the age of the Sun the magnetic field generation mechanism of stars suddenly becomes sub-critical or less efficient.
- This leads to two activity states a low activity mode and an active mode.
- A middle-aged star like the Sun can often switch to the low activity mode.
- The recent findings suggesting that the Sun maybe transitioning to a magnetically inactive future.

### The Star Life Cycle



## End-to-End Genome Sequencing

### Context

- Recently, a preprint titled "**The complete sequence of the human genome**" was posted in the online repository bioRxiv.
- In this preprint, scientists reported the most complete sequencing of the human genome until now.

### Gene Sequencing

- DNA sequencing is a laboratory technique used to determine the exact sequence of bases (A, C, G, and T) in a DNA molecule.
- The DNA base sequence carries the information a cell needs to assemble protein and RNA molecules.

### Background

- The Human genome project announced in 1990 announced a complete human genome but about 15% of it was incomplete.

### Recent developments

- This time researchers discovered over a hundred new genes that code for proteins.
- The total size of the genome they have sequenced is close to 3.05 billion base pairs.
- The results come with the caveat that about 0.3% may still have errors, and that among the sex chromosomes, only the X chromosome has been sequenced.

Read about the Pros and Cons of Gene Sequencing under the Heading-Embryo selection with polygenic scores of Previous Edition.

To know about structure of DNA VISIT, <https://www.iasgyan.in/blogs/bengal-strain-all-about-mutation>

## Chandrayaan-3

### Context

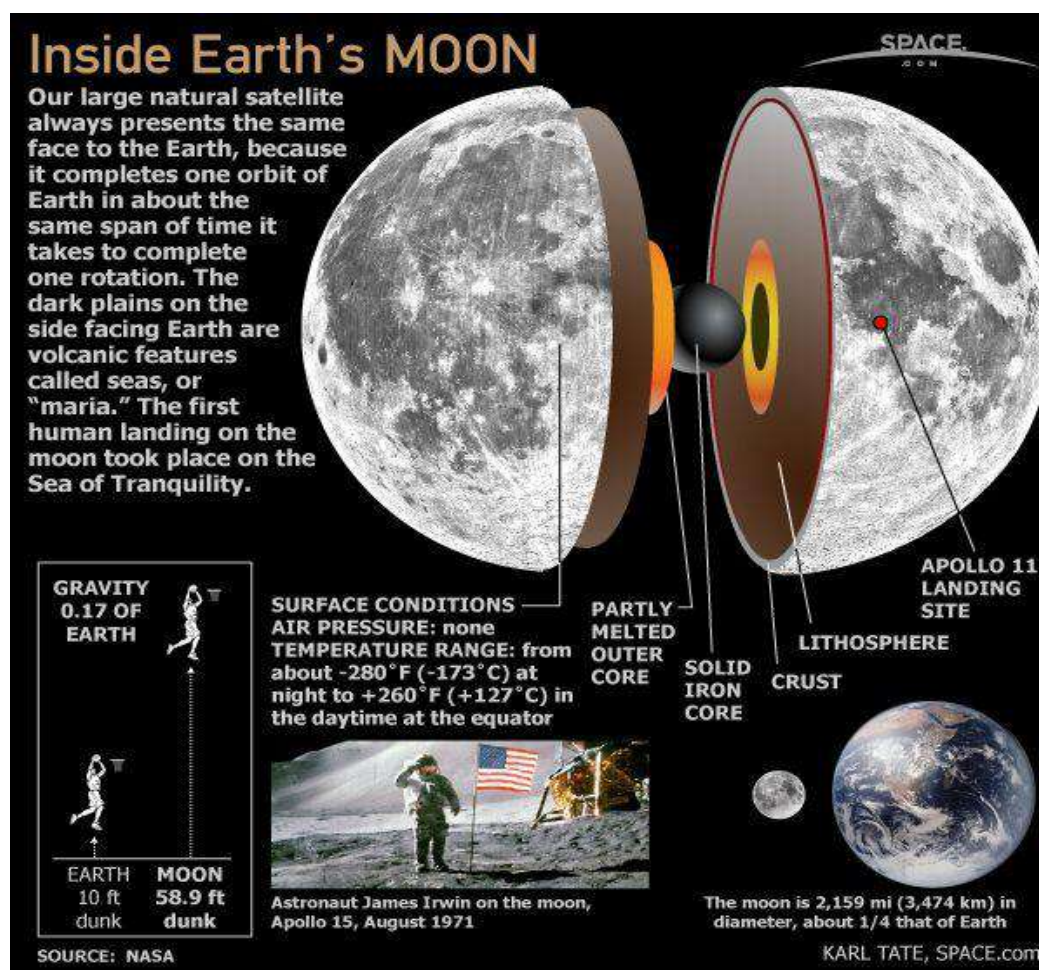
- Indian Space Research Organisation (ISRO) is likely to launch India's third lunar mission 'Chandrayaan-3' in the third quarter of 2022.

### About

- Chandrayaan-3 is a lander-and rover-specific mission, which will demonstrate India's capability of soft landing on a celestial body, with the rover.
- With Chandrayaan-3, India aims to further the study of the lunar surface, focussing on the South Pole or dark side of the Moon that has not seen sunlight in billions of years, which is believed to have ice and vast mineral reserves.

### Why Lunar South Pole of the Moon is targeted for exploration?

- There could be a possibility of the presence of water in permanently shadowed areas of lunar South Pole.
- In addition, the South Pole region has craters that are cold traps and contain a fossil record of the early Solar System.





## Concentrated Solar Thermal (CST)

### Context

- The Ministry of Science & Technology has announced the set up a concentrated solar thermal (CST) based test rig facility at Hyderabad.

### About the Rig Facility

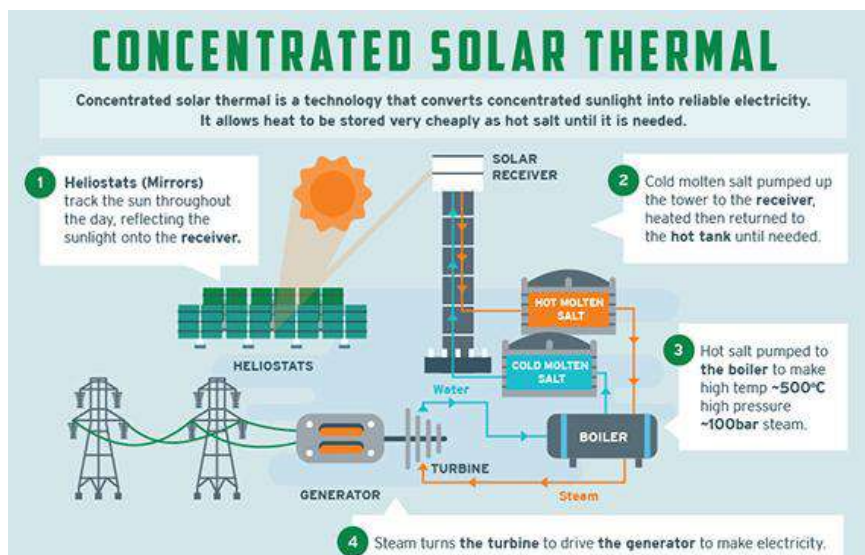
- The facility can help the solar industry test capability and performance of solar thermal components like solar receiver tubes, heat transfer fluids, and concentrating mirrors.
- It can conduct simultaneous testing of standard and indigenous solar receiver tubes.

### Set up by

- The facility has been set up by the International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI).
- Established in 1997 ARCI is an autonomous institute of the Department of Science & Technology (DST).

### Significance

- A majority of the solar thermal Indian companies import solar thermal components, from China and Europe.
- This is an opportunity for indigenous solar thermal components manufacturing players to develop solar thermal technologies for low and medium-temperature applications.



## Cassini Spacecraft

### In News

- NASA's Cassini spacecraft has detected an unusually high concentration of methane, along with carbon dioxide and dihydrogen, in the moons of Saturn by flying through their plumes.

### Cassini

- Cassini, is a collaboration among NASA, the European Space Agency (ESA), and the Italian Space Agency (ASI) to send a space probe to study the planet Saturn and its system, including its rings and natural satellites.
- The Flagship-class robotic spacecraft comprised both NASA's Cassini space probe and ESA's Huygens lander, which landed on Saturn's largest moon, Titan in 1997.
- Cassini was the fourth space probe to visit Saturn and the first to enter its orbit.

## Discrete Mars Auroras

### Context

- The UAE's Hope spacecraft, which is orbiting Mars since February 2021, has captured images of glowing atmospheric lights in the Red Planet's night sky, known as discrete auroras.

### What causes an aurora on Earth?

- Auroras are caused **when** charged particles ejected from the Sun's surface — called the **solar wind** — **enter the Earth's atmosphere and** interact with different gases in the atmosphere at the poles to cause a display of light.
- Northern Lights - Aurora borealis are seen from the US (Alaska), Canada, Iceland, Greenland, Norway, Sweden and Finland.
- Aurora australis or southern lights are visible from Antarctica, Chile, Argentina, New Zealand and Australia.

### So, how are Martian auroras different?

- Unlike auroras on Earth, which are seen only near the north and south poles, discrete auroras on Mars are seen all around the planet at night time.
- Unlike Earth, which has a strong magnetic field, the **Martian magnetic field has largely died out**.
- This is because the molten iron at the interior of the planet— which produces magnetism— has cooled.
- However, the Martian crust, which hardened billions of years ago when the magnetic field still existed, **retains some magnetism**.
- So, in contrast with Earth, which acts like one single bar magnet, **magnetism on Mars is unevenly distributed**.
- These disjointed fields channel the solar wind to different parts of the Martian atmosphere, **creating "discrete" auroras over the entire surface of the planet**.
- Studying Martian offer clues as to why the Red Planet lost its magnetic field and thick atmosphere — that are among the





### essential requirements for sustaining life.

#### What is the Hope orbiter studying?

- The Hope Probe, the Arab world's first mission to Mars, took off from Earth in July 2020.
- The primary objective of the mission is to study Martian weather dynamics.

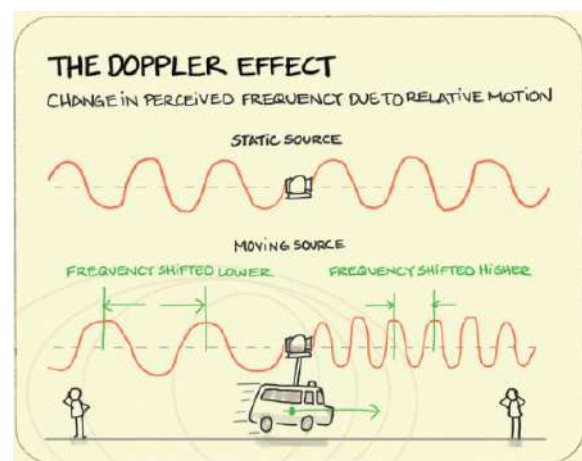
## Doppler Radar

#### Context

- The India Meteorological Department's (IMD) only Doppler radar in Mumbai, which surveys weather patterns and forecast, stopped working again on Wednesday afternoon, when the city was witnessing rainfall.

#### Decoding Doppler Effect

- Doppler Effect is the change in frequency of a wave in relation to an observer who is moving relative to the wave source.
- A Doppler Radar works on the same principle.
- A common example of Doppler shift is the change of pitch heard when a vehicle sounding a horn approaches and recedes from an observer.



## Karman Line

#### Context

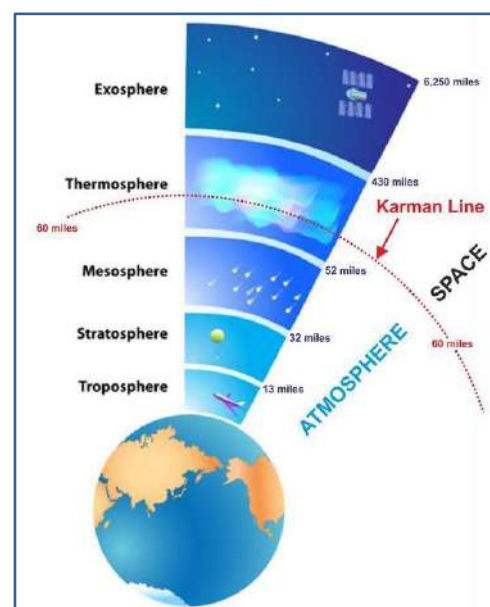
- On July 11, British businessman Richard Branson reached the edge of space, giving space tourism an official kickstart.

#### Where is Space?

- International law states that outer space shall be free for exploration and use by all, but there is no definitive law stating where national air space actually ends and outer space begins.
- A common definition of space is known as the Kármán Line.
- Karman Line is an imaginary boundary 100 kilometers (62 miles) above mean sea level.
- Once this 100 km line is crossed, the atmosphere becomes too thin.
- At this altitude, a conventional plane would need to reach orbital velocity or risk falling back to Earth.

#### The definition of Karman Line

- The 100 km boundary of Karman Line is not universally accepted.
- The Karman line is recognized by the FAI (Federation-Aeronautique-Internationale).
- Other international organizations like NASA and the US Air Force do not recognize this definition and they define the limit at 50 miles.



## Ultraviolet-C Technology

#### Context

- Union Minister of State for Science and Technology has said that Ultraviolet-C or UV-C Disinfection Technology will soon be installed in Parliament for the "mitigation of airborne transmission of SARS-COV-2".

#### What is UV?

- Ultraviolet (UV) is a type of light or radiation naturally emitted by the Sun.
- **UV is divided into three bands:** UV-C (100-280 nm), UV-B (280-315 nm) and UV-A (315-400 nm).
- UV-A and UV-B rays from the Sun are transmitted through our atmosphere and all UV-C is filtered by the ozone layer.
- UV-B rays can only reach the outer layer of our skin or epidermis and can cause sunburns and are also associated with skin cancer.
- UV-A rays can penetrate the middle layer of your skin or the dermis and can cause aging of skin cells and indirect damage to cells' DNA.
- UV-C radiation from man-made sources has been known to cause skin burns and eye injuries.

#### Can UV-C kill Coronavirus?

- An in-vitro experiment conducted by Hiroshima University researchers showed that 99.7% of SARS-CoV-2 viral culture was killed when exposed to UV-C irradiation for 30-seconds.

#### Is it safe for humans?

- Researchers from the IIT-Kanpur, noted that UV-C radiation could be harmful to the skin and eyes of the living beings, therefore the operator of the device must use spectacles with UV-C radiation protection.
- But few studies have shown that far-UVC light (207-222 nm) does not harm mammalian skin.

## Viper Mission & Artemis Program

### Context

- NASA will launch its Volatiles Investigating Polar Exploration Rover, or VIPER, in 2023.

### Aim

- To get a closer view of the Moon's South Pole and evaluate the concentration of water as well as other potential resources on its surface.
- The mission is to understand if it is possible for human life to sustain there, by using locally available resources.
- This is going to be a critical step forward in NASA's Artemis programme to establish a sustainable human presence on the surface of the Moon by 2028.

### Artemis Program

- Artemis program plans to send the next man and first woman to the lunar surface by the year 2024.
- The last time NASA sent humans to the Moon was in 1972, during the Apollo lunar mission.

## Maglev Train

### Context

- China has unveiled a high-speed maglev train with a designed top speed of 600 kms per hour - world's fastest ground vehicle.

### About

- Maglev, also called magnetic levitation train or maglev train, is a floating vehicle for land transportation that is supported by either electromagnetic attraction or repulsion.
- The trains are capable of running about 10 cm above the ground.
- Maglev system has no wheels, axles, transmissions, and overhead wires.
- At present maglev technology has produced trains that can travel in excess of 500 km (310 miles) per hour.

### Pros and Cons of Maglev Trains

#### Pros

- Extremely fast speed upto 500 km/hr.
- Really quiet operation.
- Less energy upto 30% than normal trains.
- Due to lack of physical contact between train and track, very efficient for maintenance.
- Moving parts are missing. Hence, wear and tear of parts is minimal, and that reduces the maintenance cost.
- Environment friendly, as they don't resort to internal combustion engines.
- Weather proof, which means rain, snow, or severe cold don't really hamper their performance.
- These trains are a lot safer than their conventional counterparts.

#### Cons

- Expensive tracks compared to the railroad tracks.
- Not compatible with railroad track, and therefore require whole thing to be rebuilt for their entire route.
- High cost incurred on the initial setup.
- Maglev trains are seen as relatively safe. But because of their detached nature, any accidents that could occur on a maglev train could be significantly more severe. The train does not attach to the tracks, so it doesn't have anything to hold on to should there be a malfunction.

### India and Maglev Trains

- BHEL in 2020 entered into a Memorandum of Understanding (MoU) with SwissRapid AG for Maglev Train projects in India.
- This will expand India's footprint in the urban transportation sector.

## NEA Scout

### Context

- NASA announced that its new spacecraft, named NEA Scout, has completed all required tests and has been safely tucked inside the Space Launch System (SLS) rocket.

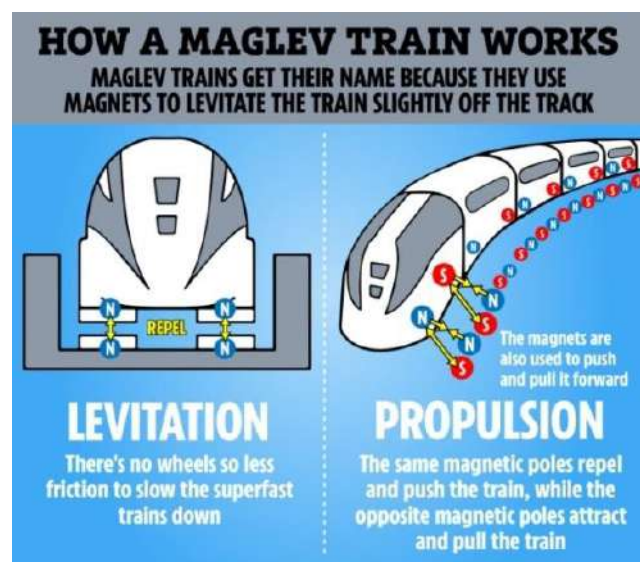
### What is NEA Scout?

- Near-Earth Asteroid Scout, or NEA Scout, is a small spacecraft, about the size of a big shoebox.
- Its main mission is to fly by and collect data from a near-Earth asteroid.

## Nauka Module

### Context

- Pirs, a Russian module on the International Space Station (ISS) used as a door for cosmonauts to go out on spacewalks, was



detached from ISS.

- In its place, Russia's space agency Roscosmos will be attaching a significantly larger module called Nauka.

#### What does Russia's new Nauka module do?

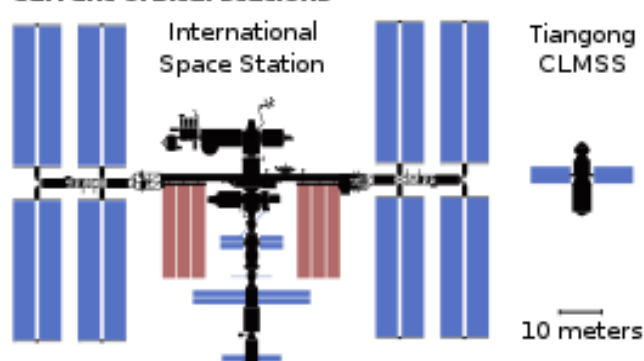
- Nauka will primarily serve as a research facility.
- On the ISS, Nauka will be attached to the critical **Zvezda module, which provides all of the space station's life support systems** and serves as the structural and functional centre of the Russian Orbital Segment (ROS).

#### About ISS

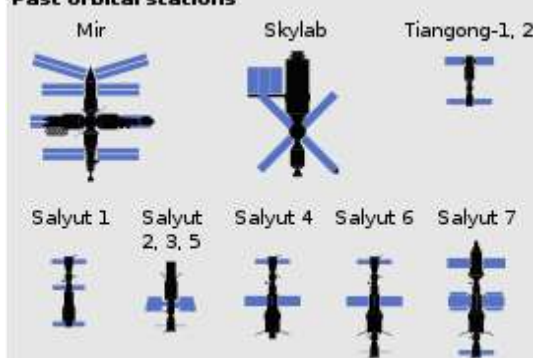
- The International Space Station (ISS) is a modular space station (**habitable artificial satellite**) in **low Earth orbit**.
- It is a multinational collaborative project involving five participating space agencies: **NASA (United States), Roscosmos (Russia), JAXA (Japan), ESA (Europe), and CSA (Canada)**.
- The station serves as a **microgravity and space environment research laboratory** in which scientific research is conducted in astrophysics, astronomy, meteorology, physics, and other fields.
- The **first piece of the International Space Station was launched in 1998** after which more pieces were added.
- The first crew arrived on ISS in November, 2000 after which the space station has been continuously occupied.
- ISS flies at an **altitude between 220km and 410 km** above the earth. This is the low-earth orbit.
- With the naked eye, the ISS can be seen** from nearly every area of Earth at different points in time.
- It travels around the Earth at an average speed of 27,700 kilometre per hour. It therefore **completes 15.5 orbits per day**. **Therefore, it orbits Earth every 90 minutes**.

#### Space Stations prior to ISS

##### Current orbital stations



##### Past orbital stations



## EOS-03

#### Context

- Earth observation Geo-imaging satellite "EOS-03" is scheduled for launch in third quarter of 2021.
- This is the **first developmental flight of Small Satellite Launch Vehicle or SSLV**.

#### About

- It would enable near-real time monitoring of natural disasters like floods & cyclones.
- EOS-03 is capable of **imaging the whole country 4-5 times daily**.
- In addition to natural disasters, EOS-03 would also **enable monitoring of water bodies, crops, vegetation condition, forest cover changes etc.**
- The first earth observation satellite was launched in 2020 along with nine customer satellites.
- The EOS-1 was intended for applications in agriculture, forestry and disaster management support.

#### First SSLV Developmental Flight

- SSLV is ideal for on-demand, quick turn-around launch of small satellites.
- SSLV is a three-stage, all-solid launch vehicle that can carry a payload weighing **500 kilograms to the polar orbit, 500 kilometers above Earth's surface and a 300-kilogram payload into Sun Synchronous Polar Orbit**.

To know about Orbits, Visit: <https://www.iasgyan.in/blogs/types-of-orbits-explained>

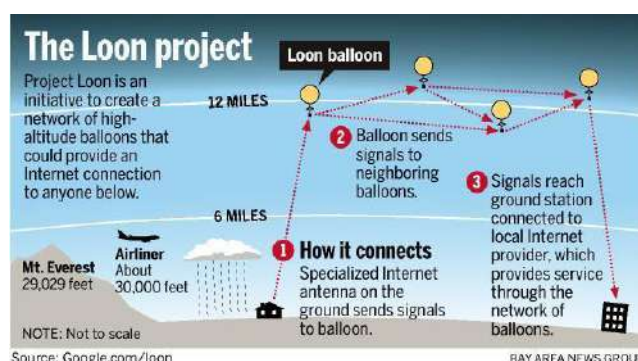
## Internet via Balloon

#### Context

- Florida's Republican governor called on the administration of President Joe Biden to greenlight a plan to transmit the Internet to people in Cuba via high-altitude balloons when their government has blocked access.

#### About

- For years, Alphabet – the parent company of Google – worked to perfect an Internet-balloon division service called Loon. It shut down that project, saying it wasn't commercially viable.
- Prior to the shutdown, Loon balloons had been providing





service in mountainous areas in Kenya.

# SECURITY & DEFENSE

## Indrajaal

### Context

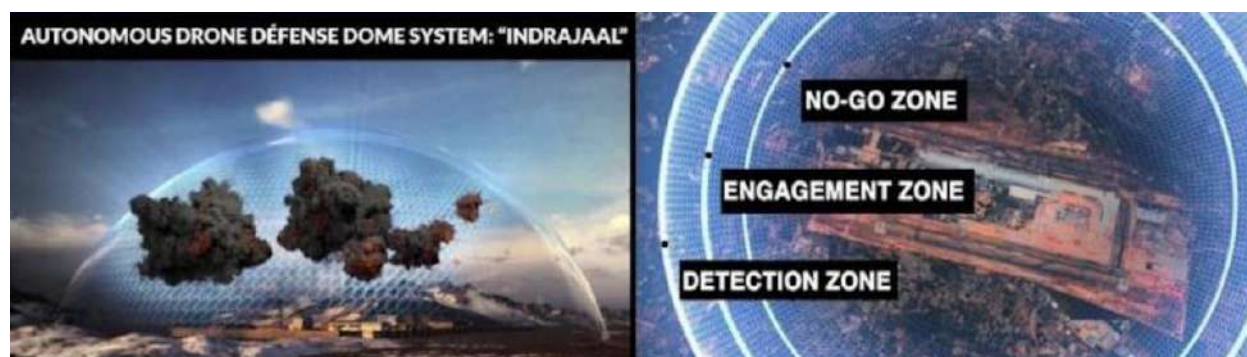
- Hyderabad-based technology R&D firm Grene Robotics has designed and developed India's first indigenous drone defence dome called "Indrajaal".

### About Indrajaal

- The drone defence dome has the **capability to autonomously protect an area of 1000-2000 sq km against the aerial threats** by assessing and acting on aerial threats such as Unmanned Aerial Vehicles (UAVs), loitering munitions, and Low- Radar Cross Section (RCS) targets.
- The ANTI-UAV systems will not only provide **protection to defence bases but it will be beneficial for linear infrastructures** like international borders against advanced weaponry.
- The design principles of Indrajaal are based on **delivering autonomy to the armed forces**.
- It comprises **all current weapons suite and infrastructure along with a honeycombed cell structure** to provide a seamlessly built over a combination of 9-10 technologies for 24×7 persistent monitoring, tracking and action.

### Salient features of Indrajaal

- Real-time situational awareness
- Integrated and Intelligent meshed network
- Integrated all current weapons suite and infrastructure
- Honeycombed cell structure for seamlessly built
- Synergic combination of 9-10 technologies
- 24×7 persistent and autonomous monitoring, action and tracking



## Global Cyber security Index 2020

### Context

- According to a United Nations report, **India has jumped 37 places to 10th position in the Global Cyber Security Index (GCI) 2020.**

### About the Global Cyber Security Index (GCI) 2020

- It is a composite index created, analyzed and published by the **International Telecommunication Union (ITU), a specialized agency of the United Nations.**
- It is launched to **measure the commitment to cyber security of its 194 member countries to raise cyber security awareness.**
- India ranked 10th** in the fourth edition of the Global Cyber Security Index 2020 (GCI), a significant jump of 37 places from its previous GCI rank in 2018.
- India also ranks fourth in the Asia-Pacific region.
- The top rank in the GCI was achieved by the US with a score of 100.
- In the **Asia Pacific region**, South Korea and Singapore are on top with a score of 98.52, which ranks fourth globally.
- As cyber security has a wide area of application, cutting across multiple industries and different sectors, each country's development or engagement is assessed along **five pillars** –
  - Legal measures
  - Technical measures
  - Organizational measures
  - Capacity development, and
  - Cooperation- and then aggregated into a composite score

### Rising need of Cyber Security

- Digital gaps** between nations create an unsustainable environment in the cyber domain.
- Increasing digital dependence in the post-COVID era** has exposed digital disparities. This must be bridged through capacity



building.

- There's a sophisticated use of cyberspace by terrorists to broaden their propaganda and incite hatred.
- Cyber security is the **practice of defending computers, servers, mobile devices, electronic systems, networks, and data from malicious attacks.**

## Indian Ocean Naval Symposium (IONS)

### Context

- The 7th edition of Indian Ocean Naval Symposium (IONS), a **biennial event**, was hosted by the French Navy at La Réunion.

### About IONS

- It was conceived by the Indian Navy **in 2008**.
- It seeks **to enhance maritime cooperation among Navies of the littoral states of the IOR.**
- It provides a forum **to increase maritime security cooperation, discuss regional maritime issues, and promote friendly relationships among the member states.**
- The **chairmanship of IONS** has been held by India in 2008-10.
- The symposium was **first held in 2008** with India as host.
- It is a **voluntary initiative** among the navies and maritime security agencies of the member nations.
- Now, France has assumed the Chairmanship on 29 Jun 21 for a two-year tenure.
- **IONS Conclave of Chiefs (CoC)** is the decision-making body at the level of Chiefs of Navies, which meets biennially.

## Short Span Bridging System-10 m

### Context

- The 7th Short Span Bridging System-10 m (SSBS-10 m) inducted into Indian Army.

### SSBS-10 m

- It is designed and developed by the **Defence Research and Development Organisation (DRDO).**
- It plays a crucial role of bridging the gaps up to 9.5 m as a single span providing a 4 m wide, fully decked roadway, **ensuring faster movement of the troops.**
- This bridging system is **compatible with Sarvatra Bridging System**, where last span requires covering gaps less than 9.5 m.

### Significance of this development

- The system will help in **quick movement of troops and enhance the mobilization of resources.**
- It will give a **boost to the fast-growing Indian defence industrial ecosystem** and help the industry to contribute towards 'Atmanirbhar Bharat'.



## SPARSH System

### Context

- Ministry of Defence has implemented SPARSH [System for Pension Administration (Raksha)].

### About SPARSH System

- It is an **integrated system for automation of sanction and disbursement of defence pension.**
- This web-based system processes pension claims and **credits pension directly into the bank accounts of defence pensioners without relying on any external intermediary.**
- It is available for pensioners to view their pension related information, access services and register complaints for redressal of grievances, if any, relating to their pension matters.
- SPARSH envisages **establishment of Service Centres** to provide last mile connectivity to pensioners who may be unable to directly access the SPARSH portal for any reason.
- In addition to several offices of the Defence Accounts Department, two largest banks dealing with defence pensioners – State Bank of India (SBI) and Punjab National Bank (PNB) – have been co-opted as Service Centres.

## Operation Sankalp

### Context

- The Indian Navy's Operation Sankalp has provided safe passage to an average 16 Indian-flagged merchant vessels in the Gulf region everyday.

### About Operation Sankalp

- It was started in June 2019 after there were explosions on board two oil tanker ships in the Gulf of Oman amid increased tensions between Iran and the U.S.
- Since then, an Indian Navy ship with an integral helicopter embarked has been continuously deployed in the north-west

Arabian Sea, Gulf of Oman and Persian Gulf.

- It showcase presence, instil confidence in Indian maritime community and provide assistance to Indian-flagged merchant vessels.

#### Why Operation Sankalp?

- To ensure safety of India's Mercantile Marine in the Persian Gulf and the Gulf of Oman.
- India is dependent for **about 85% of its demand for oil on imports**.
- In 2019-2020, around 62% of India's oil imports valued at approximately \$66 billion came from the Gulf region.
- For the same year, India's exports and imports from the region stood at around \$51 billion and \$108.2 billion, respectively.



## Draft Drone Rules, 2021

#### Context

- The Ministry of Civil Aviation released **Draft Drone Rules, 2021**, for public consultation .
- The rules will **replace the Unmanned Aircraft System Rules, 2021**, notified in March 12, 2021.

#### New drones rules

- Simplified drone rules, which **abolish the need for a large number of approvals**, are in the offing in the country.
- The **number of forms to be filled** to seek authorisation before operating a drone **has been reduced from 25 to six**.
- While most drones will need a unique identification number, a certificate of airworthiness, a remote pilot licence for the person controlling the drone and prior permission.
- **No such approvals** will be required for **drones used for research and development** by entities and educational institutions recognised by the Central government, State governments or Union Territory Administrations, start-ups recognised by Department for Promotion of Industry and Internal Trade and drone manufacturers having a Goods and Service Tax Identification Number.
- Unlike the previous rules, which required drone operators to have a principal place of business within India, and the chairman and at least two-thirds of its directors were required to be citizens of India, in the new proposed rules there are no such restrictions for foreign-owned companies registered in India.
- However, **import of drones and drone components** will be regulated by the Directorate General of Foreign Trade.
- Drones will also **not need security clearance** before registration or licence issuance.

## Light Combat Helicopters

#### Context

- Hindustan Aeronautics Limited indigenously developed Light Combat Helicopter deployed for operations in Leh.
- These are part of 15 Limited Series Production helicopters approved for Army and IAF.
- It will see a greater collaboration between state-owned Hindustan Aeronautics Limited (HAL) and private firms as part of 'Make in India'.
- Of these 83 aircraft, HAL will deliver 73 Tejas Mk 1A and 10 Tejas Mk 1 trainers by 2026.
- **Tejas will only be the second indigenously built fighter aircraft in India's history.**

#### Tejas' history

- 1983 was the first time when the Government of India cleared a project to build a new Light Combat Aircraft as a **replacement for MiG 21s**.
- India's **project to build the engine 'Kaveri'** for a Light Combat Aircraft **failed**.
- Tejas is **50 per cent indigenous**. It has a **GE American engine**, an **Israeli Elta radar**, and **British aerospace, avionics, and other engines**.

#### India's misadventures with fighter aircraft

- India has also had a chequered history with fighter aircraft in general.
- By the mid-1950s, as India's relationship with Pakistan was tanking, Nehru sought advanced technologies to fight the Pakistanis.

- India employed a German aeronautical engineer who built the **HAL HF-24 Marut**, an **indigenously built fighter-bomber aircraft**.
- Marut was supposed to be of supersonic speed but could never surpass the speed of sound. This is largely because of the **'technology denial'** era. Nobody would sell India a decent engine.
- India then started fitting two Orpheus engines into one Marut. Therefore, the aircraft had two subsonic engines and always remained underpowered.
- As many as 147 Maruts were produced and they played an essential ground support role in the 1971 war with Pakistan.
- By 1975, however, this **programme was suspended**, and the Maruts were sold for scraps.

#### About Tejas

## Tejas to add teeth to Indian air combat



Indigenously developed Light Combat Aircraft (LCA), Tejas has been formally inducted to Indian Air Force. The induction occurred almost 15 years after its first test flight and 33 years after the project was taken up

<b>Project first conceived and launched in 1983</b>	<b>Maiden test flight took place on Jan 4, 2001</b>	<b>Designed for air-to-air, air-to-ground and air-to-sea combat roles</b>	<b>Intended to replace the phased out MiG-21 fighter jets</b>
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### Specifications (LCA AF MK2)

Crew	Length	Height	Wingspan	Max speed	Engine
One	13.7 m	4.4 m	8.2 m	1.6 mach	GE-F414-INS6

Smallest and lightest multi-role supersonic fighter aircraft of its class

Project executed by Aeronautical Development Agency (ADA) along with Hindustan Aeronautics Limited (HAL)

First advance Fly-by-wire (FBW) fighter aircraft designed, developed and manufactured in India

Inducted on July 1, 2016 into Squadron No. 45 of IAF, also called the "Flying Daggers"

**KBK InfoGraphics**



## ARMEX-21

### Context

- Indian Army Skiing Expedition, ARMEX-21**, conducted in Himalayan mountain ranges

### ARMEX-21

- Covered 1,660 kms from Karakoram Pass in Ladakh to Malari in Uttarakhand.
- The team gathered information about several hitherto uncharted areas along international boundary.
- It was conducted to **promote the adventure activity in the country and the Indian Army**.
- The team also interacted with the local population of the far-flung areas and was able to gather detailed information about several hitherto uncharted areas along the international boundary and the hinterland.

## DB Shekatkar Committee

### Context

- Implementation of Committee of Experts (CoE) recommendations related to Defence Reforms

### Background

- The Committee of Experts (CoE) was constituted by the Ministry of Defence under the chairmanship of Lt Gen (Retd) DB Shekatkar.
- It recommended measures to **enhance combat compatibility and rebalance defence expenditure of the armed forces**.

### Measures recommended by the Committee and taken up for the implementation include

- Optimisation of Signals Establishments** to include Radio Monitoring Companies, Corps Air Support Signal Regiments, Air Formation Signal Regiments, Composite Signal Regiments and merger for Corps Operating and Engineering Signal Regiments.
- Restructuring of repair echelons** in the Army to include Base Workshops, Advance Base Workshops and Static/Station Workshops in the field Army.
- Redeployment of Ordnance echelons** to include Vehicle Depots, Ordnance Depots and Central Ordnance Depots apart from streamlining inventory control mechanisms.
- Better utilisation of Supply and Transportation echelons** and Animal Transport Units.
- Closure of Military Farms and Army Postal Establishments in peace locations**.



- Enhancement in standards for recruitment of clerical staff and drivers in the Army.
- Improving the efficiency of the National Cadet Corps.

## Titanium alloy

### Context

- The Defence Research and Development Organisation (DRDO) has developed a **high strength titanium alloy on industrial scale for applications in aerospace structural forgings**.

### Beta titanium alloys

- The high strength beta titanium alloys are unique due to their **higher strength, ductility, fatigue, and fracture toughness** – making them increasingly attractive for aircraft structural applications.
- Their relatively **lower lifetime cost**, owing to **superior corrosion resistance** in comparison to steels, was an effective trade-off to justify the use of this expensive material in India too.
- The **high strength metastable beta titanium alloy, Ti-10V-2Fe-3Al**, containing Vanadium, Iron and Aluminium, was developed by the Defence Metallurgical Research Laboratory (DMRL).
- These alloys are beneficial substitute for the relatively heavier traditional structural steels to achieve weight savings.
- The excellent forgeability of Ti-10V-2Fe-3Al alloy facilitated the manufacture of intricately configured components for aerospace applications with potential for significant weight savings, the statement added.

## Man-Portable Anti-Tank Guided Missile (MPATGM)

### Context

- The DRDO successfully flight tests home-grown Man-Portable Anti-Tank Guided Missile (MPATGM).
- The missile was launched from a man-portable launcher integrated with thermal site and the target was mimicking a tank.

### About MPATGM

- It is an **Indian third-generation fire-and-forget anti-tank guided missile derived from Nag ATGM**.
- It is indigenously development by the Defence Research and Development Organisation (DRDO) in partnership with Indian defence contractor VEM Technologies Private Limited.
- It is fitted with high-explosive anti-tank (HEAT) warhead.
- The missile has a length of about 1,300 mm and a diameter of about 120 mm with aluminum and carbon fiber launch tube and collapsible tripod to save on weight.
- The MPATGM is equipped with an **advanced imaging infrared (IIR) sensor and integrated avionics**.
- The missile has top attack capability. It reportedly share many similarities with systems such as FGM-148 Javelin, and Spike (ATGM).



## Akash Missile

### Context

- Defence Research and Development Organisation, successfully flight-tested the New Generation Akash Missile, a surface-to-air Missile from Integrated Test Range off the coast of Odisha.
- The New Generation Akash Missile will prove to be a force multiplier for the air defence capability of the Indian Air Force.

### About Akash missile

- Akash has a **range of 25 km** and can simultaneously engage multiple targets in all weather conditions.
- It has a large operational envelope from a low altitude of 30 metres to a maximum of up to 20 km.
- It was inducted in 2014 in the Air Force and in 2015 in the Indian Army.
- Akash is the country's important missile with over **96% indigenization**.
- Akash is a **medium-range** mobile

### NEW SHIELD

#### Akash Area Defence Missile System

- Quick reaction, fully automated, all-weather capability
- 'Large kill envelope', can handle multiple threats from different directions
- Cross-country mobility & multi-terrain deployability from sub-zero to desert temperature

Surface-to-air missiles with **25km** range against hostile aircraft, helicopters, drones & sub-sonic cruise missiles

DRDO says Akash is **96% indigenous**

**5.6m-long** Akash missile carries **55kg** fragmentation warhead

**Army** | 2 Akash regiments, with 6 firing batteries & hundreds of missiles each, for ₹ 14,180cr

**IAF** | 8 Akash squadrons, each with 2 'flights' of 4 launchers, for ₹ 6,200cr

**Navy**  
Finds Akash unsuitable for its warships; wants talks with French MBDA for 9 SAM systems with 40 missiles each

surface-to-air missile defense system developed by the **Defence Research and Development Organisation (DRDO)** and **produced by Bharat Dynamics Limited (BDL) for Missile Systems, Bharat Electronics (BEL), Tata Power Strategic Engineering Division and Larsen & Toubro** for other radars, control centers, launcher systems in India.

- Akash has a **range of 25 km** and can simultaneously engage multiple targets in all weather conditions.
- It has a large operational envelope from a low altitude of 30 metres to a maximum of up to 20 km. It was inducted in 2014 in the Air Force and in 2015 in the Indian Army.
- It is propelled by an **Integrated Ramjet Rocket Engine**. The use of a ramjet propulsion system enables sustained speeds without deceleration throughout its flight.
- The Missile has command guidance in its entire flight.

## Kaman Aman Setu

### Context

- On the occasion of Eid-ul-Zuha, India and Pakistan Armies held a Flag meeting and exchanged sweets at Kaman AmanSetu, Uri.

### About Kaman AmanSetu

- Kaman AmanSetu (bridge of peace), connecting Kashmir Valley with Pakistan-occupied Kashmir (POK).
- AmanSetu is the bridge that connects India and Pakistan in North Kashmir. MaitriSetu' is a bridge between India and Bangladesh.

## MH-60r Multi Role Helicopters (MRH)

### Context

- The Indian Navy accepted first batch of two MH-60r Multi Role Helicopters (MRH) from US Navy.

### About MH-60R helicopters

- MH-60R helicopters manufactured by Lockheed Martin Corporation, USA is an **all-weather helicopter** designed to support multiple missions with state of the art avionics/ sensors.
- 24 of these helicopters are being procured under Foreign Military Sales from the US Government.
- The helicopters would also be modified with several India Unique Equipment and weapons.
- The induction of these would enhance Indian Navy's three dimensional capabilities.
- In order to exploit these potent helicopters, the first batch of Indian crew is presently undergoing training in USA.



## Exercise Indra-21

### Context

- 12th Edition of Indo-Russia joint military Exercise INDRA 2021 held at Volgograd, Russia.
- The exercise entailed conduct of counter terror operations under the United Nations mandate by a joint force against international terror groups.

### Significance

- It strengthen mutual confidence and interoperability between the Indian & Russian Armies and enable sharing of best practices between the contingents of both the countries.
- It is another milestone in strengthening security cooperation and will serve to reinforce the longstanding bond of friendship between India and Russia.

## Exercise Cutlass Express 2021

### Context

- Indian Naval Ship Talwar participated in Cutlass Express 2021, along the East Coast of Africa.

### Exercise Cutlass Express 2021

- The exercise is an **annual maritime exercise** conducted to **promote national and regional maritime security** in East Africa and the Western Indian Ocean.
- The 2021 edition of the exercise involves **participation of 12 Eastern African countries, US, UK, India and various international organisations** like International Maritime Organisation (IMO), United Nations Office on Drugs and Crime (UNODC), Interpol, EurEuropean Union Naval Force (EUNAVFOR), Critical Maritime Routes Indian Ocean (CRIMARIO) and EUCAP Somalia.
- Indian Navy is participating in the exercise in a 'trainer role'.
- It focusses on **East Africa's coastal regions**.
- It is designed to assess and improve combined maritime law enforcement capacity, promote national and regional security and

increase interoperability between the regional navies.

- **Information sharing and information flow** between various partner countries with respect to maritime domain awareness is also a key focus of the exercise and participation of India's Information Fusion Centre – Indian Ocean Region (IFC-IOR) would contribute in achieving the same.
- India's commitment to the countries along East Coast of Africa and the Western IOR is further going to be strengthened with the visit of INS Talwar.
- It is in keeping with India's stated policy towards **maritime cooperation in the Indian Ocean region and vision SAGAR (Security and Growth for All in the Region)**.

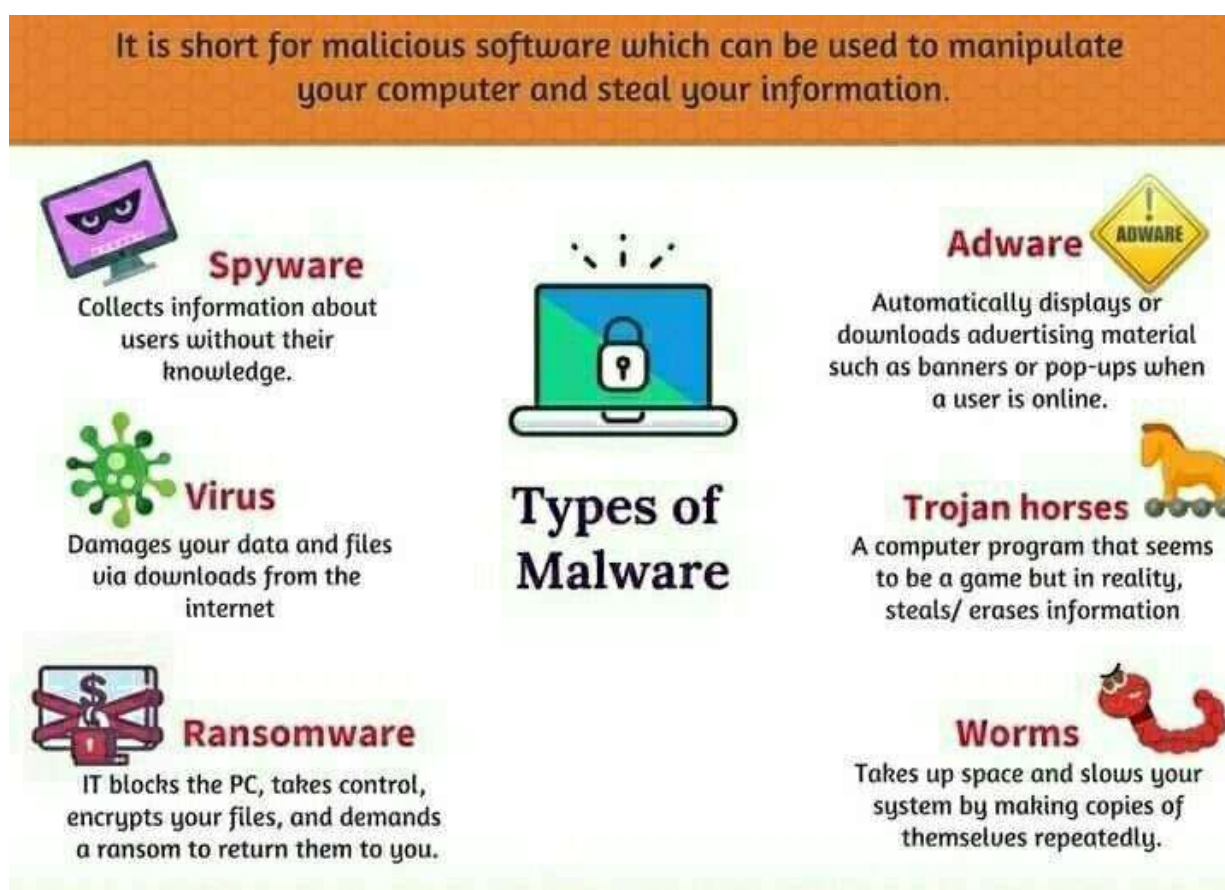
## Malwares

### Context

- Researchers have shown that malware can be injected and hidden in neural network models.
  - **Neural network** is the **foundation of artificial intelligence (AI)**. It performs tasks similar to how the human brain works, and is designed to simulate the way the human brain analyses and processes information.
- Researchers reckon that with widespread application of AI, utilising neural networks to inject malware could become a new way to run malicious campaigns.

### What are malwares?

- Malware, or malicious **software**, is **any program or file that is harmful to a computer user**.
- Types of malware can include computer viruses, worms, Trojan horses and spyware.
- These malicious programs can **perform a variety of functions such as stealing, encrypting or deleting sensitive data, altering or hijacking core computing functions and monitoring users' computer activity**.



## Sarang Helicopter Display Team

### Context

- The Sarang Helicopter Display Team of the Indian Air Force performed for the first time at the MAKS International Air Show held at Zhukovsky International Airport, Russia.
- Sarang is the helicopter air display team of the Indian Air Force that **flies four modified HAL Dhruv helicopters**, also known as **Advanced Light Helicopter (ALH)**.
- The Sarang Team was formed in 2003 at Bangalore and its first international display was at the Asian Aerospace Airshow at Singapore in 2004.
- Since then, Sarang has represented Indian aviation at air shows and ceremonial occasions in UAE, Germany, UK, Bahrain,





Mauritius and Sri Lanka

- Apart from aerobatics displays at national and international venues, the team has also taken **active part in numerous Humanitarian Assistance and Disaster Relief Missions.**

#### About HAL Dhruv

- The HAL Dhruv is a utility helicopter designed and developed by Hindustan Aeronautics Limited (HAL).
- It is designed to meet the requirement of both military and civil operators, with military variants of the helicopter being developed for the Indian Armed Forces.
- Based on the Dhruv platform, the HAL Light Combat Helicopter (LCH) a dedicated attack helicopter and HAL Light Utility Helicopter (LUH), a utility and observation helicopter, are currently being developed.

## ENVIRONMENT & ECOLOGY

### Energy Compact Goals towards Sustainability

#### Context

- NTPC Limited, India's largest power generating company under Ministry of Power has become **first energy company** in India to declare its Energy Compact goals as part of UN High-level Dialogue on Energy (HLDE).

#### More about news

- NTPC has set a target to install 60 GW of renewable energy capacity by 2032.
- It is also aiming at 10% reduction in net energy intensity by 2032.
- NTPC will form at least 2 international alliances/groups to facilitate clean energy research and promote sustainability in energy value chain by 2025.

### Energy Compacts – Voluntary, inclusive & complementary

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

#### WHAT

**Voluntary commitments** on the following themes to advance SDG7 by 2030 and net zero by 2050.



#### WHO

Energy Compacts will be **inclusive** and available for voluntary commitments from all stakeholders in the global movement on SDG7



#### HOW

**Aligned** with existing commitments covering ambitious actions, policies, finance and investment, etc. commitments on SDG7.



### Kendu

#### Context

- In May 2021, several children were seen collecting kendu leaves in the Odisha's Kalahandi district.

#### About Kendu

- Kendu leaf is called the **green gold of Odisha.**
- It is a **nationalised product** like bamboo and sal seed.
- It is one of the most important **non-wood forest products** in Odisha.
- The leaves are used to **wrap bidis**, a popular smoke among the locals.
- The states producing bidi leaves in India comprises mainly **Madhya Pradesh, Chhatisgarh, Odisha, Andhra Pradesh, Jharkhand, Gujarat and Maharashtra.**
- Odisha is the **third-largest producer of kendu leaf**, after Madhya Pradesh and Chhattisgarh.

## Guindy National Park

### Context

- Guindy National Park serves as the green lungs to a great metropolitan city in Tamil Nadu.

### About Guindy National Park

- It is India's eighth-smallest national park.
- It is one of the last remnants of the tropical dry evergreen forests of the Coromandel Coast.
- A large portion of the area is under mixed dry deciduous scrub jungle.
- The near threatened blackbuck, considered the flagship species of the park, was introduced in 1924 by Lord Willingdon, who later served as the 22nd Governor-General and Viceroy of India.
- The ecosystem services provided by this protected area are sequestration of carbon dioxide, release of oxygen, conserving soil, preventing floods, mitigating climate change, improving water quality, generation of employment opportunities, revenue generation in addition to recreational, aesthetic and spiritual benefits.
- The park has a role in both ex-situ and in-situ conservation.



## Project BOLD

### Context

- KVIC's Unique Project BOLD to Boost Tribals' Income and Bamboo-based Economy in Rajasthan.

### Project BOLD (Bamboo Oasis on Lands in Drought)

- It is a unique scientific exercise to serve the combined national objectives of reducing desertification and providing livelihood and multi-disciplinary rural industry support.
- It has been initiated by Khadi and Village Industries Commission (KVIC).
- It seeks to create bamboo-based green patches in arid and semi-arid land zones.
- It will boost self-employment in the region.
- It will benefit a large number of women and unemployed youths in the region by connecting them to skill development programs.

## Automated Train Toilet Sewerage Disposal System

### Context

- An automated technology for collection of toilet waste, developed by an Indian scientist, **can be used to maintain the toilet system of the Indian Railways.**
- It is **easy to maintain** and **seven times cheaper alternative to the bio-toilets.**
- It helps in **segregation of different materials** and **processing into usable things.**

### Bio-Toilets

- Existing Bio toilets use **anaerobic bacteria** for converting **human waste to gas.**
- But that bacteria **can't decompose plastic and cloth materials** dumped into toilets by passengers.
- Hence, **maintenance and removing of such non decomposed materials** inside the tank is difficult.

### Automated Train Toilet Sewerage Disposal System

- This technology is developed with support from the **Advanced Manufacturing Technologies programme** of the Department of Science & Technology (DST), aligned with the 'Make in India' initiative.
- The automated system consists of **three simple steps** –
- the septic tank** (which is placed under the track, i.e., train line) top cover gets opened when train approaches to the septic tank place by using Radio Frequency Identification (RFID) sensor and reader placed at Engine and septic tank position respectively,
- Sewerage material in toilet tanks is dropped into the septic tank when they are mutually synchronized, and finally the septic tank cover gets closed when train departs away from it.

- The collected sewerage material from train toilets is segregated such that human waste is stored in one tank, and other materials such as plastic materials, cloth materials, and so on are stored in another tank.
- The human waste is further processed separately to convert into usable material. The plastic and cloth materials are processed separately.
- This technology has been developed targeting the Indian Railways specifically with the aim of **cost reduction** and to obviate the necessity of time-consuming anaerobic bacteria generation.

## Bryum Bharatiensis

### Context

- The Indian scientists discover novel plant species in Antarctica, during an expedition to Antarctica, in 2017.

### About the new species

- It is a rare, dark green plant species.
- The plant species was found at the Larsemann Hills, near one of the world's remotest research stations, Bharati.
- The plant species was later recognized as mosses.
- It is called as BryumBharatiensis, named after the Hindu goddess, Bharati, who also lends her name to India's research station in Antarctica.

### About Moss

- Mosses are **non-flowering plants**, which produce spores and have stems and leaves, but don't have true roots.
- Mosses, and their cousins liverworts and hornworts, are classified as **Bryophyta** (bryophytes) in the plant kingdom.
- Mosses are distributed throughout the world **except in salt water** and are commonly found in moist shady locations.

## Himalayan yaks

### Context

- The National Research Centre on Yak (NRCY) at Dirang in **Arunachal Pradesh's** West Kameng district has tied up with the National Insurance Company Ltd. for **insuring their livestock**.

### Why insuring livestock?

- Yak population has been decreasing at an alarming rate.
- Climate change and inexplicable changes in the weather pattern have been reported from the yak rearing areas throughout the country.
- The insurance policy will shield the yak owners against the risks posed by weather calamities, diseases, in-transit mishaps, surgical operations and strikes or riots.
- More than 500 yaks died in a single spell of heavy rainfall in northern Sikkim in 2019, leading to a heavy financial burden on the owners.

### Yak population in India

- The total yak population in India is about 58,000.
- The Union Territories of **Ladakh and Jammu and Kashmir** have some 26,000, followed by 24,000 in **Arunachal Pradesh**, 5,000 in **Sikkim**, 2,000 in **Himachal Pradesh** and about 1,000 in **West Bengal and Uttarakhand**.
- A four-year-old report said the **number of yaks across the country declined by almost 24.7% between 2012 and 2019.**

### Himalayan Yak

- The Himalayan yak (Bosgrunniens) is a **totemic animal of the highHimalayas**.
- The woolly yaks are **indicators of change in temperature on the mountains**. The animal finds it difficult to tolerate the conditions at below 7,000 feet above sea level.
- It is the **largest animal on the Tibetan plateau** – it can be as tall as 2.2 metres at the shoulder, and weigh up to a thousand kilogram's.
- The domestic yak is a long-haired domesticated cattle found throughout the Himalayan region of the Indian subcontinent, the **Tibetan Plateau, Northern Myanmar, Yunnan, Sichuan and as far north as Mongolia and Siberia**.
- Yak is a "**flagship species**", and **indicates the health of the ecosystem** within which it lives.
- It is adapted to the climatic conditions of "**cold winter, low oxygen content, high solar radiation, and cyclical nutrition with short growing seasons**"
- **Reasons for their population declines**
  - Harsh lives that the yak herders live. Yak herders come from the most marginalised of communities, and while the yak may be adapted to the conditions, humans prefer comfort.
  - As wars and conflicts have led to the closing of borders, the yaks outside Chinese borders are "thought to be suffering from **inbreeding due to the lack of availability** of new yak germplasm from the original yak area, the Tibetan plateau.
  - **Climate change** has led to uneven production of grass, the yak herders find themselves fenced into grasslands which are under greater pressure Plateau.





## Cryptogamic Garden

### Context

- India's first cryptogamic garden opens in **Dehradun**.

### More about news

- Around 50 species have been grown in the garden at Deoban in Chakrata at a commanding height of 9,000 ft.
- It is housing nearly **50 species of lichens, ferns and fungi** was inaugurated in Uttarakhand's Dehradun district.
- It is spread over three acres and its low pollution levels and moist conditions are conducive for the growth of these species.
- Deoban has pristine majestic forests of **Deodar and Oak** which create a natural habitat for cryptogamic species.

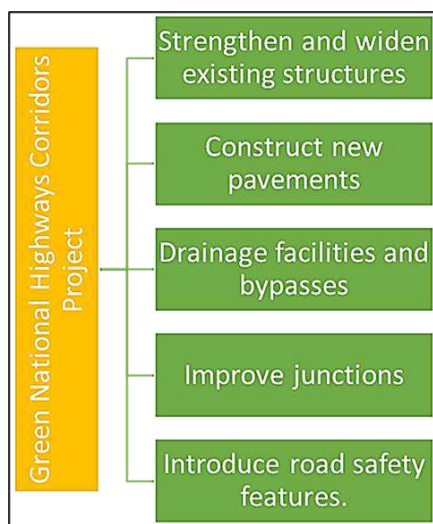
### Cryptogamae

- It means "hidden reproduction" referring to the fact that no seed, no flowers are produced. Thus, cryptogams represent the non-seed bearing plants.
- Algae, bryophytes (moss, liverworts), lichens, ferns and fungi are the best-known groups of cryptogams that require moist conditions to survive.
  - Algae** comprises the **most primitive organisms** which are predominantly aquatic, both in marine as well as freshwater habitats.
  - Bryophytes** are the **simplest and primitive land plants** that occupy an intermediate position between algae and pteridophytes.
  - Lichens** are a **complex lifeform** that is a symbiotic partnership of two separate organisms, a fungus and an algae
  - Ferns** are the **largest living group of primitive vascular plants** while fungi is a kingdom of usually multicellular eukaryotic organisms that are heterotrophs.

## Green National Highway Corridor Project

### Context

- The Government had signed **loan agreement with the World Bank** to develop Green National Highway Corridors (GNHCP).
- The project include Upgradation of about 781 km length of various National Highways passing through the states of **Rajasthan, Himachal Pradesh, Uttar Pradesh and Andhra Pradesh**.
- The schedule date of completion is December, 2025.



## Chrysillavolupe spiders

### Context

- Rare Chrysillavolupe spiders discovered at Puttenahallilake.

### About Chrysillavolupe spiders:

- The Chrysillavolupe was believed to be extinct for 150 years, until it was discovered at the Wayanad Wildlife Sanctuary (WWS) in 2018.
- The spider belongs to the family of jumping spiders (Salticidae) and scientifically named Chrysillavolupe.
- Male spiders are 5.44 mm long including stretched legs and 1.76 mm wide.
- They have a carapace in reddish orange colour with two iridescent blue stripes, stated PNLIT in the release.
- Females measure 2.61 mm long and 0.88 mm wide, and have a greyish carapace with grey eyebrows with all legs yellow in colour.

### About Puttenahalli lake

- It is a small, restored freshwater lake located in Bangalore.
- The primary water sources are rain and surface water diverted to the lake through channels.



- The lake is currently maintained by Puttenahalli Neighbourhood Lake Improvement Trust (PNLIT).
- The lake was on the brink of extinction, but due to the efforts of PNLIT, is now a haven for bird-watchers and on its way to being completely restored.

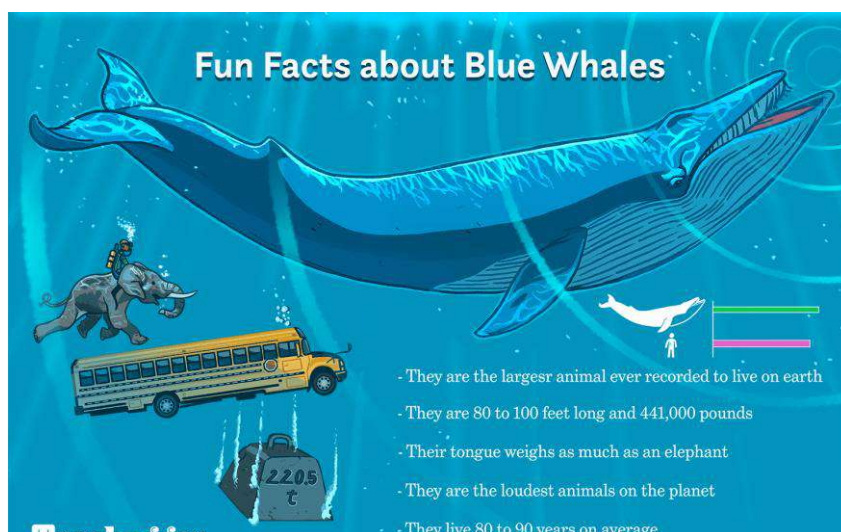
#### About The Wayanad Wildlife Sanctuary

- It is an animal sanctuary in **Wayanad, Kerala, India**.
- Wayanad Wildlife Sanctuary is the **second largest wildlife sanctuary in Kerala**.
- Established in 1973, the sanctuary is now an **integral part of the Nilgiri Biosphere Reserve**.
- It is bounded by protected area network of **Nagarhole and Bandipur of Karnataka in the northeast, and on the southeast by Mudumalai of Tamil Nadu**.
- It is part of the Deccan Plateau and the vegetation is predominantly of the south Indian moist deciduous teak forests.
- Wayanad district has the largest population of Adivasi in Kerala. Scheduled tribes here include Paniyas, Kurumas, Adiyans, Kurichiyas, Ooralis and Kattunaikkans.
- The sanctuary is part of the **Nilgiri Biosphere Reserve**, which is a UNESCO World Heritage Site.

## Blue whales

#### Context

- Researchers have recorded, reportedly for the first time from the waters off Kerala, the song of blue whales.
- A hydrophone deployed off Vizhinjam to capture the sounds of migrating humpback whales had instead recorded the call of the endangered blue whale.
- While humpbacks are known for their high-frequency vocalisations, blue whale songs are a series of short, low-frequency moans.
- Whale sounds (moans, cries, chirps and cries) are essentially communication tools, for activities such as socialising and mating.
- So far, the presence of blue whales in the waters off Kerala have been reported through a few carcasses that beached. But the recording of their calls confirms their presence along this stretch of the western coast.



#### About blue Whales

- The blue whale was once abundant in nearly all the Earth's oceans until the end of the 19th century.
- It was **hunted almost to the point of extinction by whalers** until the **International Whaling Commission banned all blue whale hunting in 1966**.
- **The International Union for Conservation of Nature** has listed blue whales as **endangered** as of 2018.
- It continues to face numerous threats, both man-made (ship strikes, pollution, ocean noise and climate change), and natural (killer whale predation).
- The blue whale is the **largest known animal to have ever existed**.

#### Pygmy blue whales

- Though the larger blue whale populations are found around Antarctica where krill, their favourite food, is available, the occurrence of **pygmy blue whales is reported in the Indian Ocean**.

## KASEZ: First Green Industrial City


#### Context

- Gujarat's **Kandla Special Economic Zone (KASEZ)** becomes 'first green industrial city' in India.
- In KASEZ, 1000-odd acres has 3.5 lakh trees. Most of these trees have been planted post 2019, using the **Miyawaki forestation method**.
- KASEZ, is the **oldest export zone in the country**, has received a **platinum rating under IGBC Green Cities Rating** for existing cities in the industrial cities category.
- The planting of trees **halted the growth of salt pan beyond Kandla**, helped **reducing salinity** and **improved the quality of top soil**.
- To prevent salinity of land from coming into contact with the planted trees, torn clothes are placed in land as first layer before seeding of trees.
- After seeding, that part of plantation is surrounded by torn clothes, which ensures maximum water retention.
- KASEZ also used **plastic waste to line the artificial water bodies** created inside the area to prevent water seepage and mix with the saline water.
- The SEZ initiatives with solar energy and LED lighting was also among the factors that contributed to the IGBC rating.

## About Miyawaki forestation method

### WHAT IS THE MIYAWAKI METHOD?

- Named after Japanese botanist Akira Miyawaki who invented it
- It involves planting of several species very close together in a small pit
- Plants draw nutrients from each other and become healthy
- A dense forest, which grows naturally in 300 years is created in 30-35 years
- Trees grow 10 times faster, and absorb 30 times more carbon dioxide
- Density is 30 times that of normal tree plantations



**MIYAWAKI FORESTS IN VADODARA**

<b>Private farm, Sun Pharma Road</b> Area   <b>12,000</b> square feet Number of trees planted   <b>3,500</b>	<b>VMC's Rajivnagar STP, Harni</b> Area   <b>16,000</b> square feet Number of trees planted   <b>4,000</b>
<b>Bhoj village, Padra</b> <b>Forest department's demonstration plot</b> Area   <b>30 x 10</b> metre Number of trees planted   <b>831</b>	

## About KASEZ

- The Port of Kandla Special Economic Zone (KASEZ) was the **first special economic zone** to be established in India and in **Asia**.
- Established in 1965, the Port of Kandla SEZ is the biggest **multiple-product SEZ in the country**.
- Kandla is the **first Export Processing Zone** in India.
- Covering over 310 hectares, the special economic zone is just nine kilometers from the Port of Kandla.
- Port of Kandla is India's hub for **exporting grains and importing oil** and one of the highest-earning ports in the country.
- Major imports entering the Port of Kandla are **petroleum, chemicals, and iron and steel and iron machinery**, but it also handles salt, textiles, and grain.

## About IGBC Green Cities rating system

- Indian Green Building Council (IGBC) rating system is a **voluntary and consensus based programme**.
- The rating system has been developed with the support of IGBC Green Cities Committee.
- IGBC Green Cities rating system is the first of its kind rating in India **to address environmental sustainability in emerging cities**.

## Global Conservation Assured | Tiger Standards (CA | TS)

### Context

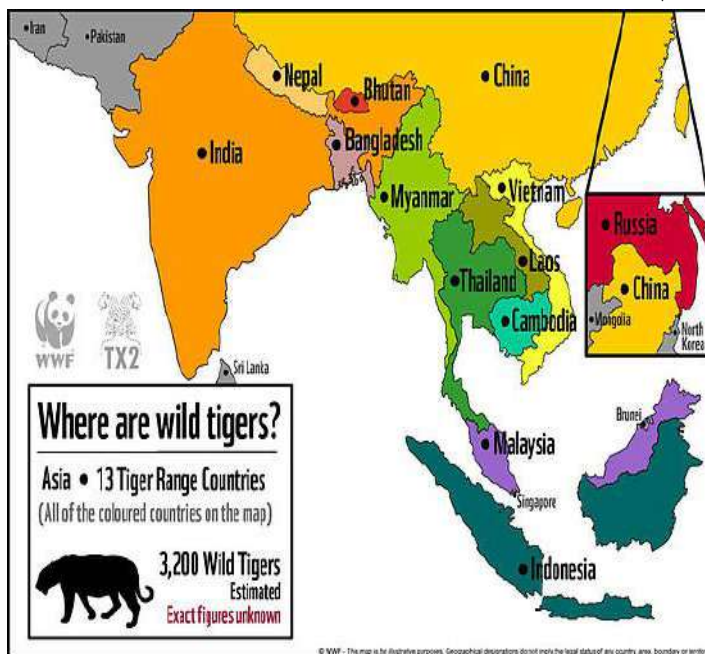
- India's 14 Tiger Reserves in India which received the accreditation of the Global Conservation Assured | Tiger Standards (CA | TS).
- The '**Status of Leopards, Co-predators and Megaherbivores-2018**' report is released, stating the fact that conservation of tigers leads to the conservation of entire ecosystem.
- Tiger Conservation a Symbol of Conservation of Forests.
- During all India tiger estimation 2018, leopard population was also estimated within the forested habitats in tiger occupied states of the country.
- The overall leopard population in tiger range landscape of India in 2018 was estimated at 12,852 (SE range 12,172 - 13,535).
- The 14 tiger reserves which have been accredited are
  - Manas, Kaziranga and Orang in Assam
  - Satpura, Kanha and Panna in Madhya Pradesh
  - Pench in Maharashtra
  - Valmiki Tiger Reserve in Bihar
  - Dudhwa in Uttar Pradesh
  - Sunderbans in West Bengal
  - Parambikulam in Kerala



- o Bandipur Tiger Reserve of Karnataka and
- o Mudumalai and Anamalai Tiger Reserve in Tamil Nadu.

#### Conservation Assured | Tiger Standards (CA | TS)

- It has been agreed upon as accreditation tool by the global coalition of Tiger Range Countries (TRCs).
- It has been developed by tiger and protected area experts.
- Officially launched in 2013, it sets minimum standards for effective management of target species and encourages assessment of these standards in relevant conservation areas.
- Of the 13 tiger range countries Nepal, India, Bangladesh and Russia have registered and rolled out CA | TS, whilst discussion is ongoing with Bhutan, Indonesia, Thailand, Malaysia and China.
- CA | TS is a set of criteria, which allows tiger sites to check if their management will lead to successful tiger conservation.
- CA | TS is an important part of Tx2, the global goal to double wild tiger numbers by the year 2022.



#### Why is CA | TS important?

- Protected areas are a good strategy for retaining forest cover, however their role in protecting wildlife depends on the quality of management.
- Many studies show that tiger numbers can continue to decline in protected areas, particularly due to bushmeat (tiger prey) hunting or the poaching of tigers themselves for trophies, traditional medicines and other illegal activities.
- Until CA | TS, there has not been a set of criteria, which not only **provide clarity on management of tiger sites, but also encourage further development and sharing of best practice across the tiger range countries.**

#### Why tigers?

- Tigers are a large, charismatic species that require rigorous conservation efforts and best practices to ensure their future in the wild.
- This, combined with their need for vast areas of forest, make **tigers an “umbrella species”**.
- By focusing on tigers, and ensuring the forest they live in is protected to the highest standard, all the other species in the same forest benefit too.

## Earth Overshoot Day

#### Context

- **Earth Overshoot Day** has shifted back to July 29, says the World Wide Fund for Nature (WWF).
- This means **humanity has used all biological resources that the Earth regenerates during the entire year by July 29**, the same date as in 2019.
- **The deforestation of the Amazon** has played a key role in the World Overshoot Day coming back to July 29 this year.
- **Humanity currently uses 74 per cent more than what the planet's ecosystems can regenerate** – or 1.7 Earths.
- From Earth Overshoot Day until the end of the year, humanity operates on ecological deficit spending.
- This spending was



currently some of the largest since the world entered into ecological overshoot in the early 1970s, according to the National Footprint & Biocapacity Accounts based on UN datasets.

**So what caused the date to come back to what it was in 2019?**

- WWF noted that the prime driver was the **6.6 per cent increase in the global carbon footprint in 2020**.
- There was also the 0.5 per cent decrease in 'global forest biocapacity' due to a rise in deforestation of the Amazon's rainforests.
- Some 1.1 million hectares of rainforest were lost in Brazil alone, and there would be a **43 per cent year-over-year increase in deforestation in 2021**.

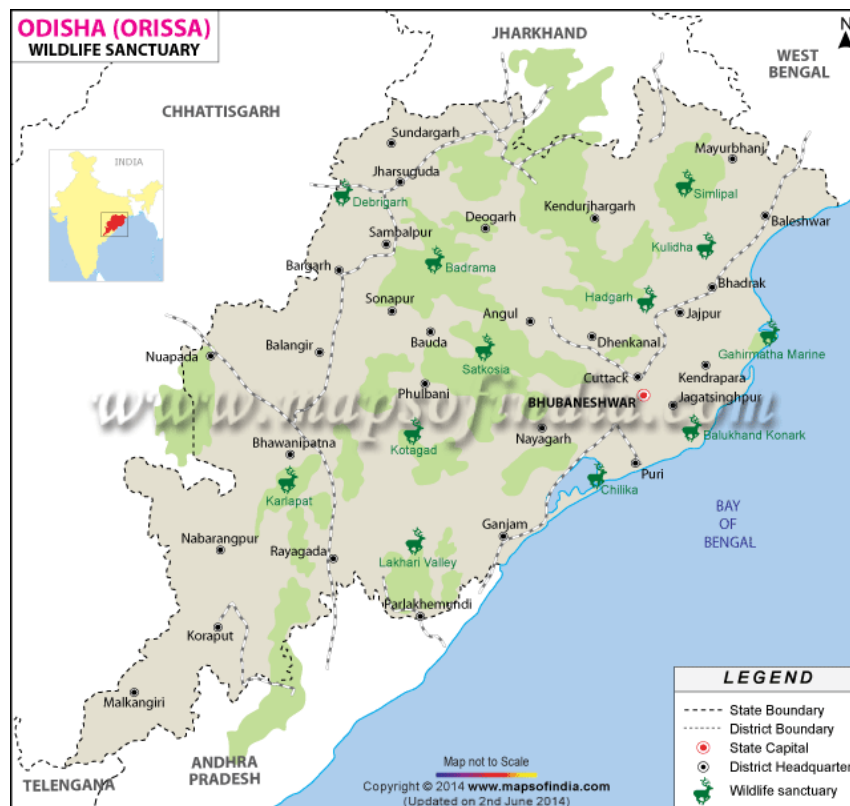
## Karlapat Sanctuary

### Context

- The proposed auctioning of 11 mines in Odisha has evoked sharp reactions among environmentalists and citizen groups, who fear that the move could prove disastrous for wildlife as well as the ecosystem.
- **Karlapat bauxite block**, which is going to be auctioned, is the most controversial of all as it shares its border with Karlapat Sanctuary in Kalahandi district.
- Karlapat is a **designated elephant corridor**, besides being home to a range of wildlife.
- The mining would dry up 300 large and small streams flowing down from sanctuary.
- The biggest concern in the latest auction bid is **opening of virgin areas for mining**.
- Wildlife would be pushed into an existential crisis if the government goes ahead with further mining.

### About Karlapat Wildlife Sanctuary

- It is a wildlife sanctuary located in Kalahandi district and a popular tourist attraction of **Odisha** in India.
- It lies within the **Eastern Highlands moist deciduous forests ecoregion**.
- This sanctuary is home to many wildlife species like tiger, leopard, sambar, nilgai, barking deer, mouse deer, a wide variety of birds like green munia, **Great Eared-nightjar** and various reptiles.



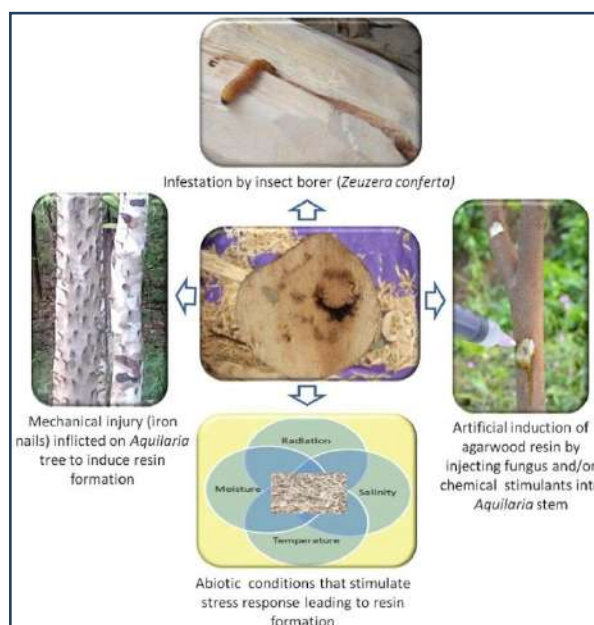
## Agarwood

### Context

- The Tripura initiated steps to promote cultivation of Agar to transform the Economy.

### About Agarwood:

- It is known as the **wood of the gods**; a product of the religious and cultural aroma.
- It is an **economically important and fast-growing evergreen tree species** native to North East India.
- It is creating a paradigm shift to explore new dynamics of access and benefit-sharing.
- Apart from India, the Agar tree's **distribution ranges from the foothills of the Himalayas to Papua New Guinea**.
- It is an **aromatic plant**.
- It has a **huge potential of creating an Economic Revolution in Tripura after Rubber, Bamboo, and other major forestry crops**.
- The Agar species are critically endangered.
- To promote Agar tree, Agarwood based industry, its plantation, its sustainable harvesting, the Tripura government released the 'Tripura AgarWood Policy 2021,' which aims to double agarwood plantation by the year 2025.





**1. Consider the following statements about the Monetary policy:**

1. It is the demand side economic policy used by the government to achieve macroeconomic objectives.
2. Open market operations, reserve system and credit control policy are some of the instruments of monetary policy.
3. Increasing money supply and reducing interest rates indicate a contractionary policy.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 1 and 3 only    d) 1, 2 and 3

**2. Consider the following statements about the Trirashmi caves:**

1. Also known as the Pandav Leni caves, they were carved out between the 2nd century BC and 6th century AD.
2. These caves are an example of Indian rock-cut architecture representing the Hinayana tradition of Buddhism.
3. These caves are assumed to be where Pandavas, characters in the Mahabharata epic, stayed.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 3 only    d) 1, 2 and 3

**3. Consider the following statements about the FIRE initiative:**

1. It is an initiative by the NITI Aayog.
2. It aims to increase research opportunities in the space of Artificial Intelligence (AI), Machine Learning (ML) and Internet of Things (IoT).
3. It is funded by the World Bank.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 2 and 3 only    d) 1, 2 and 3

**4. Consider the following statements about the Sea snot:**

1. These are heterogeneous masses of vegetation, soil and organic matter, in different stages of decay.
2. Rising water level and low temperatures promotes sea snot growth.
3. It can cause an outbreak of water-borne diseases.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 1 and 3 only    d) 3 only

**5. In context of the Carnatic music, consider the following statements:**

1. It is one of two main subgenres of Indian classical music that evolved from ancient Sanatana dharma sciences and traditions.
2. Malayalam predominates in the evolution of Carnatic Music as most compositions are written in it.
3. Chennai, a UNESCO creative city in music, is the epicenter of Carnatic music.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 1 and 3 only    d) 1, 2 and 3

**6. In context of the Vardhamana, consider the following statements:**

1. He was the first Tirthankara of Jainism
2. He was the contemporary of Gautama Buddha.
3. He taught the principles of Anekantavada, syadvada and nayavada.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**7. In context of the PM Cares fund, consider the following statements:**

1. It is a public charitable trust having a dedicated fund with the primary objective of dealing with any kind of emergency.
2. It has received exemption from operation of all provisions of the Foreign Contribution (Regulation) Act, 2010.
3. PM CARES Fund accepts contributions flowing out of budgetary sources of the PSUs.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**8. Consider the following statements about Black carbon:**

1. It is a form of particulate matter that results from incomplete burning of fossil fuel.
2. It is a pollutant as well as a global warming agent.
3. It causes human morbidity and premature mortality

Which of the statements given above is/are correct?

- a) 1 only    b) 1 and 2 only  
c) 2 and 3 only    d) 1, 2 and 3

**9. Consider the following statements:**

1. The maximum retail price of non-urea fertilisers are fixed by the fertilizer manufacturing companies.
2. Under the Nutrient Based Subsidy Scheme, a fixed amount of subsidy decided on an annual basis is provided only for Urea.

Which of the statements given above is/are correct?

- a) 1 only    b) 2 only  
c) Both 1 and 2    d) Neither 1 nor 2

**10. Consider the following statements about the Western disturbances:**

1. It is a non-monsoonal precipitation pattern driven by the easterlies.
2. The moisture in these storms usually originates over the Mediterranean Sea, the Caspian Sea and the Black Sea.
3. They are more frequent and strong in the winter season.

Choose the correct code:

- a) 1 and 2 only    b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**11. Consider the following statements about the Central Bureau of Investigation (CBI):**

1. It is a statutory body that derives power to investigate from the Delhi Special Police Establishment Act, 1946.



2. It is exempted from the provisions of the Right to Information Act.
3. It is India's officially designated single point of contact for liaison with the Interpol.

Choose the correct answer:

- a) 1 and 2 only      b) 2 and 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**12. Consider the following statements about the Nipah virus (NiV):**

1. It cannot transmit directly from human-to-human.
2. It is preventable through vaccination.
3. Flying fox are the natural host of Nipah virus.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 only  
c) 2 and 3 only      d) 1, 2 and 3

**13. In context of the National Jal Jeevan Mission, consider the following statements:**

1. It aims to provide safe and adequate drinking water through individual household tap connections by 2022 to all households in urban India
2. Under this programme, source sustainability measures are implemented as mandatory elements.
3. Under this mission, Gram Panchayats are assisted and empowered to manage, own, operate their own in-village water supply systems.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 and 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**14. Consider the following statements about the International Atomic Energy Agency (IAEA):**

1. It upholds the principles of the Nuclear Non-Proliferation Treaty 1970.
2. It is a specialized agency of the United Nations.
3. It serves as an intergovernmental forum for scientific and technical co-operation in the peaceful use of nuclear technology.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 and 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**15. Consider the following statements about the REDD+ mechanism:**

1. It was created by the United Nations Convention on Climate Change.
2. It monetised the value of carbon locked up in the permafrost region of most developing countries.
3. It addresses issues of accelerated glacial melting and marine pollution.

Which of the statements given above is/are correct?

- a) 1 only      b) 2 and 3 only  
c) 3 only      d) 1, 2 and 3

**16. Consider the following statements about the pygmy hog:**

1. They are listed as Endangered on the IUCN Red List.
2. In India, they are founded only in Kerala.
3. It is designated as a Schedule I species in India under the Wildlife Protection Act, 1972.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 and 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**17. Consider the following statements about the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) Scheme:**

1. It is implemented by the Ministry of Statistics and Programme Implementation.
2. It aims to improve the purchasing power of the rural people.
3. Social Audit of MGNREGA works is voluntary.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 only  
c) 1 and 3 only      d) 1, 2 and 3

**18. Consider the following statements about the Shanghai Cooperation Organisation (SCO):**

1. It is a Eurasian political, economic, and security alliance.
2. This organisation has membership of ten countries as full members.
3. India is one of the founder members of this organization.

Which of the statements given above is/are correct?

- a) 1 only      b) 2 and 3 only  
c) 3 only      d) 1, 2 and 3

**19. Consider the following statements:**

1. Recruitment of children below the age of 15 as soldiers is prohibited by both the UN Convention on the Rights of the Child and the additional protocols to the Geneva Conventions
2. Both Pakistan and Turkey have been added to the Child Soldier Recruiter List.
3. India is a party to the UN Convention on the Rights of the Child treaty.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 and 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**20. Consider the following statements about the NIPUN Bharat:**

1. Launched under the aegis of Samagra Shiksha scheme, it will focus on providing access and retaining children in foundational years of schooling.
2. It will ensure that every child in the country attains foundational literacy and numeracy by the end of Grade 3, by 2026-27.
3. It aims to cover the learning needs of children in the age group of 3 to 19 years.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 and 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**21. Consider the following statements about the Valmiki National Park:**

1. It is located on the bank of river Indrāvati.
2. It is the only National park in Chhattisgarh

Which of the statements given above is/are correct?

- a) 1 only      b) 2 only  
c) Both 1 and 2      d) Neither 1 nor 2

**22. Consider the following statements about the Rudrama Devi:**

1. She was a monarch of the Vijayanagara Empire.
2. The historical temple dedicated to Sangameshwara-Shiva located in Khammam district was constructed during her reign.

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 only  
c) Both 1 and 2      d) Neither 1 nor 2

**23. Consider the following statements about the Indian Rhino Vision 2020 (IRV2020):**

1. It was started in 2005 to increase the rhino population in India to 10,000 by establishing populations in new areas.
2. Wild-to-wild translocations was an essential component of IRV2020.

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 only  
c) Both 1 and 2      d) Neither 1 nor 2

**24. Consider the following statements about the Eco-Sensitive Zone (ESZ):**

1. These are the fragile areas that exist within 50 kilometres of protected areas.
2. The Eco-Sensitive Zone is declared by the respective state government.
3. Establishment of hydro-electric projects, solid waste disposal or wastewater disposal units are prohibited around ESZ.

Which of the statements given above is/are correct?

- a) 1 only      b) 2 and 3 only  
c) 3 only      d) 1, 2 and 3

**25. Consider the following statements about the Competition Commission of India (CCI):**

1. This statutory body was established under the Companies Act 2013.
2. It protects the interests of consumers and ensures freedom of trade in the markets of India.

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 only  
c) Both 1 and 2      d) Neither 1 nor 2

**26. Consider the following statements about the Anti-dumping duty:**

1. This instrument of fair competition is permitted by the WTO.
2. It is a measure to protect the domestic industry.
3. Normal value and the export price are used as fundamental parameters to determine dumping.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 and 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**27. Consider the following statements about King Cobra:**

1. It is the national reptile of India.
2. It is placed under the CITES Appendix II.
3. It has been listed as Endangered on the IUCN Red List.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 and 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**28. Consider the following statements about the National Recruitment Agency:**

1. It is a Society registered under the Societies Registration Act.
2. It conduct the Common Eligibility Test (CET) for recruitment to gazetted posts in government and public sector banks

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 only  
c) Both 1 and 2      d) Neither 1 nor 2

**29. Consider the following statements:**

1. Melting glaciers due to climate change caused Earth's axis to shift in the mid 1990s.
2. The rapid melting of glaciers affects the rotation of Earth.
3. Polar wandering is the migration of the magnetic poles over Earth's surface through geologic time.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 only  
c) 1 and 3 only      d) 1, 2 and 3

**30. Consider the following statements about the Corporate social responsibility (CSR):**

1. It is a type of business self-regulation with the aim of being socially accountable.
2. India is the first country in the world to make corporate social responsibility (CSR) mandatory through the Companies Act, 2013.
3. If a company is unable to fully spend its CSR funds in a given year, it could carry the amount forward and spend it in the next fiscal year.

Which of the statements given above is/are correct?

- a) 1 and 2 only      b) 2 & 3 only  
c) 1 and 3 only      d) 1, 2 and 3

**31. Consider the following statements about the Wild Life (Protection) Act, 1972:**

1. Under this act, plant and animal species listed under the Schedule I and part II of Schedule II are provided with absolute protection.
2. The specified endemic plants in Schedule V are prohibited from cultivation and planting.
3. Animals under Schedule VI are legally considered as vermin and may be hunted freely

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 and 3 only  
c) 3 only                      d) 1, 2 and 3

**32. Consider the following statements about the Odissi dance:**

1. The foundations of Odissi dance are found in the Natya Shastra.
2. Of all classical Indian dances, it has the most elaborate costuming consisting of head dresses, face masks and vividly painted faces.
3. Tribhanga posture is associated with this dance form.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**33. Consider the following statements about the Protection of Women from Domestic Violence Act, 2005:**

1. It defined the domestic violence term and includes verbal and emotional abuse.
2. It is a civil law meant primarily for protection of women.
3. It provides legal recognition and protection to relationships outside of marriage.

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**34. In context of the Goods and Services Tax, consider the following statements:**

1. It is a destination-based tax that is levied on every value addition.
2. Supplies into the Special Economic Zone (SEZ) are exempted from GST.
3. Under the present GST regime, absolute exemption is extended to the services by the Reserve Bank of India.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 1 and 3 only    d) 1, 2 and 3

**35. Consider the following statements about the National Pension Scheme (NPS):**

1. This social security initiative is open to employees from the public, private organizations and armed forces.
2. This scheme replaced the previous Swavalamban Yojana, which wasn't accepted well by the people.
3. It is an entirely tax-free instrument in India.

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 and 3 only  
c) 3 only                      d) 1 and 3 only

**36. Consider the following statements about the Kanchenjunga biosphere reserve:**

1. The Himalayan wet temperate and subtropical moist deciduous forests are found here.
2. It is India's first and only "Mixed World Heritage Site" in the UNESCO list.
3. Dzongu Valley that is inhabited by the Lepcha tribe, falls within this biosphere.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 3 only                      d) 1, 2 and 3

**37. Consider the following statements about the Himalayan yaks:**

1. These are indicators of change in temperature on the mountains.
2. It is the largest animal on the Tibetan plateau
3. They are endangered because of interbreeding with domestic cattle.

Which of the statements given above is/are correct?

- a) 1 and 2 only                      b) 2 and 3 only  
c) 1 and 3 only                      d) 1, 2 and 3

**38. Consider the following statements about the Guru Gobind Singh ji:**

1. He founded the principles of the Five 'K's.
2. He named Guru Granth Sahib, as the next Guru of the sikhs communities
3. He founded the cities of Amritsar, Pathankot, Gaya & Ranchi.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 3 only                      d) 1, 2 and 3

**39. Consider the following statements about the International Criminal Police Organization or INTERPOL:**

1. It is a specialized agency of the United Nations.
2. The Central Bureau of Investigation acts as the nodal body for the Interpol in the country.

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 only  
c) Both 1 and 2    d) Neither 1 nor 2

**40. Consider the following statements about National Wildlife Action Plan for 2017-2031**

1. It is the first time India has recognised the concerns relating to climate change impact on wildlife.
2. The Kasturirangan committee has drafted this plan.

Choose the correct answer using the code given below:

- a) 1 only                      b) 2 only  
c) Both 1 and 2    d) Neither 1 nor 2

**41. Consider the following statements about the Dal Lake:**

1. It is mentioned as Mahasarit in ancient sanskrit texts.
2. The lake basin was formed as a result of tectonic activity and is fed by the Jhelum River.
3. It is a Ramsar site.

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**42. Consider the following statements about the Central Information Commission (CIC):**

1. It is a statutory body.
2. Decisions of the commission are non-binding in nature.
3. It is a multi-member body, which consists of the Chief Information Commissioner and Information Commissioners not exceeding 10.

Which of the statements given above is/are correct?

- a) 1 only                      b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**43. Consider the following statements:**

1. India follows a bicameral system at both the centre and state level.
2. The Constitution of India mandates states to form a Legislative Council.
3. Members of the Legislative Council are directly



elected.

Which of the statements given above is/are correct?

- a) 1 only      b) 2 and 3 only  
c) 3 only      d) 1 and 3 only

**44. Consider the following statements about the HSN code:**

1. It is used for classifying services under the Goods and Services Tax.
2. It is administered by the World Customs Organization (WCO) and is updated every five years.
3. Recently, the government has made HSN Code mandatory for GST taxpayers with more than Rs 5 crores turnover.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**45. Consider the following statements about the Banking Ombudsman:**

1. This quasi-judicial body was constituted under the Banking Ombudsman Scheme 2006.
2. It is appointed by the Reserve Bank of India.
3. Presently, there are three Ombudsmen for Banking, Non-Banking Finance Company and digital transactions.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 2 and 3      d) 1, 2 and 3

**46. Consider the following statements about the Mosses:**

1. These are non-flowering plants, which don't have true roots.
2. They're among the first plant colonisers of disturbed sites
3. They stabilise the soil surface and retain water, helping new plants to grow.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 1 and 3 only    d) 1, 2 and 3

**47. Consider the following statements about the Nagara temples:**

1. It has only one shikhar.
2. The Temples of Khajuraho are a magnificent example of the Nagara style of temples.
3. Gopuram is the prominent feature of the Nagara architecture.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 1 and 3 only    d) 3 only

**48. Consider the following statements about the lichen:**

1. India's first lichen park is in Uttarakhand.
2. They are the best bioindicators of the pollution levels
3. Lichens are symbiotic association between a green plant and a fungus.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 only  
c) 1 and 3 only    d) 1, 2 and 3

**49. Consider the following statements about the Light Combat Helicopter Tejas:**

1. It is indigenously developed by the Hindustan Aeronautics Limited.
2. It is the first indigenously built fighter aircraft in India's history.
3. It is intended to replace the MIG-21 fighter jet.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 3 only      d) 1 and 3 only

**50. Consider the following statements:**

1. Dhuandhar falls is on the Mahadayi river in Goa.
2. Dhuandhar falls waterfall is in the Moulem reserve forest and sanctuary.

Which of the statements given above is/are correct?

- a) 1 only      b) 2 only  
c) Both 1 and 2    d) Neither 1 nor 2

**51. Consider the following statement about the Channapatna toys:**

1. It is a particular form of leather toys that are manufactured in the Karnataka state.
2. This traditional craft is awarded with the geographical indication (GI) tags.
3. Tipu Sultan invited artisans from Persia to train the local artisans for making these toys.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 3 only      d) 1, 2 and 3

**52. Consider the following statements about the Blockchain Technology:**

1. It is a distributed ledger that records data in individual blocks, which are linked to one another using cryptography.
2. Most crypto currencies are based on this technology to record transactions.
3. It can be used in detecting counterfeits.

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 1 and 3 only    d) 1, 2 and 3

**53. Consider the following statements about the Jagannath temple:**

1. It was constructed by the rulers of the Eastern Ganga Dynasty.
2. It is generally called as black pagoda.
3. Ramanujacharya and Ramananda were closely associated with the temple

Which of the statements given above is/are correct?

- a) 1 and 2 only    b) 2 and 3 only  
c) 3 only      d) 1 and 3 only

**54. In context of the Kesaria Buddha stupa, consider the following statements:**

1. It is located in Bihar.
2. Fahien and Hsuan Tsang had visited this place.
3. It is a protected monument of national importance.

Which of the statements mentioned above is/are correct?

- a) 1 and 2 only    b) 2 only

c) 1 and 3 only d) 1, 2 and 3

**55. Which of the following reforms was/were introduced by Tipu sultan?**

1. New coinage system
2. Land revenue system to promote Mysore silk industry
3. Banking networks and cooperatives

Choose the correct answer using the code given below:

- a) 1 and 2 only b) 2 and 3 only  
c) 1 and 3 only d) 1, 2 and 3

**56. In context of the WPI or the wholesale price index, consider the following statements:**

1. It has a greater constitution of food items.
2. It tracks basic prices of goods including transportation cost, taxes and the retail margin etc.
3. It is primarily used as a GDP deflator.

Which of the statements given above is/are correct?

- a) 1 and 2 only b) 2 and 3 only  
c) 3 only d) 1, 2 and 3

**57. Consider the following statements about the tropical cyclones:**

1. In recent years, frequency and intensity of cyclones in the Arabian Sea have increased compared to the Bay of Bengal.
2. It is very calm and clear in the eye with very low air pressure.
3. They form only over warm ocean waters near the equator.

Which of the statements given above is/are correct?

- a) 1 and 2 only b) 2 and 3 only  
c) 2 only d) 1, 2 and 3

**58. Which of the following criteria are followed by the Government of India for identification of Primitive Vulnerable Tribal Groups (PVTGs)?**

1. Stagnant population
2. Hunger and malnutrition
3. Pre-agricultural level of technology

Choose the correct answer using the code given below:

- a) 1 and 2 only b) 2 and 3 only  
c) 1 and 3 only d) 1, 2 and 3

**59. Consider the following statement about the Kalaripayattu:**

1. It is a traditional theatre that originated in modern-day Kerala.
2. Women are not allowed to undergo training in Kalaripayattu.
3. It is mentioned in the Vadakkan Pattukal.

Which of the statements given above is/are correct?

- a) 1 and 2 only b) 2 and 3 only  
c) 1 and 3 only d) 1, 2 and 3

**60. Consider the following statements about the Anti-defection law:**

1. The Ninth Schedule sets the provisions for disqualification of elected members on the grounds of defection.
2. In case of defection, the decision of the Presiding

Officer is subjected to judicial review.

3. This law was brought under the Rajiv Gandhi government tenure.

Which of the statements given above is/are correct?

- a) 1 only b) 2 and 3 only  
c) 3 only d) 1, 2 and 3

### ANSWERS

1. a	16. c	31. a	46. d
2. a	17. b	32. c	47. b
3. b	18. a	33. d	48. a
4. d	19. d	34. d	49. d
5. c	20. a	35. c	50. d
6. b	21. d	36. d	51. b
7. a	22. b	37. d	52. d
8. d	23. b	38. d	53. d
9. a	24. c	39. b	54. d
10. b	25. b	40. a	55. d
11. b	26. c	41. a	56. c
12. d	27. a	42. c	57. d
13. b	28. a	43. a	58. c
14. b	29. d	44. b	59. c
15. a	30. a	45. d	60. b