

WEEKLY CURRENT AFFAIRS MAGAZINE for



**C.D.S.**

## JULY-VOL-III-2023

16 July to 22 July



- UPSC/MPSC/NDA/CDS/CAPF/AFCAT
- PUNE/THANE/DADAR/ANDHERI/KALYAN/  
PCMC/NERUL/BORIVALI/SATARA
- Offline/Online batches/Video course
- [www.pioneeracademypace.com/.in](http://www.pioneeracademypace.com/.in)
- IVR No. – 75060 10635



Topic no	Topic Covered	Page No
<b>SCIENCE AND TECHNOLOGY</b>		
1.	A NEW DIARRHOEA-CAUSING PARASITE FOUND	5-7
2.	UNETHICAL TO CONTINUE USING POLIO-CAUSING ORAL POLIO VACCINES	7-9
3.	PAYLOADS IN CHANDRAYAAN 3	10
4.	ISRO PERFORMS FIRST ORBITRAISING MANOEUVRE OF CHANDRAYAAN3	11-12
5.	NOD FOR MULTI-ROLE CHOPPER BY EARLY 2024; SAFRAN, HAL TO SET UP FIRM IN BENGALURU	12-13
6.	PSLV-C56 TO LIFT OFF WITH SEVEN SATELLITES	13
7.	HOW GAPS IN CLOUD SYSTEM CONFIGURATION CAN EXPOSE USER DATA	13-15
8.	ISRO'S SECOND ORBIT-RAISING MANOEUVRE SUCCESSFUL	15-16
9.	DRDO'S PROPULSION SYSTEM IN FOCUS AS INDIA EXPECTS THREE MORE SCORPENES	16-17
10.	JAMES WEBB SPACE TELESCOPE	17-18
11.	BREAKTHROUGHS IN ALZHEIMER'S RESEARCH	18-19
12.	INDIA RECORDED ALL-TIME HIGH OF 93% DPT3 IMMUNISATION COVERAGE IN 2022: WHO	19-21
<b>ECONOMY</b>		
13.	INDIA AND UAE SET TO USE RUPEE, DIRHAM FOR TRADE	21-22
14.	US SEES INDIA AS AN INDISPENSABLE ALLY IN FRIENDSHORING: YELLEN	22
15.	INDIA TO PUSH G20 TO RAISE TAXES ON MNCs MAKING 'EXCESS PROFIT'	23-24
16.	EU MAY BE OFFERED TARIFF SOPS ON SOME ICT PRODUCTS	24-25
17.	NEW PANEL TO REVIEW 'NSO DATA'	25-27
18.	PSBS TO STEP UP ONE-TIME SETTLEMENT IN WRITTEN-OFF LOANS	27-29
19.	REGULATING CRYPTOS: FSB RECOMMENDS FRAMEWORK	29-31
20.	INDIA SEEKS PERMANENT RESOLUTION OF ROW OVER PUBLIC STOCKHOLDING	31-33
21.	IMF CHIEF URGES G20 COUNTRIES TO RESTORE PRIMACY OF QUOTA RESOURCE	33-34
22.	INDIA'S NON GMO CERTIFICATION NORM: US PROTESTS CITING GM MUSTARD	34-36

23.	EU RULES ON SUBSIDIES TO HURT EXPORTS	36-37
24.	HOUSEHOLD CONSUMPTION EXPENDITURE SURVEY (HCES)	37-38
<b>ENVIRONMENT</b>		
25.	PANEL WANTS KUNO CHEETAHS TO UNDERGO MEDICAL REVIEW	38-39
26.	CORAL BLEACHING	39-41
27.	CHINA EVENT RAISES CONCERN OVER INDIA'S ONLY APE	41-42
28.	COMMONLY-FOUND CICADA SPECIES SHEDS ITS FOREIGN TAG TO EMBRACE AN INDIAN IDENTITY	43
29.	U.S. AND INDIA WORKING TO MAKE INVESTMENT EASIER FOR ENERGY TRANSITION, SAYS YELLEN	44
30.	GENETIC RESOURCES COMMISSION GATHERS IN ROME TO DELIBERATE ON BIODIVERSITY, NUTRITION & HUMAN HEALTH	44-46
31.	WILL BENEFITS FROM GENETIC RESOURCES EVER REACH COMMUNITIES?	46-47
32.	TIGERS STRUGGLE TO MOVE WITHIN NEPAL EVEN AS THEY CROSS BORDERS: STUDY	48-49
33.	ASIATIC LION RUN OVER BY GOODS TRAIN NEAR PIPAVAV PORT IN GUJARAT'S AMRELI DISTRICT	49-52
<b>GEOGRAPHY</b>		
34.	COAL MINING IN MEGHALAYA	52-54
35.	SEED FESTIVAL	54
36.	LIGHTNING NOT A NATURAL DISASTER	55-56
37.	HEAT WAVES ACROSS SOUTHERN EUROPE	56-58
38.	TRACKING THE NEW RAILWAY PROPOSAL FOR KERALA	58-59
39.	MINISTRY WEIGHS FEASIBILITY OF COAL SHIPMENTS FROM MEGHALAYA TO BANGLADESH VIA ASSAM'S PANDU PORT	59-60
<b>INTERNATIONAL RELATIONS</b>		
40.	AUKUS	60
41.	CHINA AND RUSSIA TO KICK OFF AIR, NAVY DRILLS IN EAST SEA	61
42.	INDIA EYES 5000 KM EASTERN REGIONAL WATERWAYS GRID	61-62
43.	BLAZE 'OUT OF CONTROL' AS MORE PEOPLE FLEE SPAIN'S LA PALMA	63

44.	MORE THAN COURT ACTION, REVISIT THE INDUS WATERS TREATY	64-65
<b>HISTORY</b>		
45.	OPPENHEIMER : FATHER OF ATOM BOMBS	66
46.	INTERNATIONAL RELATIONS CULTURAL PROPERTY AGREEMENT WITH US	67-68
47.	VARANASI COURT ORDERS ASI SURVEY OF GYANVAPI MOSQUE PREMISES	68
<b>POLITY</b>		
48.	MANIPUR VIOLENCE: WHAT IS A ZERO FIR AND WHY IT IS REGISTERED	69-70
49.	CENTRE SEEKS MORE SOCIAL DIVERSITY IN JUDGES' APPOINTMENT	70-71
50.	USE ANY INDIAN LANGUAGE AS OPTIONAL MEDIUM, SAYS CBSE	71-72
<b>SCHEMES</b>		
51.	AYUSHMAN BHARAT EMBRACES AI TO TACKLE FRAUD	72-74
52.	AMRUT 2.0	74-75
53.	CENTRE TO SEEK STATES' INPUTS TO BRIDGE GAPS IN SEX RATIO	75-76

## Topic 1. A NEW DIARRHOEA-CAUSING PARASITE FOUND

### *Important for subject: Science*

A **three-year surveillance study** from March 2017 to February 2020 in Kolkata has found an **amoeba pathogen** that previously did not cause any **amoebiasis** (a form of diarrhoea) in humans has now become pathogenic.

### **Research findings:**

- A team of researchers from the **Kolkata-based National Institute of Cholera and Enteric Diseases (ICMR-NICED)** found that not only had the amoeba pathogen — **Entamoebamoshkovskii**— turned **pathogenic**, it was the **leading cause of amoebic infections in humans**.
- More than half of the amoebic infections were caused by this pathogen.
- The infections caused by **E. histolytica**, which used to be the **predominant amoeba pathogen** that caused **amoebiasis**, were decreasing and the newly pathogenic **E. moshkovskii** was taking its place.
- The researchers identified a few **mutations** that signify an **essential role of the new pathogenic parasite in adapting to the gut environment of humans** or in acquiring other enteric pathogens.
- **The amoebiasis** is routinely diagnosed by light microscopy.

### **Diarrhoea:**

- **Diarrhoea** can be caused by **bacteria, viruses and amoeba pathogens**.
- As per **WHO**, Diarrhoea is defined as the **passage of three or more loose or liquid stools per day** (or more frequent passage than is normal for the individual).
- It often lasts for a few days and can **result in dehydration due to fluid loss**.
- The most common cause is an infection of the intestines due to either a virus, bacterium, or parasite—a condition also known as **gastroenteritis**.
- These infections are often acquired from food or water that has been contaminated by feces, or directly from another person who is infected.
- Diarrhea can be prevented by improved sanitation, clean drinking water, and hand washing with soap.

### **Clinical Types:**

1. **Acute Watery Diarrhoea**— lasts several hours or days, and includes cholera;
2. **Acute Bloody Diarrhoea** – also called dysentery; and
3. **Persistent Diarrhoea** – lasts 14 days or longer.

### **Status of Diarrhoea in India:**

- Diarrhoea is **one of the leading causes of deaths in children in this age group globally** and claims approximately **1.1 lakh lives in India every year** – according to **2019-2020**

### National Family Health Survey (NFHS-5).

- The **National Family Health Survey** shows that the **prevalence of childhood diarrhea** has **increased from 9% to 9.2%** from **2016 to 2020** in India. It is the **third most common responsible disease for under five mortality**.
- According to the latest survey (NFHS-5) conducted by the Ministry, **only 60.6% children under the age of five with diarrhoea were given ORS** and **only 30.5% were given zinc**. This means that there is a lack of awareness among mothers. **Dehydration** is the biggest cause of diarrhoea in children and other reasons include a change in the baby's diet to make up for a change in the mother's diet when breastfeeding; Use of antibiotics by the baby, or use by the mother while breastfeeding, or any type of bacterial or parasitic infection.

### Prevention:

- Access to safe drinking-water;
- Use of improved sanitation;
- Hand washing with soap;
- Exclusive breastfeeding for the first six months of life;
- Good personal and food hygiene;
- Health education about how infections spread; and
- Rotavirus vaccination.

### Treatment:

- Rehydration with Oral Rehydration Solution (ORS)
- Zinc Supplements
- Rehydration with Intravenous Fluids
- 4/19 Nutrient-rich Foods

### IDCF:

- The **Intensive Diarrhoea Control Fortnight (IDCF)** has been organized since **2014** with an objective to **'bringing the number of deaths due to diarrhoea in childhood to zero'**.
- This fortnight is organised especially during summer/monsoon so that preventive measures can be taken.
- IDCF **consists** of a set of activities to be implemented in an intensified manner for prevention and control of deaths due to dehydration from diarrhoea across all States & UTs.

### These activities mainly include:

- Intensification of advocacy & awareness generation activities for diarrhoea management,
- Strengthening service provision for diarrhoea case management,
- Establishment of ORS-zinc corners,

- Prepositioning of ORS by asha in households with under-five children and Awareness generation activities for hygiene and sanitation.
- One of the main activities under IDCF program has been the activities by field workers including **ASHA, ANM and anganwadi workers**. Field workers visit the homes of families with children below five years of age and provide counselling in case of diarrhoea for distribution of zinc and ORS sachets. They also promote sanitation practices, breastfeeding practices and advise on preparation method of ORS through group meetings among mothers.

### **Universal Immunization Programme (UIP):**

- It was launched by the government in **1985** and prevents mortality and morbidity in children and pregnant women against 12 vaccine preventable diseases including pneumonia and diarrhoea.

---

## **Topic 2. UNETHICAL TO CONTINUE USING POLIO-CAUSING ORAL POLIO VACCINES**

### *Important for subject: Science*

In **1988**, the **World Health Assembly** declared **WHO's** commitment to **global eradication of polio by 2000**. But in **1993**, the goalpost was shifted — the goal was to **eradicate only wild poliovirus globally by 2000**.

- That meant that eradicating **vaccine-derived poliovirus (VDPV)** and **vaccine-associated paralytic poliomyelitis (VAPP)** was no longer the objective.
- **The reason:** developing countries using **oral polio vaccine** reported many **vaccine-derived** or **vaccine-associated polio cases annually**.
- Meanwhile, the **developed countries** switched to **inactivated polio vaccine** thus eradicating polio decades ago.

### **Polio virus cases in India:**

- Though the **last case of type 2 wild poliovirus** was reported in **October 1999** from **India** (and declared eradicated globally in 2015), more than **90%** of **vaccine-derived poliovirus outbreaks** are due to **type 2 virus** present in **oral polio vaccines**.
- Also, **40%** of **VAPP** are caused by **type 2 oral polio vaccine**.
- Similarly, the **last case of type 3 wild poliovirus** was reported in **November 2012** (and declared eradicated in 2019).

### **Shift from trivalent to bivalent vaccine:**

- With **type 2 wild poliovirus** being eradicated and **all type 2 polio cases** being **vaccine derived**, there was a **global switch from trivalent** (containing all three variants) to **bivalent** (type 1 and type 3) oral polio vaccine in 2016 to prevent any more type 2 vaccine-derived poliovirus.



- The number of vaccine-derived type 2 poliovirus outbreaks have only increased sharply after the global switch to bivalent oral polio vaccine.

#### Concern over the Type-3 polio virus:

- But many cases of VAPP from **type 3 virus** occur in countries using oral polio vaccine.
- The **Global Polio Eradication Initiative (GPEI)** has never reported **VAPP cases** throughout the **34 years of polio eradication efforts**. And the **Indian government** does not count **VAPP** as polio as such cases are sporadic and pose little or no threat to others.
- In result, the number of **VAPP-compatible cases showed an increasing trend in India** from **1998 to 2013**, so much so that they outnumbered the polio cases caused by wild poliovirus since 2004.
- **VAPP** cases occur at a frequency of **two-four cases per million birth cohort per year** in countries that use **OPV**.
- Based on this incidence rate, an estimated **50-100 children might suffer from VAPP every year in India**.

#### Type 2 novel OPV:

- A **type 2 novel oral polio vaccine (OPV)** that is **genetically modified** such that it is to less likely to revert to neurovirulence unlike the **Sabin vaccine** and therefore **cause less type 2 vaccine-derived poliovirus cases** was authorised by **WHO** under **Emergency Use Listing** in **November 2020** and **first used** in the field in March 2021.
- But as of May 2023, the novel vaccine, which is to be used only in type 2 VDPV outbreak situations, has already caused **three type 2 VDPV cases**.
- However, the **type 2 novel OPV vaccine does not address VAPP cases** arising from continued use of oral polio vaccine.

#### Polio virus:

- Polio is a crippling and potentially deadly viral infectious disease that affects the nervous system.

#### There are three individual and immunologically distinct wild poliovirus strains:

1. **Wild Poliovirus type 1 (WPV1)**
  2. **Wild Poliovirus type 2 (WPV2)**
  3. **Wild Poliovirus type 3 (WPV3)**
- Symptomatically, all three strains are identical, in that they cause irreversible paralysis or even death. However, there are genetic and virological differences, which make these three strains separate viruses which must each be eradicated individually.
  - The virus is **transmitted person-to-person mainly through the faecal-oral route or, less frequently, by a common vehicle** (for example, through contaminated water or food).



**Vaccines:**

- **Oral Polio Vaccine (OPV):** It is given orally as a birth dose for institutional deliveries, then primary three doses at 6, 10 and 14 weeks and one booster dose at 16-24 months of age.
- **Injectable Polio Vaccine (IPV):** It is introduced as an additional dose along with the 3rd dose of DPT (Diphtheria, Pertussis and Tetanus) under the Universal Immunisation Programme (UIP).

**Initiative by India:****Pulse Polio Programme:**

- It was started with an objective of achieving 100% coverage under Oral Polio Vaccine.

**Intensified Mission Indradhanush 2.0:**

- It was a nationwide immunisation drive to mark the 25 years of Pulse polio programme (2019-20).

**Universal Immunization Programme (UIP):**

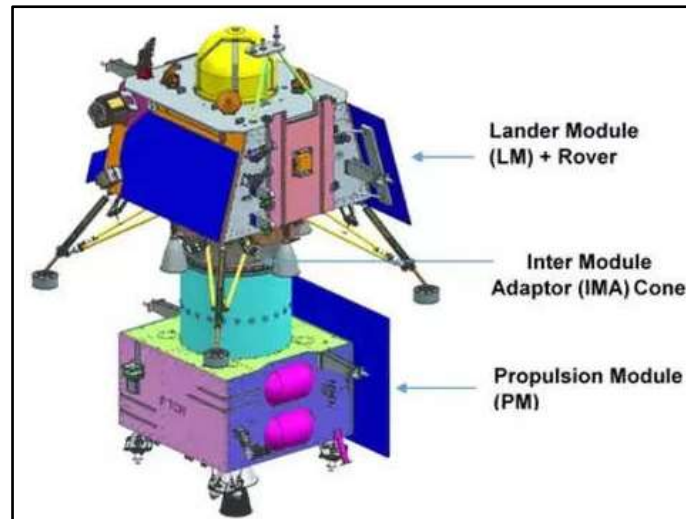
- It was launched in 1985 with the modification to 'Expanded Programme of Immunization (EPI). The objectives of the Programme include:
- Rapidly increasing immunization coverage
- Improving the quality of services
- Establishing a reliable cold chain system to the health facility level
- Introducing a district-wise system for monitoring of performance
- Achieving self-sufficiency in vaccine production.

**Global Polio Eradication Initiative:**

- It was launched in **1988** by the **Global Polio Eradication Initiative (GPEI)**, by national governments and **WHO**. Presently, **80%** of the world's population is now living in certified polio-free regions.
- An estimated 1.5 million childhood deaths have been prevented, through the systemic administration of vitamin A during polio immunization activities.

### Topic 3. PAYLOADS IN CHANDRAYAAN 3

*Important for subject : Science and technology*



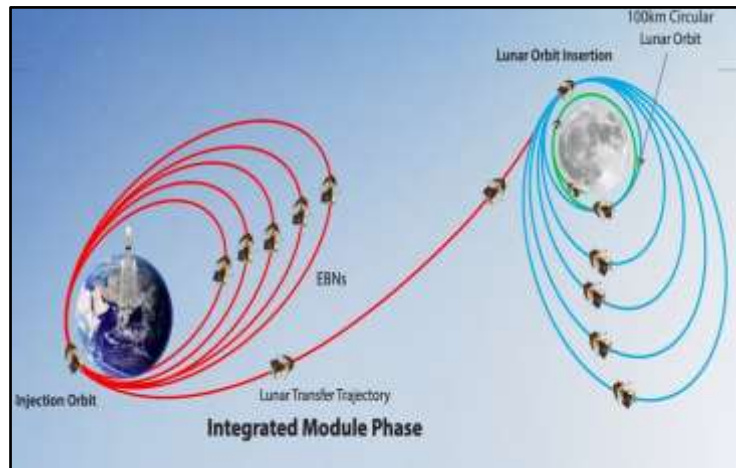
The Chandrayaan-3 carries six payloads that would help ISRO understand the lunar soil and also get the blue planet's photographs from the lunar orbit.

**Radio Anatomy of Moon Bound Hypersensitive ionosphere and Atmosphere (RAMBHA)** will measure the near-surface plasma density and its changes with time.

- **Instrument for Lunar Seismic Activity (ILSA)** will measure seismicity around the landing site and delineate the structure of the lunar crust and mantle.
- **Laser-Induced Breakdown Spectroscope (LIBS)** will determine the elemental composition of lunar soil and rocks around the landing site.
- **Alpha Particle X-Ray Spectrometer (APXS)** will derive the chemical composition and infer the mineralogical composition of the moon's surface.
- **Spectro-polarimetry of Habitable Planet Earth (SHAPE)** will study the spectropolarimetric signatures of the earth in the near-infrared wavelength range. This could be used in the search for life on exo-planets beyond the solar system.
- **Lunar lander Vikram** will click photos of the rover Pragyaan as it studies the seismic activity on the moon by dropping some instruments.
- Using laser beams, it would try to melt a piece of the lunar surface — the regolith — to study the gases emitted during the process.

## Topic 4. ISRO PERFORMS FIRST ORBITRAISING MANOEUVRE OF CHANDRAYAAN3

*Important for subject : Science and technology*



A day after the Indian Space Research Organisation (ISRO) successfully launched India's third moon mission, Chandrayaan-3, the **first orbit-raising manoeuvre** was conducted on Saturday.

The manoeuvre was performed by the **ISRO Telemetry Tracking and Command Network (ISTRAC) in Bengaluru** to place the Chandrayaan-3 spacecraft at the **41,762 km x 173 km orbit**. This means that Chandrayaan-3 is now in an orbit, which when closest to Earth is at 173 km and farthest at 41,762 km.

### Orbital Manoeuvre

- In spaceflight, an **orbital maneuver (otherwise known as a burn)** is the use of propulsion systems to change the orbit of a spacecraft.
- For spacecraft far from Earth (for example those in orbits around the Sun) an orbital maneuver is called a **deep-space maneuver (DSM)**.
- An on-orbit burn (ie a delta-v, for change in velocity) can alter the shape of an orbit.
- **Posigrade burns** (forward in the direction of orbit) will raise the existing flight path, while retrograde burns (opposite the direction of orbit) will lower it.
- Left Posigrade burn results in higher orbital altitude and Right Retrograde burn lowers orbital altitude
- An interesting feature of orbital burns is that if no other burn occurs, the spacecraft will always pass again through the point of burn. These burns can be combined into orbital maneuvers that will change the size, shape, or orientation of the orbit

### Hohmann transfer:

- An elliptical orbit used to transfer between two circular orbits in the same plane. The first

posigrade burn stretches the circular orbit into an elliptical one. Then at the apoapsis of the elliptical orbit, another posigrade burn circularizes the orbit at a higher altitude. Two retrograde burns can be done in the same order if a smaller circular orbit is desired. A Hohmann transfer orbit being used to increase orbital altitude.

**Bi-elliptic transfer:**

- An alternate way to transfer between two circular orbits in the same plane. It takes a combination of three posigrade/retrograde burns (posigrade, posigrade, retrograde to increase, retrograde, retrograde, posigrade to decrease altitude), but despite the extra burn, it can actually be more fuel efficient than the Hohmann transfer if the ratio between the new and old altitudes is sufficiently high (~12x). A mathematical explanation for why is included in a later section.
- A bi-elliptic transfer being used to achieve a higher altitude circular orbit. Posigrade burns at points 1 and 2, retrograde burn at point 3.

**Orbital inclination changes:**

- The Hohmann and bi-elliptic transfers are useful for orbits in the same plane, but what if we want to increase orbital inclination? These require much more energy, but can be done with an upward or downward thrust perpendicular to the existing orbital plane at one of the nodes. This will rotate the orbital plane about the line of nodes.

---

**Topic 5. NOD FOR MULTI-ROLE CHOPPER BY EARLY 2024; SAFRAN, HAL TO SET UP FIRM IN BENGALURU*****Important for subject : Science and technology***

The project sanction for the **Indian Multi-Role Helicopter (IMRH)**, being developed by **Hindustan Aeronautics (HAL)**, is expected within this financial year, defence sources said.

Meanwhile, **Safran Helicopter Engines and HAL** have decided to **set up their new joint venture company in Bengaluru**, which will be dedicated to the “design, development, production, sales and support of helicopter engines” with the focus first on the IMRH, the French company announced.

The **IMRH, expected to be ready by the end of this decade**, is meant to replace the Mi-17s in service and will also have a naval version, the Deck Based Multi-Role Helicopter (DBMRH).

**About Indian Multi Role Helicopters**

- The **Indian Multi Role Helicopter (IMRH)** is a **medium-lift helicopter** currently under development by **Hindustan Aeronautics Limited (HAL)** for Indian Armed forces for air assault, air-attack, anti-submarine, anti-surface, military transport and VIP transport roles.
- IMRH is aimed to **replace all the current Mil Mi-17 and Mil Mi-8 helicopters across the Indian armed forces.**

- The planned rotorcraft is expected to have a maximum takeoff weight of 13 tonnes with a five bladed main rotor and 4 bladed rotor on tail.
- The navalised version further will have longer range and higher payload capacity.
- HAL estimates requirement of over 314 rotocraft of same class across Indian Armed Forces replace existing Mil Mi-17 helicopters in service in India.

### **Topic 6. PSLV-C56 TO LIFT OFF WITH SEVEN SATELLITES**

*Important for subject: Science and technology*

After Friday's spectacular start to the Chandrayaan-3 moon mission, scientists at the Indian Space Research Organisation (ISRO) will be back in Sriharikota for another important launch later this month.

The Polar Satellite Launch Vehicle — C56 (PSLV-C56) mission is expected to lift off from the SatishDhawan Space Centre towards July-end — July 26 as per the latest updates.

#### **Core Alone Variant**

- ISRO will be using a 'core alone' variant of the PSLV for this mission.
- **PSLV-Core Alone (PSLV-CA) variant does not use solid rocket strap-on motors in its first stage for added thrust.** Other variants use up to six strap-ons.

#### **Flexible launch vehicle**

- The PSLV variants are used depending on the mission requirements. The PSLV is a flexible launch vehicle which can be rigged with two, four or six strap-ons depending on the need.

#### **Payloads**

- A commercial mission, the PSLV-C56 will have seven payloads in all including the
- 351.9 kg earth observation satellite DS-SAR (short for Synthetic Aperture Radar) from Singapore.
- The others are Arcade (23.58 kg), Velox-AM (23 kg) and Orb-12 Strider (12.8 kg).
- The remaining three are nanosatellites weighing less than 10 kg each.
- They are the Galassia-2 (3.84 kg), SCOOB-II (4.1 kg) and NuLIon (3.05 kg), according to a list provided by the VSSC. These satellites will be placed in a Low Earth Orbit (LEO).

### **Topic 7. HOW GAPS IN CLOUD SYSTEM CONFIGURATION CAN EXPOSE USER DATA**

*Important for subject : Science and technology*

**68%** of businesses in India, and **75%** globally, say that more than **40%** of data stored in the cloud is classified as sensitive. And **35%** of organisations in India note that their data was

breached in a cloud environment last year.

### What is cloud storage and why do companies use it?

- **Cloud storage** is a method in which digital data, including files, business data, videos, or images, are **stored on servers in off-site locations**.
- Companies use cloud storage to **store, access and maintain data** so they do not need to invest in operating and maintaining data centres.
- These servers may be **maintained by the companies themselves** or by **thirdparty providers** responsible for hosting, managing, and securing stored data.
- These servers can be **accessed either by the public or through private internet connections**, depending on the nature of the data.
- An added **advantage of cloud storage** is its **scalability**; **organisations can expand or reduce their data footprint depending on need**.
- **Most cloud providers** offer **security features** like **physical security at data centres**, in addition to **zero-trust architecture, identity and access management**, and **encryption to ensure the security of data on their servers**.

### Risks associated with cloud storage:

- The risks arise from **deployment of incompatible legacy IT systems** and **thirdparty data storage architecture**.
- The **use of weak authentication practices** and **easily guessable passwords** can allow unauthorised individuals to access sensitive data.

There is the **risk of exposure** due to:

**Insecure APIs, Poorly designed or inadequate security controls, Internal threats due to human error and Inadequate encryption during transfer or storage.**

### How legacy systems weaken cloud storage setup?

- Legacy IT security may have **known vulnerabilities** that are yet to be fixed.
- Legacy systems **may not be capable of supporting more advanced encryption techniques** such as **secure boot methods or hardware-based encryption**.
- Updating and auditing legacy systems when used in tandem cloud infrastructure is therefore important.

### Data breaches and Data exposure in the cloud:

- While in a **data breach**, confidential or protected information is exposed to unauthorised individuals, **data exposure** is often depicted as the unintentional disclosure or accidental disclosure of data, resulting from misconfiguration or human error.

### What are system misconfigurations and how do they happen?

- A **system misconfiguration** arises when there is a lack of thorough security



configurations on the devices accessing the cloud data, the servers, or a weakness in the software used. **Misconfigurations** can either expose user data, making it accessible to unauthorised individuals, compromising security.

### Who is liable for data protection in the cloud?

- **The onus of ensuring data security lies with the companies** even though they grant access to data to vendors and partners. This includes checking cloud compliances like ensuring passwords have two-factor authentication, monitoring access to the database, ensuring it is encrypted, and ensuring all firewall rules are set so that only access through certain places and certain departments is allowed.

### Data encryption:

- Data encryption is seen as **one of the most effective approaches for securing sensitive information in the cloud.**

However, it comes with its own set of challenges which include:

- Encryption before data is stored, Ensuring the security of encryption keys, and Changing the encryption keys periodically to ensure continued safety.

### What are the risks of data migration in the cloud?

- There is risk involved when switching between vendors for cloud storage or when systems are upgraded.
- Without a proper migration plan and process based on thorough assessment of the cloud provider, data could get exposed.

### How can users keep their data safe?

- When users get to know of possible data breaches, they are recommended to **change passwords, two-factor authentication setup, push security question answers, and monitor accounts for unauthorised transactions and SMSs for suspicious activity.**

---

## Topic 8. ISRO'S SECOND ORBIT-RAISING MANOEUVRE SUCCESSFUL

*Important for subject : Science and technology*

Chandrayaan-3 spacecraft has now moved into a new, higher orbit around the Earth after the successful completion of the second orbit-raising manoeuvre, the Indian Space Research Organisation (ISRO).

- The manoeuvre was **performed by the ISRO Telemetry Tracking and Command Network (ISTRAC)** in Bengaluru to place the Chandrayaan 3 spacecraft in the 41,603 km x 226 km orbit.
- This means that **Chandrayaan-3 is now in an orbit, which when closest to Earth is 226 km away and farthest is at a distance of 41,603 km.**



- Hoping to make a soft landing on the moon's surface next month, Chandrayaan-3 is now going around the Earth in an elliptical orbit that is 41,603 km at its furthest and 226 km at the closest from the Earth's surface, ISRO said in an official statement.
- The spacecraft is supposed to make five such orbit-raising manoeuvres to continuously move into higher orbits before beginning to move directly towards the moon.

### ISRO Telemetry, Tracking and Command Network

- The Indian Space Research Organisation (ISRO), over the years, has established a comprehensive global network of ground stations to provide Telemetry, Tracking and Command (TTC) support to satellite and launch vehicle missions.
- These facilities are grouped under ISRO Telemetry, Tracking and Command Network

### What is the role of ISTRAC?

- ISTRAC is **responsible for providing Space Operation services that include spacecraft control, TTC support services and other related projects and services**, for the launch vehicle and low earth orbiting spacecraft and deep space missions of ISRO and other space agencies around the world.
- Development of RADAR systems for tracking & atmospheric applications and Establishment of Ground Segment Network for Indian Regional Navigation Satellite System of ISRO are the additional responsibilities of ISTRAC.
- ISTRAC will **communicate with the spacecraft, correct its course and command it throughout the life of the spacecraft.**

---

## Topic 9. DRDO'S PROPULSION SYSTEM IN FOCUS AS INDIA EXPECTS THREE MORE SCORPENES

### *Important for subject: Science*

As India begins negotiations with France for three more Scorpene-class submarines, Naval Group has already invested over ₹100 crore for three workshops for **maintenance of critical systems of Scorpene submarines** which have the tools and infrastructure for important tasks and also stocking spares and is also working on qualifying the **Defence Research and Development Organisation developed (DRDO) Air Independent Propulsion (AIP) system for installation on the Scorpene.**

Naval Group and Mazagon Dock Limited (MDL), Mumbai, signed a Memorandum of Understanding (MoU) for cooperation on three additional Scorpene on July 6.

### About Scorpene-Class Submarines

- The Scorpene-class submarines are one of the **most advanced conventional submarines in the world.**
- The submarine has **superior stealth features, such as low radiated noise levels, advanced acoustic silencing techniques and the ability to attack with precision-**

**guided weapons on board.**

- The Indian Navy intends to use the submarines for missions such as intelligence gathering, area surveillance, anti-surface warfare, anti-submarine warfare and minelaying operations.
- The submarines are armed with six torpedo-launching tubes, 18 heavy weapons, tube-launched MBDA SM-39 Exocet anti-ship missiles and precision-guided weapons.
- It can launch crippling attacks on the surface and underwater enemy targets.
- Moreover, the attack submarines can travel at a maximum submerged speed of approximately 20 knots and have the ability to remain submerged for 21 days.
- These Submarines have a diving depth of more than 350 m. The Scorpene class of submarines were designed by French naval shipbuilding firm DCNS in partnership with Spanish shipbuilding firm Navantia.

**Topic 10. JAMES WEBB SPACE TELESCOPE*****Important for subject : Science and technology***

NASA released an image obtained by the James Webb Space Telescope of the **Rho Ophiuchi cloud complex, the closest star-forming region to Earth**, as the U.S. space agency marked one year since it unveiled the telescope's first scientific results.

The **Webb telescope, which was launched in 2021 and began collecting data last year, has reshaped the understanding of the early universe while taking stunning pictures of the cosmos.**

- The **Rho Ophiuchi image** was an example of that, showing a nebula – a **humongous cloud of interstellar gas and dust that serves as a nursery for new stars** – located in our Milky Way galaxy roughly 390 light years from Earth. A light year is the distance light travels in a year, 5.9 trillion miles (9.5 trillion km).
- **Rho Ophiuchi is only about a million years old**, a blink of the eye in cosmic time. **James Webb 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.
- The James Webb Space Telescope (sometimes called JWST or Webb) is an orbiting infrared observatory that will complement and extend the discoveries of the Hubble Space Telescope, with longer wavelength coverage and greatly improved sensitivity.
- Webb will be the premier space observatory for astronomers worldwide, extending the tantalizing discoveries of the Hubble Space Telescope.
- The James Webb Space Telescope (JWST or “Webb”) is a joint NASA–ESA–CSA space telescope that is planned to succeed the Hubble Space Telescope as NASA’s flagship astrophysics mission
- The JWST will provide improved infrared resolution and sensitivity over Hubble, and will enable a broad range of investigations across the fields of astronomy and cosmology, including observing some of the most distant events and objects in the universe, such as the formation of the first galaxies.
- Unlike the Hubble telescope, which observes in the near ultraviolet, visible, and near

infrared (0.1 to 1  $\mu\text{m}$ ) spectra, the JWST will observe in a lower frequency range, from long-wavelength visible light through mid-infrared (0.6 to 28.3  $\mu\text{m}$ ), which will allow it to observe high redshift objects that are too old and too distant for Hubble to observe.

- The telescope must be kept very cold in order to observe in the infrared without interference, so it will be deployed in space near the Sun–Earth L2 Lagrange point, The JWST is being developed by NASA, the European Space Agency and the Canadian Space Agency.
- The NASA Goddard Space Flight Center is managing the development effort, and the Space Telescope Science Institute will operate Webb after launch It is named for **James E. Webb**, who was the administrator of NASA from 1961 to 1968 and played an integral role in the Apollo program.

## Topic 11. BREAKTHROUGHS IN ALZHEIMER’S RESEARCH

*Important for subject : Science and technology*

Less than two weeks after an **Alzheimer’s drug** developed by Biogen and Eisai won **full approval from the US Food and Drug Administration (FDA)**, Eli Lilly’s **monoclonal antibody donanemab** has been shown to **significantly slow the progression of the disease if treated early**.

**Lecanemab, a monoclonal antibody** sold under the name Leqembi, was granted “accelerated” approval this January for its ability to **reduce amyloid beta protein plaques in the brain — a defining feature of Alzheimer’s** — and got full approval this month after later-stage results **demonstrated 27% slowing of cognitive and functional decline over 18 months in comparison to a placebo**.

### **Challenges in bringing to India**

- Therapy with donanemab would require an early diagnosis, careful selection of patients, screening the eligible among them, and following up with expensive tests while watching for severe adverse events that may lead to death.
- Those being screened would have to be **tested for the APOE4 gene**, which has been associated with a higher risk of adverse events.
- The costs will be substantial, not just for the medication itself, but also for the biomarker and imaging workup. The therapy slows the progression of the disease, but does not ultimately treat it.
- While the phase 3 trial results of lecanemab and donanemab cannot be compared directly — they used different scales for measuring cognitive decline.
- Main adverse effect with drugs that clear out amyloid **beta proteins is amyloid related imaging abnormalities (ARIA)** such as swelling or bleeding in the brain, most of which is asymptomatic.
- **Alzheimer’s has multiple modalities and we need various therapies to address them. While the amyloid beta protein therapy has been at the forefront, there is a need to**

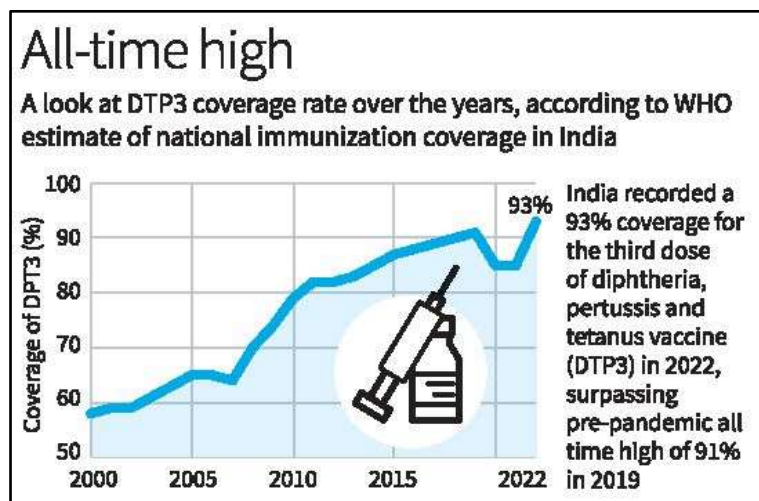
investigate other targets as well.

### Alzheimer's disease

- Alzheimer's disease is a brain disorder that slowly destroys memory and thinking skills and, eventually, the ability to carry out the simplest tasks.
- The disease is named after Dr. Alois Alzheimer
- Its symptoms included memory loss, language problems, and unpredictable behavior.
- In brain found many abnormal clumps (now called amyloid plaques) and tangled bundles of fibers (now called neurofibrillary, or tau, tangles).
- These plaques and tangles in the brain are still considered some of the main features of Alzheimer's disease.
- Another feature is the loss of connections between nerve cells (neurons) in the brain.
- This damage initially takes place in parts of the brain involved in memory, including the entorhinal cortex and hippocampus. It later affects areas in the cerebral cortex, such as those responsible for language, reasoning, and social behavior.

### Topic 12. INDIA RECORDED ALL-TIME HIGH OF 93% DTP3 IMMUNISATION COVERAGE IN 2022: WHO

*Important for subject : Science and Technology*



The coverage rate for **DTP3**, the third dose of **diphtheria, pertussis and tetanus** vaccines, in India rose to **an all-time of 93% in 2022**, surpassing the previous pre-pandemic best of **91%** recorded in 2019, and also marking a sharp increase from the **85%** recorded in 2021, the **World Health Organization (WHO)** said.

- The region also witnessed a six per cent improvement in the coverage of the measles vaccine, rising to 92% in 2022 from 86% in 2021.
- In this region, the number of zero-dose children (those that have not received even the first dose of DPT vaccine) halved to 2.3 million in 2022 from 4.6 million in 2021.
- The number of partially vaccinated children (those that have received at least one dose of DPT vaccine but did not complete the primary series of three doses) reduced to 6,50,000

in 2022 from 1.3 million in 2021.

### What is Diphtheria, Tetanus, and Pertussis (DPT)?

#### Diphtheria:

- **Caused by:** Diphtheria is primarily caused by the **bacterium Coryne bacterium diphtheriae**.
- **Symptoms:** Common cold, fever, chills, swollen gland in neck, sore throat, bluish skin etc.
- **Spread:** It is mainly spread by coughs and sneezes, or through close contact with someone infected.
- **Target Population:** Diphtheria particularly affects children aged 1 to 5 years.
- Occurrence of diphtheria cases in under-five children reflects low coverage of primary diphtheria vaccination.

#### Tetanus:

- **Caused by:** Tetanus is acquired through infection of a cut or wound with the spores of the **bacterium Clostridium tetani**, and most cases occur within 14 days of infection. Tetanus cannot be transmitted from person to person.
- **Prevention:** Tetanus can be prevented through immunisation with **Tetanus Toxoid-Containing Vaccines (TTCV)**. However, people who recover from tetanus do not have natural immunity and can be infected again.

#### Symptoms:

- Jaw cramping or the inability to open the mouth. muscle spasms often in the back, abdomen and extremities. sudden painful muscle spasms often triggered by sudden noises.

#### Pertussis:

- **Caused by:** **Pertussis**, also known as **whooping cough**, is a highly contagious respiratory infection caused by the **bacterium Bordetella pertussis**. In 2018, there were more than 151 000 cases of pertussis globally.
- The disease is most dangerous in infants, and is a significant cause of disease and death in this age group.
- **Spread:** Pertussis spreads easily from person to person mainly through droplets produced by coughing or sneezing.

#### About Diphtheria, Tetanus and Pertussis (DTP3) vaccine:

- The DTP vaccine is a class of combination vaccines against **three infectious diseases in humans:** diphtheria, pertussis (whooping cough), and tetanus.
- The vaccine components include **diphtheria** and **tetanus toxoids** and **either kill whole cells of the bacterium that causes pertussis or pertussis antigens**.



**Immunisation is an essential component for reducing under-five mortality:**

- Immunisation coverage estimates are used to monitor coverage of immunisation services and to guide disease eradication and elimination efforts.
- It is a good indicator of health system performance.

**Initiatives:**

- **Intensified Mission Indradhanush:** India was quick to prevent further backslide with catchup programmes such as the Intensified Mission Indradhanush 3, which reduced the number of children who had not received the first dose from 3 million to 2.7 million in 2021.
- In 2019, 1.4 million children in the country did not receive the first dose.
- **Indradhanush 4.0:** Aiming to immunise every pregnant woman and child, India launched Intensified Mission Indradhanush 4.0 in 2022.
- It is globally the largest vaccination drive reaching out to missed children and pregnant women.
- **Universal immunization programme:** Annually, India vaccinates more than 30 million pregnant women and 27 million children through its universal immunization programme.

**Topic 13. INDIA AND UAE SET TO USE RUPEE, DIRHAM FOR TRADE*****Important for subject : Economy***

India and the United Arab Emirates (UAE) have agreed to build a framework to promote the use of the rupee and the UAE Dirham (AED) in cross-border transactions.

**India and MoU Agreement**

- The Reserve Bank of India (RBI) and the Central Bank of the United Arab Emirates (CBE) have signed two Memoranda of Understanding (MoU) with respect to various topics.
- The first agreement will provide a framework to encourage cross-border transactions in local currencies (rupee and dirham).
- In accordance with the second MoU, the two central banks would work together to connect the Unified Payments Interface (UPI) of India with the Instant Payment Platform (IPP) of the UAE, as well as with RuPay switch and UAESWITCH.
- A messaging system that could compete with SWIFT (the Society for Worldwide Interbank Financial Telecommunication) will also be developed by both nations.

**Local Currency Settlement System (LCSS)**

- A **Local Currency Settlement System (LCSS)** would be implemented as part of the MoU on **using national currencies to encourage the usage of the rupee and dirham.**
- **All permissible capital account transactions as well as current account transactions are covered under the agreement.**

- Exporters and importers will be able to settle their invoices in their respective home currencies thanks to the LCSS, which will also help the INR-AED foreign exchange market grow.

### Significance for India

- The Reserve Bank of India (RBI) and the Central Bank of the UAE made the decision to advance the development of their economic cooperation.
- Additionally, the LCSS agreement will encourage cross-border transfers of money and investments.
- Using local currencies will speed up settlement and cut down on transaction expenses, notably for Indian remittances to the UAE.
- India may utilise this system to pay for imports of goods from the UAE, its fourth largest energy source, including oil and other commodities.
- Presently, India pays the UAE in dollars for its oil.
- Additionally, the **Structured Financial Messaging System (SFMS) of India and the UAE's payments messaging system will be connected via the MoUs.**

---

### Topic 14. US SEES INDIA AS AN INDISPENSABLE ALLY IN FRIENDSHORING: YELLEN

#### *Important for subject: Economy*

Terming India the biggest trading partner, U.S. Treasury Secretary pitched for advancing an approach called “friendshoring” to bolster the resilience of supply chains.

#### Friendshoring

- Friendshoring is a **strategy where a country sources the raw materials, components and even manufactured goods from countries that share its values.**
- The dependence on the countries considered a “threat” to the stability of the supply chains is slowly reduced. It is **also called “allyshoring”**.
- For the US, Russia has long presented itself as a reliable energy partner, but in the Ukraine war, it has weaponized the gas against the people of Europe.
- It's an example of how malicious actors can use their market positions to try to gain geopolitical leverage or disrupt trade for their own gain.
- **Friend-shoring or ally-shoring has become a means for the US to influence firms to move their sourcing and manufacturing sites to friendly shores—often back to the same shores in the case of the US.**
- The **purpose of Frienshoring** is to **insulate countries' supply chains from less like-minded nations, such as China in case of the US.**



## Topic 15. INDIA TO PUSH G20 TO RAISE TAXES ON MNCs MAKING ‘EXCESS PROFIT’

*Important for subject :Economy*

India will push its Group of 20 partners at a meeting it is hosting to support its proposal to **raise the share of taxes** multinational companies pay to **countries where they earn “excess profits”**

OECD countries led by the US agreed to implement a minimum tax of 15% on big businesses under the **Pillar 2** of OECD **Global Anti-Base Erosion Model Rules (GloBE)**. 136 nations have agreed to the model rules.

- OECD was hoping to secure signatures to the Pillar-2 of the GloBE Rules during the G20 summit. But India is reiterating its demand of commensurate share of profits for countries where the MNCs earn their profits.
- India’s proposal is being seen as likely to hinder chances of adoption of the OECD proposal during the G20 summit by OECD countries like Japan and Australia.
- Several countries have concerns over the allocation of taxing rights among countries.

### **OECD Proposal:**

- Under the agreement, global corporations with annual revenues over 20 billion euros (\$22 billion) are considered to be making **excess profits** if the **profits exceed 10% annual growth**. The **25% surcharge** on these excess profits is **to be divided among countries**.
- More than 140 countries were supposed to start implementing next year a 2021 deal overhauling decades-old rules on how governments tax multinationals. The present rules are widely considered outdated as digital giants like Apple or Amazon can book profits in low-tax countries.
- The proposed solution consists of two components- **Pillar One** which is about **reallocation of additional share of profit** to the market jurisdictions and **Pillar Two** consisting of **minimum tax and Important for subject to tax rules**.
- India is fighting for a higher share of taxes for markets where firms do business as it is set to be the world’s **most populous country** and set to become one of the **biggest consumer markets**.
- India wants the agreement to ensure greater share of profits for the markets giving due consideration to the **demand side factors in profit allocation**.
- India wants taxation **to be de-linked from the excess profit tax principle**. The rules now say countries offset their share of taxes with the **withholding tax** they collect.
- Withholding tax is collected by companies while making payments to vendors and employees, and remitted to tax authorities.
- India wants the two pillars of GloBE to be adopted as a package deal.

## Global Anti-Base Erosion Model Rules (GloBE: The two Pillars)

### Pillar 1

- Pillar 1 of the OECD's tax plan tries to address the **question of taxing rights**.
- Large multinational companies have traditionally paid taxes in their home countries even though they did most of their business in foreign countries.
- The OECD plan tries to give **more taxing rights to the governments** of countries where large **businesses conduct a substantial amount of their business**. As a result, **large U.S. tech companies** may have to pay **more taxes to governments of developing countries**.

### Pillar 2

- Under Pillar 2 of the global tax agreement governments will be equipped to impose additional taxes **in case companies are found to be paying taxes that are considered too low**. This is to ensure that big businesses with global operations do not benefit by domiciling themselves in **tax havens** in order to save on taxes.

---

## Topic 16. EU MAY BE OFFERED TARIFF SOPS ON SOME ICT PRODUCTS

### *Important for subject: Economy*

The World Trade Organization's Dispute Settlement Body (DSB), in a special session on Wednesday, will consider a joint request made by India and the EU for more time to sort out their dispute related to import tariffs imposed by India on select ICT products, including mobile phones.

Both members, in a submission to the DSB, requested that it should put off adoption of the WTO panel's report, which ruled against India's tariffs, till September 19, 2023.

- The DSB already allowed more time to Chinese Taipei and India to sort out the matter in the dispute on the same issue. So, it is expected that it will agree to do so in the case of EU as well.
- But this is mostly unprecedented as the DSB usually sticks to its 60-day time period for adoption of dispute panel reports. It is within this time frame that appeals against the judgment can be filed at the Appellate Body by the members involved failing which the report gets adopted

### **Background:**

- Japan and Chinese Taipei had **set up a dispute settlement panel at the World Trade Organization (WTO) against New Delhi's customs duties** on imports of certain information and communications technology (ICT) products.
- On April 17, the dispute settlement panel of the WTO, in three separate disputes filed by the EU, Japan and Chinese Taipei against India's import duties on certain ICT products, had ruled that the tariffs violated its commitment under multilateral trade rules and

needed to be corrected.

### What now?

- India has a 60-day time period to appeal against the judgment, failing which the report was to be adopted. The 60-day period is to end this week.
- India has already appealed to the WTO Appellate Body against the judgement in its dispute with Japan. In case of the dispute with Chinese Taipei, both sides have bought more time. If the DSB agrees to do the same with the EU, then the adoption of the panel reports in all three cases would not happen this week

### What is Information Technology Agreement (ITA)?

#### ITA

- The Information Technology Agreement (ITA) was **concluded by 29 participants at the Singapore Ministerial Conference in December 1996.**
- Since then, the number of participants has **grown to 82, representing about 97 per cent of world trade in IT products.**
- The ITA covers a large number of **high technology products, including computers, telecommunication equipment, semiconductors, semiconductor manufacturing and testing equipment, software, scientific instruments, as well as most of the parts and accessories of these products.**
- The participants are **committed to completely eliminating tariffs on IT products covered by the Agreement.**

#### ITA2

- In June 2012, **the ITA-2 negotiation was launched in order to both expand the coverage of ICT products and address classification issues.**
- At the **Nairobi Ministerial Conference in December 2015, over 50 members concluded the expansion of the Agreement,** which now covers an additional 201 products valued at over \$1.3 trillion per year.

### Topic 17. NEW PANEL TO REVIEW 'NSO DATA'

#### *Important for subject : Economy*

The **Ministry of Statistics is going to replace the existing Standing Committee on Economic Statistics (SCES) by a 'Standing Committee on Statistics (SCoS)'** which has a broader mandate to review the framework and results of all surveys conducted under the aegis of the National Statistical Office (NSO).

#### **Background:**

- The government constituted a new internal oversight mechanism for official data via forming a Standing Committee on Economic Statistics (SCES) set up in late 2019.

**About the new Committee:**

- As per the update, a new committee 'SCoS' will have 10 official members, and four non-official members who are eminent academics.
- The panel can have up to 16 members.
- Need for a new committee: The last round of household surveys on consumption expenditure and employment cited 'data quality issues'.

**Significance:**

- The 'SCoS' terms of reference include the identification of data gaps that need to be filled by official statistics, along with an appropriate strategy to plug those gaps.
- It has also been mandated to explore the use of administrative statistics to improve data outcomes.

**Present scenario:**

- The Standing Committee on Economic Statistics (SCES), which had 28 members, included 10 non-official members.
- The panel was mandated to review the framework for economic indicators pertaining to the industrial sector, the services sector and the labour force statistics.
- This meant that their purview was limited to datasets like the Periodic Labour Force Survey, the Annual Survey of Industries, the Index of Industrial Production and the Economic Census.

**National Statistical Office (NSO):**

- National Statistical Office (NSO) was formed through the **merger of the NSSO and CSO** under the **Ministry of Statistics and Programme Implementation (MoSPI)**.
- The **National Sample Survey Office (NSSO)**, formerly called the National Sample Survey Organisation was the largest organization in India conducting periodic socioeconomic surveys.
- Earlier known as the **Central Statistics Organisation of India**, CSO is responsible for the coordination of statistical activities in India, and evolving and maintaining statistical standards.

**The major functions of CSO are as under: –**

- Acts as the nodal agency for planned development of the statistical system in the country, lays down and maintains norms and standards in the field of statistics, involving concepts and definitions, methodology of data collection, processing of data and dissemination of results.
- Coordinates the statistical work in respect of the Ministries/Departments of the Government of India and State Statistical Bureaus (SSBs), advises the Ministries/Departments of the Government of India on statistical methodology and on statistical analysis of data.

- Compiles and releases the **Index of Industrial Production (IIP)** every month in the form of 'quick estimates'; **conducts the Annual Survey of Industries (ASI)**; and provides statistical information to assess and evaluate the changes in the growth, composition and structure of the organised manufacturing sector.
- Organizes and conducts periodic all-India Economic Censuses and follow-up enterprise surveys, provides an in-house facility to process the data collected through various socio economic surveys and follow-up enterprise surveys of Economic Censuses.
- Examines the survey reports from the technical angle and evaluates the sampling design including survey feasibility studies in respect of surveys conducted by the National Sample Survey Organisations and other Central Ministries and Departments.
- Dissemination of statistical information on various aspects through a number of publications distributed to Government, semi-Government, or private data users/ agencies; and disseminates data, on request, to the United Nations agencies like the UNSD, the ESCAP, the ILO and other international agencies.
- Maintains liaison with international statistical organizations, such as, the United Nations Statistical Division (UNSD), the Economic and Social Commission for Asia and the Pacific (ESCAP), the Statistical Institute for Asia and the Pacific (SIAP), the International Monetary Fund (IMF), the Asian Development Bank (ADB), the Food and Agriculture Organizations (FAO), the International Labour Organizations (ILO), etc.
- Prepares national accounts as well as publishes annual estimates of national product, government and private consumption expenditure, capital formation, savings, estimates of capital stock and consumption of fixed capital, as also the state level gross capital formation of supra-regional sectors and prepares comparable estimates of State Domestic Product (SDP) at current prices.
- Conducts large scale all-India sample surveys for creating the database needed for studying the impact of specific problems for the benefit of different population groups in diverse socio-economic areas, such as employment, consumer expenditure, housing conditions and environment, literacy levels, health, nutrition, family welfare, etc.
- Releases grants-in-aid to registered Non-Governmental Organizations and research institutions of repute for undertaking special studies or surveys, printing of statistical reports, and financing seminars, workshops and conferences relating to different Important for subject areas of official statistics.
- The Collection of Statistics Act, 2008 and coordination of follow-up on the implementation of recommendations of NSC recommendations. The administrative work relating to Indian Statistical Institute (ISI) is also looked after by CAP Division.

---

### **Topic 18. PSBS TO STEP UP ONE-TIME SETTLEMENT IN WRITTEN-OFF LOANS**

***Important for subject : Economy***

Public sector banks (PSBs) are expected to step up **one-time settlement (OTS)** in written-off loans as the Finance Ministry and the Reserve Bank of India have emphasised on the



importance of improving recovery from these accounts.

Since legal action can be drawn out, the state-owned lenders are seen actively pursuing OTS to meet the Finance Ministry-set **target** of making about **40 per cent recovery** from **written-off loan accounts**.

PSBs could recover **only 14 per cent** (or ₹1.03-lakh crore) from written-off loans aggregating ₹7.34-lakh crore in the last five years ended March 2022.

#### What are written off assets:

- Banks can remove non-performing loans, including those in respect of which full provisioning has been made, **on completion of four years** from their balancesheet by way of **write-off** to improve the key metric relating to asset quality – gross non-performing assets ratio.
- Although the Banks can undertake **legal channels** to initiate legal recovery proceedings against delinquent borrowers, these methods suffer from delays and low recovery. The possible avenues include **four channels** – the **National Company Law Tribunal, the Debt Recovery Tribunal, SARFAESI (Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest) Act, 2002, and LokAdalats**.

#### Compromise settlement:

- Compromise settlement refers to a **negotiated settlement** where a borrower offers to pay and the bank agrees to accept in full and final settlement of its dues an amount less than the total amount due to them under the loan contract.
- This settlement invariably **involves a certain sacrifice** (haircut) by way of write off and/or waiver of a portion of the lender's dues on a one-time basis.
- RBI has also directed banks to fix a **minimum cooling period** of at least **12 months** before making fresh exposures to borrowers who had undergone compromise settlements.
- Banks can now undertake compromise settlements or technical write-offs in respect of accounts categorised as **wilful defaulters or fraud without prejudice** to the **criminal proceeding** underway against such debtors, as per the RBI June 2023 circular.
- The central bank has virtually reversed its earlier policy of keeping wilful defaulters out of compromise settlement. It is noteworthy that '**Prudential Framework for Resolution of Stressed Assets**', still makes **wilful defaulters ineligible for restructuring**.

#### Wilful Default

- As per the Reserve Bank of India's (RBI) classification, a 'wilful default' would be deemed to have occurred if the borrower has **defaulted in meeting their repayment obligations** to the lender even when they **have the capacity to honour** the obligations.
- A wilful default happens when the borrower has not utilised the finance from the lender for the specific purpose for which finance was availed, and has diverted the funds for

other purposes, or siphoned off funds, or disposed of or removed the movable fixed assets or immovable property given for the purpose of securing a term loan without the knowledge of the bank.

### The four legal channels of Debt recovery:

#### National Company Law Tribunal under Insolvency and bankruptcy Code (IBC):

- Under IBC, creditors can approach NCLT for starting the recovery (Corporate Insolvency Resolution) procedure.
- Before the IBC, the debtor was responsible for starting the resolution process, and the creditor could take separate steps to enforce security interests, money recovery, and debt restructuring. But with **IBC** the **onus of starting the insolvency resolution process** against the debtor on the **creditor**.
- In 2020 the threshold value was increased from Rs. 1 Lakh to Rs. 1 Crore.

#### Debt Recovery Tribunal

- The Debt Recovery Tribunal enforces the **Recovery of Debts and Bankruptcy Act (RDB Act, 1993)** and the **SARFAESI ACT, 2002**.
- Threshold debt value is **Rs. 20 Lakh**.
- An application to the DRT can also be made under SARFAESI when the securities are not able to discharge the entire debt. Under these circumstances, the creditors have an option of filing an application to the DRT for recovery of the remaining dues.

#### SARFAESI (Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest) Act, 2002

- As per SARFAESI, 2002 the secured creditor takes possession of the securities of the debtors, when he fails to discharge all his liabilities.
- It provides banks and financial institutions with the power to recover their loans by seizing and selling the collateral assets provided by the borrower.

#### LokAdalats

- Involve small value loans up to **Rs 20 lakh** can be **amicably settled** between the borrower and the lender using the forum of LokAdalats. LokAdalats, organized by banks through the district legal services authority.
- LokAdalat is one of the **alternative dispute redressal mechanisms**, it is a forum where disputes/cases pending in the court of law or at pre-litigation stage are settled/compromised amicably.

---

### Topic 19. REGULATING CRYPTOS: FSB RECOMMENDS FRAMEWORK

*Important for subject :Economy*

The **Financial Stability Board (FSB)** has come out with a **9-point recommendation** for



regulating crypto assets. It has recommended that crypto-asset issuers and service providers should have a comprehensive governance framework with clear and direct lines of responsibility and accountability for all functions and activities.

FSB was asked by G20 to suggest a regulatory framework. The recommendations are contained in ‘**FSB Global Regulatory Framework for Crypto-asset**

**Activities**’.

- This framework is based on the principle of ‘**same activity, same risk, same regulation**’ and provides a strong basis for ensuring that **crypto-asset activities** and so-called **stablecoins** are Important for subject to **consistent and comprehensive** regulation, **commensurate to the risks** they pose.
- FSB is an international body that monitors and makes recommendations about the global financial system. Final recommendations draw on the implementation experiences of jurisdictions and build on the principles – ‘**same activity, same risk, same regulation**’
- Strengthened recommendations areas such as **ensuring adequate safeguarding** of client assets, addressing risks associated with **conflicts of interest**, and **strengthening cross-border cooperation**.

**Which Risks are addressed ?**

- Focus on addressing risks to financial stability only. And do not comprehensively cover all other specific risk categories related to crypto-asset activities such as Anti-Money Laundering/Combating the Financing of Terrorism (AML/CFT); data privacy; cyber security etc.
- Central Bank Digital Currencies envisaged as digitalised central bank liabilities, not Important for subject to these recommendations.

**9 Recommendations for the Regulation, Supervision and Oversight of Crypto-asset**

1. Regulatory powers and tools
2. General regulatory framework
3. Cross-border cooperation, coordination and information sharing
4. Governance
5. Risk management
6. Data collection, recording and reporting
7. Disclosures
8. Addressing financial stability risks arising from interconnections and interdependencies
9. Comprehensive regulation of crypto-asset service providers with multiple functions

**Financial Stability Board**

The Financial Stability Board is an international body that monitors and makes recommendations about the global financial system. It was established after the **G20 London summit** in April **2009** as a successor to the **Financial Stability Forum** with a broadened

mandate to promote financial stability.

- It comprises **several central banks, ministries of finance, and supervisory and regulatory authorities** from 25 jurisdictions, as well as 10 international organizations and six Regional Consultative Groups (RCGs).
- India as a member of the FSB has **three seats** in its Plenary represented by **Secretary (EA), Deputy Governor-RBI and Chairman-SEBI**. Regular interaction with FSB takes place through periodic conference calls and meetings.
- Information is exchanged with FSB member jurisdictions frequently as per international requirements.

#### **Mandate:**

- The FSB has been established to coordinate at the international level the work of **national financial authorities and international standard setting bodies**
- To develop and promote the **implementation of effective regulatory, supervisory and other financial sector policies**.
- Through its members FSB seeks to **strengthen financial systems and increase the stability** of international financial markets.
  1. It is headquartered in Basel, Switzerland.
  2. The board includes all G20 major economies.
  3. The FSB consists of 68 member institutions

---

### **Topic 20. INDIA SEEKS PERMANENT RESOLUTION OF ROW OVER PUBLIC STOCKHOLDING**

#### ***Important for subject :Economy***

India will stick to its demand of **prioritising a permanent solution** for the issue of **public stockholding (PSH)** or buffer stocks of foodgrains at the World Trade Organisation (WTO).

India is set to continue with its position of arriving at a permanent solution for public stockholding of food grains, without getting into the debate over whether it is the only way to ensure food security as the **model has worked well for the country**.

- WTO's 12th Ministerial Conference (MC12) in Geneva in June 2022 failed to deliver a permanent solution to public stockholding.
- India and China, among 80 members, have sought text-based negotiations at the World Trade Organization (WTO) to find a permanent solution on public stockholding (PSH) for food security at the ministerial-level meeting of the global trade body in February 2024.
- Developing countries and the African Group are pushing for a food security package at the 2024 conference.

#### **What is the public stockholding issue:**

- Although there is a peace clause in place that stops members from taking action against developing countries in case the present cap of 10 per cent of production value is

breached, it is Important for subject to numerous conditions including onerous notification requirements.

Importance of public stockholding for India:

- Allows the use of **Minimum Support Price (MSP) programmes** for food items without worrying about breaching caps and inviting legal action from members.
- India has rejected any alternative food security solutions beyond **PSH and special safeguard mechanism (SSM)**, SSM being key to check sudden import surges and price drops.

**Why is it important to resolve?**

- Several developing countries including India maintain that till all the pending matters flowing from the earlier rounds, including finding a permanent solution to PSH, are sorted out, progress in other areas of the agriculture negotiations would be difficult.
- India's PSH programme has helped ensure food security for 1.4 billion people, even during the pandemic period.
- Some countries are now **trying to dilute** the situation by urging India to hold discussions on the technicalities of PSH.
- At the Bali **Ministerial Conference** in **2013** it was decided that a permanent solution would be reached by 2017-end, but no concrete progress yet.
- **Cairns Group members** including **Canada and Australia** have been pushing for the need to address food security within the context of overall agriculture reform and **reduction of trade-distorting domestic subsidies**.
- Discussions are expected on **various elements of public stockholding issue**, such as external reference price, product coverage, transparency requirements, anti-circumvention, safeguard provisions, and the importance of preserving access to dispute settlement.

**Terms**

**Special Safeguard Mechanism**

- SSM of the WTO is a special protection mechanism for **developing countries** that allows developing countries to raise tariffs **in case of import surge**, so as to protect the domestic farmers.
- SSM is a critical policy tool that allows developing countries to increase tariffs temporarily in the event of sudden import surges and price drops.
- As per the **Nairobi Package (2015)** members from developing countries can use a Special Safeguard Mechanism (SSM), there have been differences among members over the SSM's many components.
- Particularly, different SSM structure variants exist in India and the US.

**Market access**

- Before **Uruguay round** (1995) for many products, market access restrictions involved

non-tariff barriers and thus restricted agricultural trade flows

- Uruguay Round resulted in a key systemic change involving moving from non-tariff measures to a regime of bound tariff-only protection plus reduction commitments.

### **Cairns Group.**

- Group of agricultural exporting nations lobbying for agricultural trade liberalisation. It was formed in 1986 in Cairns, Australia just before the beginning of the Uruguay Round.
- The interest group comprises of 19 agricultural exporting countries, composed of Argentina, Australia, Brazil, Canada, Chile, Colombia, Costa Rica, Guatemala, Indonesia, Malaysia, New Zealand, Pakistan, Paraguay, Peru, the Philippines, South Africa, Thailand, Uruguay, and Vietnam.

---

### **Topic 21. IMF CHIEF URGES G20 COUNTRIES TO RESTORE PRIMACY OF QUOTA RESOURCE**

#### ***Important for subject: Economy***

IMF chief has stressed the need for prioritising quota revision, to enhance lending capacity. IMF has nearly **\$1 trillion** in lending capacity based on the **quota resources** which are critical to ensure the predictability of the IMF's firepower.

The resources have shrunk in relative terms. It is thus important to enhance the IMF quota resources by successfully completing the **16th quota review**.

There is also a need to replenish subsidy resources in the **Poverty Reduction and Growth Trust (PRGT)**.

- IMF's newest instrument, the **Resilience and Sustainability Trust (RST)** funded through **on-lending SDRs**.
- The G20 has recently reached its target of committing \$100 billion for SDR channeling to vulnerable countries.

### **Quota System**

- A quota formula is used to help assess members' relative position in the world economy and it can play a role in guiding the distribution of quota increases. The current formula was agreed to in 2008. Sixteenth review is now undergoing. India's share in quota is **2.75 per cent**.
- The quota is based on a formula that combines 4 parameters, namely **GDP, openness, economic variability and international reserves**.
- The weighted parameters are: **GDP** (weight of 50 percent), **openness** (30 percent), **economic variability** (15 percent), and **international reserves** (5 percent).
- GDP is measured through a blend of GDP based on **market exchange rates** (weight of 60 percent) and on PPP (**Purchasing Power Parity**) exchange rates (40 percent).
- The formula also includes a "**compression factor**" that reduces the dispersion in

calculated quota shares across members.

### Resilience and Sustainability Trust (RST)

- The IMF's Resilience and Sustainability Trust (RST) helps low-income and vulnerable middle-income countries build resilience to external shocks and ensure sustainable growth, contributing to their longer-term balance of payments stability.
- It complements the IMF's existing lending toolkit by providing longer-term, affordable financing to address longer-term challenges, including climate change and pandemic preparedness.

### Poverty Reduction and Growth Trust (PRGT)

- The **Poverty Reduction and Growth Facility (PRGF)** is an arm of the International Monetary Fund which provides concessional lending to the **world's poorest countries**. It was created on September 16, 1999, replacing the Enhanced Structural Adjustment Facility.

### Which IMF instruments can be used to provide support to LICs?

- All IMF members have access to the General Resources Account on nonconcessional loans. The IMF also provides concessional financial support to its low-income members through the Poverty Reduction and Growth Trust (PRGT), which has **three lending facilities**:
  1. **Extended Credit Facility (ECF)**: Sustained **medium- to long-term** engagement in case of protracted balance of payments problems.
  2. **Standby Credit Facility (SCF)**: Financing for low-income countries with **actual or potential** short-term balance of payments and adjustment needs caused by domestic or external shocks, or policy slippages. It can also be used on a **precautionary basis** during times of increased risk and uncertainty.
  3. **Rapid Credit Facility (RCF)**: One-off disbursement for low-income countries facing **urgent balance of payments needs**. Repeated disbursements over a limited period are possible in case of recurring or ongoing balance of payments needs.

---

### Topic 22. INDIA'S NON GMO CERTIFICATION NORM: US PROTESTS CITING GM MUSTARD

#### *Important for subject: Economy*

US has once again raised the issue of India's order requiring a "**non-GM origin and GM-free certificate**" for 24 commodities imported for human consumption.

The US is protesting against the requirement of "non-GMO origin and GM-free certificate" from exporters on the one hand, while allowing **environmental release of GM mustard**, in addition to routine **cultivation of GM cotton** by Indian farmers, on the other.

- **Food Safety and Standards Authority of India (FSSAI)** from 2021 requires a



mandatory “**non-GMO and GM-free status certificate**” from exporting countries for 24 listed food products. The items include pineapples, apples, wheat, rice, tomato, potato, maize, melon, plum, papaya, potato, egg plant, bean, among others.

- The issue was raised by the USA at the recent **Sanitary and phytosanitary measures (SPS) Committee** meeting of the WTO in Geneva, US also complained that India has still not shared the **requested scientific justification of its GMO stance**.
- United States holds that the GM-free certificate requirement is not consistent with the WTO SPS Agreement.

#### Status of GM Mustard:

- The environmental release of GM mustard hybrid **DMH-11** and its parental lines was approved in India by the **Genetic Engineering Appraisal Committee (GEAC)** on October 18, 2022, for its seed production and **testing prior to commercial release**.
- The matter remains **under adjudication** before the Supreme Court of India following complaints around **bio-safety protocols** filed by some **green groups**.

#### Status of GM Cotton:

- Transgenic cotton is the only GM crop which has been approved and is currently being cultivated in farmer’s fields in India.
- GM cotton seed was developed by Hyderabad-based Bioseed Research India and contains a gene, **cry2Ai**, that purportedly makes cotton **resistant to pink bollworm**, a major pest. The seed has passed preliminary, confined trials and was recommended by the GEAC to be tested in farmer’s fields.
- Under the current rules, transgenic seeds **must be tested in open fields before** they can hope to be **cleared by the GEAC for commercial development**.
- Agriculture being a State Important for subject means that, in most cases, companies interested in testing their seeds **need approvals from the States** for conducting such tests. Of the four States that Bioseed applied to, only **Haryana** gave permission for such tests.

#### FSSAI Certification:

- From 01st March 2021, India’s food regulator FSSAI requires some of the major food crops to be accompanied with the “**non-GM cum GM free certificate**”.
- Through this certificate, exporters will need to declare that the imported food crops are of non-GM origin, does **not contain genetically modified organism** and is also **not genetically modified**.
- The food safety authority also stated that the tolerance limit for “**adventitious presence**” of GMOs at **one percent** will be permissible in these imported food crops consignments. The term adventitious presence refers to **unintentional or incidental presence of trace amounts** of GM material in non-GM crops.

#### Sanitary and phytosanitary measure

- Sanitary and phytosanitary (SPS) measures are quarantine and biosecurity measures which are applied to **protect human, animal or plant life or health** from **risks** arising from the **introduction, establishment and spread of pests and diseases** and from risks arising from **additives, toxins and contaminants** in food and feed.
- **Sanitary (human and animal health)** and **phytosanitary (plant health)** measures **apply to domestically** produced food or local animal and plant diseases, as well as to products coming **from other countries**.
- These are often used as a **non tariff trade barrier**. A **sanitary or phytosanitary restriction** which is not actually required for health reasons can be a very effective protectionist device, and because of its technical complexity, a particularly deceptive and difficult barrier to challenge.

#### **SPS Agreement:**

- While permitting governments to maintain appropriate sanitary and phytosanitary protection, **reduces possible arbitrariness of decisions** and encourages **consistent decision-making**.
- It requires that sanitary and phytosanitary measures be applied for no other purpose than that of ensuring food safety and animal and plant health.
- Measures should be based as far as possible on the **analysis and assessment** of objective and **accurate scientific data**.

---

### **Topic 23. EU RULES ON SUBSIDIES TO HURT EXPORTS**

#### ***Important for subject: Economy***

India's exports of smartphones, information technology products and services to European Union countries could be hit by the Foreign Subsidies Regulations (FSR).

- The proposed regulations prohibit foreign subsidies and grants the European Commission (EC), the executive arm of the EU, to investigate cases where foreign subsidies distort competition within the EU.
- Under the FSR companies must begin notifying the details of relevant transactions involving foreign subsidies starting from October 12, 2023.
- FSR covers financial contributions from non-EU governments to companies operating in or exporting to the EU's market. These contributions include direct grants, interest-free or low-interest loans, tax incentives, state-funded research and development, provision of goods or services at below-market prices, and provision of land or buildings at below-market prices.
- The FSR applies to transactions above a certain threshold. Companies must notify the European Commission if their transactions involving foreign subsidies exceed this threshold.
- In cases where the Commission finds that a foreign subsidy is distorting competition, it can impose various remedies, including fines of up to 10% of the company's annual aggregated turnover, requiring the company to repay the foreign subsidy if competition



distortion is confirmed, or banning the company from participating in public procurement.

- According to experts the World Trade Organisation explicitly prohibits countries from investigating subsidies given by other countries. Thus, FSR is also in violation of the WTO mandate

### **Impact on India:**

- With the new regulations the commission can now investigate products if they have received any incentives like **Production Linked Incentives, Faster Adoption and Manufacturing of Electric Vehicles (FAME)** or export benefits in India.
- EC is already investigating the PLI scheme, and a decision is expected soon. If the Commission finds the PLI scheme violates WTO rules, it could impose sanctions or fines.

### **India EU Trade**

- India exported goods worth over \$74.8 billion to EU countries in 2022-23.
- Key exports from India to EU are diesel (\$8.4 billion), Aviation Turbine Fuel (\$6.6 billion), apparel and makeup (\$5.6 billion), smartphone (\$4 billion), cut and polished diamonds (\$2.6 billion), aluminium ingots (\$1.5 billion), medicines (\$1 billion).

---

## **Topic 24. HOUSEHOLD CONSUMPTION EXPENDITURE SURVEY (HCES)**

### *Important for subject: Economy*

The Ministry of Statistics and Programme Implementation has formed a new **Standing Committee on Statistics (SCoS) to advise on official data**, including the household surveys carried out by the National Sample Survey Office (NSSO).

With 14 members, the new panel is also leaner and more likely to deliver quality guidance. The 28-member economic data review panel may have found it tougher to establish a coherent consensus.

- One of the new panel's first tasks will likely pertain to the results of the **Household Consumption Expenditure Survey (HCES) by the NSSO over the past year**, and it must sensitise users on the methods deployed and interpretational nuances they necessitate.
- **Household Consumer Expenditure Survey (HCES)** The HCES is **traditionally a quinquennial (recurring every five years) survey conducted by the government's National Sample Survey Office (NSSO)**.
- It is designed to **collect information on the consumer spending patterns of households across the country, both urban and rural**. Typically, the Survey is **conducted between July and June**.

### **Why HCES?**

- The HCES is used to **arrive at estimates of poverty levels as well as review key economic indicators like Gross Domestic Product (GDP)**.

- The results of the survey are also **utilised for updating the consumption basket and for base revision of the Consumer Price Index.**
- It helps generate estimates of **household Monthly Per Capita Consumer Expenditure (MPCE)** as well as the distribution of households and persons over the MPCE classes.
- It is used to **arrive at estimates of poverty levels in different parts of the country** and to review economic indicators such as the GDP, since 2011-12.

#### **Why need this survey?**

- India has not had any official estimates on per capita household spending. It provides separate data sets for rural and urban parts, and also splice spending patterns for each State and Union Territory, as well as different socio-economic groups.

---

### **Topic 25. PANEL WANTS KUNO CHEETAHS TO UNDERGO MEDICAL REVIEW**

#### ***Important for subject : Environment***

Following the deaths of two cheetahs over the last week, the expert advisory committee overseeing the implementation of Project Cheetah has recommended that all the animals undergo a thorough, physical medical review.

- This will involve recalling even the animals which have been released into the wild and investigating if the radio-collars dangling from their necks may be indirectly abetting infections.
- Looking ahead, a **Cheetah Research Centre** — with facilities for rescue and rehabilitation as well — will be established.
- Other measures on the cards include **bringing additional forest area under the administrative control of Kuno National Park; adding additional frontline forces; and establishing a second home for the animal in the Gandhi Sagar sanctuary**, the Ministry statement noted.

#### **Cheetah Reintroduction Project**

- The cheetah reintroduction project is the world's first inter-continental cheetah translocation project.
- Totally 20 Cheetahs are scheduled to arrive in The main goal of the cheetah programme is to establish a viable cheetah metapopulation in India that allows the cheetah to perform its functional role as a top predator and provides space for the expansion of the cheetah within its historical range, thereby contributing to its global conservation effort.

#### **Kuno National Park**

- Situated between the Aravallis and the Madhav National Park, Kuno serves as an important wildlife corridor. It was notified as a sanctuary in 1981 and then upgraded to a national park in 2018.
- Spread over 750 kilometres of pristine wilderness, it is rich in floral diversity with more

than 120 species of trees.

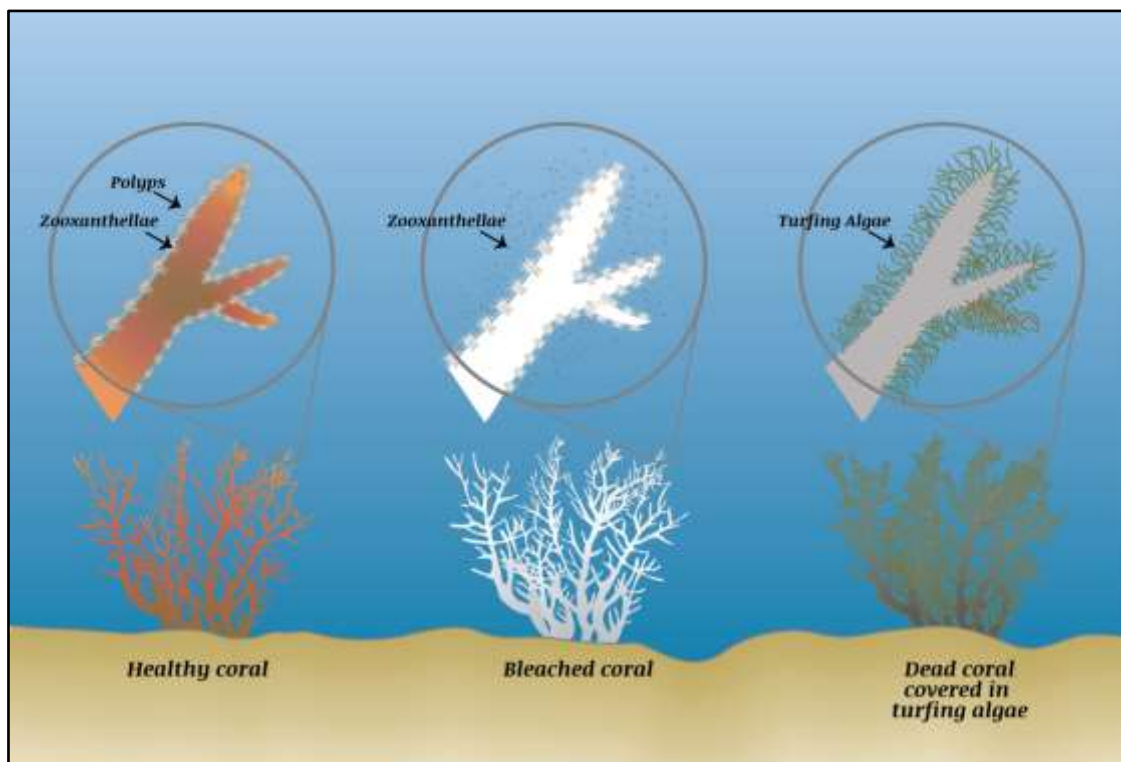
- The tropical dry deciduous forest mainly consists of *Anogeissus pendula* (Kardhai), *Senegalia catechu* (Khair) *Boswellia serrata* (Salai) and associated flora.

### Why Kuno Palpur NP?

- There is no dearth of water in Kuno and there is abundant prey.
- Kuno also has ample natural habitat for the cheetah in the form of grasslands, savannah, and open woodland with evergreen riverine ravines.
- Sheopur district, where Kuno is located, has rainfall levels, temperatures, altitude and conditions similar to that of South Africa and Namibia.

## Topic 26. CORAL BLEACHING

*Important for subject: Environment*



The water off South Florida is over 90 degrees Fahrenheit (32 Celsius) in mid July, and scientists are already seeing signs of coral bleaching off Central and South America.

If the extreme heat persists, it could have dire consequences for coral reefs. Just like humans, corals can handle some degree of stress, but the longer it lasts, the more harm it can do.

**Corals can't move to cooler areas when water temperatures rise to dangerous levels. They are stuck in it.**

For those that are particularly sensitive to temperature stress, that can be devastating.

### Why coral reefs matter to everyone ?

- Coral reefs are hot spots of biodiversity. They are often referred to as the rainforests of the sea because they are home to the highest concentrations of species in the ocean.
- Healthy reefs are vibrant ecosystems that support fish and fisheries, which in turn support economies and food for millions of people.
- Additionally, they provide billions of dollars in economic activity every year through tourism, particularly in places like the Florida Keys, where people go to scuba dive, snorkel, fish and experience the natural beauty of coral reefs.
- If that isn't enough, reefs also protect shorelines, beaches and billions of dollars in coastal infrastructure by buffering wave energy, particularly during storms and hurricanes.

### What goes into a coral reef?

- But corals are quite sensitive to warming water. They host a microscopic symbiotic algae called zooxanthella that photosynthesizes just like plants, providing food to the coral. When the surrounding waters get too warm for too long, the zooxanthellae leave the coral, and the coral can turn pale or white – a process known as bleaching.
- If corals stay bleached, they can become energetically compromised and ultimately die. When corals die or their growth slows, these beautiful, complex reef habitats start disappearing and can eventually erode to sand.

### What is Coral Bleaching?

- When corals face stress by changes in conditions such as temperature, light, or nutrients, they expel the symbiotic algae zooxanthellae living in their tissues, causing them to turn completely white. This phenomenon is called coral bleaching.
- The pale white colour is of the translucent tissues of calcium carbonate which are visible due to the loss of pigment producing zooxanthellae.
- Bleached corals can survive depending on the levels of bleaching and the recovery of sea temperatures to normal levels.
- If heat-pollutions subside in time, over a few weeks, the zooxanthellae can come back to the corals and restart the partnership but severe bleaching and prolonged stress in the external environment can lead to coral death.
- Over the last couple of decades, climate change and increased global warming owing to rising carbon emissions and other greenhouse gases have made seas warmer than usual.
- Coral bleaching has occurred in the Caribbean, Indian, and Pacific oceans on a regular basis.

### Mass Coral Bleaching:

- **First Mass Bleaching:** It occurred in 1998 when the El Niño weather pattern caused sea surfaces in the Pacific Ocean to heat up; this event caused 8% of the world's coral to die.
- **Second Mass Bleaching:** This event took place in 2002. In the past decade, however, mass bleaching occurrences have become more closely spaced in time, with the longest

and most damaging bleaching event taking place from 2014 to 2017.

- **Third Mass Bleaching:** The event that took place between 2014-17 affected reefs in Guam in the Western Pacific region, the North, South-Pacific, and the Indian Ocean.

### Initiatives to Protect Corals

- A number of **global initiatives** are being taken to address the issues, like:
- International Coral Reef Initiative
- Global Coral Reef Monitoring Network (GCRMN)
- Global Coral Reef Alliance (GCRA)
- The Global Coral Reef R&D Accelerator Platform
- Similarly, the Ministry of Environment and Forests and Climate Change (MoEF&CC), India has included the **studies on coral reefs under the Coastal**

### Zone Studies (CZS).

- In India, the Zoological Survey of India (ZSI), with help from Gujarat's forest department, is **attempting a process to restore coral reefs using "biorock" or mineral accretion technology.**
- **National Coastal Mission Programme**, to protect and sustain coral reefs in the country.

## Topic 27. CHINA EVENT RAISES CONCERN OVER INDIA'S ONLY APE

### *Important for subject :Environment*

The **conservation status of India's only ape** was a cause for concern at a global event on gibbons held a week ago in China.

The **Global Gibbon Network (GGN)** had its first meeting at **Haikou in China's Hainan province** from July 7-9.

### Hoolock Gibbon:

- **Gibbons, the smallest and fastest of all apes, live in tropical and subtropical forests.**
- The tailless Hoolock Gibbon is the **only ape found in India.**
- The **primate is native to eastern Bangladesh, Northeast India and Southwest China.**
- The estimated population of **hoolock gibbons is 12,000.**
- Like all apes, they are **extremely intelligent**, with distinct personalities and strong family bonds.
- The hoolock gibbon faces threat primarily from the felling of trees for infrastructure projects.

**The Hoolock Gibbon is categorized into two types:**

### Western hoolock gibbon:

- It inhabits **all the states of the north-east**, restricted between the south of the



Brahmaputra river and east of the Dibang river. And **outside India, it is found in eastern Bangladesh and north-west Myanmar.**

- It is listed as **Endangered** under the International Union for Conservation of Nature (IUCN) Red List.

#### **Eastern hoolock gibbon:**

- It inhabits specific pockets of **Arunachal Pradesh** and **Assam** in India, and in **southern China** and **north-east Myanmar** outside India.
- It is listed as **Vulnerable** under the IUCN Redlist.
- **In India**, both the species are listed on **Schedule 1 of the Indian (Wildlife) Protection Act 1972.**

#### **One species, not two:**

- A study led by Hyderabad-based **Centre for Cellular and Molecular Biology (CCMB)** in 2021 **proved through genetic analysis that there is only one species of ape in India.**
- It debunked earlier research that the eastern hoolock gibbon was a separate species based on the colour of its coat.
- The two populations of the western hoolock gibbon and the assumed eastern hoolock gibbon split 1.48 million years ago. It also estimated that the gibbon divergence from a common ancestor occurred 8.38 million years ago.
- However, the **Red List** maintained by the **International Union for Conservation of Nature** categorises **the western hoolock gibbon as endangered** and the **eastern hoolock gibbon as vulnerable.**

#### **About the Global Gibbon Network (GGN):**

- During the **International Gibbon Day 2020 event**, representatives from **20 gibbon conservation organizations** came together for the **first time** to discuss **gibbon conservation.**
- During the event, **Eco Foundation Global, the Hainan Institute of National Park, the IUCN Species Survival Commission Section on Small Apes (IUCN SSA), the Zoological Society of London** and other organizations jointly launched the **Global Gibbon Conservation Network Initiative** that has been published on the IUCN website since 17 December 2020, calling on the world to join forces to establish a **Global Gibbon Network (GGN).**
- The GGN was founded with a vision to safeguard and conserve a key element of Asia's unique natural heritage — the **singing gibbon** and their habitats, by promoting participatory conservation policies, legislations, and actions.



**Topic 28. COMMONLY-FOUND CICADA SPECIES SHEDS ITS FOREIGN TAG TO EMBRACE AN INDIAN IDENTITY**

*Important for subject: Environment*

A ‘foreign’ cicada that is commonly found in several parts of **South India** has assumed an **Indian identity**. The **insect species** that has now been christened **Puranacheeveeda** (Malayalam name **Cheevedu**) used to be mistaken for **Puranatigrina**, a species that was **first** described in **Malaysia** in **1850**.

In view of the differences in their morphological characteristics, the **Association for Advancement in Entomology** has corrected the longstanding error in **taxonomic identification** and has **excluded the Malaysian species from the South Indian cicada fauna**.

**Basic account**

- The **taxonomic studies** conducted after **1850** treated the **cicada** seen in the region as the **Malaysian species** on account of superficial similarities.
- The **distribution of P. cheeveda** could extend across the **tropical evergreen forests** ranging from **Goa to Kanyakumari**.
- The researchers point out the study strengthened the **possibility of cicadas being geographically and attitudinally restricted in distribution**, implying a high degree of **endemism**.

**About Cicadas:**

- The **cicadas** are a superfamily, the **Cicadoidea**, of insects in the order **Hemiptera** (true bugs).
- The **superfamily** is divided into **two families**, the **Tettigarctidae**, with **two species in Australia**, and the **Cicadidae**, with **more than 3,000 species described from around the world**; many species remain undescribed.
- **Cicadas** have prominent eyes set wide apart, short antennae, and membranous front wings. They have an exceptionally loud song, produced in most species by the rapid buckling and unbuckling of drumliketymbals.
- They **typically live in trees, feeding on watery sap from xylem tissue, and laying their eggs in a slit in the bark**.
- Most cicadas are **cryptic**. The vast majority of species are **active during the day as adults**, with some calling at dawn or dusk. **Only a rare few species are known to be nocturnal**.

## **Topic 29. U.S. AND INDIA WORKING TO MAKE INVESTMENT EASIER FOR ENERGY TRANSITION, SAYS YELLEN**

*Important for subject : Environment*

The **United States is working with India to develop ways to lower the cost of capital and increase private investment to fast-track India's energy transition,**

U.S. Treasury Secretary Janet Yellen said on Monday. After a bilateral meeting with India's finance minister Nirmala Sitharaman on the sidelines of a G20 meeting, Yellen said the two nations have been collaborating across a range of economic issues, including commercial and technological collaboration and strengthening supply chains.

**Yellen did not refer to this platform as a 'Just Energy Transition Partnership' (JET-P),** though other countries including South Africa, Indonesia and Vietnam have already agreed with public and private sector lenders to help accelerate their shift away from fossil fuels via JET-Ps established with wealthier nations.

### **About Just Energy Transition Partnership (JET-P):**

- It is a **mechanism for multilateral financing by developed countries** to support an energy transition in developing countries. It aims to reduce emissions in the energy sector and accelerate the coal phase-out.
- Transition describes the gradual movement towards lower carbon technologies, while **'Just'** qualifies that **this transition will not negatively impact society, jobs and livelihoods.**
- It was **launched at the COP26 in Glasgow with the support of the United Kingdom (UK), the United States (US), France, Germany, and the European Union (EU).**
- **Senegal has become the fourth country after South Africa, Indonesia and Vietnam to sign the JET-P deal, with the International Partners Group comprising France, Germany, the European Union, the United Kingdom and Canada.**
- India refused to give its consent saying that coal cannot be singled out as a polluting fuel, and energy transition talks need to take place on equal terms.

---

## **Topic 30. GENETIC RESOURCES COMMISSION GATHERS IN ROME TO DELIBERATE ON BIODIVERSITY, NUTRITION & HUMAN HEALTH**

*Important for subject: Environment*

Delegates from across the world have gathered at the 19th session of the **Commission on Genetic Resources for Food and Agriculture (CGRFA)** in Rome, Italy.

The meeting is taking place at the **Food and Agriculture Organization's (FAO) headquarters in Rome.**

- The delegates and observers will deliberate on **three matters**: A review of work on biodiversity, nutrition and human health; Access and benefit-sharing for food and agriculture; and Digital sequence information for food and agriculture.
- At the end of the first day, three informal groups were set up.

#### The delegates will discuss:

- Biodiversity for food and agriculture;
- The role of genetic resources for food and agriculture in mitigation of and adaptation to climate change; Forest genetic resources; Microorganism and invertebrate genetic resources, including pollinator and biological control agents; and Animal genetic resources.

#### About the Commission on Genetic Resources for Food and Agriculture (CGRFA):

- **CGRFA is the only permanent intergovernmental body that deals with all components of biodiversity for food and agriculture.**
- The commission was established in **1983** and on July 16, it completed 40 years of existence.
- Other than working on the diversity of domesticated crops, livestock and farmed fish and aquatic invertebrates, forest trees and aquatic species, the commission also covers the diversity of all the non-domesticated species that enable production to occur. These include pollinators, soil-dwelling organisms, the natural enemies of pests and the microorganisms that enable ruminant animals to digest their food.

#### Framework of Action on Biodiversity for Food and Agriculture:

- The **Framework for Action on Biodiversity for Food and Agriculture** was endorsed by the **FAO Council** in **2021**.
- It contains more than **50** individual actions grouped into **three strategic priority areas**: characterization, assessment and monitoring; management (sustainable use and conservation); and institutional frameworks.
- It was developed in response to the country-driven report on **The State of the World's Biodiversity for Food and Agriculture**.

#### Digital Sequence Information (DSI) on Genetic Resources:

- **Digital sequence information (DSI)** is a term used in the context of certain international policy fora, particularly the **Convention on Biological Diversity**, to refer to **data derived from genetic resources**.
- **DSI** refers to **data from DNA or RNA that can be stored digitally**.
- The term is generally agreed to include **nucleic acid sequence data** and may be construed to include other data types derived from or linked to genetic resources, including, for example, protein sequence data.
- **DSI** is crucial to research in a wide range of contexts, including **public health, medicine,**

**biodiversity, plant and animal breeding, and evolution research.**

- The Nagoya Protocol, a component of the Convention on Biological Diversity, establishes a right for countries to regulate, and to share in benefits derived from, their nation's genetic resources by arranging Access and Benefit Sharing Agreements with users.

### **Topic 31. WILL BENEFITS FROM GENETIC RESOURCES EVER REACH COMMUNITIES?**

***Important for subject: Environment***

Over the last two years, there have been extensive discussions around the concept of access and benefit sharing linked to genetic resources.

**It has been at the core of discussions under:**

- The Convention on Biological Diversity's (CBD) Global Biodiversity Framework; World Health Organization's Pandemic Treaty; The Agreement on the Conservation and Sustainable Use of Marine Biodiversity Beyond National Jurisdiction and The International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA).
- It was discussed again recently at the **Ad Hoc Open Ended Working Group to Enhance the Functioning of the Multilateral System under ITPGRFA in Rome.**
- The Working Group was established way back in 2013.
- It is tasked to figure out ways to make the multilateral system of sharing plant genetic resources for food and agriculture work.

**The issues involves are:**

- Standard Material Transfer Agreement; Expansion of the list of crops in Annex I (at present, this has with 35 crop genera and 29 forage species); and Implementation measures that include ways of sharing benefits from digital sequence information.
- The issue is of utmost importance as **plant genetic resources for food and agriculture** could provide a way to **increase and diversify food production** and also help to **adapt to climate change** in the future.

**About ITPGRFA:**

- It is a **legally binding comprehensive agreement** adopted in **November, 2001** at **Rome** during the **31st session of the Food and Agriculture Organization** of the United Nations, which entered into force on **June 29, 2004** and currently has **149 Contracting Parties**, including **India**.
- The treaty provides solutions to achieve food and nutritional security as well as climate resilient agriculture. Countries are inter-dependent for PGRFA and consequently a global order is essential to facilitate access and benefit sharing.
- It formally acknowledges the enormous contribution of indigenous people and smallholder farmers as traditional custodians of the world's food crops.

- **The treaty was aimed at:** recognizing the significant contribution of farmers to the diversity of crops that feed the world; establishing a global system to provide farmers, plant breeders and scientists with access to plant genetic materials; and ensuring that recipients share benefits they derive from the use of these genetic materials with the countries where they have originated.

#### **Nagoya protocol:**

- **The Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilisation (ABS) to the Convention on Biological Diversity** is a supplementary agreement to the **Convention on Biological Diversity**.
- It provides a **transparent legal framework** for the effective implementation of one of the three objectives of the CBD: the fair and equitable sharing of benefits arising out of the utilisation of genetic resources.
- The **Nagoya Protocol on ABS** was adopted on **29 October 2010** in **Nagoya, Japan** and entered into force on **12 October 2014**, 90 days after the deposit of the fiftieth instrument of ratification.
- Its objective is the **fair and equitable sharing of benefits arising from the utilization of genetic resources**, thereby contributing to the conservation and sustainable use of biodiversity.

#### **What is ABS?**

- **Access and benefit sharing** refers to the way in which **genetic resources** may be accessed, and how users and providers reach an agreement on the fair and equitable sharing of the benefits that might result from their use.
- **Article 15** of the **Convention on Biological Diversity (CBD)** sets out rules, which govern access and benefit sharing. Under these rules, the governments of countries have **two key responsibilities:**
  1. To put in place systems that facilitate access to genetic resources for environmentally sound purposes
  2. To ensure that the benefits resulting from their use are shared fairly and equitably between users and providers

#### **Why are access and benefit sharing important?**

- Access to genetic resources can lead to benefits for both users and providers.
- Access and benefit sharing ensures that the way in which genetic resources are accessed and used maximises the benefits for users, providers, and the ecology help communities where they are found.
- To deliver a range of benefits; from basic scientific research, such as taxonomy, to developing commercial products which contribute to human well beings, such as pharmaceuticals.

## **Topic 32. TIGERS STRUGGLE TO MOVE WITHIN NEPAL EVEN AS THEY CROSS BORDERS: STUDY**

### ***Important for subject: Environment***

Tigers in Nepal are increasingly isolated in protected areas and facing difficulties moving within the country due to human activities and habitat fragmentation.

**Suhelwa Wildlife Sanctuary in Uttar Pradesh** which borders **Nepal** is the new habitat of tigers of that region. Tigers move from here to **Banke National Park of Nepal**.

- Both the countries, India and Nepal, adopted the **landscape-based approach** in the early 2000s to save the Tigers in the **Terai ARC Landscape (TAL)**, a flatland region along the Ganges and its tributaries.
- Presently Nepal has **355** wild Tigers.
- Domestic corridors in the Siwalik hills could connect the tiger populations and increase their genetic diversity and viability.
- Conservationists recommend involving community forest user groups and implementing wildlife-friendly infrastructure guidelines to manage and protect the domestic corridors.

### **Concern:**

- The habitat destruction due to various causes include: Construction of east-west highway across India and Nepal Deforestation Development of new settlements Mining activities
- The tiger habitat in the ARC region confined to Chitwan and Parsa in the east and Banke-Bardiya and Shuklaphanta in the west.
- All this has reduced the genetic diversity of tigers.

### **About Tiger:**

**Scientific Name:** Pantheratigris

**Indian Sub Species:** Pantheratigristigris.

### **Habitat:**

- Its habitat stretches from Siberian temperate forests to subtropical and tropical forests on the Indian subcontinent and Sumatra.
- It is the largest cat species and a member of the genus Panthera.
- Traditionally eight subspecies of tigers have been recognized, out of which three are extinct.
  1. **Bengal Tigers:** Indian Subcontinent
  2. **Caspian tiger:** Turkey through central and west Asia (extinct).
  3. **Amur tiger:** Amur Rivers region of Russia and China, and North Korea
  4. **Javan tiger:** Java, Indonesia (extinct).



5. **South China tiger:** South central China.
6. **Bali tiger:** Bali, Indonesia (extinct).
7. **Sumatran tiger:** Sumatra, Indonesia.
8. **Indo-Chinese tiger:** Continental south-east Asia.
9. **Threats:** Habitat destruction, habitat fragmentation and poaching.

#### Protection Status:

- Indian Wildlife (Protection) Act, 1972: Schedule I International Union for Conservation of Nature (IUCN) Red List: Endangered.
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix I.
- **Tiger Reserves in India:** Total Number: 53 according to NTCA.
- **Largest:** Nagarjunsagar Srisailem Tiger Reserve, Andhra Pradesh on the basis of core area.
- **Smallest:** Orang tiger reserve in Assam on the basis of core area.

#### About Suhelwa WLS:

- **Suhelwa Sanctuary** is a wildlife sanctuary located in **Balrampur, Gonda and Sravasti districts** of the state of **Uttar Pradesh** in India.
- It covers an area of 452 square kilometres.
- The **main mammals** of Suhelwa are **Bengal tiger, Indian leopard, sloth bear, antelope and deer**. Other animals include **fox, hyena, Indian elephant and wild cat**.

#### Banke National Park:

- It is located in the **Lumbini Province** and was established in **2010** as **Nepal's tenth national park** after its recognition as a "Gift to the Earth".
- The protected area covers an area of 550 km<sup>2</sup> (210 sq mi) with most parts falling on the **Churia range**.
- Together with the neighbouring **Bardia National Park**, the coherent protected area of 1,518 km<sup>2</sup> (586 sq mi) represents the **Tiger Conservation Unit (TCU) BardiaBanke**.

### Topic 33. ASIATIC LION RUN OVER BY GOODS TRAIN NEAR PIPAVAV PORT IN GUJARAT'S AMRELI DISTRICT

#### *Important for subject :Environment*

An **Asiatic lion** was run over by a **goods train**, another was injured after being hit by the same train near the **Pipavav port** in **Gujarat's Amreli district**.

The incident took place in **Uchaiya village**, some 4 km north of the limits of the port in the **Rajula range** of the **Shetrunji wildlife division**.

The **four sub-adult lions**—two males and two females—were trying to cross the railway

track at the time of the incident.

### Pipavav port:

- **Port Pipavav, India's second port in the private sector after Mundra Port**, is a port on the **West Coast of India** for containers, bulk and liquid cargo.
- Its lead promoter is **APM Terminals**, one of the largest container terminal operators in the world.
- The services include pilotage/towage, cargo handling and logistics support. **Port Pipavav** is located in **Rajula Saurashtra, Gujarat**, at a distance of **90 km South of Amreli**, 15 km South of **Rajula** and 140 km South West of **Bhavnagar**.
- The port handles both bulk, container and liquid cargo. The port has a **natural breakwater** facing the wharves called **Shialbet Island**. The port is along the major trade routes and is close to the **major Indian Port of**

### NhavaSheva.

- **Pipavav** is among the **busiest ports of Gujarat** and the railway line on which the accident took place connects the port with **Surendranagar** and gives the port access to the railway network of the country.
- Lions often enter even the area of the Pipavav port.

### Main ports of Gujarat:

- The main ports in Gujarat are **Kandla, Bhavnagar, Porbandar, Veraval, Okha, Bedi, Navlakhi, Mundra, Pipavav, Poshitra, Dahej, Magdalla and Hajira**.
- **Kandla** is the biggest port among the other ports of Gujarat.

### Asiatic lion:

- **Asiatic lions' only wild population in the world** has been surviving in the **Gir forest** and other protected areas spread across **Junagadh, Amreli, Gir Somnath and Bhavnagar districts** in the state's Saurashtra region.
- Many lions have settled in the **coastal belt of Rajula** with a thicket of **gandobaval** (*Prosopis juliflora*) providing them shelter and a healthy prey base, mainly of blue bulls and wild boars.

### National Parks in Gujarat region:

**Name of National Park District Major wildlife supported Gir Forest National Park**  
Junagadh Asiatic lion, leopard, chausingha, spotted deer, hyena, sambar deer, chinkara

### Blackbuck National Park, Velavadar

- Bhavnagar Blackbuck, fox, Macqueen's bustard, lesser florican

### Vansda National Park

- Navsari Leopard, hyena, deer, chausingha

### **Marine National Park, Gulf of Kutch**

- Jamnagar, Devbhumi Dwarka Sponges, corals, jelly fish, seahorse, octopus, pearl oyster, starfish, lobster, dolphin

### **Wildlife sanctuaries in Gujarat:**

#### **Name of Sanctuary District**

#### **Major wildlife supported**

#### **Kutch Desert Wildlife Sanctuary**

- Kutch Chinkara, hyena, fox, flamingo, pelicans and other waterfowl and herpetofauna

#### **Gir Wildlife Sanctuary & National Parks**

- Junagadh, GirSomnath, Amreli Lion, leopard, chausinga, chital, hyena, sambar, chinkara, herpetofauna, crocodiles and birds

#### **Marine Sanctuary**

- Jamnagar, DevbhumiDwarka, Gulf of Kutch Sponges, corals, jellyfish, sea horse, octopus, oyster, pearl oyster, starfish, dolphin, dugong, waterfowl

#### **Barda Wildlife Sanctuary**

- Porbandar Leopard, blue bull, hyena, wild boar, jackal, birds, herpetofauna

#### **Purna Wildlife Sanctuary**

- Dangs Leopard, barking deer, macaques, four horned antelope, sambhar, hyena, herpetofauna, birds

#### **NalSarovar Bird Sanctuary**

- Ahmedabad, Surendranagar Flamingos, pelicans, coot, ducks, waders, storks, herons and other waterfowl, herpetofauna

#### **Pania Wildlife Sanctuary**

- Amreli Lion, chinkara, leopard, chital, hyena, wild boar, four horned antelope, pangolin, blue bull, birds

#### **Rampara Wildlife Sanctuary**

- Morbi Blue bull, chinkara, wolf, fox, jackal, birds, herpetofauna

#### **Thol Lake Bird Sanctuary**

- MehsanaCranes, geese, flamingos, sarus and about 125 other waterfowl species

### Khijadiya Bird Sanctuary

- Jamnagar Indian skimmer, ibises, painted stork, cormorants, etc.
- About 220 bird species, herpetofauna

### Gaga Wildlife Sanctuary

- Devbhumi Dwarka district
- Great Indian bustard, wolf, jackal, birds, herpetofauna

### Kutch Bustard Sanctuary

- Kutch Great Indian bustard, lesser florican,
- Macqueen’s bustard, chinkara, blue bull, herpetofauna

### Mitiyala Wildlife Sanctuary

- Amreli Lion, Blue bull, Chittal, Chinkara, Panther

## Topic 34. COAL MINING IN MEGHALAYA

### *Important for subject : Geography*

Meghalaya is predominantly rich in **tertiary coal deposits** belonging to the **Eocene age** (36-56 million years ago).

The total estimated of coal reserve found in Meghalaya is about 576.48 million tonnes. **Meghalaya** coal belongs to **sub-bituminous type** with **high sulphur content**. The **main characteristics** of the coal found in **Jaintia Hills** are its low ash content, high volatile matter, high calorific value and comparatively high sulphur content.

The **physical properties** characterize the coal of **Jaintia Hills** District as **hard, lumpy, bright and jointed** except for the coal in Jarain which is both soft and hard in nature.

**Composition** of the coal revealed by **chemical analysis** indicates **moisture content** between **0.4% to 9.2%**, **ash content** between **1.3% to 24.7%**, and **sulphur content** between **2.7% to 5.0%**. The **calorific value** ranges from **5,694 to 8230** kilo calories/Kilogram

### Coal Bearing Areas in Meghalaya:

- Coal is found in **all three undivided hill regions** (namely **Khasi, Garo and Jaintia**) of Meghalaya.

### Coal mining in Meghalaya:

- Though the **coal mines** all over the county were **nationalised by an Act** passed by the Parliament, that is, **Coal Mines Nationalization Act, 1973**, and subsequently brought

under the **Coal India Limited in November, 1975**, the coal mines in

- **Meghalaya remained outside the provisions of the said Act** due to **Sixth Schedule** of Constitution of India. Hence, the **land owners are also the owners of the minerals below their land.**

### Mining Method

#### Rat hole mining:

- Coal in Meghalaya being found **deposited in thin seams imbedded in sedimentary rocks, sandstones and shale** is **mined by making tunnels through the coal seam.**
- The **tunnels being narrow** are referred to as **'rat holes'** and the **mining method** is commonly known as **'rat hole mining'**.
- The **rat hole mining** is a **primitive method of mining** and mostly done **manually** by employing small implements and machineries.
- In this method of mining, a **narrow tunnel is dug** either through the side of the hill (referred to as- **side-cutting**) or **through a rectangular shaft/pit** (known as **boxcutting**) and **coal is extracted manually.**
- In **'side-cutting' rat hole mining** a hole is cut from the side of the hill where coal seam is visible from outside or there is possibility of coal seam located inside. Through a narrow tunnel the miners explore the inside of the hill for coal and if found extract it manually through small implements.
- In the **box-cutting method** the land is, **first cleared by cutting and removing the ground vegetation** and then pits ranging from **5 to 100 m<sup>2</sup>** are **dug vertically** into the ground to reach the coal seam. The depth of the vertical shaft varies from 20 m to 130 m depending on the depth of the coal seam. Thereafter, horizontal narrow tunnels are made into the seam. The height of the tunnel, in most cases is about 3 to 4 feet due to thin coal seams.
- In **both methods (side-cutting or box-cutting)** the **miners enter/ crawl into the tunnel** and **mine the coal with small shovel.**

#### Implications of Rat Hole Mining

- The **water sources of many rivers**, especially in **Jaintia Hills district**, have turned **acidic**. The water also has **high concentration of sulphates, iron and toxic heavy metals, low dissolved oxygen (DO) and high BOD**, showing its degraded quality.
- The roadside dumping of coal is a major source of air, water and soil pollution.
- Off road movement of trucks and other vehicles in the area for coal transportation also adds to the ecological and environmental damage of the area.
- The practice has been declared as **unsafe for workers by the NGT**. The mines branch into networks of horizontal channels, which are at constant risk of caving in or flooding.

#### Order by National Green Tribunal (NGT):

- It is **illegal** as **The National Green Tribunal (NGT) has banned rat-hole mining** in

Meghalaya in 2014

- The ban of transportation of already mined materials will also continue.

### Other Concerns

- Coal mine owners have left thousands of abandoned
- The Government does not insist that they reclaim and afforest those mines.
- In 40 years of mining and profiteering, the mine owners have till date not constructed a single hospital or even a school.

### How does the ban affect local people?

- Mining has provided **jobs** to local people. Following the **ban**, there are **demands for rehabilitation or alternative employment**.
- It was a **major issue in the assembly polls**. The **new state government challenged the ban in the Supreme Court** in November that **allowed the transportation of already extracted coal till 31 January**.
- A **citizens' report** filed in the **apex court** names several state legislators who have stakes in the largely unregulated coal mining and transportation industry.

---

### Topic 35. SEED FESTIVAL

*Important for subject : Geography*

The **native seed festival** was first introduced in South India at Thiruthuraipoondi in Tiruvarur district in **Tamil Nadu in 2006** by the late **NelJayaraman** (nel means paddy in Tamil).

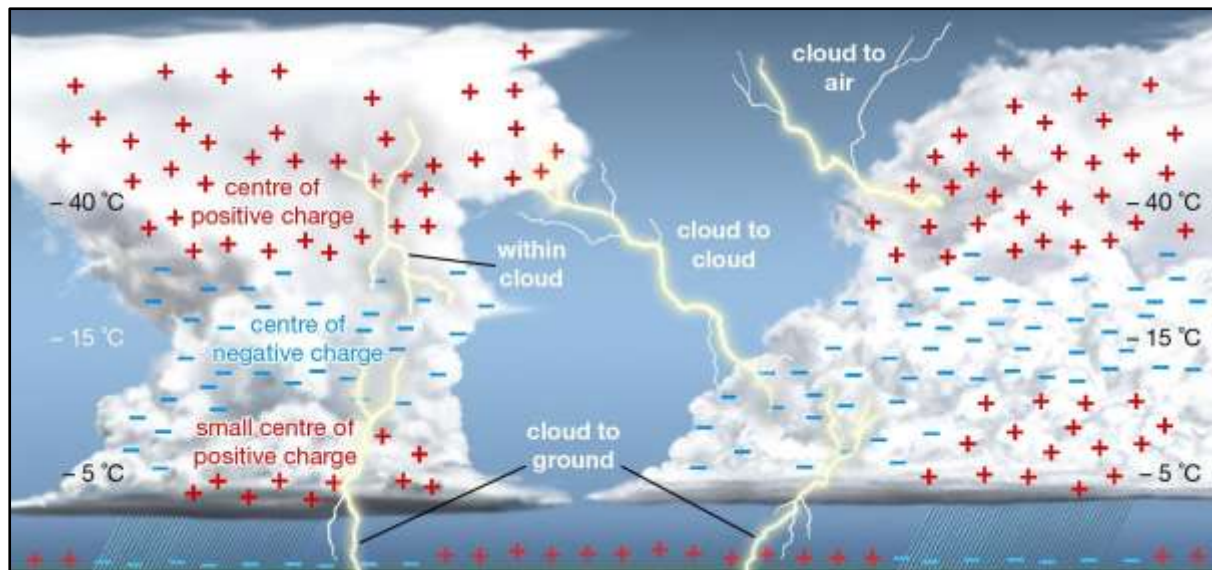
Since then it has grown from strength to strength, drawing a large number of organic farmers and promoters of traditional seed varieties every year. The annual two-day festival is **patronised by not only those from Tamil Nadu but also neighbouring States**.

- It is **one of the largest seed exchange programmes across the country**.
- As **many as 200 native varieties of grain are showcased**. Mapillai samba, thanga samba and kichili samba were some of the varieties on display.
- **Native seeds are more genetically diverse and are resilient to harsh climate conditions**.
- A highlight of the show is that two kg of native seeds are given to farmers who can pledge that they will return with four kg the next year.
- **Saving water**: Farmers say that irrigation needs come down when native seeds are used. While regular varieties may need to be irrigated two hours daily four days a week, a native variety may only need irrigation for two hours twice a week.
- **Sharing knowledge**: An organic farmer talks about farming of kambu (pearl millet).



## Topic 36. LIGHTNING NOT A NATURAL DISASTER

*Important for subject: Geography*



The Union government is not in favor of declaring lightning a natural disaster as deaths caused by it can be avoided through education and awareness.

**India** is among the **only five countries in the world** with an **early warning system for lightning and the forecast** is available from five days to up to 3 hours.

If declared a natural disaster, the victims will be entitled to compensation from the **State Disaster Response Fund (SDRF)** once this is notified. As much as **75%** of funds to **SDRF** are contributed by the Centre.

### Natural disasters:

- A natural disaster is the highly harmful impact on a society or community following a natural hazard event.
- According to present norms, **cyclone, drought, earthquake, fire, flood, tsunami, hailstorm, landslide, avalanche, cloudburst, pest attack, frost and cold waves** are considered disasters that are covered under the **SDRF**.
- The **frequency of lightning** was **maximum** in **northeast States** and in **West Bengal, Sikkim, Jharkhand, Odisha and Bihar** but the **number of deaths** is **higher** in central Indian States of **Madhya Pradesh, Maharashtra, Chhattisgarh and Odisha**.

### What is Lightning?

- It is the natural process of “an electrical discharge of very little duration and high voltage between a cloud and the ground or within a cloud,” accompanied by a bright flash, a loud sound, and occasionally thunderstorms.
- **Cloud-to-ground (CG) lightning** is dangerous because it can electrocute people due to

its high electric voltage and current. **Inter-** or **intra-cloud lightning** is visible and safe.

### Process of Lightning:

- **Lightning** is caused by a difference in electrical charge between the top and bottom of a cloud, which generates a huge current of electricity.
- **Water vapour** in the cloud condenses and rises, generating heat and pushing water molecules further up until they become ice crystals. **Collisions** between the ice crystals trigger the release of electrons, leading to a chain reaction that results in a positively charged top layer and negatively charged middle layer in the cloud.
- When the difference in charge becomes large enough, a huge current of electricity flows between the layers, producing heat that causes the air column to expand and produce shock waves that create thunder sounds.

### Lightning and the Climate Change:

- In a **2015** study from **California University**, the university cautioned that a rise in **one degree Celsius** would result in a **12%** increase in the frequency of lightning strikes.
- Another study that was released in **Geophysical Research Letters** in March 2021 found connections between climate change and an increase in lightning strikes in the Arctic.

### Lightning Strikes in India:

- According to a newly published yearly report on lightning from the **Lightning Resilient India Campaign (LRIC)**, **India** may have seen **up to 18.5 million** lightning strikes between **April 2020** and **March 2021**.
- Each year, lightning claims the lives of more than **2,500 Indians**.
- According to a study by the **Delhi-based RMSI**, a global leader in geospatial and engineering solutions, **Odisha, Madhya Pradesh, Chhattisgarh, West Bengal, and Jharkhand** have witnessed the maximum lightning strikes in recent years.
- According to government statistics, **more than 100,000 individuals** have died in the nation as a result of lightning strikes between **1967** and **2019**. This represents **more than a third of the deaths** brought on by natural disasters throughout this time.

## Topic 37. HEAT WAVES ACROSS SOUTHERN EUROPE

### *Important for subject : Geography*

The intense heat wave experienced in southern Europe, particularly in Italy. Italian health officials intensified heat warnings as southern Europe experienced a brutally hot week.

### Temperatures were expected to exceed 40 degrees Celsius.

- The Health Ministry issued recommendations to protect vulnerable groups from the heat, including the elderly, sick, and pets.
- Recommendations included staying indoors, consuming at least 1.5 liters of water daily,

and avoiding strenuous exercise during peak daylight hours.

### Weather Conditions and Impact in Italy

- Italy experienced a third heat wave, affecting much of the Mediterranean and lasting until Wednesday.
- Rome recorded temperatures of 39 degrees Celsius, with expectations of exceeding 40 degrees Celsius the following day. Power outages occurred in parts of Rome due to increased demand from air conditioners.

### Wildfires in Spain and Greece

- A wildfire that started on the Canary island of La Palma continued to burn out of control, although weaker winds and cooler temperatures were assisting firefighters.
- In Greece, two wildfires threatened homes in areas outside Athens.

### Causes for Intense Heat Waves

#### Climate change

- The Earth's atmosphere has been warming for decades, due to human activities such as burning fossil fuels. This warming is causing heat waves to become more frequent, intense, and prolonged.
- A study by the World Meteorological Organization found that the probability of a heat wave like the one that hit Europe in 2022 has increased by at least 100 times due to climate change.

#### Double jets

- A **double jet is a type of weather pattern that occurs when two jet streams, or bands of strong winds in the atmosphere, are present over Europe. This can cause hot air to be trapped over the continent, leading to heat waves.**
- A study by the University of Oxford found that double jets have become more common in recent years, and that they are likely to become even more common in the future due to climate change.

#### Drought

- Drought can make heat waves more intense by drying out the soil and vegetation, which can trap heat.
- A study by the European Union's Copernicus Climate Change Service found that the risk of drought in Europe has increased by 20% since 1971.

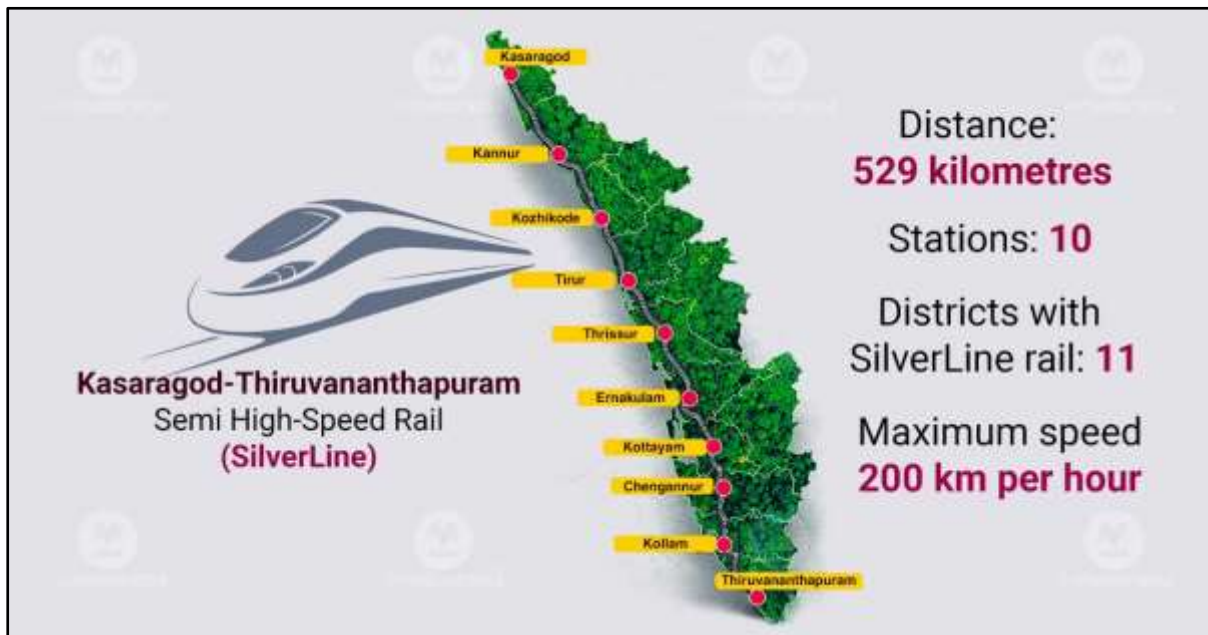
#### Other factors

- Other factors that can contribute to heat waves include **urban heat island effect, deforestation, and changes in ocean currents.**

- The **urban heat island** effect occurs when cities are warmer than surrounding areas due to the heat generated by buildings, vehicles, and other human activities.
- Deforestation can reduce the amount of shade and moisture in an area, which can make heat waves more intense.
- Changes in ocean currents can affect the distribution of heat around the globe, which can lead to heat waves in some regions and droughts in others.

### Topic 38. TRACKING THE NEW RAILWAY PROPOSAL FOR KERALA

*Important for subject : Geography*



In Kerala, a new **semi-high speed railway**, expected to cruise at an **average speed of 125kmph** has been proposed. Set to travel the **420-km Thiruvananthapuram-Kannur north-south corridor**, the trains are slated to cover the distance in **three and a half hours**.

The alignment for the trains will be largely that of the alignment suggested in **2015** for the high-speed rail corridor.

**About the new rail project:**

- The approximately **₹1 lakh crore semi-high speed train project on standard gauge track** was mooted recently by technocrat **E. Sreedharan**.
- It is being projected as an **alternative to the ₹64,000 crore Thiruvananthapuram Kasaragod Silver Line project**, which was to cover the 530-km distance at an average speed of about 135 kmph.
- The proposed corridor would have a **design speed of 200 kmph** and can be linked with **high-speed or semi-high speed rail projects on standard gauge** that could touch Mangaluru and Coimbatore in future.



### Why are high speed trains a priority?

- Trains in Kerala are operating at **rock-bottom speed**.
- The average speed of express trains is about **50 kmph** to as low as **35 kmph**.
- There are now **1.5 crore vehicles** — one vehicle for every two persons — jostling for space on **narrow and congested roads** which claim the life of over 4,000 people in accidents every year in the State.

### What happened to the high-speed rail corridor and the Silver Line project?

- In **2014**, the State government entrusted the **Delhi Metro Rail Corporation (DMRC)** with the task of readying a **Detailed Project Report (DPR)** for a **high speed rail corridor** linking **Thiruvananthapuram** with the **northern-most district Kasaragod**.
- The **DPR** which was handed over to the government in **2015** was considered too ambitious and costly and failed to take off.
- The **SilverLine project**, proposed by the **KRDCL in 2021** met with massive resistance due to concern over:
  1. Massive displacement of people
  2. Being built over a tall embankment
  3. Worsen the flood situation, as embankment would block natural flow of water

---

### Topic 39. MINISTRY WEIGHS FEASIBILITY OF COAL SHIPMENTS FROM MEGHALAYA TO BANGLADESH VIA ASSAM'S PANDU PORT

#### *Important for subject: Geography*

The Ministry of Ports, Shipping and Waterways is now exploring the possibility of moving coal shipments from Meghalaya's mines to Bangladesh via Pandu port.

The **Inland Waterways Authority of India (IWAI)** has appointed an operator for Pandu and Dhubri ports.

- Coal would be moved from **Meghalaya** to **Assam**, and then to **Bangladesh's Srirajganj port**, via the **Brahmaputra river** in India, and **Jamuna river** in Bangladesh. India is dredging the waterway to make it navigable.
- Use of waterways to transport material to the neighbour would improve access, reduce the time taken, and bring down logistics costs.

#### **Dhubri port:**

- Dhubri port is an important **river port in Assam**. This port is located in **Dhubri town** on the **banks of the Brahmaputra River**. This port is located on the **National Waterway 2**. It is important for the port **terminal**. It is located near the Bangladesh border at the **western end of National Waterway 2**.
- It is currently used for commodity transit movement to Bangladesh. Dhubri is also being looked at as an option to improve connectivity between the North-East and the Indian mainland.

- A trial run, carrying 200 tonnes of rice, was done on the Patna–Pandu route (of 2,350 km) using National Waterways 1 (Ganges), the India–Bangladesh Protocol route (through Khulna, Narayanganj, Sirajganj, Chilmari), National Waterways 2 (Brahmaputra) through Dhubria and Jogighopa. The journey took 25 days.

#### **Pandu port:**

- **Pandu Port** is a river port in the Indian state of Assam, serving Guwahati.
- This port has been developed on the bank of the Brahmaputra river. The port is the most important and the largest river port in Assam state.
- Many passenger ships at the port are anchored with the tourists. However, the state government has now allocated funds for the modernization of the port for national waterway development projects.
- In order to arrange a ship anchorage, a naval terminal or permanent jetty has been formed.

The Port is included in the port of call agreement between India and Bangladesh.

### **Topic 40. AUKUS**

#### ***Important for subject: International Relations***

A new trilateral security partnership for the Indo-Pacific between Australia, the U.K. and the U.S. (AUKUS) was formed.

- The security grouping AUKUS will focus on advancing strategic interests in the Indo Pacific region.
- A central feature of the partnership would involve a trilateral 18-month effort to help Australia acquire nuclear-powered submarines which are quieter, more capable (than their conventional counterparts) and can be deployed for longer periods, needing to surface less frequently.
- The partnership would also involve a new architecture of meetings and engagements between the three countries and also cooperation across emerging technologies (applied AI, quantum technologies and undersea capabilities) Under the Aukus pact Australia is to get its first nuclear-powered subs – at least three – from the US.
- The allies will also work to create a new fleet using cutting-edge tech, including UKmade Rolls-Royce reactors. Beijing has strongly criticised the significant naval deal.
- Under the deal, Australian navy sailors will be sent to US and UK submarine bases from this year to learn how to use the nuclear-powered submarines.
- From 2027, the US and UK will also base a small number of nuclear submarines in Perth, Western Australia, before Canberra will buy three US-model Virginia-class submarines in the early 2030s – with options to purchase two more.
- After that, the plan is to design and build an entirely new nuclear-powered submarine for the UK and Australian navies – a model that is being called SSNAUKUS. This attack craft will be built in Britain and Australia to a British design, but use technology from all three countries.



## Topic 41. CHINA AND RUSSIA TO KICK OFF AIR, NAVY DRILLS IN EAST SEA

*Important for subject : International Relations*

A Chinese naval flotilla recently set off to join Russian naval and air forces in the Sea of Japan to participate in the “Northern/Interaction-2023” military drills.

### **About Northern/Interaction-2023:**

- **Northern/Interaction-2023** military drills is organized by the **Chinese People’s Liberation Army Northern Theatre Command** in the central Sea of Japan.
- The event marks **Russia’s second time participating in the PLA annual strategic drills**, and also a first that Russia has dispatched both naval and air forces to participate in similar events.
- The drills are themed “**safeguarding the safety of strategic maritime routes**”.
- In August 2021, Russia participated in the “**Western/Interaction-2021**” exercise held at Northwest China’s Ningxia Hui Autonomous Region, which marked the first time that China invited foreign forces to participate in its annual strategic exercises in its territory.
- “Northern/Interaction-2023” drills are organized by the PLA Northern Theatre Command, while PLA forces participating in the previous “Western/Interaction-2021” exercise were mainly composed of forces from the Western Theatre Command.

### **Key facts about Sea of Japan:**

- Sea of Japan (East Sea) is a **marginal sea of the western Pacific Ocean**.
- It is located in **Eastern Asia that is bounded by Japan and Sakhalin Island to the east and by Russia and Korea on the Asian mainland to the west**. Its area is 377,600 square miles (978,000 square km).
- The sea itself lies in a deep basin, **separated from the East China Sea to the south by the Tsushima and Korea straits** and from the **Sea of Okhotsk to the north by the La Perouse (or Sōya) and Tatar straits**.
- To the east it is also **connected with the Inland Sea of Japan by the Kanmon Strait and to the Pacific by the Tsugaru Strait**. It influences the climate of Japan because of its relatively warm waters.

---

## Topic 42. INDIA EYES 5000 KM EASTERN REGIONAL WATERWAYS GRID

*Important for subject : International Relations*

Eyeing a greater presence along the South East Asian trade route, and countering China’s dominance in the region, **India is engaging with its two key neighbours,**

**Myanmar and Bangladesh, pushing for better port and waterways connectivity across a 5,000 km – odd grid.**

### **Eastern Waterways Grid**

- It aims to provide seamless connectivity between National Waterway-1 (NW-1) and NW-2 through the Indo-Bangladesh Protocol (IBP) routes.
- The **Eastern Waterways Grid** will link the rivers of Bangladesh, Bhutan, India and Nepal. This grid will interlinking their rivers and connect them with roads and rail to reach the last mile.
- **Eastern Waterways Grid is a project undertaken by the Union Government under its 'Act East Policy'.**
- This grid will also develop an economic corridor of 4,200 km of waterways and coastal shipping for Uttar Pradesh, Bihar, Jharkhand, West Bengal and the North Eastern States.
- The Grid builds upon the **existing network of Indo-Bangladesh Protocol Routes (IBP)** – a series of waterways which both countries can use as transit routes or to trade with each other.

### What is IBP route?

- The Protocol on Inland Water Transit and Trade (PIWTT) between India and Bangladesh allows mutually beneficial arrangements for the use of their waterways for movement of goods between the two countries by vessels of both countries.
- This Protocol was first signed in 1972 and last renewed in 2015. Under this Protocol, Inland vessels / cruises of one country can play on the designated waterway routes of another country.
- Under this protocol in India: North Eastern States are connected with eastern part of India through river Brahmaputra (NW-2) and river Barak (NW-16) North Eastern States are connected with Ganga-Bhagirathi-Hooghli river system (NW-1) via Sundarbans (NW-97).
- IBP routes are navigable routes for movement of shipping vessels that have been earmarked under the PIWTT.
- The IBP route extends from Kolkata (India) on NW-1 to Silghat (Assam) on NW-2 (River Brahmaputra) and Karimganj (Assam) on NW-16 (River Barak).

**Topic 43. BLAZE ‘OUT OF CONTROL’ AS MORE PEOPLE FLEE SPAIN’S LA PALMA**

*Important for subject : International Relations*



At least **4,000 people** have been evacuated as a wildfire rages “**out of control**” on the **Spanish Canary Island of La Palma** while Europe struggles to cope with a heatwave.

- The forest fire is the first natural crisis on the island since a volcanic eruption in September 2021.
- The **forest fire in La Palma** started in the early hours of Saturday in **El Pinar**, a wooded area in the northern part of the island. In **Tenerife**, another of the eight **Canary Islands**, a forest fire also broke out.

**About La Palma:**

- **La Palma** is the **most northwesterly island** of the **Canary Islands, Spain**. Its geography is a result of a volcanic formation and has an area of **708 square kilometres** making it the **fifth largest of the eight main Canary Islands**.
- Its **highest mountain** is the **Roque de los Muchachos**, at **2,423 metres** being second among the peaks of the Canaries only to the peaks of the Teide massif on Tenerife.
- The **Canary Islands** are a group of ocean island volcanoes located off the coast of **western Africa** that have been formed by volcanic activity since around **20 million years ago**. It comprises the **Spanish provinces of Las Palmas and Santa Cruz de Tenerife**.

**Location of Canary Islands:**

- The **Canary archipelago**(group of islands) is located in the **Atlantic Ocean**, about 1300 km South from mainland Spain and **115 km** West from the African coast (Morocco).
- It includes **7 islands** belonging to **Spain**, among which **La Palma** (in the North West of the archipelago), **Tenerife** and **Gran Canaria** (central). Despite its distance from Europe, Canaries are an important tourist attraction, served by many connections.

## Topic 44. MORE THAN COURT ACTION, REVISIT THE INDUS WATERS TREATY

*Important for subject : International Relations*

India announced that it wants to modify the 62-year-old IWT with Pakistan, citing what it called Pakistan's "intransigence" in resolving disputes over the Kishenganga and Ratle hydropower projects, both in Jammu and Kashmir.

### Current status

- In the last decade, exercising judicial recourse to settle the competing claims and objections arising out of the construction and design elements of the run-of-river hydroelectric projects that India is permitted under the IWT to construct on the tributaries of the Indus, Jhelum and Chenab before these rivers flow into Pakistan, has increased.
- In January this year, **Pakistan initiated arbitration at the Hague-based Permanent Court of Arbitration** to address the **interpretation and application of the IWT to certain design elements of two run-of-river hydroelectric projects — on the Kishanganga (a tributary of the Jhelum) and Ratle, a hydro-electric project on the Chenab.**
- India raised objections as it views that the **Court of Arbitration is not competent to consider the questions put to it by Pakistan and that such questions should instead be decided through the neutral expert process.**
- On July 6, 2023, the court **unanimously passed a decision (which is binding on both parties without appeal) rejecting each of India's objections.** The court determined that it is competent to consider and determine the disputes set forth in Pakistan's request for arbitration.

### Principles of water course

- The **partitioning of the rivers goes against the logic of treating the entire river basin as one unit** which is needed to build its resource capacity.
- The thrust of the IWT is optimal use of the waters which India believes to be the object and purpose of the IWT as opposed to Pakistan's understanding to be the uninterrupted flow of water to its side.
- Reconciling this divergent approach can be sought with the help of **two cardinal principles of international water courses law accompanying binding obligations, i.e., equitable and reasonable utilisation (ERU) and the principle not to cause significant harm or no harm rule (NHR).**
- Although there is **no universal definition of what ERU amounts to, the states need to be guided by the factors mentioned in the Convention on the Law of the Non-navigational Uses of International Watercourses 1997**, including climate change.
- The **NHR is a due diligence obligation which requires a riparian state undertaking a project on a shared watercourse having potential transboundary effect to take all appropriate measures** relating to the prevention of harm to another riparian state,

including carrying out a transboundary environmental impact assessment.

- In order to ensure rapid development, the states prioritise the ERU over the NHR.

### **Indus Water Treaty (IWT)**

- The Treaty is a water-distribution treaty between India and Pakistan, brokered by the World Bank.
- IWT was signed by the then Prime Minister Jawaharlal Nehru and then Pakistani President Mohammed Ayub Khan in Karachi on September 19, 1960, after nine years of negotiations between the two countries.
- According to this treaty, three rivers: **Ravi, Sutlej and Beas** were given to India and the other three: **Sindh, Jhelum and Chenab** were given to Pakistan.

### **Rights & obligations under this treaty**

- India is under obligation to let the waters of the western rivers flow, except for certain consumptive use.
- The treaty allocates Pakistan approx. 80% of the entire water of the six-river Indus system and reserved for India just remaining 19.48% of the total waters. India can construct storage facilities on western rivers of up to 3.6-million-acre feet, which it has not done so far. The IWT permits run of the river projects and require India to provide Pakistan with prior notification, including design information, of any new project.

### **Dispute redressal mechanism under the Treaty**

- Article IX of the Treaty is a dispute resolution mechanism – graded at three levels to resolve a difference or a dispute related to projects on the Indus waters.

#### **First level**

- Either party has to inform the other side if they are planning projects on the Indus river with all the information that is required or asked for by the other party.
- This process is done at the level of the Permanent Indus Commission (PIC), created to implement and manage the goals of the IWT. If PIC is unable to solve the question in contention, the question becomes difference and goes to second level.

#### **Second level**

- The second grade is the World Bank appointing a neutral expert to resolve the differences. If a neutral expert cannot resolve the issue, the difference becomes a dispute and goes to third level.

#### **Third level**

- At this level, the matter goes to a Court of Arbitration (CoA) whose chair is appointed by the World Bank.

## Topic 45. OPPENHEIMER : FATHER OF ATOM BOMBS

### *Important for subject : History*

Christopher Nolan's new film on the American physicist who built the most destructive weapon known to man, then advocated against nuclear weapons, and was punished for it, opens on July 21.

- As Director of the Los Alamos Laboratory in New Mexico, Oppenheimer **led the so-called 'Manhattan Project'** — and the team of scientists who worked to harness 20th-century advances in nuclear physics for the purposes of war.
- However, after witnessing firsthand the devastating potential of nuclear weapons, Oppenheimer became one of the strongest voices against their proliferation and the growing nuclear arms race between the United States and the (erstwhile) Soviet Union.
- This is the story of how the so-called 'Father of the Atomic Bomb' became one of the most vocal advocates for nuclear non-proliferation.

### **The dawn of the Atomic Age – US Trinity Test**

- Trinity was the code name of the first detonation of a nuclear device. on July 16, 1945, the world's first super bomb loaded with about 13 pounds of plutonium at its core exploded in a desert in New Mexico.
- The super bomb, nicknamed 'Gadget', was built by a team of scientists at a topsecret site in Los Alamos.
- It destroyed everything in its vicinity and melted vast swathes of sand into seagreen glass. It was developed as part of the US-led Manhattan Project.

### **Oppenheimer and the Gita**

- Robert Oppenheimer always had doubts about “bestowing humanity the possible means for its own annihilation”.
- After witnessing the Trinity Test, his reservations were amplified manifold. And like so many others, he sought the meaning of his actions in the philosophy of the Bhagavad Gita.
- In 1965, speaking on the first-ever detonation of an atomic bomb, **he quoted the Gita. “Vishnu (Krishna) is trying to persuade the Prince (Arjuna) that he should do his duty, and to impress him [He] takes on his multi-armed form and says, ‘Now, I am become Death, the destroyer of worlds’,”** Oppenheimer said.
- Oppenheimer's “I am become Death” quote has become inextricably tied to the nuclear age, an apt description of the terrifying and awesome destructive potential of nuclear weapons.



## Topic 46. INTERNATIONAL RELATIONS CULTURAL PROPERTY AGREEMENT WITH US

### *Important for subject: History*

Recently, as many as 105 trafficked antiquities have been returned to India by the United States.

- The **Ministry of Culture will sign a Cultural Property Agreement with the US** for “smooth repatriation” of all such antiquities smuggled out of the country.
- Around 50 artefacts relate to religious Important for subjects (Hinduism, Jainism and Islam) and the rest are of cultural significance.

### **These include;**

- A terracotta Yakshi plaque belonging to the 1st century BC, which was stolen from ‘eastern India’; A red sandstone Dancing Ganesha from the 9th century, with its provenance in central India; A 10th century Kubera, also belonging to central India, and several other valuable antiquities and objects in mediums such as marble, terracotta and sandstone.

### **Procedure of return**

- **International organizations such as UNESCO and the United Nations Office on Drugs and Crime UNODC** have been at the **forefront of the fight against cultural heritage crimes**.
- Their combined expertise and global partnerships have led to the establishment of standard-setting instruments that enhance responses to and the protection against cultural theft.

### **The process involves the following steps:**

- **Identification:** Identify cultural properties that may have been wrongfully acquired or removed.
- **Legal and Ethical Considerations:** Consider international conventions, national laws, and ethical guidelines pertaining to repatriation.
- **Collaboration and Negotiation:** Collaborate and negotiate with the country of origin and the current possessor to reach an agreement.
- **Evidence and Documentation:** Gather evidence and documentation supporting the claim for repatriation, such as historical records and provenance research.
- **Public Awareness and Advocacy:** Raise public awareness and advocate for repatriation through campaigns and outreach efforts.
- **Restitution and Return:** Arrange for the safe return of the cultural property to its country of origin, considering logistics and storage.
- **Future Preservation and Collaboration:** Ensure the proper care, conservation, and display of the repatriated cultural property, and foster ongoing collaboration between the

country of origin and international institutions.

### International agreements

- The **1970 UNESCO Convention: on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property** (hereafter, the 1970 Convention) mandate in the prevention of organised crime and cultural trafficking, and offer systematic tools to strengthen national capacity.
- **UN resolution 2347:** Condemns the unlawful destruction of cultural heritage, including the destruction of religious sites and artefacts, and the looting and smuggling of cultural property from archaeological sites, museums, libraries, archives, and other sites, notably by terrorist groups.

---

### Topic 47. VARANASI COURT ORDERS ASI SURVEY OF GYANVAPI MOSQUE PREMISES

#### *Important for subject : History*

The Varanasi court gave directions for a scientific survey of the Gyanvapi mosque premises by the Archaeological Survey of India.

The survey will **exclude the wuzukhana area** which was sealed last year on the orders of the Supreme Court.

This was after Hindu litigants pointed to the presence there of what they identified as a Shivling.

#### **What is a Wuzukhana?**

- A Wuzukhana is a **place where the people who offer Namaz wash their hands and feet prior to the offering.**
- It has significance in Islam as it is a place where dirt from the body is washed out before offering Namaz.
- Basically, Wuzukhana is derived from two words – Wuzu and Khana. **Wuzu means washing parts of the body before offering Namaz and Khana is the place where Wuzu is performed.**
- **Wuzu is an Islamic process for washing bodily parts,** a sort of ceremonial purification or ablution.
- Wuzu is sometimes interpreted as ‘partial ablution,’ as opposed to ghusl, which is ‘full ablution,’ in which the entire body is bathed.

## Topic 48. MANIPUR VIOLENCE: WHAT IS A ZERO FIR AND WHY IT IS REGISTERED

*Important for subject : Polity*

### **First information report (FIR):**

The term first information report (FIR) is **not defined in the Indian Penal Code (IPC), Code of Criminal Procedure (CrPC), 1973, or in any other law**, but in police regulations or rules, information recorded under Section 154 of CrPC is known as First Information Report (FIR).

Section 154 (“Information in cognizable cases”) says that “every information relating to the commission of a cognizable offence, if given orally to an officer in charge of a police station, shall be reduced to writing by him or under his direction, and be read over to the informant; and every such information, whether given in writing or reduced to writing as aforesaid, shall be signed by the person giving it, and the substance thereof shall be entered in a book to be kept by such officer in **such form as the State Government may prescribe**”.

### **What is a cognizable offence?**

- A cognizable offence/case is one in which a police officer may, in accordance with the First Schedule of the CrPC, or under any other law for the time being in force, make an arrest without a warrant.
- In the First Schedule, “the word ‘cognizable’ stands for ‘a police officer may arrest without warrant’; and the word ‘non-cognizable’ stands for ‘a police officer shall not arrest without warrant’.”

### **What is the difference between a complaint and an FIR?**

- The **CrPC defines a “complaint”** as “any allegation made orally or in writing to a Magistrate, with a view to his taking action under this Code, that some person, whether known or unknown, has committed an offence, but does not include a police report.”
- However, an **FIR is the document that has been prepared by the police** after verifying the facts of the complaint. The FIR may contain details of the crime and the alleged criminal.
- In case of non-cognizable offences, an FIR under Section 155 CrPC, commonly called “NCR”, is registered.
- No police officer shall investigate a non-cognizable case without the order of a Magistrate having power to try such case or commit the case for trial.”

### **What is a Zero FIR?**

- Unlike an FIR, which is restricted by jurisdiction, a zero FIR can be filed **in any police station**, regardless of whether the offence was committed under the jurisdiction of that particular police station. Whereas FIRs have serial numbers assigned zero FIRs are assigned the **number ‘0’**. Hence the name.

- After a police station registers a zero FIR, it has to transfer the complaint to a police station that has the jurisdiction to investigate the alleged offence. Once a zero FIR is transferred, the police station with the appropriate jurisdiction assigns it a serial number, thereby converting it into a regular FIR.
- The concept of a zero FIR is relatively new and was introduced on the recommendation of the Justice Verma Committee in the aftermath of the Nirbhaya gang rape case in 2012 to put a legal obligation on police to take quick action and prevent them from using the excuse of absence of jurisdiction.

#### **What if the police refuse to register an FIR?**

- If no FIR is registered, the aggrieved persons can file a complaint under Section 156(3) CrPC before a concerned court which, if satisfied that a cognizable offence is made out from the complaint, will direct the police to register an FIR and conduct an investigation.

### **Topic 49. CENTRE SEEKS MORE SOCIAL DIVERSITY IN JUDGES' APPOINTMENT**

#### ***Important for subject : Polity***

As per the **Memorandum of Procedure** for appointment of Judges in the Supreme Court and High Courts, the government appoints only those persons who are recommended by the Supreme Court Collegium. Judges of the Supreme Court and High Courts are appointed under Articles 124, 217 and 224 of the Constitution of India, that do not provide for reservation for any caste or class.

As per information provided by the recommenders, out of 604 High Court Judges appointed since 2018 till now, 458 Judges belong to the General Category. 18 judges belong to the SC category, nine are from the ST category, 72 from OBC category, 34 from Minority category and for the remaining 13 judges.

#### **What prevents the judiciary from ensuring social diversity?**

- A report prepared by the **American Bar Association's Center for Human Rights, published**, reveals the "**persistence of implicit biases of upper-caste judges toward their colleagues from the Dalit community**". It quotes a former Chief Justice of a high court as disclosing that "he faced resistance from his upper-caste colleagues whenever he considered a Dalit lawyer for appointment as a judge in that High Court."
- A retired upper caste Supreme Court judge quoted in the report admits the existence of a bias against Dalit judges in the higher judiciary that they are less meritorious since they are appointed through reservation, and which is why they don't get easily promoted.

#### **How did Parliament seek to ensure social diversity in judiciary?**

- The **Report by the Parliamentary Committee on the Welfare of SCs and STs submitted in 2001**, recommended in this regard, that **Articles 124 and 217 of the**

**Constitution** be suitably amended to include the judiciary within the ambit of reservation, and simultaneously a Judiciary Act may be enacted to spell out the governing principles of the proper functioning of the Judiciary, especially the Supreme Court and the High Courts.

- The **Report by the Department Related Parliamentary Standing Committee on Personnel, Public Grievances, Law and Justice, submitted in 2006** considered this issue in depth and categorically recommended reservation in favor of the SC, ST and OBCs in the higher judiciary, as with recruitment to all other public services in the country.
- Another **recommendation is the formation of an All-India Judicial Service** to recruit judges for the subordinate judiciary across the country, with reservation being applicable to the post of District Judges in all states. But there have been strong reservations against this proposal on the ground of federalism.

### **Topic 50. USE ANY INDIAN LANGUAGE AS OPTIONAL MEDIUM, SAYS CBSE**

*Important for subject : Polity*

The Central Board of Secondary Education (CBSE) has asked its schools to consider using Indian languages as an optional medium of instruction to make multilingual education a reality.

**About the initiative:**

- The National Council for Educational Research and Training (NCERT), under directions of the Ministry of Education, has started gearing up to produce textbooks in 22 scheduled Indian languages to initiate teaching-learning through
- Indian language medium in addition to English medium in CBSE schools. These steps are in line with the provisions under National Education Policy 2020.
- The National Education Policy (NEP) says that wherever possible the medium of instruction in schools until Grade V and preferably until Grade VIII — should be the mother tongue or the local or regional language.

### **Constitutional Provisions**

- **Article 350 of the Indian Constitution** states that “It shall be the endeavour of every State and of every local authority within the State to provide adequate facilities for instruction in the mother-tongue at the primary stage of education to children belonging to linguistic minority groups”.

**Part XVII of the Indian constitution deals with the official languages in Articles 343 to 351.**

- The Constitutional provisions related to the Eighth Schedule are:
- **Article 344:** Article 344(1) provides for the constitution of a Commission by the President on expiration of five years from the commencement of the Constitution.

- **Article 351:** It provides for the **spread of the Hindi language** to develop it so that it may serve as a medium of expression for all the elements of the composite culture of India.

### Official Languages of India:

- The **Eighth Schedule to the Constitution lists the official languages of the republic of India.**
- It **consists of 22 languages:** Assamese, Bengali, Gujarati, Hindi, Kannada, Kashmiri, Konkani, Malayalam, Manipuri, Marathi, Nepali, Oriya, Punjabi, Sanskrit, Sindhi, Tamil, Telugu, Urdu, Bodo, Santhali, Maithili and Dogri.
- Of these languages, 14 were initially included in the Constitution. Sindhi language was added by the 21st Amendment Act of 1967. Konkani, Manipuri, and Nepali were included by the 71st Amendment Act of 1992.
- Bodo, Dogri, Maithili, and Santhali were added by the 92nd Amendment Act of 2003 which came into force in 2004.

### National Education Policy

- The National Education Policy (NEP) 2020 aims to transform India's education system by ensuring universal access to quality education from pre-primary to secondary levels by 2030.
- The policy emphasizes **multilingualism and Indian languages will be given priority.** The medium of instruction until at least grade 5 will be the home language/mother tongue/local language/regional language. The policy also focuses on foundational literacy and numeracy, and a new **National**
- **Assessment Centre, PARAKH,** will be established to improve assessment reforms.
- The policy aims to increase the **Gross Enrolment Ratio (GER) in higher education to 50% by 2035.**
- The Centre and states will work together to increase **public investment in the education sector to reach 6% of GDP at the earliest.**
- The policy also emphasizes teacher education and a separate Gender Inclusion Fund and Special Education Zones for disadvantaged regions and groups will be established.
- The policy aims to **promote holistic and multidisciplinary education** with multiple entry/exit options, and the **National Research Foundation (NRF) will be established to support research and innovation.** The **Higher Education Commission of India (HECI)** will be set up as an overarching umbrella body for the promotion of the higher education sector, excluding medical and legal education.

---

### Topic 51. AYUSHMAN BHARAT EMBRACES AI TO TACKLE FRAUD

#### *Important for subject : Schemes*

An anti-fraud programme utilising artificial intelligence and machine learning has resulted in the recovery of Rs 9.5 crore in penalty money.

The goal of this endeavour is to safeguard **Ayushman Bharat-PradhanMantri Jan Arogya**



**Yojana (AB-PMJAY)**, the biggest government-run insurance programme in the world.

### Important Features

- The National Health Authority (NHA), the organization responsible for carrying out AB-PMJAY, released a thorough list of anti-fraud recommendations.
- For the purpose of overseeing the anti-fraud framework that is backed by State Anti-Fraud Units (SAFUs) at the State level, the National Anti-Fraud Unit (NAFU) was established at NHA.
- The **Ayushman Bharat Digital Mission**, which aims to establish a nationwide digital system to guarantee the security of personal health information, is now being implemented by the Ministry.

### Ayushman Bharat Digital Mission

- It aims to provide digital health IDs for all Indian citizens to help hospitals, insurance firms, and citizens access health records electronically when required.
- The pilot project of the Mission had been announced by the Prime Minister from the ramparts of the Red Fort on 15th August 2020.
- The project is being implemented in the pilot phase in six States & Union Territories.

### Features of the Mission:

#### Health ID:

- It will be issued for every citizen that will also work as their health account. This health account will contain details of every test, every disease, the doctors visited, the medicines taken and the diagnosis.
- Health ID is free of cost, voluntary. It will help in doing analysis of health data and lead to better planning, budgeting and implementation for health programs.

#### Healthcare Facilities & Professionals' Registry:

- The other major component of the programme is creating a Healthcare Professionals' Registry (HPR) and Healthcare Facilities Registry (HFR), allowing easy electronic access to medical professionals and health infrastructure.
- The HPR will be a comprehensive repository of all healthcare professionals involved in delivering healthcare services across both modern and traditional systems of medicine.
- The HFR database will have records of all the country's health facilities.

#### Ayushman Bharat Digital Mission Sandbox:

- The Sandbox, created as a part of the mission, will act as a framework for technology and product testing that will help organisations, including private players intending to be a part of the national digital health ecosystem become a Health Information Provider or Health Information User or efficiently link with building blocks of Ayushman Bharat

Digital Mission.

**Implementing Agency:**

- National Health Authority (NHA) under the Ministry of Health and Family Welfare.

**Topic 52. AMRUT 2.0**

*Important for subject : Schemes*

In a Pilot project under **Atal Mission for Rejuvenation and Urban Transformation (AMRUT) 2.0**, 10 cities across the country are getting **ready to revive defunct borewells, neglected heritage stepwells and other shallow aquifers** in a pilot project to **recharge the groundwater as well as mitigate flooding**.

According to officials of the **Union Ministry of Housing and Urban Affairs**, which runs AMRUT 2.0, the pilot is **expected to be on the ground by the end of this year or early 2024**.

The cities — **Jaipur, Gwalior, Dhanbad, Kolkata, Rajkot, Thane, Pune, Hyderabad, Bengaluru and Chennai** — were selected due to their historical dependence on shallow aquifer systems and the local urban bodies' interest in implementing the project, a ministry source said.

**AMRUT 2.0**

- AMRUT 2.0 was launched in October 2021 for a period of 5 years, i.e., Financial Year 2021-22 to 2025-26.
- It is an **extension of the AMRUT mission, which was launched in June 2015 and aims to provide every household with access to a tap with a guaranteed supply of water and a sewer connection**.
- The **Ministry of Housing and Urban Affairs (MoHUA)** is the nodal ministry for the scheme.

**Objectives**

- To carry forward the **objective of universal coverage of water supply from 500 cities covered under the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) to all the statutory towns across the country**.
- Providing comprehensive coverage of sewage and septage control in 500 AMRUT cities and making the cities “self-reliant” and “water secure.” The mission has a reform plan that is centred on water sector changes, citizen comfort, and financial sustainability.
- It will build on AMRUT’s achievements in addressing water demands, reviving waterbodies, managing aquifers better, reusing treated wastewater, and encouraging a circular economy of water. 100% coverage of sewage and septic systems in 500 AMRUT cities.
- Freshwater bodies shall be protected from pollution under the Mission to ensure the

sustainability of natural resources. It is projected that recycled and reused treated wastewater will provide 40% of industrial demand and 20% of urban water demand.

- Ensure fair water distribution, wastewater reuse, and the mapping of water bodies, PeyJalSurvekshan will be carried out in cities.

### **Present Status of the AMRUT**

- The Ministry of Housing and Urban Affairs (MoHUA) has approved State Water Action Plans (SWAPs) for 6,527 projects (including Operation & Maintenance Costs).
- These initiatives are planned to result in 148 million new tap connections and 33.42 lakh new sewer connections.
- Plans include the provision of 148 lakh new water connections and 33.42 lakh new sewer connections. 2,102 water body rejuvenation projects have also been approved under SWAPs.

### **Topic 53. CENTRE TO SEEK STATES' INPUTS TO BRIDGE GAPS IN SEX RATIO**

#### ***Important for subject : Schemes***

Concerned over the sex-ratio imbalance across the country, the Union Health Ministry is looking at inviting suggestions from the States for amending the **PreConception and Pre-Natal Diagnostic Techniques Act, 1994 (PC-PNDT Act)**.

The Ministry has also appealed to the States to support people with disabilities by making it easier to issue disability certificates.

#### **About PCPNDT Act:**

- The **Pre-conception & Pre-natal Diagnostics Techniques (PC & PNDT) Act, 1994** was enacted in response to the decline in Sex ratio in India, which deteriorated from 972 in 1901 to 927 in 1991.
- The main purpose of enacting the act is **to ban the use of sex selection techniques before or after conception and prevent the misuse of prenatal diagnostic technique for sex selective abortion.**
- Offences under this act include conducting or helping in the conduct of prenatal diagnostic technique in the unregistered units, sex selection on a man or woman, conducting PND test for any purpose other than the one mentioned in the act, sale, distribution, supply, renting etc. of any ultra sound machine or any other equipment capable of detecting sex of the foetus.
- The **act was amended in 2003** to improve the regulation of the technology used in sex selection. The Act was amended to bring the technique of pre conception sex selection and ultrasound technique within the ambit of the act.
- The amendment also empowered the central supervisory board and state level supervisory board was constituted.
- In 1988, the **State of Maharashtra became the first in the country to ban prenatal sex determination through enacting the Maharashtra Regulation of Prenatal Diagnostic**

## Techniques Act.

### Provision of the act:

- The Act provides for the **prohibition of sex selection, before or after conception.**
- It **regulates the use of pre-natal diagnostic techniques**, like ultrasound and amniocentesis by allowing them their use only to detect few cases.
- **No laboratory or centre or clinic will conduct any test including ultrasonography** for the purpose of determining the sex of the foetus.
- **No person, including the one who is conducting the procedure as per the law, will communicate the sex of the foetus to the pregnant woman or her relatives** by words, signs or any other method.
- Any person who **puts an advertisement for pre-natal and pre-conception sex determination facilities** in the form of a notice, circular, label, wrapper or any document, or advertises through interior or other media in electronic or print form or engages in any visible representation made by means of hoarding, wall painting, signal, light, sound, smoke or gas, can **be imprisoned for up to three years and fined Rs. 10,000.**
- The Act mandates **compulsory registration of all diagnostic laboratories, all genetic counselling centres, genetic laboratories, genetic clinics and ultrasound clinics.**