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Topic 1. LONDON AI SUMMIT

Important for the subject: Science and Technology

The United Kingdom is set to host a pivotal two-day artificial intelligence (AI) summit. Britain is organizing the **inaugural AI Safety Summit**, bringing **together governments, academia, and companies involved in cutting-edge artificial intelligence** (AI) to discuss the risks associated with AI technology.

- Prime Minister Rishi Sunak aims to **position Britain as an intermediary** between the **United States, China, and the European Union** in the AI domain.
- The guest list for the event at Bletchley Park includes **world leaders, tech executives like Elon Musk and Sam Altman, and academics.** The summit **focuses on "frontier AI,"** which refers to **highly capable general-purpose AI models.**
- High-profile participants include U.S. Vice President Kamala Harris, European Commission President Ursula von der Leyen, China's vice tech minister, and United Nations' Secretary-General Antonio Guterres.
- The agenda includes **discussions on topics such as AI's potential use by terrorists to create bioweapons and the technology's capacit**y to surpass human capabilities, potentially causing worldwide disruption.

Some more facts about London AI Summit:

- The **London AI Summit 2023 is a two-day event** that will bring together the most forward-thinking technologists and business professionals to explore the real-world applications of AI.
- The summit will feature a **variety of sessions, including keynote addresses, panel discussions, and technical talks** from leading experts in the field of AI.

Topic 2. PM LAUNCHES 'MY BHARAT PLATFORM' FOR YOUTH

Important for the subject: Science and Technology

Prime Minister Narendra Modi laid the foundation stone for **Amrit Vatika and Amrit Mahotsav Memorial and launched the Mera Yuva Bharat (MY Bharat) platform**

Prime Minister Narendra Modi **inaugurated the Amrit Vatika and Amrit Mahotsav Memorial and launched the Mera Yuva Bharat (MY Bharat) platform** during an event in New Delhi.

This event marked the **conclusion of the Azadi Ka Amrit Mahotsav** and celebrated the **collective strength of Indian youth,** emphasizing their role in nation-building.

What is MERA YUVA BHARAT (MY BHARAT):

- It is an **autonomous body that will** benefit the youth in the **age group of 15-29 years**, in line with the **definition of 'Youth' in the National Youth Policy.**
- In case of **programme component**s specifically meant for the adolescents, the **beneficiaries** will be in the age group of **10-19 years.**
- It will help in **Setting the focus of the Government on Youth Led development** and to make the **Youth "active drivers"** of development and not merely "passive recipients"
- Mera Yuva Bharat (MY Bharat) is **'Phygital Platform' (physical + digital) comprising** physical activity along with an opportunity to connect digitally.

Topic 3. WHAT IS APPLE'S 'STATE-SPONSORED ATTACKERS' ALERT:

Important for the subject: Science and Technology

Several top opposition leaders and a few journalists have reported receiving a notification from Apple about **"state-sponsored attackers** who are remotely trying to compromise" their iPhones.

Several Indian opposition leaders, including Mallikarjun Kharge and Shashi Tharoor, received **Apple alerts warning of "state-sponsored attackers"** attempting to compromise their iPhones, **raising concerns of government surveillance**.

Information Technology Minister Ashwini Vaishnaw promised an investigation, while politicians called it a **violation of fundamental rights**. The situation is **reminiscent of the Pegasus spyware scandal,** prompting calls for **changes in the IT Act** to Important for the subject surveillance using sophisticated software to judicial oversight.

Who are these "state-sponsored attackers" that Apple refers to:

- In response to the allegations, **Apple issued a statemen**t clarifying that **they do not assign the source of the threat notifications to any particular state-sponsored** attacker.
- According to Apple's perspective, **state-sponsored attackers are highly funded and possess advanced capabilities**, and their **attack strategies evolve over time**.
- The **identification** of such attacks **depends on threat intelligence signals**, which can be **inherently imperfect and incomplete**. It is plausible that **certain notifications from Apple regarding threats could be false alarms** or that **certain attacks may go undetected.**
- **Government-backed attackers focus their efforts** on specific individuals and their devices, typically **based on their identity or activities**.
- This sets thes**e attacks apart from those executed by typical cybercriminals,** who tend to target a larger number of users for financial gain.

- According to Apple, state-sponsored attacks **often have a brief duration and are intentionally designed to remain undetected**, taking advantage of vulnerabilities that might not be publicly known.

What are apple threat notifications:

- Apple's threat notifications are a way of **alerting and helping users** who may have been **targeted by state-sponsored attackers.**
- As a response to these attacks, the company has **developed a system that can spot activity that matches certain patterns.**
- When an attack is detected, a **Threat Notification is sent by email and iMessage** to the **email addresses and phone numbers that are linked to the affected user's Apple ID.**

What does Apple advise users should do when an attack is detected:

- Some of the general security tips that Apple recommends are **updating to the latest software version**s, **setting a passcode, enabling two-factor authenticatio**n, and using a **strong password for the Apple ID.**
- It also recommends that **users should download apps** only from the **App Store**, use a **different password for each online account, and avoid clicking on links or attachments from unknown sources.** Apple also suggests that **users activate the Lockdown Mode.**

What exactly is the Lockdown Mode, and how can it be turned on

- The **Lockdown Mode** is a **feature introduced** in its **latest software updates** to specifically **protect against rare and sophisticated cyber-attacks** such as these.
- Lockdown Mode is **only available on devices that run iOS 16 or later, iPadOS 16 or later, watchOS 10 or later and macOS Ventura** or later.
- When **one activates Lockdown Mode,** his/her **device will enter into a state of high security, where many usual functions will be restricted or disabled.**
- For E.g., He/she will **not be able to send or receive attachments, links, or link previews in messages.**

Topic 4. IN THE PEGASUS BATTLE, THE FIGHT FOR SURVEILLANCE REFORM

Important for the subject: Science and Technology

A year has passed since the disclosures about the Pegasus Project revealed the threat to India's democracy. A leading digital news platform reported that the cell phones of at least 300 Indians had been hacked with Pegasus, the **spyware** from the Israel Based **NSO Group**; 10 of the cases were confirmed by Amnesty International's Security Lab using forensic analysis. The victims, important members of India's constitutional order, included cabinet

Ministers, Opposition leaders, journalists, judges and human rights defenders.

Some Facts about Pegasus Spyware

- **Functionality**: Pegasus, like its name suggests, is a spyware designed to **surveil individuals** through their smartphones.
- **Covert Installation**: It infiltrates a target's device by enticing them to click on an **exploit link, installing the malware** without their knowledge or consent.
- **Comprehensive Access**: Once installed, Pegasus grants the attacker **complete control over the victim's phone**, enabling eavesdropping, data retrieval, and even activation of the camera and microphone.

About Pegasus Spyware Case

- **Global Revelation:** In July 2021, a collaborative global investigative project uncovered the use of Pegasus spyware, developed by NSO Group, an Israeli cybersecurity company, to target mobile phones worldwide, including India.
- **Government Denials:** The Indian government denied the allegations and accused the opposition of undermining national security but did not explicitly deny using Pegasus.
- **Supreme Court's Involvement**: On October 27, 2021, the Supreme Court appointed an Expert Committee headed by Justice R V Raveendran to investigate the allegations, considering their public importance and potential **violation of citizens' fundamental rights.**
- **Cyber Terrorism:** This intrusion constitutes a cyber-terrorism attempt and calls for the application of Section 66(F) of the Information Technology Act 2008 (IT Act) to deal with the perpetrators.

Expert Committee's Mandate

- **Terms of Reference**: The committee had seven terms of reference, including determining the entity that procured Pegasus, verifying if petitioners were targeted, and assessing the legal basis for using spyware like Pegasus on Indian citizens.
- **Policy Recommendations**: It was also tasked with making recommendations on a legal and policy framework for cybersecurity to protect citizens' privacy.
- **Technical Expertise**: The committee comprised technical experts from various fields, including cybersecurity and forensic sciences.

Key Findings

- **Lack of Conclusive Evidence**: On August 25, 2022, the Supreme Court revealed that the expert committee did not find conclusive evidence of Pegasus use in the 29 phones it examined.
- **Government Non-Cooperation**: The Centre did not cooperate with the committee, as observed by the panel itself.
- **Malware Discovery**: While malware was found in five phones, it could not be

definitively linked to Pegasus.

- **Inconclusive Determination**: The committee concluded that the limited data available made it inconclusive to determine Pegasus use.
- **National Security Concerns**: The committee's report contained information about malware that could pose threats to national security and private confidential information.

Implications

- **Fundamental Right to Privacy:** Protecting citizens' smartphones through technologies like encryption is crucial for national security.
- **Need for Inquiry**: Establishing an independent high-level inquiry with credible members and experts can restore confidence and ensure transparency.
- **Global Cooperation**: Given the multinational impact of such attacks, coordinated global cooperation is essential for a thorough investigation.
- **Data Sovereignty and Privacy**: Citizens' data sovereignty should encompass their right to privacy, with stringent punishments for privacy violations.

Conclusion

- The Pegasus spyware case, which raised significant concerns about citizen privacy and national security, prompted a comprehensive investigation by the Supreme Court-appointed Expert Committee.
- While the committee did not find conclusive evidence of Pegasus use, it emphasized the potential risks associated with malware and cybersecurity.
- The case remains open, and further developments may shed light on the extent of surveillance and privacy infringements.

Topic 5. AI AND THE ISSUE OF HUMAN-CENTRICITY IN COPYRIGHT LAW

Important for the subject: Science and Technology

The emergence of AI has raised questions about copyright in the digital age.

Global leaders are adapting to **regulate AI use to safeguard humanity**.

Recent Case in the USA:

- In a US District Court case, Stephen Thaler claimed copyright for art created autonomously by his AI system, **'Creativity Machine.'**
- The US Copyright Office rejected the application, stating that human authorship is essential for copyright protection.
- The court upheld this position, in line with the US Copyright Office's stance.

Case in India:

- In 2020, the Indian Copyright Office initially accepted an application where the AI

system, "RAGHAV Artificial Intelligence Painting App," was listed as the sole author.

- When the matter stirred controversy, the Copyright Office sent a notice to the human co-author, indicating its intent to withdraw the registration. However, as of the available data, the work remains registered without withdrawal.
- This scenario in India is contrasted by the 161st **Report of the Department-Related Parliamentary Standing Committee on Commerce** in July 2021, which **suggested reviewing the Copyright Act 1957** and the **Patent Act 1970** to integrate emerging technologies like AI into their framework.
- However, the recommendations of the report did not seem to address the potential consequences for the startup ecosystem or the challenges of AI-related creations in copyright law.

Issue of Granting Copyright to AI-Generated Content:

- **Determining authorship:** Identifying the true author of AI-generated work is complex.
- **Legal clarity:** Ambiguity surrounds whether AI can hold copyright and how it relates to human authorship.
- **Ethical considerations:** AI lacks personal motivations or moral responsibilities, raising ethical dilemmas in copyright ownership.
- **Impact on existing laws:** Adapting current copyright laws to accommodate AI-generated content poses significant challenges.
- **International harmonization:** Establishing unified global standards for AI-related copyright laws is a considerable challenge.

Way Forward:

- Policymakers and courts need to be cautious about diluting the human-centricity in copyright law, especially concerning AI-generated content.
- The 161st Report of the Department-Related Parliamentary Standing Committee on Commerce recommended reviewing copyright and patent laws to incorporate AI-related technologies.
- Policymakers should consider the implications of extending traditional copyright protections to AI-generated work and the potential impact on the start up ecosystem.
- Continued discussions and studies on AI-related IP challenges are essential for shaping future copyright regulations.

Topic 6. HEMOGLOBIN ISN'T USED ONLY IN BLOOD, SCIENTISTS DISCOVER

Important for the subject: Science and Technology

Abreakthrough discovery has revealed that hemoglobin isn't used by red blood cells alone. In a study, scientists from China reported that chondrocytes i.e cells that make cartilage, the connecting tissue between bones, also make hemoglobin and seems to depend on it for their survival.

About Haemoglobin (Hb):

- It is an **iron-containing protein** found in the red blood cells that carries oxygen from the lungs to the body's tissues and returns carbon dioxide from the tissues back to the lungs.
- It is made up of **four protein molecules** (globulin chains) that are connected together.
- **Haemoglobin forms an unstable, reversible bond with oxygen.** In the oxygenated state, it is called oxyhemoglobin and is bright red; in the reduced state, it is purplish blue.
- It also plays an important role in **maintaining the shape of the RBCs**. In their natural shape, RBCs are round with narrow centers resembling a donut without a hole in the middle.
- Abnormal hemoglobin structure can, therefore, disrupt the shape of RBCs and impede their function and flow through blood vessels. **Hemoglobin levels vary from person to person**. Men usually have higher levels than women.

New Breakthrough: Hemoglobin Bodies (Hedy)

- Pathologists in China researching bone development, stumbled upon spherical structures resembling RBCs within **chondrocytes**.
- These structures, termed "**hemoglobin bodies**" or Hedy, contained hemoglobin and formed large, membraneless blobs, akin to phase separation in oil and water.

Functionality of Hemoglobin Bodies

- **Essential for Survival**: Experiments on genetically modified mice revealed that chondrocytes without hemoglobin experienced cell death, emphasizing Hedy's vital role.
- **Oxygen Transport**: Similar to RBCs, hemoglobin in chondrocytes likely serves as an oxygen store and supplier, preventing hypoxic stress (low-oxygen conditions) in cartilage cells.

Haemoglobin's Broader Implications

- **New Research Avenues:** The discovery bridges gaps between hematology and skeletal biology, paving the way for further exploration into the relationship between hemoglobin and stem cell fate in growth plates.
- **Potential for Joint Disease Insights:** Functional hemoglobin in cartilage raises possibilities of its involvement in joint diseases and bone deformities, offering fresh insights into disease mechanisms.

Topic 7. DINO-KILLING ASTEROID KICKED UP MOUNTAINS OF DUST

Important for the subject: Science and Technology

Researchers on October 30 revealed the potent role that **dust from pulverized rock** ejected into the atmosphere from the impact site may have played in driving

extinctions, choking the atmosphere and blocking photosynthesis.

- **An asteroid smacked Mexico's Yucatan Peninsula 66 million years ago**, causing a global calamity that erased three quarters of the world's species and ended the age of dinosaurs.
- The immediate effects included **wildfires, quakes, a massive shockwave** in the air, and huge standing waves in the seas. But the coup de grâce for many species may have been the climate catastrophe that unfolded in the following
- years as the skies were darkened by clouds of debris and temperatures plunged.

- **The total amount of dust** was about 2,000 billion tonnes exceeding **11 times the weight of Mt. Everest. The researchers ran palaeoclimate simulations** based on sediment unearthed at a North Dakota palaeontological site that preserved evidence of the post impact conditions.
- The simulations showed this fine **grained dust could have blocked photosynthesis for up to two years** by rendering the atmosphere opaque to sunlight and remained in the atmosphere for 15 years. While prior research highlighted two other factors, **sulfur released after the impact and soot from wildfires.** This study indicated dust played a larger role than previously known.
- The dust silicate particles measuring about 0.88.0 micrometers that formed a **global cloud layer were spawned from the granite and gneiss rock pulverized in the violent impact that gouged the Yucatan's Chicxulub crater**, 180 km wide and 20 km deep.
- In the aftermath, **the earth experienced a drop in surface temperatures of about 15 degrees Celsius.** It was cold and dark for years.
- Earth descended into an "**impact winter**," with global temperatures plummeting and primary productivity the process land and aquatic plants and other organisms use to make food from inorganic sources collapsing, **causing a chain reaction of extinctions.**
- As plants died, herbivores starved. Carnivores were left without prey and perished. In marine realms, **the demise of tiny phytoplankton caused food webs to crash.**
- Royal Observatory of Belgium planetary scientist says-While the sulfur stayed about eight to nine years, soot and silicate dust resided in the atmosphere for about 15 years after the impact.

Topic 8. ON WORLD FOOD DAY, INDIA PM MODI ENDORSES BIOFORTIFICATION TO ADDRESS MALNUTRITION

Important for the subject: Science and Technology

The Indian Prime Minister has given a strong endorsement to **staple crop biofortification** as

a **sustainable and cost-effective solution** to **alleviate malnutrition.**

He also dedicated to the nation **17 recently-developed biofortified seed varieties of local and traditional crops,** including **wheat and paddy rice**, that are being made available to Indian farmers.

- **Bihar** State has committed to rapidly scale up **production of zinc wheat seed** (**zinc** deficiency is a major cause of **stunting**). It has also established a **"Nutritional Village"** where **475 households** will **cultivate biofortified crops** to help promote these varieties.
- In **2018,** the **Indian Council of Agricultural Research (ICAR)** established **minimum levels** of **iron** and **zinc** to be bred in national varieties of **pearl millet**.
- **DRR Dhan 45** and **DRR Dhan 49** are varieties of paddy, both fortified with **zinc**, released in **2016** and **2019** respectively, developed by the **ICAR Indian Institute of Rice Research**, **Hyderabad. Indian Institute of Wheat & Barley Research** is in **Karnal, Haryana.**

Some biofortified crops are:

- Iron pearl millet, zinc wheat, and iron lentil. zinc rice **CR Dhan 315**; wheat varieties **HI 1633** rich in **protein, iron** and **zinc**, **HD 3298** rich in **protein** and **iron,** and **DBW 303** and **DDW 48** rich in **protein; Ladhowal Quality Protein Maize Hybrid 1, 2** and **3** rich in **lysine** and **tryptophan;**
- **CFMV1** and **2** of **finger millet** rich in **calcium, iron** and **zinc; CLMV1** of **little Millet rich** in **iron** and **zinc**;
- **Pusa Mustard 32** with **low erucic acid; Girnar 4** and **5** of **groundnut** with enhanced oleic acid; **yam variety Sri Neelima** and **DA 340** with enhanced **zinc, iron** and **anthocyanin content**.

Biofortification:

- It is the process by which the **nutritional quality of food crops** is improved through **agronomic practices, conventional plant breeding**, or **modern biotechnology.**
- **Biofortification** differs from **conventional fortification** in that biofortification aims to increase **nutrient levels in crops** during **plant growth** rather than through **manual means during processing of the crops**.
- It can be done using **non-genetically-modified methods** as well. Biofortification using traditional methods involves **crossing varieties over successive generations** to eventually yield a plant with **high nutrient content** along with other favorable traits.
- It is **targeted** primarily to the **rural poor** who rely heavily on **locally produced staple foods** as their **primary source of nutrition,** and who often have restricted financial or market access to commercially processed fortified foods.

Examples of biofortification projects include:

- **Iron-biofortification** of rice, beans, sweet potato, cassava, and legumes.

- **Zinc-biofortification** of wheat, rice, beans, sweet potato, and maize.
- **Provitamin A carotenoid-biofortification** of sweet potato, maize and cassava.
- **Amino acid and protein-biofortification** of sorghum and cassava.

Importance of biofortification:

- Eradicate iron deficiency among children and adolescents.
- More resilient to pests, diseases, higher temperatures, drought and provide a high yield. It provides a **food-based, sustainable and low-dose alternative** to **iron** supplementation.
- Improvement in nutritional status of the country. Eradicating **hidden hunger** (Hidden hunger is a lack of vitamins and minerals).

Topic 9. PROJECT KUSHA

Important for the subject: Science and Technology

India's own **long-range air defence system**, titled '**Project Kusha',** is being developed by the **Defence Research and Development Organisation (DRDO)**

Project Kusha is an a**mbitious defense initiative** by India aimed at developing its **own long-range air defense system by 2028-29.**

- **It** is being **developed by the Defence Research and Development Organisation** (DRDO)
- The project has a **budget of over $2.5 billion.** Project Kusha aims to **establish a three-layered air defense system**. This means it will have **different types of missiles capable of hitting targets** at varying ranges.
- The **Indian Air Force** is leading the **operational aspect of the project,** underlining its focus on indigenous defense solution**s.**

Topic 10. APPLE JOINS CERT-IN PROB IN SNOOPING CASE

Important for the subject: Science and Technology

Apple joins **CERT-In** prob in connection with the **probe into allegations of attempts to hack the iPhones of some Opposition leaders**

More about the news:

- **Apple** has t**eamed up with the Indian Computer Emergency Response Team (CERT-In)**, the government's cyber security agency, **to investigate alleged attempts** by some opposition leaders to **hack the iPhone.**

- The Indian government **probe aims to establish the safety and reliability of Apple** products to protect consumer privacy. The **Department of Electronics and Information Technology** issued a **notice to Apple, asking for an explanation for the threat alerts** sent to political leaders and journalists

- The government **wants Apple to clear about the security of its devices** and the **nature of threat reports.**

- The **review also includes Apple's response** to vulnerabilities in the **iPhone's operating system that CERT-In discovered in late October,** before Apple launched its product.

What is the issue all about:

- **Several Indian opposition leaders**, including Mallikarjun Kharge and Shashi Tharoor, received **Apple alerts warning of "state-sponsored attackers"** attempting to compromise their iPhones, **raising concerns of government surveillance**.

What are apple threat notifications:

- Apple's threat notifications are a way of **alerting and helping users** who may have been **targeted by state-sponsored attackers.**

- As a response to these attacks, the company has **developed a system that can spot activity that matches certain patterns.**

- When an attack is detected, a **Threat Notification is sent by email and iMessage** to the **email addresses and phone numbers that are linked to the affected user's Apple ID.**

What does Apple advise users should do when an attack is detected:

- Some of the general security tips that Apple recommends are **updating to the latest software version**s, **setting a passcode, enabling two-factor authenticatio**n, and using a **strong password for the Apple ID.**

- It also recommends that **users should download apps** only from the **App Store**, use a **different password for each online account, and avoid clicking on links or attachments from unknown sources.**

- Apple also suggests that **users activate the Lockdown Mode.**

Topic 11. LOW ON SALT: TURNING THE SPOTLIGHT ON KIDNEY DONORS

Important for the subject: Science and Technology

There is a great deal of attention paid to the recipient of an organ transplant, and rightly so, but the backbone of live kidney transplantation for transplant surgeons is also to make sure that donors do not face the same problem in the future.

Before the donation

- Before donating the donor is fully evaluated to make sure the person is completely

normal. Age-matched kidneys may be ideal but usually 18 to 60 years is accepted. Between 60- 70 years, an exceptional kidney function and health may permit donation. **Blood group matching is usually required but O can donate to any group.**

- Minor ailments may not be a contraindication for donating. Diabetes or prediabetes, obesity, hypertension, kidney stones, etc. require special attention. Medical evaluation is always biased in the donor's favor. Diabetes in the donor is usually an absolute contraindication. Hypertension with easy control with a single tablet is permitted.

- It is also essential that the kidney function on special tests is at least 75 ml per minute. There should be no protein leak. Metabolic workup in persons having small stones is a must. Those with multiple stones should be rejected. Normally the evaluation should favor the donor and the better working kidney should be left behind with the donor.

After the donation

- After the donation the person requires life long follow-up. Immediately after the surgery the kidney function drops by almost half and the single kidney starts working more to compensate for the loss of the other. This is a process of hyperfiltration at the microscopic level and compensatory hypertrophy at the gross level.

- **Donors are required to periodically monitor blood pressure**. Kidney function and protein loss should be checked at least once a year. Almost one third of donors would develop hypertension over several years but this is almost the same incidence as in the general population. A small percentage would develop protein leak in the urine.

- It is essential that the donors are instructed properly with regards to diet, exercise and avoidance of drugs toxic to the kidneys. **DASH diet** (dietary approaches to stop hypertension) would be ideal. Sufficient vegetables, fruits, whole grains, lean meat, moderate restriction of salt and sugar, and **avoidance of transfats is essential.**

Salt and Kidney

- The WHO and other medical associations caution on the importance of salt **restriction to 5 gms per day** in the general population. The 5 gms includes salt present in natural food, salt added during cooking and hidden salt present in preserved or packed food like bread and noodles. Restriction of salt reduces not only blood pressure but also strokes and kidney failure.

Calculating kidney function

- **Creatinine is produced by muscles in the body** and excreted by the kidneys. Since normally only kidneys remove the creatinine, its measurement in blood reflects kidney function.

- Mathematical formulas adjusting for age, weight and sex are used to calculate kidney function and express as **eGFR(Glomerular function rate).**

- Proteinuria or protein leak is a more sensitive test and 85% of the kidney diseases are detected earlier than creatinine estimation. Protein has a large molecular weight and does not appear in the urine unless the **microscopic vessel (glomerulus) in the kidney is damaged** or it is secreted by tubules.

- The **quantity of protein loss in the urine reflects** the kidney damage and is used as a measure to see the response for treatment.
- **Proteinuria unlike creatinine** is not only a marker of kidney disease but also a cause for progression of **kidney disease.**
- This understanding has led to the **development of several groups of drugs which would lower protein loss to reduce damage to the kidneys**. They include the anti renin system **(ACE and ARB) group of drugs,** the SGLT2 inhibitors, anti aldosterone drugs etc.

Conclusion

- A recent study from **MIOT international on the salt intake** in renal donors has highlighted the importance of monitoring salt intake in kidney donors Chronic Kidney disease(CKD) affects almost 10% of the world's population. So it is essential to detect CKD early and intervene to halt the disease. It is high time we realize the importance of this, and implement salt reduction globally.

Topic 12. WHAT IS THE STATUS OF KAVACH INSTALLATIONS?

Important for the subject: Science and technology

The deadly collision between two   passenger trains in southern India's Vizianagaram district in Andhra Pradesh   which killed 14 people and injured   fifty persons could have been averted if Traffic Collision Avoidance Systems (TCAS) were in place.

East   Coast Railway officials indicated that the   indigenously developed   TCAS   called 'Kavach,' was not installed on the route where the Visakhapatnam Palasa and Visakhapatnam Rayagada trains collided.

What is TCAS Kavach?

- Kavach is a cab signaling train control system **with anti collision features.**
- It plays **the role of a watchdog over the existing signalling system.**
- It was developed over a period of 10 years, starting in 2012, by the Indian

- Railways Research Designs and Standards Organisation (**RDSO**). Kavach is designed to give out warnings to the loco pilot in case he does not notice the '**red signal**,' and instead of stopping, is going to overshoot the signal.

- After giving warnings on the locopilot's display, if the pilot does not slow down below 15 kilometers per hour, the Kavach system automatically applies brakes to bring the train to a halt.

How is the Kavach system deployed?

- In the Kavach setup, the railway stations along   the route where this tech is   sanctioned

to be deployed are provided with **three components**. First is Radio Frequency Identification **(RFID) technology** in the tracks.

- RFID tech uses radio waves to identify people or objects. It uses electromagnetic fields to automatically identify and read information contained in a wireless device from a distance without making physical contact or **requiring a line of sight.**
- Secondly, the locomotive, which is the driver's cabin, is provided with RFID readers, computer, and brake interface equipment.Finally, **radio infrastructure which are towers. and modems are installed at railway stations.**

How does Kavach infrastructure work?

- **The three components of Kavach on rail tracks, locomotives and at railway stations are communicating with each other to monitor train movements**, and transmit signals ahead to locomotives.
- **Their function is not affected by visual interferences** like hilly geography or haze.
- There is direct loco to loco communication and information regarding location and track IDs are exchanged, in case it is noted that both trains are on the same line.
- **The locomotives have antennas** which communicate with towers on railway stations and display warnings to the driver on his monitor.

How much does the Kavach system cost?

- **Deploying Kavach costs ₹50 lakh per kilometer** for the Indian Railways.
- **Experts say present coverage for Kavach is only 1,500 km** and at this rate, it may take many years to ensure Kavach even on high density routes as Railways has a total route length of 68,000 kms.
- Current Kavach coverage includes the 1,400 km stretch in South Central Railway and 200 to 250 km routes from Delhi to Mumbai and Delhi to Kolkata where it is still under testing in patches, installed in 100 kms here and there, not in continuous sections and not operational.

Topic 13. PCR-BASED DIAGNOSIS OF HELICOBACTER PYLORI

Important for the subject: Science and technology

- The team of researchers from the **National Institute of Cholera and Enteric Diseases (ICMR-NICED)** Kolkata, **developed a two-step PCR-based assay to detect Helicobacter pylori (H. pylori) infection and to identify the clarithromycin-resistant bacteria**.

Helicobacter pylori (H. pylori)

- Helicobacter pylori is a **gram-negative spiral-shaped bacteria** that colonies the **gastric mucosa**.
- The bacteria adapts to survive in the acidic environment of the stomach and with the help of various **adhesins/receptor molecules**, it attaches to the host cells.
- Most of the infections by pylori are asymptomatic and approximately 10-15% of them develop **peptic ulcers**.
- H. pylori colonization in **gastric epithelial cells** is more prominent in developing countries mostly due to **contaminated food, water, and poor hygiene**. In India, 60-70% of the population is affected with the H. pylori infection, which is often acquired during childhood and remains in the stomach throughout life.

Diagnosis of H. pylori infection

- The diagnosis is mainly done in two ways-

- **Non-Invasive tests**: The non-invasive diagnostic tests are done without performing endoscopy. The urea breath test (UBT), stool antigen test (SAT), serological tests, and tests using molecular methods are all non-invasive tests
- **Invasive tests**: The invasive diagnostic available methods are endoscopic imaging, histology determination, rapid urease testing, and tests using culture and molecular methods.

Limitations of previously used diagnosis

- The tests are **not specific and sensitive** to H. pylori.
- The tests are **expensive**.
- The culture of H. pylori is slow-growing, hence the **diagnosis takes several days** (sometimes even more than a week).

Not effective in identifying the drug-resistant strains.

- **Dr. Ashish Kumar Mukhopadhyay's (NICED) research:** The team from NICED identified that the **drug resistance in the bacteria is due to a point mutation (A to G mutation at 2143 position)** in the 23S ribosomal RNA (rRNA) gene.

- Bioinformatics study revealed that drug-resistant and drug-sensitive strains had very different binding affinities for the drug – "**the drug's binding affinity to mutant was**

weaker compared with the drug-sensitive bacteria".

- The team developed a two-step PCR-based assay to first detect H. pylori and then to differentiate resistant isolates from biopsy samples.

- **Ist step:** 617 base pair segment containing the point mutation was amplified using DNA from biopsy samples.

- **2nd step:** 183 base pairs amplified by the first PCR step are used as a template and two allele-specific primers are used for amplification.

Benefits of the PCR-based assay:

- It is a **rapid and reliable** diagnostic tool.

- **100% specificity and sensitivity** in detecting pylori infection.
- The assay can **distinguish between drug resistance and drug-sensitive bacteria**.

Conclusion

- The progressive increase in antibiotic resistance represents a real and serious health problem. The improvement and development of diagnostic methods, such as PCR-based molecular techniques, are promising tools to detect antibiotic resistance at an individual level and, thus, can offer targeted antibiotic treatment.

Topic 14. HOW THE US STEALS A MARCH OVER EUROPE AMID THE UK'S SHOWPIECE SUMMIT

Important for the subject: Science and Technology

More about the news:

Over the past decade, **Europe has taken the lead in tech regulation**, but the **United States has made strides in AI regulation** with **a detailed executive order aiming to address AI threats** and **safety benchmarks,** setting it up as a **potential global AI regulation model.**

- The **US Executive Order on AI** outlines r**egulations and safeguards for the most advanced AI technologies**. The United States **aims to lead in AI regulation,** particularly **focusing on AI safety and protecting the public from potential harm.**
- The **EU** has **made advances in tech regulation,** including **GDPR and sub-legislations** – the **Digital Services Act (DSA) and the Digital Markets Act (DMA),** but the **US is now emerging as a leader in AI regulation.**

- The executive order **requires AI companies to conduct safety tests** before launching new AI products and aims to **limit threats such as deepfakes.** It also **calls for watermarks on AI-generated content** to alert consumers.
- A key feature is the **establishment** of an **AI safety institute** to **evaluate AI risks, echoing the UK's plan to set up a United Kingdom Safety Institute.** The US executive order **sets standards for the use of AI in biotech and critical infrastructure** and encourages private-sector adoption of best practices.
- The move aims to **address concerns of generative AI,** encompassing **issues related to privacy, system bias, and intellectual property rights**, which have prompted regulatory scrutiny.
- The **US, EU, UK, and China each have distinct approaches** to **AI regulation**, with the **US now positioning itself as a significant player** in defining AI regulation guidelines.
- Tech leaders, including **Elon Musk and Steve Wozniak, have called for a pause in AI development,** highlighting concerns about the potential existential risks posed by AI.

What is Bletchley Declaration:

- The declaration **provides a comprehensive overview** of the **global consensus on both the potential benefits and risks associated** with **artificial intelligence.**
- It underscores the **importance of aligning AI systems** with **human intentions and encourages a deeper exploration** of the full range of AI capabilities.
- The declaration **acknowledges the potential for significant harm**, including **catastrophic consequences, arising from AI,** whether these harms are intentional or unintentional.
- It places a **strong emphasis on safeguarding human rights, ensuring transparency, explainability, fairness, accountability, regulation, safety, human oversight, ethical considerations, bias mitigation, privacy protection, and data securit**y within AI development and deployment.
- The declaration reflects the **intricate negotiations that took place among nations with differing interests and legal systems**, including major players such as the United States, the United Kingdom, the European Union, and China.
- It highlights the **importance of involving civil society in addressing AI safety concerns, even though some civil society groups had voiced concerns** about being excluded from the summit.
- The declaration also **places a significant responsibility on companies developing cutting-edge AI systems** to **prioritize safety through thorough testing, evaluation, and the implementation of appropriate safety measures**.

Why is this declaration significant:

- **Twenty-nine countries** such as the **US, the UK, China, Australia, Brazil and India,** along with the **European Union** have **agreed to work together** to prevent **"catastrophic harm, either deliberate or unintentional"** which may arise

from artificially intelligent computer models and engines.

- The member countries include: **Australia, Brazil, Canada, Chile, China, France, Germany, India, Indonesia, Ireland, Israel, Italy, Japan, Kenya, Saudi, Arabia, Netherlands, Nigeria, The Philippines, the Republic of Korea, Rwanda, Singapore, Spain, Switzerland, Turkey, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, the United States of America, and the European Union**

What was India stance:

- During the o**pening plenary session** at Bletchley Park, **Union Minister of State for IT, Rajeev Chandrasekhar**, emphasized the **need to address the weaponization of social media**.
- He also stressed the **importance of ensuring the safety and trustworthiness** of artificial intelligence (AI).
- The Minister's statement at the summit **signifies the highest-level endorsement of India's shift from** its **previous stance of not contemplating legal interventions** to **regulate AI in the country**.
- In **April 2023,** the **Ministry of Electronics and IT** had stated that **it had no plans for enacting laws to oversee the AI sector.**

Topic 15. INDIA STARTS PROCESS TO ADOPT NATIONAL SECURITY STRATEGY

Important for the subject: Science and Technology

India has kickstarted the process of bringing in a National Security Strategy. India has **initiated the development** of a **National Security Strategy,** marking a **significant step** in the **country's military** and strategic planning.

The **National Security Council Secretariat (NSCS)** is currently gathering **inputs from various central ministries** and departments to compile the initial draft of the strategy.

The timeline for the completion of the strategy remains uncertain, although numerous ministries have already submitted their inputs to the NSCS on various aspects of the comprehensive document.

This marks the **first instance of India formulating a National Security Strategy**, reflecting the nation's evolving approach to security and defense planning.

What is a National Security Strategy:

- A National Security Strategy document **delineates a nation's security goals** and the **strategies necessary** to accomplish them.
- It **delineates both conventional and non-traditional threats** and opportunities

while **instilling accountability** within the agencies **responsible for implementing** these actions.

- In essence, **a national security strategy** serves as a **guiding framework for the military** and vital defense and security reforms, **offering a comprehensive perspective on national security,** the **challenges it faces, and the strategies to tackle them.**

Which countries have a National Security Strategy:

- Many **developed countries** maintain a National Security Strategy, periodically updated to outline security objectives and strategies. Notable examples include the **US, UK, Russia, China (Comprehensive National Security), and Pakistan (National Security Policy 2022-2026),** each emphasizing their national security priorities and objectives.

What is India's need for a National Security Strategy:

- The **complexity of modern security threats** and **geopolitical uncertainties** have prompted the need for this strategy.
- Prominent figures, including former Army Chief General NC Vij, have emphasized the necessity of **revising existing military directives and initiating major military reforms through the framework of a national security strategy**.
- It has been proposed that a **white paper on defense should be produced to elucidate India's stance on significant defense matters** while the national security strategy is being developed.
- This strategy is **considered crucial for guiding military reforms** in a coherent manner.

Why did India never have a national security strategy:

- **Three previous efforts** to formulate a national security strategy in India were **thwarted, and political hesitancy** appeared to be the **main impediment.**
- Security experts suggest that the **government may have been apprehensive** about the **increased accountability** it would impose on d**efense management.**
- Various reasons have been proposed by strategic experts for India's failure to develop a national security strategy in the past, including a **lack of coordinated, whole-of-government collaboration, and potential reluctance on the government's part to disclose its national security goals** to the public.

What is the National Security Council (NSC):

- The **National Security Council** (NSC) of India, **established in 1998,** plays a crucial role by o**ffering guidance to the Prime Minister's Office** regarding national security and strategic concerns.
- India's **national security management system operates within a three-tiered structure**, with the **NSC at its apex.**

- This three-tiered system encompasses **the Strategic Policy Group, the National Security Advisory Board, and a secretariat supplied by the Joint Intelligence Committee (JIC).**
- At the **helm of the NSC** is the **National Security Advisor (NSA)**, who not only **presides over the council** but also **serves as the principal advisor** to the Prime Minister.
- The **NSA's dual role** involves p**roviding essential advice to the Prime Minister** on a wide range of national security issues.

What is the National Security Council Secretariat (NSCS)

- NSCS is the **apex agency** looking into the **political, economic, energy and strategic security concerns** of India.
- The NSCS has **four verticals:**
- **Strategic Planning;**
- **Internal Affairs;**
- **Intelligence and Technology;**
- **Military**
- **National Cyber Security Coordinator (NCSC)** works **under NSCS** and coordinates with different agencies at the national level for cyber security matters.

Topic 16. A TELCO DOUBLE DIP ATTEMPT THAT THREATENS NET NEUTRALITY

Important for the subject : Science and Technology

In July this year, the Telecom Regulatory Authority of India (**TRAI**), at the request of the government, invited a comprehensive consultation on the need and possible mechanisms for regulation of **'OTT services'**, which became controversial.

Net Neutrality

- The principle of net neutrality states that internet users should be able to access all content on the internet without being discriminated by TSPs.
- This means that – All websites or applications should be treated equally by TSPs, All applications should be allowed to be accessed at the same internet speed, and All applications should be accessible for the same cost.
- Net neutrality argues that the internet should be accessible to everyone and requires all ISPs to provide the same level of data access and speed to all traffic.
- Traffic to one service or website cannot be blocked or degraded.

What will happen if there is no Net Neutrality?

- If there no net neutrality, ISPs will have the power (and inclination) to shape internet traffic so that they can derive extra benefit from it.
- For example, **several ISPs believe that they should be allowed to charge companies for services like YouTube and Netflix because these services consume more bandwidth compared to a normal website.**
- Basically, these ISPs want a share in the money that YouTube or Netflix make. Without net neutrality, the internet as we know it will not exist. Instead of free access, there could be package plans for consumers.
- For example, if you pay Rs 500, you will only be able to access websites based in India. To access international websites, you may have to pay a more.
- Or maybe there can be different connection speed for different type of content, depending on how much you are paying for the service and what add-on package you have bought.
- Instead of an open and free internet, without net neutrality, we are likely to get a web that has silos in it and to enter each silo, you will have to pay some "tax" to ISPs.

Regulation of Net Neutrality

- Until now, **net neutrality has not directly been regulated in India by any law or policy framework.** Earlier, in **2016, the TRAI had ruled in favour of net neutrality**. However, **despite lack of formal rules, ISPs in India mostly adhere to the principal of net neutrality.**
- There have been some incidents where Indian ISPs have ignored net neutrality but these are few and far between.
- Internationally, **countries like the USA, Japan, Brazil, Chile, Norway, etc. have some form of law, order or regulatory framework in place** that affects net neutrality.
- The US Federal Communications Commission (telecom regulator in the USA) released new internet rules in March 2015, which mainly disallow blocking, throttling or slowing down, and paid prioritisation of certain applications over others.
- While the UK does not allow blocking or throttling of OTT services, it allows price discrimination.

About Over The Top (OTT) services:

- It **refers to a media service offered directly to viewers via the Internet.** OTT bypasses cable, broadcast, and satellite television platforms—the types of companies that have traditionally acted as controllers or distributors of such content.
- Examples: content providers such as **Netflix, Amazon Prime, and Disney+ Hotstar.**
- For more than a decade now, telecom companies have seen revenue from traditional streams such as voice calls and SMS come under pressure, as competing OTT services are often free. At the same time, they have had to invest heavily in upgrading their infrastructure to handle increased data traffic, without necessarily seeing an equivalent rise in revenue.
- They also complain that **OTT services are not Important for the subject to the same level of taxation and licensing fees, leading to an uneven playing field**. On the flip

side, the **use of OTT services has led to a surge in data consumption, which is a growing revenue stream for telecom companies.**

Flawed argument that affects net neutrality

- The OTT consultation has renewed the clamour from the telecom companies that OTT platforms/ content providers be asked to share in the costs of bandwidth. They argue that streaming platforms are free riders, benefiting from the infrastructure built and maintained by the telecom companies.
- However, this argument is fundamentally flawed and sets a dangerous precedent that undermines the principle of net neutrality. **Telecom companies do not own the Internet; rather, they provide access to it.**
- Consumers pay the telcos for access services by purchasing data plans. By offering services that consumers desire, OTT platforms generate demand for Internet access. They also pay for the content delivery networks (CDNs) to create pathways that substantially augment the capacity of the internet to deliver their content.
- Telecom companies capitalise on this demand (and the availability of OTT content) by providing connectivity to the Internet and charging subscribers for it.
- If they fail to cover costs, telecom companies are at liberty to increase their prices, which should go towards maintaining and upgrading their infrastructure. One of the requirements for the operation of a fair market is that the costs and benefits of a transaction are fully accounted for in the exchange price.
- Therefore, any attempt to seek cross subsidise instead of fully accounting for the costs could warrant **scrutiny from the Competition Commission of India (CCI).**
- In the marketplace for Internet access, the consumers are free to choose the provider that offers them the highest bandwidth, data volume, and reliability at an affordable price. These are distinct markets because services from one are not substitutable for services in the other.
- Therefore, it is logical to maintain a separation of costs between these two markets. **The attempt of telcos to double dip by charging both consumers and content providers is not only avaricious but also undermines net neutrality.**
- If OTT platforms were to acquiesce to the demands of the telcos, the incurred costs would trickle down to subscribers, either through increased subscription fees or degraded service quality for those platforms unwilling or unable to pay the toll. This outcome can only be detrimental to consumers who have come to rely on OTT services for entertainment, education, and professional pursuits.

Basis of TRAI regulation

- **Net neutrality formed the basis of TRAI's regulation on prohibition of discriminatory tariffs for data services brought out in 2016.** The regulator's action forced the withdrawal of Facebook's Free Basics platform and some other offerings in India.
- In 2017, TRAI released its **comprehensive recommendations**, which have largely guided the adoption of this principle in India. These steps taken by TRAI were noted

elsewhere in the world.

- **The Body of European Regulators for Electronic Communications (BEREC) and TRAI adopted a Joint Statement for an Open Internet in 2018.** The two organisations agreed through this memorandum of understanding to cooperate in developing technological and policy initiatives for net neutrality. Many other countries have also adopted net neutrality, thereafter.

Conclusion:

- It is imperative for all stakeholders, including policymakers, to recognise the long term ramifications of acquiescing to the shortsighted demands of telecom companies.
- Upholding the principles of net neutrality is not merely about preserving the ethos of an open Internet but is also intrinsic to fostering a conducive environment for innovation, competition, and consumer welfare, especially countries such as India where the Internet is going to be the carrier of all Digital Public Infrastructure (DPI).

Topic 17. THE ZIKA GENOME AND INSIGHTS INTO THE ERA OF EMERGING OUTBREAKS

Important for the subject : Science and Technology

The dengue virus and its equally infamous cousin, the Zika virus, together infect up to around **400 million people every year**. The Zika virus and genomic studies of it have opened fascinating windows into our knowledge of the infectious disease and its relevance in the context of emerging outbreaks.

The Zika virus

- The Zika virus is a **mosquito-borne flavivirus.** Most infections in humans are asymptomatic or with mild symptoms, **including fever, rash, and joint pain.**
- The outbreak was characterized by an alarming increase in the number of **microcephaly cases in newborns**, prompting the World Health Organisation to declare it a public health emergency of international concern in early 2016.
- From Africa, the Zika virus has spread to Asia, Pacific islands, to the Americas, and beyond. The disease has of late been in the headlines with multiple outbreaks in the last few years in multiple Indian states, including, more recently, Kerala and Karnataka.
- A significant number of insights have come from the Zika virus's genome. Researchers sequenced the complete genome first in 2007. It has more than **10,000 bases of single-stranded RNA**.
- The genome is also peculiar: it encodes for a large polyprotein, which is further cleaved into capsid, membrane precursor (prM), envelope, and seven non-structural proteins.
- The diagnosis of a Zika virus infection is mostly through genetic testing. An antibody-based test would be complicated because antibodies produced by the infection can cross-react with those of the dengue **(DENV)**, yellow fever, and West Nile viruses.

Epidemiology and surveillance

- The Zika virus has an **RNA genome**, and thus a very high potential to accumulate mutations. The tools, techniques, and modalities we've developed to track the evolution, genetic epidemiology, and molecular underpinnings of transmission and pathogenesis could be extended to Zika virus outbreaks as well.
- Genomic studies have suggested that the Zika virus has **two lineages: African and Asian.**

Zika and microcephaly

- The small heads of children born to infected mothers has been one of the more alarming complications of a Zika virus infection.
- Earlier, based on studies with mice, researchers had suggested that a mutation in one of the precursor membrane proteins, called prM, of the Zika virus was associated with **microcephaly**.
- However, while the large outbreak in South America was caused by lineages of the virus with the specific mutation, only a subset of the relevant pregnancies resulted in microcephaly.
- The Zika-microcephaly hypothesis also suffered when researchers recorded microcephaly in Thailand following infections of the Asian lineage of the Zika virus that lacked the mutation.
- **Foetal Zika virus infections were associated with heavy viral loads during pregnancy,** and the viral load strongly influenced foetal growth.
- Taken together, the findings underscore the importance of the viral load and DENV infections for the occurrence of microcephaly.

Making it attractive

- In a recent study in Cell that infections of two viruses in primates encourage specific microbes to grow on the skin by **suppressing an antimicrobial peptide,** RELM, on the skin.
- These microbes produce **acetophenones**, which are volatile molecules that could provide a chemical cue to mosquitoes, attracting them towards the individual and supporting forward transmission of the viruses. The researchers also reported that administering **isotretinoin** could up regulate RELM and reverse this phenomenon.

Conclusion

- Zika virus and DENV interactions have also been an interesting area of research. A significant body of evidence suggests that a Zika virus infection can significantly increase the risk for severe dengue.
- As climate change helps drive the spread of vector borne diseases, and global warming brings environmental conditions that favour them to new places, our genomic technologies and such deep insights into the molecular pathogenesis of these viruses will be an important guiding light.

Topic 18. WOLBACHIA: AN UNLIKELY HERO

Important for the subject : Science and Technology

Wolbachia **is a genus of bacteria** that has evolved complex relationships with the many insects that can host it.

It is **named for the American pathologist Simeon Burt Wolbach**, who identified it along with Marshall Hertig in 1924.

In 1971, researchers discovered **that when male Culex mosquitoes infected by Wolbachia bacteria** fertilised healthy eggs from a female, the eggs died.

- The bacteria **modified the male's sperm cells** in a way that only the bacteria could reverse. **So, if the female mosquito was uninfected, her egg cells would be damaged.**
- But if the female was infected by Wolbachia, the eggs would be viable if the male was uninfected or infected by the same strain of Wolbachia.
- This means infected female mosquitoes gain a reproductive advantage over time as the amount of Wolbachia in the population increases.

Wolbachia can also reduce the rate at which chikungunya and yellow fever viruses multiply in infected mosquitoes.

- Scientists have also found that some Wolbachia species can strongly protect some mosquito species against the malaria parasite. So, they are currently studying a way to have the right strain of Wolbachia rapidly spread in a particular mosquito population, in the right environmental conditions, such that the bacteria can suppress malaria transmission.
- If this is achieved, it will be a significant weapon in our millennia long fight against mosquito borne diseases.

How mosquitoes spread disease?

- Mosquitoes pick up viruses by biting infected people. When they bite again, they can transmit the virus to the next person. This is how mosquito-borne diseases spread.
- Mosquitoes do not naturally carry viruses – they can only get them from infected people.
- Since only female mosquitoes bite humans, only female mosquitoes can transmit viruses. The **Aedes aegypti** mosquito is the main transmitter of dengue, Zika, chikungunya and yellow fever viruses.
- Aedes aegypti mosquitoes originated in Africa, but they have spread through tropical and subtropical regions around the world.
- Aedes aegypti mosquitoes first spread outside Africa during the slave trade between the 15th and 19th centuries. They also spread through trade with Asia during the 18th and 19th centuries, and then again following troop movements in World War II.

What is Wolbachia?

- Wolbachia are extremely common bacteria that occur naturally in 50 per cent of insect species, including some mosquitoes, fruit flies, moths, dragonflies and butterflies.
- Wolbachia is safe for humans and the environment. Independent risk analyses indicate that the release of Wolbachia mosquitoes poses negligible risk to humans and the environment.
- Wolbachia lives inside insect cells and is passed from one generation to the next through an insect's eggs. Aedes aegypti mosquitoes don't normally carry Wolbachia, however many other mosquitoes do.

How our Wolbachia method works

- It was discovered that when Aedes aegypti mosquitoes carry Wolbachia, the bacteria compete with viruses like dengue, Zika, chikungunya and yellow fever.

- This makes it harder for viruses to reproduce inside the mosquitoes. And the mosquitoes are much less likely to spread viruses from person to person.

- This means that when Aedes aegypti mosquitoes carry natural Wolbachia bacteria, the transmission of viruses like dengue, Zika, chikungunya and yellow fever is reduced.

- So, at the World Mosquito Program, we breed Wolbachia mosquitoes. Then, in partnership with local communities, we release them into areas affected by mosquito-borne diseases.

- Which means less risk of disease in communities where Wolbachia is established in the local mosquito population.

Why this method is unique and effective?

- Unlike most other techniques that aim to prevent mosquito-borne diseases, our Wolbachia method is natural and self-sustaining.
- This method does not suppress mosquito populations or involve genetic modification (GM), as the genetic material of the mosquito is not altered.

World Mosquito Program (WMP)

- **It** is a not-for-profit group of companies owned by Monash University that works to protect the global community from mosquito-borne diseases such as **dengue, Zika, yellow fever** and **chikungunya.**

- Since releasing the first **Wolbachia** mosquitoes in **2011,** evidence from international pilot

studies shows that we can use **Wolbachia** more broadly to decrease the risk of Aedes aegypti mosquitoes transmitting viruses. Multiple trials in various locations demonstrate that our method is a safe and effective way to help prevent the spread of diseases across entire cities and regions.

- We continue to rapidly expand our operations by building partnerships with local governments and communities around the world who are embracing our Wolbachia method.

Topic 19. 'DEEPFAKE' VIDEO SHOWING RASHMIKA MANDANNA: HOW TO IDENTIFY FAKE VIDEOS

Important for the subject: Science and Technology

A video that supposedly shows actress Rashmika Mandanna entering an elevator has ignited a firestorm of controversy on the internet. What initially appears as genuine is, in fact, a **'deepfake'** of the actress.

Deepfake technology:

- Deepfake technology is a method for manipulating videos, images, audio utilizing powerful computers and **deep learning.** It is used to generate fake news and commit financial fraud among other wrongdoings.
- It overlays a digital composite over an already-existing video, picture, or audio; cybercriminals use **Artificial Intelligence technology.**
- These include **pictures, audio or videos** that are constructed using deep learning technology, a **branch of machine learning** where massive amounts of data are fed into a system to create fake content that looks real.

Origin of the Word:

- The term deepfake originated in **2017** when an anonymous **Reddit user** called himself **"Deepfakes."**
- This user manipulated **Google's open-source, deep-learning technology** to create and post **pornographic videos**.

Misuse:

- **Deepfake technology** is now being used for **nefarious purposes** like **scams** and **hoaxes, celebrity pornography, election manipulation, social engineering, automated disinformation attacks, identity theft, financial fraud etc.**
- **Deepfake technology** has been used to impersonate notable personalities like former U.S. President **Barack Obama** and **Donald Trump**, **India's Prime Minister Narendra**

Modi, etc.

How to identify a deepfake content?

Unnatural eye movements:

- Deepfake videos often **exhibit unnatural eye movements or gaze patterns.** In genuine videos, eye movements are typically smooth and coordinated with the person's speech and actions.

Mismatch in colour and lighting

- Deepfake creators may have difficulty replicating accurate colour tones and lighting conditions.

Compare and contrast audio quality:

- Deepfake videos often use AI-generated audio that may have subtle imperfections.

Strange body shape and movements:

- Deepfakes can sometimes result in unnatural body shapes or movements. For example, limbs may appear too long or short, or the body may move in an unusual or distorted manner.

Artificial facial movements:

- Deepfake software may not always accurately replicate genuine facial expressions.

Unnatural Positioning of Facial Features

- Deepfakes may occasionally exhibit distortions or misalignments in these features, which can be a sign of manipulation.

Awkward posture and physique:

- Deepfakes may struggle to maintain a natural posture or physique.

Reverse image search:

- One can also take a **screenshot of the video** and **run a reverse image search to check the source and the original video.** To do this, go to **https://images.google.com/** and click on the camera icon that says **'Search by image'.** One can then upload the screenshot and Google will show you if visuals associated with it are taken from previous videos.

What are other Countries doing to Combat Deepfakes?

European Union:

- The European Union has an updated **Code of Practice** to stop the spread of disinformation through deepfakes.

- The revised Code requires tech companies including **Google, Meta,** and **X** (formerly Twitter) to take measures to counter deepfakes and fake accounts on their platforms.
- They have **six months to implement their measures** once they have signed up to the Code. If found **non-compliant,** these companies can face fines of as much as **6% of their annual global turnover,** according to the updated Code.
- Introduced in **2018,** the **Code of Practice on Disinformation** brought together for the first time worldwide industry players to commit to counter disinformation.

United States:

- The U.S. introduced the **bipartisan Deepfake Task Force Act** to assist the **Department of Homeland Security (DHS)** in countering deepfake technology.
- The measure directs the **DHS** to conduct an annual study of deepfakes assess the technology used, track its uses by foreign and domestic entities, and come up with available countermeasures to tackle the same.
- **California** and **Texas** have passed laws that criminalize the publishing and distributing of deepfake videos that intend to influence the outcome of an election. The law in Virginia imposes criminal penalties on the distribution of nonconsensual deepfake pornography.

India:

- In **India,** however, there are **no legal rules** against using deepfake technology. However, specific laws can be addressed for misusing the tech, which include **Copyright Violation, Defamation** and **cyber felonies.**

Topic 20. PIONEER ECOLOGIST MADHAV GADGIL ON HIS LIFE SPENT IN, AND FOR, INDIA'S BIODIVERSITY

Important for the subject: Environment

One of India's pioneering ecologists, **Madhav Gadgil** looks back on his journey in a new memoir titled **A Walk Up The Hill: Living with People and Nature**.

About Madhav Gadgil and his book:

- Gadgil has a **people-centric approach to biodiversity conservation**. He has worked with **Indian Institute of Science, Bengaluru.**
- The **Bombay Natural History Society** journal published a paper written by him and his colleague V. D. Vartak titled **Sacred Groves of India: a plea for continued conservation.** His approach was that **nature could be conserved by working with, rather than against the people.** The alternative seemed possible in **UNESCO's Man and Biosphere programme launched in 1971**. In **1986** the **Nilgiris Biosphere Reserve** was constituted. He pointed out how **rampant mining** was destroying the **sylvan landscape** with groundwater and springs drying up.

- He said that under the **Wild Life Protection Act 1972**, the **forest department deliberately weakened** the **van panchayats** and harassed leaders of the **Chipko movement.**
- This led to the **degradation of the habitat of goral** and other wildlife species, triggering the landslide of **Chamoli** in 2021.

Gadgil committee report 2011:

- His report of the **Western Ghats Ecology Expert Panel** was monumental. It was bold with **39 guidelines** for initiating **bottom-up democratic decisions** from the **gram sabha level.**
- These **included** no economic zones, no new hill stations, rehabilitation of mined areas with special focus on reviving water resources, promoting organic agricultural practices, strict control of explosives to kill fish, no mining or large storage dams in areas demarcated ESZ 1 (Environmentally Sensitive Zone), no new mining in ESZ 2, no new railway line and no new national/state highways in ESZ 1.
- The report promoted **people-owned, small-scale hydropower systems**. A high-level working group, headed by **Krishnaswamy Kasturirangan** was appointed to examine the report in **2012**.

Environmental concerns raised by him:

- Replacement of original trees by exotics like eucalyptus, Sea levels have been rising more rapidly than expected in tropics, ground has been sinking in cities like Mumbai and Ernakulam, lowering of groundwater level due to overuse, the entire west coast is plagued by blatant violation of coastal regulatory zones norms, environmentally degrading projects like the **Vasco Da Gama Coal Port** in **Goa**, **Tadadi Coal Port** in **Karnataka** and the **Vizhinjam Coal Port** in **Kerala.**

Sacred groves:

- Services provided by them are: protect water sources, shelter medicinal plants, shelters for animals. In **Ambi Valley,** the **Mangaon sacred grove** provided shelter to a breeding population of **barking deer**.
- **Ficus tree:** It is a genus of about **850 species** of **woody trees, shrubs, vines, epiphytes** and **hemiepiphytes** in the family Moraceae. Collectively known as **fig trees** or **figs,** they are **native** throughout the **tropics** with a few species extending into the **semi-warm temperate zone.**
- The **common fig (F. carica)** is a **temperate species native to southwest Asia** and the **Mediterranean region** (from Afghanistan to Portugal), which has been widely cultivated from ancient times for its **fruit,** also referred to as **figs.**
- The fruit of most other species are also edible though they are usually of only local economic importance or eaten as bushfood. They are **extremely important food resources for wildlife**. **Figs** are also of considerable cultural importance throughout the tropics, both as objects of worship and for their many practical uses.

Topic 21. FORMER FOREST OFFICER RAJIV BHARTARI ON ZONING IN CORBETT TIGER RESERVE AND ITS IMPACTS

Important for the subject: Environment
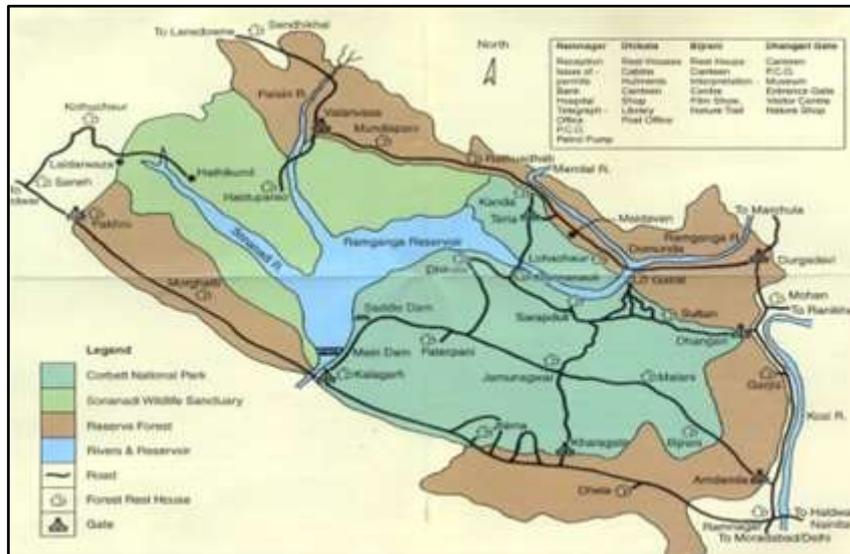
Corbett tiger reserve:

Corbett National Park created in **1936** was modeled after **Yellowstone National Park** in the **USA**.

Lord Malcolm Hailey was then the **Governor of United Provinces,** later **Uttar Pradesh.**

It was initially known as **Hailey National Park** in **1936**. Post-independence in **1947,** Hailey National Park was **renamed** as **Ramganga National Park** in **1955,** and subsequently **Corbett National Park** in **1957** after the death of **Jim Corbett.**

- **Corbett National Park** became **Corbett Tiger Reserve** in **1973** with the introduction of **Project Tiger**.
- **Corbett**, located in **Uttarakhand**, hosts **one of the highest tiger densities** in the world, it also harbors the **largest tiger population in any protected area** in the world.
- In **1985,** the **25th Working Session** of the **IUCN Commission on National Parks and Protected Areas (CNPPA)** was held in **Corbett National Park.**
- It operates on the basis of **two spatially distinct units** — the **core** and the **buffer.** Within these two, there are also **tourism zones** and **spatially exclusive units** meant to control where and when visitors can access the reserve and spot the elusive tiger.

Zoning of tiger reserves:

- The concept of zoning was first introduced as part of Project Tiger. **Core-buffer zoning** in protected areas is a **spatial strategy** for the management of large cats such

as **tigers** to **increase population** and **limit human wildlife conflict**.

- It involves a **binary system** based on the **degree of protection** given to the species, being **greater in core areas,** where needs of carnivores are privileged, and to a **lesser degree in buffer area** that give preference to human uses to offset restrictions placed on human activities in core zones
- **Zoning** is a form of **territorialisation** too as it involves the **establishment of new boundaries, regulation of access and control** of use through authority.

critical points in zoning of corbett tiger reserve:

- In **1973** with the declaration of Project Tiger and Corbett's inclusion in it. In **1991** Corbett Tiger Reserve was **increased in size by two and a half times.**
- The **entire Corbett National Park was made a core area,** and the **buffer zone was created outside the national park**, by adding the **Kalagarh Forest Division,** including **Sonanadi Wildlife Sanctuary (WLS)** and parts of **Ramnagar** and **Terai West Forest Divisions**.
- In **2006**, the **WLPA (1972)** underwent a major amendment, when **legal provisions for tiger reserves** were added to the parent Act. The **original WLPA of 1972** did not mention or define a **tiger reserve.** Neither did it define a **core** or **buffer area**.
- But the **Amendment Act 2006** defines the **core**, or the **critical tiger habitat,** as an area that needs to be kept as **"inviolate"** for the purpose of tiger conservation.
- Meanwhile, the **buffer** is an area that requires a **lesser degree of habitat protection,** and where **coexistence between humans and wildlife is promoted**. These legal definitions make the existence and role of a **"core"** and a **"buffer"** more rigid than before.

Panchayat van (community forests):

- Unique to **Uttarakhand state.**
- It is the **legally demarcated village forests** under the **control of the Village Forest Council,** whereas **van panchayat** refers to the **Village Forest Council or governance institution** which the state of Uttarakhand granted authority for managing these forests.
- The power of managing the forest resides with the locally elected **sarpanch (headman)** of the **van panchayat (village forest committee)**. In **2010**, both the core and buffer areas of Corbett Tiger Reserve were legally notified.
- The **NTCA** has a policy of **providing funds for relocation from the core area only**. But with the change in the status of the **Sonanadi WLS** from **buffer area** to **core area** in **2010**, the **NTCA** gave a **budgetary grant** for the relocation of the **nomadic Gujjars** from the sanctuary.

Topic 22. WHY THE GOA GOVERNMENT IS IN THE DOCK OVER NOTIFYING A TIGER RESERVE

Important for the subject: Environment
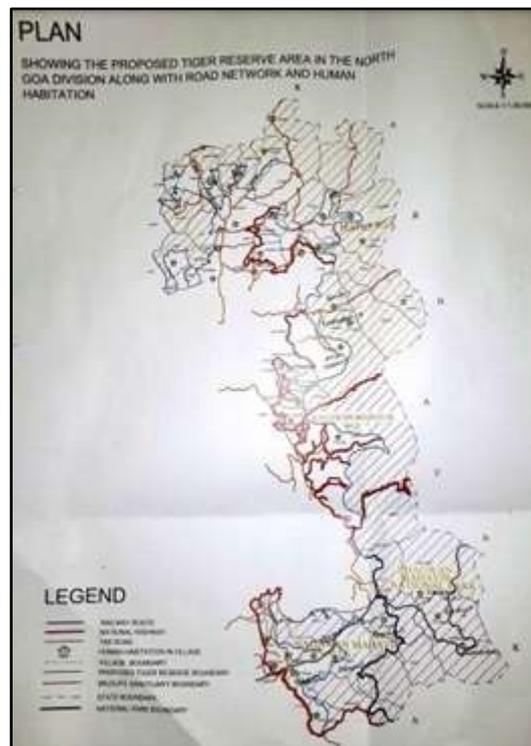
The **Goa bench of the Bombay High Court** directed the **Goa government** to notify a **tiger reserve** in **Mhadei Wildlife Sanctuary (WLS)** and other contiguous areas of the state within three months.

The court also directed the state to **determine and settle the rights and claims of Scheduled Tribes and other forest dwellers within a year**.

- It was recommended by the **National Tiger Conservation Authority (NTCA)** in terms of **Section 38 (V) (1)** of the **Wildlife Protection Act**.
- The **2014 Status of Tigers (Co-predators & Prey) in India report,** released by the statutory body **National Tiger Conservation Authority (NTCA)** formed under the **Wild Life (Protection) Act of 1972,** speaks about the **tiger presence** in the region.
- The state government argued before the court that the provisions of section 38-V (1) of the Wildlife Protection Act were only directory and not mandatory.

Catigao- Mhadei forest complex:

The **Cotigao-Mhadei forest complex** of **Goa** comprises **five protected areas:**

- Mhadei Wildlife Sanctuary, Bhagwan Mahavir Wildlife Sanctuary and Mollem National Park, Bhagwan Mahavir National Park, Netravali Wildlife Sanctuary and Cotigao Wildlife Sanctuary.
- They together cover an area of 750 sq mts, forming a **contiguous belt connecting the forests of Karnataka and Maharashtra**.

Mhadei Wildlife Sanctuary (WLS):

- The Mhadei Wildlife Sanctuary is a 208.5-km2 (80.5-mi2) protected area in the Indian state of Goa in the Western Ghats of South India. **Goa** is the **only state in India** which has **protected the complete Western Ghats' section within a state.**
- This region is part of the **Western Ghats landscape,** and is regarded as a **Global Biodiversity Hotspot. Goa's four wildlife sanctuaries** are located on the **eastern side of the state** in the **Western Ghats,** covering an area of about 750 km2 (290 sq mi).
- The **Mahdei Wildlife Sanctuary** and **Bhagwan Mahaveer Sanctuary** and **Mollem National Park** all fall within the **Mhadei River basin. Netravali Wildlife Sanctuary** is located just to the **south of Mhadei in Goa**.
- The sanctuary includes the **Vagheri Hills,** some of the **highest peaks in North Goa.**
- The **Mhadei River,** known downstream as the **Mandovi River,** the lifeline of the state of Goa, originates in **Karnataka**, travels28.8 km (17.9 mi) in **Karnataka,** passes 9.4 km (5.8 mi) through the **Mahdei Wildlife Sanctuary** and meets the **Arabian Sea** at **Panaji** after traveling 81.2 km (50.5 mi) in Goa.

Topic 23. WHAT THE RAPID ICE MELT IN WEST ANTARCTICA MEANS

Important for the subject: Environment

The **rapid melting of West Antarctica's ice sheet** due to **warm waters** around it is now **unavoidable**, no matter how much carbon emissions are cut, according to a new study.

About the study:

- **Title:** 'Unavoidable future increase in West Antarctic ice-shelf melting over the twenty-first century'.
- **Study conducted at: Amundsen Sea**, West Antarctica.

Consequence of glacier melting:

- It would **raise the global mean sea level** by **5.3 metres** or **17.4 feet.** That will negatively impact **people living in vulnerable coastal cities** across the world, including in **India.**
- **India has a long coastline** and a **dense population** and is therefore vulnerable to sea level rise.
- Even under a best-case scenario of **limiting global warming to 1.5 degree**

Celsius above pre-industrial levels, water in **West Antarctica** will continue to **get warmer three times faster than in the 20th century,** leading to an increased melting of the region's ice sheet

Ice sheet:

- It is a **mass of glacial ice** that covers more than **50,000 square kilometres** of land — roughly large enough to blanket Uttarakhand in ice
- There are **two major ice sheets** in the world today: **Greenland ice sheet** and **Antarctic ice sheet**
- Together, they contain about **two-thirds of all the freshwater on Earth**

How is the West Antarctic ice sheet melting

- **Warm ocean waters** melt **ice shelves** — the edges of an ice sheet which floats on the ocean
- If an ice shelf thins or disappears, these glaciers tend to speed up, discharging more ice into the ocean and causing sea level rise
- Both **ice shelves** and **ice sheets** are different from **sea ice,** which is the **free-floating ice** that surrounds the polar regions. Sea ice is created by sea water freezing. Glacier melting is happening in **Amundsen Sea, west Antarctica.**

Amundsen sea:

- It is an arm of the **Southern Ocean** off M**arie Byrd Land** in **western Antarctica**.
- It lies between **Cape Flying Fish** (the northwestern tip of Thurston Island) to the **east** and **Cape Dart** on **Siple Island to the west Cape Flying Fish** marks the boundary between the **Amundsen Sea** and the **Bellingshausen Sea.**
- West of Cape Dart there is no named marginal sea of the Southern Ocean between the **Amundsen and Ross Seas.** The **Norwegian expedition of 1928–1929** under **Captain Nils Larsen** named the body of water for the **Norwegian polar explorer Roald Amundsen** while exploring this area in February 1929.

Topic 24. STOCKTAKING CLIMATE FINANCE — A CASE OF CIRCLES IN RED INK

Important for the subject: Environment

Climate Change 2023: Synthesis Report:

It is based on the **Intergovernmental Panel on Climate Change's (IPCC) sixth assessment cycle** which began in 2015.

The report provides the **main scientific input to COP28** and the **Global Stocktake.**

- The report reiterates that **humans are responsible for all global heating over the past**

200 years leading to a **current temperature rise of 1.1°C above pre-industrial levels,** which has led to more **frequent and hazardous weather events** that have caused **increasing destruction to people and the planet**. The report reminds us that every increment of warming will come with more extreme weather events.

- The report outlines that the **1.5°C limit** is still achievable and outlines the critical action required across sectors and by everyone at all levels. The report focuses on the critical need for action that considers **climate justice** and focuses on **climate resilient development.**

- It outlines that by sharing **best practices, technology, effective policy measures,** and **mobilizing sufficient finance,** any community can decrease or prevent the usage of **carbon-intensive consumption methods.**

Estimating adequate climate finance:

- At the **Copenhagen Change Conference in 2009,** the **developed countries** made the commitment to mobilize **$100 billion per year** by **2020.**

- Under **Article 9** of the **Paris Agreement on Climate Change,** it is also **mandatory** for the **developed countries** to provide in their **Biennial Update Reports (BUR),** information relating to the financial resources which they have provided and, also, the projected levels of public financial resources to be provided to developing country parties.

- **Developed countries** are required, in accordance with the decision accompanying the **Paris Agreement**, to collectively mobilize **$100 billion through 2025**, before a **new collective quantified goal (NCQG)** 'from a **floor of $100 billion per year** is to be set at the end of **2024'**.

- At the **26th United Nations Climate Change conference** in **Glasgow in 2021**, the **developed countries** noted of being able to mobilize **only a total of $79.6 billion.**

- For **India,** its **third BUR** says that its **financial needs** derived from its **NDCs** for **adaptation and mitigation purposes** for **2015-30** are **$206 billion** and **$834 billion**, respectively. **India** has reiterated its demand for a **just transition** at **COP27**.

Unclear burden sharing formula:

- There is no agreed approach among developed countries to share the burden of this goal of providing **$100 billion**.

- The **Global Environment Facility,** a **UNFCCC-designated funding agency** providing grant and concessional loan to developing countries, is replenished every four years.

- The **Green Climate Fund (GCF)**, set up to administer a portion of the **$100 billion** for developing country parties to switch over to low-emissions and climate resilient development path, had its **second replenishment** on October 5, 2023.

Global Stocktake:

- It is a **Party-driven process** conducted in a **transparent manner** and with the **participation of non-Party stakeholders,** that enables countries and other

stakeholders to see where they're collectively making progress toward meeting the goals of the Paris Agreement – and where they're not.

- It's like taking **inventory**. It means looking at everything related to where the world stands on climate action and support, identifying the gaps, and working together to agree on solutions and pathways (to 2030 and beyond).

Administered by: **UNFCCC.**

Green Climate Fund (GCF):

- It is a fund established in **2010,** within the **framework of the United Nations Framework Convention on Climate Change** as an operating entity of the **Financial Mechanism** to assist **developing countries** in adaptation and mitigation practices to counter climate change. The **GCF** is based in **Incheon, South Korea.** It is governed by a **Board of 24 members** and supported by a **Secretariat.**
- **Objective:** To "support projects, programmes, policies and other activities in developing country Parties using thematic funding windows". It is intended that the **Green Climate Fund** be the **centerpiece of efforts to raise Climate Finance under the UNFCCC.**

Topic 25. WILDLIFE TRAFFICKING, ORGANIZED CRIME LINKED: NONPROFIT'S REPORT SHEDS NEW LIGHT

Important for the subject: environment

New evidence on the **convergence of wildlife crime in tandem with other forms of organized crime** has been found in a new report by non profit **Wildlife Justice Commission (WJC).**

Details of the report:

- Report title: **Convergence of wildlife crime with other forms of organised crime: A 2023 Review**

Key Findings:

- There are close links of **wildlife trade** with **protection rackets, extortion, murder, money laundering, illicit drugs, tax evasion** and **corruption**. The report noted **sand-mining** as a form of environmental crime.
- **Sand**, a raw material and second-most-used resource in the world, is used to make concrete, asphalt and glass. About **40-50 billion tonnes of sand resources** are exploited each year, but their extraction is managed and governed poorly in many countries.

Sand mining causes:

- Erosion, negative impact on aquifers, reduces protection against storm surges, shrinks deltas, freshwater and marine fisheries, land-use changes and biodiversity.

- There are **no global treaties governing sand extraction**. Sand-mining killings from **Indonesia, Kenya, Gambia, South Africa** and **Mexico** were reported.
- **Globally traded wildlife commodities:** Pangolin scales, illegal sand mining, elephant ivory, seafood including sea cucumber and sharks.

Wildlife crime:

- **Wildlife crime** refers to **acts committed contrary to national and international laws and regulations** intended to protect natural resources and to manage their sustainable use. It poses a serious threat to the survival of migratory animals such as birds, elephants, big cats, antelopes, cetaceans, fish and marine turtles.
- Wildlife trafficking has grown to become a **more serious and profitable crime** in recent decades and increasing evidence of links between organized crime networks and wildlife crime is observed where the crimes are committed in conjunction with other forms of organized crime.

Wildlife Justice Commission (WJC):

- Created in 2015
- **Aim:** It is working to dismantle organized crime.
- **Focus area:** South east Asia and Africa.

Topic 26. NAMIBIA HOSTED AFRICA'S 1ST COMMUNITY-LED CONSERVATION CONGRESS. WHERE WILL IT LEAD?

Important for the subject : Environment

Communities and conservation stakeholders from across the **African continent** gathered in **Windhoek, Namibia,** to attend the **first Indigenous Peoples' and Local Communities' Conservation Congress.**

About Indigenous Peoples' and Local Communities' Conservation Congress:

- **Organized by: Alliance for Indigenous People and Local Communities for Conservation in Africa (AICA)** and the **U.S.-based organization RRI**.
- The event hosted local community members, policymakers, representatives of regional and international conservation organizations and NGOs.
- **Mission:** To follow up on the **2022 Africa Protected Areas Congress** in **Kigali,** which was itself a **first** congress. It ended with **Kigali call to action** that highlighted the role of **Indigenous peoples and local communities (IPLCs)** in **conservation** and the goal to end the **displacement of communities** for the **creation of protected areas**.
- **Vision of the alliance:** To be a body that unites the voice of Indigenous peoples and local communities and mobilizes resources for community conservation projects, capacity building and the creation of country chapters in order to develop action plans.

Challenges faced by IPLCs:

- **Indigenous peoples and local communities** have been Important for the subject to **human rights violations** in the name of conservation, such as **forced displacement** and the **loss of traditional land.**
- In **Africa**, **local communities** manage or **legally own only 6%** of registered protected areas.

Alliance for Indigenous People and Local Communities for Conservation in Africa (AICA):

- It is an independent, Indigenous People and Local Communities (IPLCs) led and centered Pan-African alliance that harnesses and amplifies the collective voice of Africa's IPLCs and to prioritize their engagement in all policy arenas relevant to their land and land-based resources, territories and conservation.
- It is an outcome of the **first Africa Protected Areas Congress (APAC)** in **Kigali (Rwanda)** in July **2022**. **AICA** derives its **mandate** from the **IPLC declaration**.
- The Alliance is hosted by **Indigenous Movement for Peace and Conflict Transformation (IMPACT, Kenya).** It is governed by a steering committee with representatives from **all regions in Africa**.

Rights and Resources Initiative (**RRI**)**:**

- established in **2005**
- **Aim:** To catalyze greater strategic coordination between organizations to support the recognition of the **forest land rights** of **local communities, Indigenous Peoples,** and **Afro-descendant Peoples.**
- It was created to address **historical injustices** and help **transform rural areas** across the world. The **Rights and Resources Group (RRG)** was established as the **coalition's coordinating mechanism**.
- **RRI** was **created** by the **leaders of Forest Trends**, the **Center for International Forestry Research (CIFOR),** the **World Conservation Union (IUCN)**, the **Regional Community Forestry Training Center for Asia and the Pacific (RECOFTC) -The Center for People and Forests**, **ACICAFOC** (Central American Indigenous and Peasant Coordinating Association for Community Agroforestry), and the **Foundation for People and Community Development (FPCD).**

Topic 27. BIOSPHERE RESERVES ARE EVOLVING AS POCKETS OF HOPE

Important for the subject: Environment

World Biosphere reserve day is celebrated every year on 3 November. It is celebrated to raise awareness of the **importance of biosphere reserves** and to **promote their conservation and sustainable use.**

In the **Island of Principe Biosphere Reserve, Sao Tome and Principe** in **Africa**, schoolchildren have been equipped with **stainless steel bottles** for drinking water, so the

daily production and consumption of **single-use plastic bottles** can be completely avoided.

Biosphere reserves:

- Designated by **UNESCO** to promote the conservation of biodiversity, sustainable development, and research.
- Also supported by other United Nations agencies, for example the United Nations Development Programme, the United Nations Environment Programme, as well as the International Union for Conservation of Nature.
- There are currently **748 biosphere reserves** across **134 countries,** including **22 transboundary sites,** enhancing the friendly cooperation between neighboring countries. They **impact** the lives of more than **250 million people** in **134 countries; 12 sites can be found in India alone.**
- They are home to a **wide variety of ecosystems** — from **tropical rainforests** to **alpine deserts. Benefits from biosphere reserves:** provide habitats to endangered plants and animal species, ensure the sustainable use of natural resources, and act as a carbon sink.

Division of biosphere reserves:

- **Core zone of biosphere reserves:** Providing habitat for flora and fauna, and protecting water, soil, air, and biota as a whole ecosystem.
- **Buffer zone:** Surrounds the core zone, in this zone people live and work in harmony with nature; it functions as a laboratory for scientists to study nature, and for training and education.
- **Transition zone:** communities practice socio-culturally and ecologically sustainable human activities in this zone.

UNESCO recognized Biosphere reserves in India:

YEAR	NAME	STATES
2000	Nilgiri Biosphere Reserve	Tamil Nadu
2001	Gulf of Mannar Biosphere Reserve	Tamil Nadu
2001	Sundarbans Biosphere Reserve	West Bengal
2004	Nanda Devi Biosphere Reserve	Uttarakhand

2009	Pachmarhi Biosphere Reserve	Madhya Pradesh
2009	Nokrek Biosphere Reserve	Meghalaya
2009	Similipal Biosphere Reserve	Odisha
2012	Achanakmar-Amarkantak Biosphere Reserve	Chhattisgarh
2013	Great Nicobar Biosphere Reserve	Great Nicobar
2016	Agasthyamala Biosphere Reserve	Kerala and Tamil Nadu
2018	Kanchenjunga Biosphere Reserve	Part of North and West Sikkim districts
2020	Panna Biosphere Reserve	Madhya Pradesh

Gulf of Mannar biosphere reserve:

- Recognised with the **UNESCO Michel Batisse Award** for Biosphere Reserve Management **2023**
- Introduced the concept of **'plastic checkpoints'**– Community members check all vehicles and tourists for plastic waste, which is collected, recycled and used for the construction of roads.

UNESCO Man and Biosphere programme (MAB):

- It is an **intergovernmental scientific programme** that **aims** to establish a scientific basis for enhancing the relationship between people and their environments. It **combines the natural and social sciences** with a view to **improving human livelihoods** and **safeguarding natural and managed ecosystems,** thus promoting innovative approaches to economic development that are socially and culturally appropriate and environmentally sustainable.
- Its **World Network of Biosphere Reserves** is a **dynamic and interactive network of sites of excellence** that foster harmony between people and nature for sustainable development through participatory dialogue; knowledge sharing; poverty reduction and human well-being improvements; respect for cultural values and society's ability to cope

with change.

South and Central Asian Biosphere Reserve Network Meeting (SACAM):

- **UNESCO** in partnership with the **Ministry of Environment, Forests and Climate Change** and the **National Centre for Sustainable Coastal Management,** concluded the **10th South and Central Asian Biosphere Reserve Network Meeting (SACAM)** in **Chennai, India** (November 1-3).
- With the theme **"Ridge to Reef,"** the **SACAM** provided a platform for exchanging knowledge and fostering collaborations in the realm of sustainable environmental practices in the South and Central Asia Region.

Topic 28. CLEANING OUR RIVERS

Important for the subject: Environment

According to a report by the **Central Pollution Control Board (CPCB)** in **2022,** there are about **311 Polluted River Stretches** (PRS – stretches in rivers where BOD>3mg/L) in **279 rivers** (out of 603 rivers assessed).

The **Water Quality Management** in **India** is performed under the provision of **Water (Prevention and Control of Pollution) Act, 1974.**

Identification of Polluted river stretch (PRS):

- **Biochemical Oxygen Demand (BOD)** exceeding **3.0 mg/L** (milligram per litre) is identified as a **polluted location.**
- **Two or more polluted locations** identified on a river in a **continuous sequence** are considered a **"polluted river stretch."**
- A **BOD** less than **3 mg/L** means the river stretch is fit for **'Outdoor Bathing.'** Further, stretches with a **BOD** exceeding **30 mg/L** are considered **'Priority 1,'** meaning, the **most polluted** and thus needing the most urgent remediation.
- There are **five such categories** with **'Priority 2'** indicating a **BOD** of **20-30 mg/L** and **'Priority 5'** indicating **3-6 mg/L.**
- The success of **river-cleaning programmes** is measured by the **number of stretches moving from 1 to 2, 2 to 3 until those in 5** (requiring the least action) to be reduced.

States-wise status of polluted rivers:

- While **Gujarat** and **Uttar Pradesh** had the **maximum number** of **'Priority 1'** river stretches (6).
- **Maharashtra** had the **maximum number of polluted river stretches** i.e. **55**, followed by **Madhya Pradesh** (19), **Bihar** (18), **Kerala** (18), **Karnataka** (17) and **Uttar Pradesh** (17).
- Every State had to ensure that at least one river stretch was "restored" to the extent that it was at least fit for bathing.

Biological Oxygen Demand:

- **Biological Oxygen Demand** is the amount of **dissolved oxygen** needed by microorganisms to **decompose organic matter** (waste or pollutants) under **aerobic reaction** (in the presence of oxygen).
- The more organic matter there is (e.g., in sewage and polluted bodies of water), the greater is the BOD.
- **Greater BOD,** the **lower the amount of dissolved oxygen** available for higher animals such as fishes.
- The **BOD** is therefore a reliable gauge of the organic pollution of a water body. One of the main reasons for treating wastewater prior to its discharge into a water resource is to lower its **BOD** i.e. to reduce its need of oxygen and thereby lessen its demand from the streams, lakes, rivers, or estuaries into which it is released.

Dissolved Oxygen:

- It is the **amount of dissolved oxygen present in the water** which is **needed for aquatic life to survive**. The quality of water increases with an increase in DO levels. A **DO level of 5 mg/l or above** is the recommended level for bathing in a river.

Topic 29. DEVELOPING COUNTRY NEEDS AT LEAST 10 TIMES MORE FUND FOR CLIMATE ADAPTATION : UN REPORT

Important for the subject: Environment

The Adaptation Gap Report 2023 was released.

More about the news:

A **United Nations Adaptation Gap Report 2023** reveals that **funding for adaptation measures** in developing countries has been **declining despite** increasing climate risks. In 2021, **only $21 billion** was **allocated** for **adaptation projects**, **down 15% from previous years**.

However, developing countries **require at least $215 billion annually** this decade to address climate impacts effectively. The gap between requirements and available funding is growing, with efforts to increase financing falling short of the substantial need.

The **report suggests increased reliance on domestic resources and private finance, along with reforms in global financial architecture, to bridge this adaptation gap.**

What is Adaptation Gap Report;

- Adaptation Gap Report (AGR) is a y**early flagship release of UNEP**.
- The report's **primary objective is to inform the negotiators of the UNFCCC**

Member States, and the broader UNFCCC constituency, about the **status and trends within climate adaptation at global and regional levels**.

- The report also **offers policy-makers with a collection of science-based choices** for in**creasing ambition in climate change** adaptation across important climate-sensitive industries

- The UNEP has released the **Adaptation Gap Report (AGR) every year since 2014**

What is United Nations Environment Programme:

- The **UNEP**, established on **June 5, 1972,** is a prominent **global environmental organization** with several key roles.

- It plays a central role in **shaping the global environmental agenda,** advocating for sustainable development **within the United Nations framework,** and serving as a leading voice for the protection of the global environment.

- The organization produces **significant reports** such as the **Emission Gap Report, Global Environment Outlook, Frontiers, and Invest into a Healthy Planet**.

- It also **engages in major campaigns**, including **Beat Pollution, UN75, World Environment Day, and Wild for Life.**

- The UNEP's **headquarters are located** in **Nairobi, Kenya.**

Topic 30. VARIOUS ENERGY EFFICIENT PROGRAMMES IN INDIA

Important for the subject: Environment

Energy Efficiency Services (EESL) Achievements:

EESL commended for reducing carbon emissions by 45 million tonnes. New aim to reduce power consumption in fans by 35 percent.

Ceiling Fan Electricity Consumption:

- Ceiling fans contribute around 40 percent to total residential electricity consumption. Replacement of current fans with energy-efficient models could reduce consumption by nearly 20 percent.

Program Focus:

- Energy Efficient Fans Programme (EEFP) aims to deploy 1 crore energy-efficient BLDC ceiling fans. National Efficient Cooking Programme (NECP) introduces induction-based cook stoves, targeting 20 lakh units.

EESL's Market Transformation Approach:

- Focus on generating demand and creating an ecosystem for energy-efficient products.
- Commitment to competitive prices and easy accessibility through an inventory-less and automated B2B e-marketplace.

EESL's Contributions to Energy Transition:

- EESL's initiatives prevented a peak power demand of 12 GW.
- Significant reduction of carbon emissions by 45 million tonnes.

Cooking Solutions and Sustainability:

- NECP aims to reduce dependence on LPG and kerosene-based cooking. Introduction of low-emission alternatives for sustainable and cost-effective cooking.

National Efficient Cooking Programme (NECP):

- NECP is a part of the **Clean Cooking Scheme**, focusing on **Non-Solar/Electricity-based Induction Cookstoves**, aligned with the **Ministry of Power's Go-electric initiative**.
- EESL has initiated efforts to **promote clean and safe electric cooking** to support India's Go-electric campaign and contribute to carbon mitigation goals.
- The induction cooktop market witnessed rapid growth in 2021-22, **driven by efficiency, technology, and aesthetic appeal, with over 10 million units sold.**
- Increased demand is attributed to factors like **modular kitchens, rising LPG costs, and the convenience and safety** associated with induction stoves.

Energy Efficient Fans Programme (EEFP):

- EESL is actively promoting the adoption of **energy-efficient appliances, including LED bulbs, tube lights, and high-performance fans.**
- **Ceiling fans contribute to approximately 40% of total residential electricity consumption in India.**
- By replacing current fans with more efficient models, **up to 20% of total residential electricity consumption can be reduced.**
- The program aims to **deploy 1 crore 5-star energy-efficient ceiling fans** across India to capitalize on the potential for energy savings.

About Energy Efficiency Services Limited (EESL):

- EESL is a **leading Energy Service Company operating under the Ministry of Power**, focused on promoting energy-efficient products like LED bulbs, tube lights, fans, air conditioners, streetlights, and electric vehicles.
- This resulted in **significant energy savings, reduced peak demand, and greenhouse gas emissions.**
- Energy Efficiency Services Limited (EESL) is a **joint venture of state-run power companies**. EESL is responsible for **implementing the Unnat Jyoti by Affordable LEDs for All scheme (previously known as the Domestic Efficient Lighting Programme).**
- Through its initiatives, **EESL has successfully reduced the prices of LED bulbs by 75%.**
- This format provides a succinct overview of **EESL's role in implementing energy-**

efficient lighting schemes and its impact on reducing the cost of LED bulbs.

Super-Efficient Air Conditioning Programme

- **Product Efficiency:** The Super-Efficient Air Conditioners are 40% more efficient than the 3-star ACs currently available in the market (ISEER 3.8).
- **Pricing:** They are priced comparably with the 3-star ACs.
- **Expansion:** EESL aims to **make the programme available to all consumers across the nation, with other DISCOMs likely to partner with EESL in the future.**

Significance and Benefits

- The programme helps to **reduce the peak power demand in South and West Delhi** by 22MW, promoting energy security and sustainability.
- Addresses the projected increase in energy consumption from buildings and cooling appliances in India by 2032, **aligning with India's Cooling Action Plan and Hydrochlorofluorocarbon Phase Out Management Plan.**
- Contributes to **achieving India's targets under the Kigali and Paris Agreements**.

Funding

- **Global Environment Facility (GEF):** EESL's investment in the programme is partially supported by a grant from GEF.
- **Support:** Asian Development Bank (ADB) and United Nations Environment (UNEP) provide grant support and technical assistance to the Super-Efficient AC programme.

About GEF

- **Establishment:** GEF was established in 1992 to address global environmental issues.
- **Partnership:** It is an international **partnership of 183 countries, international institutions, civil society organizations, and the private sector.**
- **Role:** GEF serves as a **financial mechanism for five major international environmental conventions.**

About UJALA Scheme

- **Objective:** The main aim of the Ujala Scheme is to **promote efficient lighting and raise awareness about the use of energy-efficient equipment to reduce electricity b**ills and preserve the environment.
- **Implementation:** Energy Efficiency Services Limited (EESL), a joint venture of PSUs under the Union Ministry of Power, is responsible for implementing the scheme.
- **Flagship Project:** UJALA is a flagship project of the Government of India, **aimed at ensuring the use of LED bulbs in every home across India to reduce net power consumption and control carbon emissions.**

About SLNP

- **Launch:** EESL's Street Light National Programme (SNLP) was launched in 2015.

- **Achievements:** The initiative has successfully **replaced over 50 lakh street lights** in more than 500 cities in India, resulting in 135 crore kWh of energy savings and cost savings of INR 742 crore annually.
- **Adoption:** EESL replaces the conventional street lights with LEDs at its own costs, **requiring no upfront investment from the municipalities, making the transition more attractive.**

Retrofit of Air-conditioning to improve Indoor Air Quality for Safety and Efficiency (RAISE) National Programme:

- **Joint Initiative:** The programme is a collaboration between **Energy Efficiency Services Limited (EESL) and the U.S. Agency for International Development's (USAID) MAITREE Program.**
- **Objective:** The primary aim of the program is **to enhance indoor air quality in workspaces across the nation, addressing concerns over poor air quality**, especially in the context of the Covid-19 pandemic.
- **Significance:** It emphasizes the **importance of maintaining good indoor air quality** for occupant comfort, well-being, productivity, and public health.
- **Potential Impact:** The RAISE initiative is **expected to pioneer innovative methods to promote healthier and more eco-friendly workspaces.**

Market Integration and Transformation Program for Energy Efficiency (MAITREE) Program:

- It forms a part of the **US-India bilateral Partnership between the Ministry of Power and USAID.**
- The program focuses on accelerating the **adoption of cost-effective energy efficiency** practices, particularly in the context of cooling, within buildings.

- The **RAISE program, in collaboration with the MAITREE initiative, reflects a commitment to improving indoor air quality and energy efficiency in work environments.**

SAATHI Initiative (Sustainable and Accelerated Adoption of Efficient Textile Technologies to Help Small Industries):

- Energy Efficiency Services Limited (EESL) under the Ministry of Power **would procure energy-efficient Power looms, motors, and Rapier kits in bulk.**
- **Small and medium Power loom units will receive these efficient equipments at no upfront cost**. Implementation of these **efficient technologies will lead to energy savings and cost savings** for the unit owners.

Unit owners will repay the cost in installments to EESL over a 4 to 5 year period.

- The initiative follows the aggregation, bulk procurement, and financing model

successfully implemented by EESL in sectors like LED bulbs, Smart Meters, and Electric Vehicles.

Nodal Ministry:

- The **SAATHI initiative will be jointly implemented by EESL and the office of the Textile Commissioner** on a pan-India basis.

- This initiative aims to **promote sustainable and energy-efficient practices** in the textile industry, benefiting small and medium enterprises in the sector.

Topic 31. INTERCEPTING THE ILLEGAL CAPTURE OF MIGRATORY BIRDS IN SOUTH-CENTRAL WEST BENGAL

Important for the subject: Environment

Illegal trapping and trading of migratory birds:

For several years, **migratory birds** are poached during their winter stop at wetlands (beel in Bengali) and open fields in the **central-south Bengal districts of Murshidabad, Malda, Birbhum** and **Bardhaman.** These wetlands and fields are covered with nets that turn into death traps. The trapped birds are illegally sold in the market as delicacies.

- **Exotic** birds are those that are **bred in captivity.** According to the **Wild Life Protection Act in 2022,** people can **sell exotic birds after obtaining a breeder's license.** But the **wild birds cannot be caught, sold, bought or killed.** The **migratory birds**, including **short-toed larks,** fall under the **wild category.**
- **Larks,** which resemble sparrows are called **bogari** or **math chorui** in **Bengali.** The majority of the rescued birds were **short-toed larks,** a **migratory species** that arrive in **India** to escape the harsh winters of their native habitats in **Mongolia, China** and **Russia.**
- **Unprotected wetlands** and **agricultural fields** are the **main trapping points** for these birds.
- Poaching is mainly from **Kandi, Murshidabad, Purba Bardhaman, Kurul, Patan Beel,**

Khargram and **Bharatpur areas.** They were booked under various sections of the **Wild Life Protection Act, of 1972.**

Migratory birds and habitats in south-central West Bengal:

- The **2020** edition of the **Asian Waterbird Census,** conducted in **142 wetlands** in **19 states and union territories** in India, recorded the highest number of waterbirds (30,235) in **24 wetlands** in **West Bengal.** Of them, the **highest number (3,715)** was recorded at **Ballavpur Wildlife Sanctuary** in **Birbhum district**.
- **Patan beel**, a wetland sprawling over more than 100 hectares, in Murshidabad district in central West Bengal. **Black-headed ibis** and **Asian woolly neck** were found in **Patan beel.**

Avian hotspot Murshidabad:

- **Murshidabad** is one of the **epicentres** of poaching of migratory birds.
- There are **53 species of birds,** of which **17 are migratory, 7 are local migrants** and **29 are residential.** The **ferruginous duck, black-headed ibis, hen harrier** and **Asian woolly neck** are a few of them.
- Most of the rescued birds are **Mongolian short-toed larks** or **Skyes's short-toed larks,** there also were other migratory birds such as **oriental skylark, olive-backed pipit, rosy pipit, red-throated pipit, common snipe** and **cotton pygmy-goose.**
- These birds are listed as 'least concern' by the IUCN. **Belun Beel** is in **Kandi.**
- **Karul beel**, also called **Sahapur beel,** attracts 5,000-10,000 migratory ducks in the winter and is the **largest wintering population** of **garganey** in **West Bengal**.

Paving a future for protected birdlife in West Bengal:

- In **2000,** the **Central Inland Capture Fisheries Research Institute** proposed a scheme for segregating **Belun beel** into **three parts** – one for use as an **irrigation reservoir** and **capture fisheries,** another as an **aquaculture ponds** and another as a **bird sanctuary.**

Larks:

- **Larks** are **passerine birds** of the **family Alaudidae. Larks** have a **cosmopolitan distribution** with the **largest number of species** occurring in **Africa.**
- Only a single species, the **horned lark,** occurs in **North America,** and only **Horsfield's bush lark** occurs in **Australia.**
- **Habitats vary widely,** but many species live in **dry regions.** When the word **"lark"** is used without specification, it often refers to the **Eurasian skylark (Alauda arvensis).**

Kolkata-based Human & Environment Alliance League (HEAL):

- It is a **non-profit organization** established as a **charitable trust** in January **2017**.
- Our work is focused on **biodiversity conservation, mitigation of human-animal conflict** and enforcement of wildlife and environmental laws. Our current area of work

is **South Bengal.**

Conservation strategy:

- Awareness initiatives and conservation-oriented workshops designed to educate people from different sections of society; Empowering and training local communities to take up and pursue conservation initiatives;
- Scientific studies to garner data which can be used as a basis for initiating environmental policy changes; Documentation and field investigation of wildlife and environmental crimes; Liaison with the enforcement agencies for implementation of the law;
- Initiation of public interest litigation (PILs) to seek implementation of environmental and wildlife laws; and
- Engagement with government agencies and policymakers to ensure that they give due priority to the environment and wildlife while formulating practices.

Topic 32. ELVISH YADAV CASE: HOW IS SNAKE VENOM USED AS A RECREATIONAL DRUG?

Important for the subject: Environment

Snake venom is often used as a **recreational drug.** Its smuggling is a **multi-million dollar illicit industry,** media reports suggest.

Not enough scientific studies have been done on the **recreational use of snake venom,** according to a 2018 study, **'Snake Venom Use as a Substitute for Opioids:** A Case Report and Review of Literature', published in the Indian Journal of Psychological Medicine.

Snake venom:

- **Snake venom** is a **highly toxic saliva** containing **zootoxins** that facilitates the **immobilization and digestion of prey.** This also provides defence against threats. **Snake venom** is injected by unique **fangs** during a bite, whereas some species are also **able to spit venom.**
- The **glands** that secrete **zootoxins** are a **modification of the parotid salivary glands** found in **other vertebrates** and are usually located on each side of the head, below and behind the eye, and enclosed in a muscular sheath. The venom is stored in large glands called **alveoli** before being conveyed by a duct to the base of channelled or tubular fangs through which it's ejected.
- **Venom** contains more than **20 different compounds,** which are mostly proteins and polypeptides.

How is snake venom consumed?

- **Snakes** were deliberately made to bite on the consumer's feet or tongue. Snakes like **cobras** and **Indian kraits** were most commonly used for this purpose.

How does snake venom affect the human body?

- The snake bite was associated with **jerky movements of the body, blurring of vision,** and **unresponsiveness,** i.e. **'blackout', heightened arousal** and **sense of well-being,** which lasted for 3–4 weeks, happiness, grandiosity, and excessive sleepiness.
- Once the effect of the bite wore off, the person began to experience **irritation** and **lethargy** and craved drugs.

Why does snake venom give a high?

- It may be due to the **neurotoxin nature of snake venom** that causes analgesia, or the inability to feel pain.
- Forms of a **neurotoxin** found in **cobra venom,** particularly, **bind** on **nicotinic acetylcholine receptors (nAChRs)** that are widely distributed in the **human brain area** and are involved in the **euphoric or rewarding experience**.
- Once the **venom** enters **human blood,** it releases active **metabolites** like **serotonin** that have **different psychotropic effects** such as hypnotic and sedative.

Why is using snake venom as a recreational drug dangerous?

- It isn't well known what quality of venom can be fatal for humans. Therefore, recreational use of snake venom can lead to not only addiction but also death.

Topic 33. CARBON EMISSIONS: INDIA MAY ACCEPT EU'S DEFAULT VALUES

Important for the subject :Environment

During the ongoing transition phase of the EU's **Carbon Border Adjustment Mechanism (CBAM)**, **India is likely to accept the bloc's default values for calculating carbon emitted during production** of identified polluting items, including **steel & aluminium**, in the country, for export to the region.

What is required under the transition period?

- Carbon taxes on **carbon-intensive goods** covered under CBAM **will not kick in before 2026** and thus EU-based importers **only need to report data** on the embedded emissions only till end of 2025.

Why is India choosing to accept EU default embedded carbon values?

- India does not yet have a carbon verification and accreditation system in place and, therefore, may find it difficult to do its own carbon emission determination at the moment.
- Thus it may be a more practical idea to just allow them to apply the EU's default value for both direct and indirect emissions for imports from India during the transition phase. This will allow time for our own systems to be read.

What are the default values?

- Based on averages and their own estimates, the EU is working on a country-wise list of **'default' values of embedded emissions** for the identified carbon intensive items, and is expected to share it soon, the official said.
- The items include cement, iron & steel, aluminium, fertilisers, electricity, and hydrogen.
- Embodied/embedded carbon emissions of goods, also known as embedded carbon emissions, refer to the greenhouse gas emissions generated during the production and transportation of goods, from the extraction of raw materials to the manufacturing process and final delivery to the consumer.
- Indian steel and aluminium sectors are likely to be hit the most by CBAM as some estimates show that they may attract additional levies up to 20-35 per cent if compliance cannot be established.

What is carbon price?

- CBAM is an EU regulation to put a "fair" price on carbon emitted during production of carbon intensive items in non-EU countries when they are imported into the bloc.
- It seeks to level the field for producers in the EU already facing a carbon price for their emissions under the EU Emission Trading System (ETS).
- While the transition period for CBAM began on October 1 2023, wherein importers need to report the embedded carbon content in their imports on a quarterly basis till end of 2025, the carbon tax regime will kick in from January 2026

Topic 34. FLUE GAS DESULPHURISATION (FGD)

Important for the subject: Environment

Coal-fired power plants in India are spewing sulphur dioxide into the atmosphere way above the allowed limit. The biggest culprits are those built after January 1, 2017, which are also wayward in putting out nitrous oxides, data from the Central Electricity Authority (CEA).

This brings into question the issue of installing 'flue gas desulphurisation' (FGD) in coal-fired plants, for which thermal power companies have managed to secure repeated extensions from the initial 2017 deadline.

Flue Gas Desulphurisation (FED):

- **Removal of Sulfur Dioxide** is called as Flue-gas Desulphurization (FGD).
- It seeks to remove gaseous pollutants viz. SO2 from exhaust flue gases generated in **furnaces, boilers, and other industrial processes** due to thermal processing, treatment, and combustion. FGD systems may involve **wet scrubbing or dry scrubbing.**
- **In wet FGD systems,** flue gases are brought in contact with an absorbent, which can be either a liquid or a slurry of solid material. The sulfur dioxide dissolves in or reacts with the absorbent and becomes trapped in it.
- **In dry FGD systems,** the absorbent is dry pulverized lime or limestone; once absorption occurs, the solid particles are removed by means of baghouse filters.

Benefits of Flue Gas Desulphurisation (FED):

- According to the **Centre for Atmospheric Science, IIT Delhi,** an FGD unit can remove anywhere between 50 and 99.8 per cent of SOx emissions, depending on the power plant's vintage. CEA data shows that most of the plants with FGD have been able to keep SO2 emissions below the norm – only NTPC's Dadri units 1, 3 and 4 – each of 210 MW capacity – are wayward.

Status

- India has 2,07,045 MW of coal and lignite-fired power plants, of which only 22 units with a total capacity of 9,280 MW – less than 5 per cent – have been fitted with FGD

Sulfur Dioxide Pollution

- According to a report by Greenpeace (an environmental Non-Governmental Organization), **India is the largest emitter of Sulphur Dioxide (SO2)** in the world
- The **primary reason** for India's high emission output is the **expansion of coal-based electricity generation** over the past decade.

Source:

- The largest source of SO2 in the atmosphere is the **burning of fossil fuels** by power plants and other industrial facilities.
- Smaller sources of SO2 emissions include: industrial processes such as extracting metal from ore; **natural sources such as volcanoes**; **and locomotives, ships** and other vehicles

and heavy **equipmen**t that **burn fuel with a high sulfur content**.

- **Impact:** SO2 can affect both **health and the environment.** Sulphur dioxide is bad for health and the environment.

- **Short-term exposures** to SO2 can **harm the human respiratory system** and make breathing difficult. People with **asthma**, particularly children, are sensitive to these effects of SO2.
- SO2 emissions that lead to high concentrations of SO2 in the air generally also lead to the **formation of other sulfur oxides (SOx)**. SOx can react with other compounds in the atmosphere to form small particles. These particles **contribute to particulate matter (PM) pollution.**
- Small particles may penetrate d**eeply into the lungs and in sufficient quantities can contribute to health problems**.
- At high concentrations, SO2 can harm trees by damaging foliage and stunting growth. When the gas mixes with falling raindrops, we get a **shower of sulphuric acid.**

Regulation of Sulphur/ Flue Gas Desulphurisation (FED):

- In December 2015, the Ministry of Environment, Forest and Climate Change stipulated SO2 emission norms for coal-based power plants, compliance with which is possible only with the installation of FGD.

Phased Implementation

- According to the Ministry of Power the implementation of the emission norms, requiring the installation ofFGD technology, got delayed due to various techno-economic constraints faced by thermal power plants and further affected by the impact of Covid -19 pandemic
- The government initially decided on phased implementation of FGDs with maximum timelines up to December 2022 but later granted an extension of the time limit twice for implementation of the new emission norms for SO2 parameters up to December 2024, December 2025 and December 2026 for different categories of plants, based on their location.
- In July 2022, the Centre for Atmospheric Science, IIT Delhi, recommended a "phased implementation" of FGDs across the country, the fifth phase ending in July 2034.

Central Electricity Authority

- The Central Electricity Authority (CEA) is **a statutory organization** constituted under **Section 3 (1) of the repealed Electricity (Supply) Act, 1948 and continued under Section 70 of the Electricity Act, 2003**.
- It was established as a part time body in 1951 and made a full time body in the year 1975. As **per Section 70 (3) of the Electricity Act, 2003**, the authority shall consist **of not more than 14 members**, including its chairperson of whom not more than eight shall be

full time members to be **appointed by the Central Government**.

- The CEA **is headed by a chairperson** who, as the **Chief Executive of the authority**, oversees largely the development of power sector in the country. It advises the government on matters relating to the **National Electricity Policy (NEP)** and formulates short-term and perspective plans for the development of electricity systems.

- It is **the designated authority** for **cross border trade of electricity**. It also prescribes the **standards** on matters such as **construction of electrical plants, electric lines and connectivity to the grid**, safety and grid standards and installation and operation of meters.

- It is also responsible for **concurrence of hydro power development schemes** of central, state and private sectors for efficient development of river and its tributaries for power generation.

Topic 35. ELEPHANT CORRIDOR REPORT PLAGUED WITH INCONSISTENCIES, COULD ESCALATE CONFLICT WITH HUMANS, SAYS EXPERT

Important for the subject: Environment
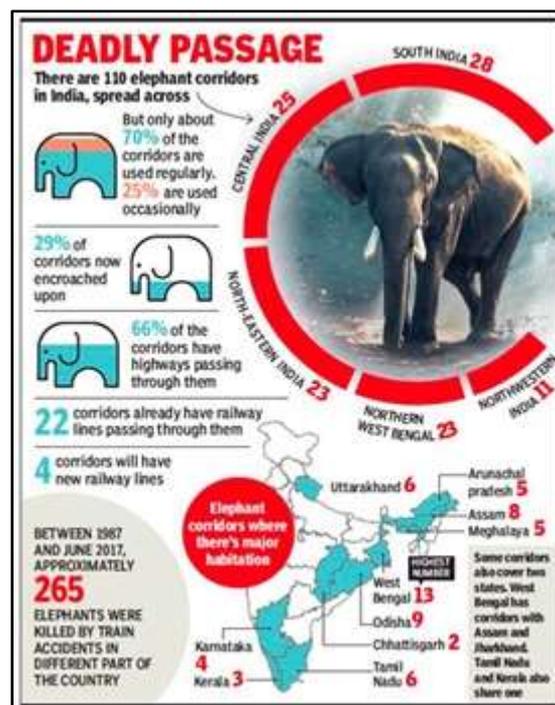
An expert has flagged multiple inconsistencies in the recently published report on **elephant corridors of India** by the central government.

The central government released a report titled **Elephant Corridors of India, 2023,** which mentioned an i**ncrease** of **62 'corridors'** in the country since **2010,** bringing the total to **150** — an i**ncrease of 40 per cent**.

- **Raman Sukumar, elephant expert** and **professor** at the **Indian Institute of Science**

(IISc), brought up **inconsistencies** in the **definition of corridors** in the report during a standing committee meeting of the **National Board for Wildlife.** The report has classified **landscapes** and **habitats** as **corridors**.

- A **corridor in Jharkhand** was documented as being about **46 km long** but **30 metres wide.** This means that if a herd of elephants has to walk in this corridor, they should move in a single file. This is a complete anomaly. Similarly, there are **anomalies in the case of Odisha** where the corridor is **75 km long**.
- The areas in **West Bengal** close to **Odisha** and **Jharkhand,** like **Mayurjhirna**, have only small patches of forest cover that are fit for elephants. The **rest of the areas** where elephants move in **south Bengal** are **human-dominated agricultural fields.** The elephants go to **Bankura, East Midnapur, West Midnapur** and even **Bangladesh.**

What is an elephant corridor?

- A corridor is supposed to be a small patch of land that provides connectivity for elephant movement across habitats, largely within a landscape of the elephant reserve.
- **Landscapes,** being an overarching geographical entity, are partly fragmented due to agricultural contingencies. The **corridors** then **serve as crucial links** between **habitats** spread across these landscapes.
- The **Project Elephant in 2005-06** issued directives to states concerned over **corridors** for elephants. The ones in forest areas shall be notified under the **rules** mentioned under the **Wild Life (Protection) Act, 1972.**
- While for the areas with **revenue lands, private lands,** must be **notified** under the **Environment (Protection) Act, 1986** as **eco-sensitive,** for which the **red-category industries** may be **prohibited**.

Impact of Elephant Corridor Expansion:

- Increase in human-elephant conflict
- Elephant deaths due to electrocution,
- Falling into wells and
- Entering human-dominated agricultural landscapes

Topic 36. MORE LIGHT, LESS SOUND

Important for the subject: Environment

The **'festival of lights'** should not be allowed to deteriorate into a celebration of noise. Fireworks are traditionally associated with joyful festivities worldwide, but many of them are harmful, often excessively loud, and emit harmful fumes when ignited.

Initiatives to combat Noise Pollution

- In 2018, the **Council of Scientific and Industrial Research** introduced "**green**"

fireworks that are less harmful and less noisy, and their usage has been mandated by various regulatory bodies.

- The **Noise Pollution (Regulation and Control) Rules of 2000** specify that fireworks should not be ignited in "**silence zones**" designated by state governments and not after 10 p.m. Firecracker noise during the daytime (from 6 a.m. to 10 p.m.) and in industrial areas should not exceed 75 dB(A) Leq.
- The **noise limits in commercial and residential areas are 65 dB(A) Leq and 55 dB(A) Leq, respectively.** In these limits, dB represents decibels, A is a weighting scale for human perception of loudness, and Leq indicates a time-averaged figure.
- The rules also permit individuals to file a complaint if the noise exceeds these limits by 10 dB(A) Leq during the daytime.

Impact of Noise Pollution:

- Since decibels are a logarithmic unit, a 10 dB increase implies a tenfold rise in **acoustic pressure, often reaching a point where the sound becomes harmful.**
- Research has established links between loud environments and various health issues such as **sleep disorders, tinnitus, stress, anxiety, hearing loss, and cardiac problems.**
- Noise levels exceeding 80 dB(A) in offices have been associated with hypertension, while noise levels above 50 dB(A) at night, when the body is unaccustomed to loud sounds, can elevate cortisol levels.

What are green crackers?

- Green Crackers are fireworks that are healthy to the environment and can lessen the air pollution that conventional firecrackers produce. The Council for Scientific and Industrial Research (**CSIR**) created these.
- These green crackers, designed by the National Environmental and Engineering Research Institute (**NEERI**), a CSIR lab, contain flower pots, pencils, fireworks, maroons, bombs, and chakkar.
- Green crackers, also known as **eco-friendly crackers**, are made from alternative raw materials to have a smaller negative impact on the environment and to pose fewer health hazards.
- It has been stated that green crackers are environmentally friendly because they **don't contain aluminum, barium, potassium nitrate, or carbon.**

Types of green crackers

SWAS – Safe Water Releaser

- They will discharge water vapour into the atmosphere, which will dampen the discharged dust.
- It won't contain sulphur or potassium nitrate. There will be a release of a diluent for gaseous emissions.

- There will be a 30% reduction in the amount of particle dust emitted.

STAR – Safe Thermite Cracker

- Does not contain sulphur and potassium nitrate. Discharge of less particulate matter.
- Lowered noise level.

SAFAL – Safe Minimal Aluminum

- Does not contain sulphur and potassium nitrate.
- Discharge of less particulate matter.
- Lowered noise level as compared to traditional ones.

Conclusion:

- India's noise problem is a significant public health crisis. To prevent fireworks from exacerbating the situation, governments should prohibit the production of non-compliant fireworks altogether, and cities should enhance public access to noise data and adopt noise reduction targets.

Topic 37. GRAP STAGE 4 IMPLEMENTED IN DELHI-NCR AMID SEVERE AIR POLLUTION: WHAT DOES IT MEAN?

Important for the subject: Environment

With the **Nation Capital Region's Air Quality Index (AQI)** deteriorating to the **'severe'** category, the **Commission for Air Quality Management (CAQM)** invoked measures under **Stage 4** of the **Graded Response Action Plan (GRAP)** with immediate effect.

Graded Response Action Plan (GRAP):

- **GRAP** is a set of **emergency measures** that kick in to **prevent further deterioration of air quality** once it reaches a certain threshold in the **Delhi-NCR region.**
- Approved by the **Supreme Court** in **2016 (M. C. Mehta vs. UOI)** and **notified** in **2017.** From **2021** onwards, the **GRAP** is being implemented by the **CAQM**.
- Till **2020**, the **Supreme Court-appointed Environment Pollution (Prevention & Control) Authority (EPCA)** used to order States to implement **GRAP** measures.
- **CAQM** relies on air quality and meteorological forecasts by the **Indian Institute of Tropical Meteorology (IITM)** and the **India Meteorological Department (IMD)**.
- **GRAP** is **incremental** in nature and thus, when the air quality dips from **'poor'** to **'very poor,'** measures listed under both sections have to be followed.
- **Stage I (Poor Air Quality – AQI 201-300):** Enforce **NGT / Hon'ble SC's order** on over-aged diesel/petrol vehicles.
- **Stage II (Very Poor- AQI 301-400):** Targeted actions to combat air pollution at identified hotspots in the region. Regulated operations of **DG** (Diesel Generators) have

been set across all sectors in the NCR.

- **Stage III ('Severe'- AQI 401-450):** Impose strict restrictions on **BS III petrol** and **BS IV diesel four-wheelers** in certain areas and may suspend physical classes in schools for primary grade children up to Class 5.
- **Stage IV (Severe Plus- AQI greater than 450):** When the AQI exceeds 450, four-wheelers registered outside Delhi, except for electric vehicles, CNG vehicles, and BS-VI diesel vehicles and vehicles carrying essential commodities, will not be allowed to enter the city.
- The **BS** or **Bharat Stage emission standards** are instituted by the government to regulate the **output of air pollutants** from motor vehicles from internal combustion engine equipment. The **BS-VI fuel** was estimated to bring around an **80%** reduction of **sulphur,** from 50 parts per million to 10 ppm.

About the Commission for Air Quality Management (CAQM):

- First formed by an ordinance in October 2020.
- It is a **statutory authority.**
- It will supersede bodies such as the **central and state pollution control boards** of **Delhi, Punjab, Haryana, UP** and **Rajasthan.**
- The **Environment Pollution (Prevention and Control) Authority (EPCA)** was **dissolved and replaced** by the **Commission for Air Quality Management (CAQM)** in **2020**.

Composition:

- **Chairperson:** To be chaired by a government official of the rank of Secretary or Chief Secretary.
- The chairperson will hold the post for **three years** or until s/he attains the age of **70 years.** It will have **members from several Ministries** as well as representatives from the stakeholder States.
- It will have **experts** from the **Central Pollution Control Board (CPCB), Indian Space Research Organisation (ISRO)** and **Civil Society.**

Powers and functions:

- It will have the power to issue directions to these state governments on issues pertaining to air pollution.
- It will entertain complaints as it deems necessary for the purpose of protecting and improving the quality of the air in the NCR and adjoining areas. It will also lay down parameters for the control of air pollution.
- It will also be in charge of identifying violators, monitoring factories and industries and any other polluting unit in the region, and will have the power to shut down such units.
- It will also have the power to overrule directives issued by the state governments in the region, that may be in violation of pollution norms.

Topic 38. HOW CARGO TRANSPORT CAN BE IMPROVED

Important for the subject: Economy

In 2018-19, before the onset of COVID-19, the IR loaded 62 million tonne (MT) of general cargo consisting of 45 MT of general goods, 12 MT of domestic containers and 5 MT of parcels, earning a total of ₹8,247 crore with the average earnings per tonne being ₹1,339 for goods and ₹3,384 for parcel.

However, generalcargo loading is nowhere near what a Rail   India Technical and   Economic Service (**RITES**) study had projected in 2008 for the next ten years between 194 to 292 MT depending on the IR's efforts.

The Indian Railways (IR) is one of the cheaper modes of transportation for moving bulk cargo. However, it only has a **~30% share**.

What are the initiatives for increasing bulk cargo?

* The **IR has taken some initiatives** in the bulk cargo arena:
* **Relaxation of rake movement rules:** It provides a facility to load from/to multiple locations, permitted mini rakes and introduced private freight terminals (PFTs).
* **Gati Shakti Terminal (GCT) policy:** It will lead to all PFTs and private sidings being converted into GCTs. A private siding is a railway line that is owned by a company and is connected to a railway.
* **Partnership with private freight operators:** IR has encouraged them to invest in wagons thus helping in the induction of privately-owned wagons to facilitate specialized traffic like automobiles and fly ash.

What should IR do?

* **Reducing barriers:** IR should reduce non-price barriers to entry of private players.
* **Developing common-user facilities at cargo aggregation and dispersal points:** Especially in mining clusters, industrial clusters and large cities.
* **Collaboration with State governments:** The knowledge of these clusters rests with the States, and thus collaboration with State governments is necessary.
* **Transport new commodities as well:** For instance, fly ash.
* **Wagon-design reforms:** IR should encourage and liberalize the design of new wagons amenable to higher and efficient loading.
* **Parity in environmental regulation:** Absence of stringent environmental regulations in the road sector has led to some users moving cargo by road. There should be no such disparity in regulation between modes of transport.

Topic 39. SBI AND LIC MAY BE RECOGNIZED AS MAHARATNA'S

Important for the subject: Economy

SBI's Economic Research Department (ERD) emphasizes the absence of SBI and LIC from the Maharatnas list despite their significant profitability, raising questions about the relevance of the existing classification.

Only ONGC from the Maharatnas list features among the top 10 most profitable companies, suggesting that **Maharatna's status might not accurately reflect superior performance.**

- **Advocacy for a balanced Maharatna list** includes representation from the BFSI sector, underscoring the significant contributions of sector champions.
- **SBI and LIC's market leadership** and **substantial balance sheet sizes** are highlighted, emphasizing their potential for enhanced autonomy and quicker decision-making processes.
- The ERD stresses the need for **an updated classification** that incorporates deserving entities from the services sector, considering the transformative post-COVID business landscape. The proposal for **"Amrit Ratna" recognition** is put forward for certain PSUs, recognizing their immense contributions to the nation's development over the years.
- Recommendations for **revising the benefits** associated with the **Maharatna/Navratna tag** are suggested to ensure they align with the evolving needs of different sectors, enhancing their competitiveness and future readiness.
- Given the significance of the services sector in India's GDP growth, the suggestion is made to **include stalwarts from this domain** to complement the manufacturing sector, **aligning with the goal of achieving a $5 trillion economy.**

Obtaining the Maharatna status for a public sector undertaking (PSU):

- **Navratna status:** The **PSU should already have the Navratna status**, which entails **significant operational and financial autonomy.**
- **Listing on Indian stock exchange:** The **PSU must be listed on the Indian stock exchange** with the prescribed public shareholding.
- **Average annual turnover:** The **average annual turnover of the PSU should be more than Rs. 25,000 crore over the last three years.**
- **Average annual net worth:** The **PSU should maintain an average annual net worth of more than Rs. 15,000 crore over the past three years.**
- **Average annual net profit after tax:** The **PSU should have an average annual net profit after tax exceeding Rs. 5,000 crore during the last three years.**
- **Global presence or international operations:** The PSU must demonstrate significant global presence or involvement in international operations.
- Meeting these criteria would qualify a PSU for Maharatna status, **signifying its exceptional performance, significant scale, and global outreach in the public sector**

domain.

Obtaining Navratna status for a Central Public Sector Enterprise (CPSE):

- **Miniratna Category – I or Schedule 'A' CPSEs:** The CPSE should belong to **either the Miniratna Category – I or Schedule 'A' classification to be eligible for Navratna status.**
- **Rating:** The CPSE must have **received an 'Excellent' or 'Very Good' rating in at least three of the last five years.** This rating is typically given by the Department of Public Enterprises (DPE).
- **Composite score:** The CPSE should achieve a composite score of 60 or above in the following six performance indicators: **Net Profit to Net Worth, Cost of Services, Earnings per Share, Manpower cost to cost of production or services, PBDIT (Profit Before Depreciation, Interest, and Taxes) to Capital Employed, and PBDIT to Turnover.**

- Meeting these criteria would qualify a CPSE for Navratna status, **indicating its high performance, financial robustness, and overall excellence in the public sector domain.**

Obtaining Miniratna status for a Central Public Sector Enterprise (CPSE) in both Category I and Category II:

Miniratna Category-I status:

- The CPSE must have made a **profit continuously for the last three years.** The **pre-tax profit should be Rs.30 crores or more in at least one of the three years**. It should maintain a **positive net worth status**.

Miniratna Category-II status:

- The CPSE must have made a **profit for the last three years continuously**. It should maintain a **positive net worth status.**

- The **CPSE should not have defaulted in the repayment of loans or interest payments** on any loans due to the Government. The **CPSE should not be dependent upon budgetary support or Government guarantees**.

Topic 40. AMRIT KAAL

Important for the subject: Economy

Amrit Kaal symbolizes the next 25 years (up to 2047), leading to the centenary of India's

independence. It sets out to build a **robust and all-encompassing economy**, with particular emphasis on **youth, job creation, and the establishment of a stable macro-environment.**

Amrit Kaal will be **steered by seven intertwined priorities, akin to the 'Saptarishi' (Seven Sages), as outlined in the Budget 2023-24.**

Inclusive Development

- Extending the philosophy of **"Sabka Saath, Sabka Vikas."** Focus on agriculture and cooperatives, accessible education & skilling, and affordable health for all.

Reaching the Last Mile

- Government's commitment to **extending essential services and infrastructure to every citizen, regardless of location or socio-economic status.**

Infrastructure and Investment

- Boosting **economic growth and employment** by increasing investments in infrastructure and productive capacity.

Unleashing the Potential

- Enhancing the **ease of doing business and promoting trust-based governance** through transparent and accountable administration.

Green Growth

- Steering the **economy towards sustainable development and achieving climate goals**.

Youth Power

- Empowering the youth and **aiding the 'Amrit Peedhi' (new generation) to realize their dreams through initiatives and digital platforms.**

Financial Sector

- Promoting financial stability, **ensuring the efficient flow of credit, enhancing convenience for companies, and undertaking measures for financial inclusion**.

21. Role of Technology in controlling smuggling

- Finance Minister Nirmala Sitharaman called for the **use of technology and intergovernmental cooperation to apprehend the masterminds behind smuggling and illicit trade networks.**
- The focus of enforcement agencies **should be on catching the 'brain' behind illegal trade to deter unlawful activities** that harm the economy and citizens.
- The types of smuggled goods have remained consistent over the years, **including precious metals, narcotics, and reserves from forests or marine life.**

- Emphasized the **importance of international cooperation, particularly with the World Customs Organization (WCO), to crack down on smuggling masterminds**.
- **Destroying all confiscated goods is vital to deter illicit trade**, preventing their re-entry into the market and restoring citizens' confidence.
- **Information sharing among enforcement agencies** should include innovative ideas on **empowering authorities through legislation and procedures** to combat smuggling.
- **Need for modern technology and trade facilitative measures to address the challenges posed by sophisticated smuggling networks.**

World Customs Organization (WCO):

- The **World Customs Organization (WCO) was established in 1952 as the Customs Co-operation Council (CCC)** with a mission **to enhance the effectiveness and efficiency of Customs administrations globally.**
- It serves as the **global center of Customs expertise and is the sole international organization with expertise in Customs matters,** representing the voice of the international Customs community.
- The WCO is divided into six regions, **each represented by a regionally elected Vice-Chairperson to the WCO Council.**
- The organization acts as a platform for **national Customs delegates to engage in dialogue, exchange experiences, and benefit from various Conventions and international instruments**. It also provides technical assistance and training services to its members.
- In addition to facilitating legitimate international trade, the **WCO is recognized for its efforts in combating fraudulent activities globally.**
- It administers the **World Trade Organization's Agreements on Customs Valuation, which establish a system for determining the value of imported goods, and the Rules of Origin, which are used to ascertain the origin of a particular commodity.**

22. Inclusion of cryptocurrency suggested by GTRI

- **Inclusion of cryptocurrency** in the e-commerce sector negotiations at the World Trade Organization (WTO) recommended by the **Global Trade Research Initiative (GTRI).**
- Ongoing WTO negotiations involve two key aspects: a. **Joint initiative on e-commerce:** Discussions encompass tariffs, customs clearance, paperless trading, online privacy, and cybersecurity, impacting 89 WTO members. b. **E-commerce moratorium:** Introduced in 1998, the **moratorium restricts countries from applying customs duties on electronic transmissions, last extended for two years in June 2022.**
- The **recent withdrawal of the United States from multiple points of negotiation** has posed a significant obstacle in the e-commerce discussions, potentially triggering a global reassessment of e-commerce policies.
- **India has chosen to abstain from these talks**, citing concerns about **unregulated digital trade and emphasizing the need to preserve policy space for digital advancement and revenue generation through customs duties.**

- **India's opposition** to the continuation of the e-commerce moratorium is based on the argument that it **disproportionately affects developing countries**.
- The **United Nations Conference on Trade and Development's** impact assessment indicates a substantial **potential tariff revenue loss for developing countries**, emphasizing the need to regulate imports and foster revenue generation.
- The GTRI emphasizes the **importance of considering cryptocurrency within the WTO's e-commerce negotiations to establish an updated regulatory framework** that aligns with the evolving global digital trade landscape.

World Trade Organization (WTO)

- The **WTO is the primary global international organization responsible for trade regulations among nations.**

History

- General Agreement on Tariffs and Trade (GATT) originated from the **1944 Bretton Woods Conference.**
- The Havana Charter, intended to establish the International Trade Organization (ITO), never came into force.
- **GATT, signed by 23 countries in 1947**, was the only multilateral instrument governing trade until the establishment of the WTO in 1995.
- The **Uruguay Round from 1987 to 1994 led to the Marrakesh Agreement**, establishing the WTO.

Governance

- **Ministerial Conference**: The WTO's top decision-making body, convening every two years.
- **General Council**: Represents all member governments and acts on behalf of the Ministerial Conference.
- **Dispute Settlement Body (DSU)**: Deals with disputes between WTO members according to the Understanding on Rules and Procedures Governing the Settlement of Disputes.
- **Appellate Body**: Established in 1995, it is a **standing body of seven members hearing appeals from reports issued by panels in WTO member disputes.**

About GTRI

- GTRI stands for the **Global Trade Research Initiative.** It is a **think tank that focuses on conducting research and analysis related to global trade, international economics, and various policy issues concerning trade and commerce.**

- The organization aims to **provide insights and recommendations to policymakers, businesses, and other stakeholders to facilitate informed decision-making** and

About UNCTAD

- UNCTAD stands for the **United Nations Conference on Trade and Development.** It is a **permanent intergovernmental body established by the United Nations General Assembly in 1964.** UNCTAD's primary objective is to **promote inclusive and sustainable development,** particularly in the **areas of international trade, investment, finance, and technology.**

- UNCTAD conducts research, provides policy analysis, and **offers technical assistance to help developing countries integrate into the global economy on equitable terms**. It also serves as a forum for **intergovernmental deliberations, consensus-building, and policy dialogue on key trade and development issues.**

Crypto currency

- It refers to **digital or virtual currencies** that use cryptography for security. These digital currencies operate on **decentralized networks based on blockchain technology**, which makes them secure and immune to government interference or manipulation.

- Cryptocurrencies **enable secure online transactions** and are typically used for buying and selling goods and services, as well as for investment and speculative purposes.

- Some of the most well-known cryptocurrencies include **Bitcoin, Ethereum, Ripple, and Litecoin, among others**. The use and acceptance of cryptocurrencies have been growing globally, **although their regulation and legal status vary significantly from one country to another.**

Topic 41. MONETARY POLICY TRANSMISSION IN INDIA

Important for the subject: Economy

The RBI's rate hikes since 2022 have highlighted a **disparity in the transmission of policy rate changes, with lending rates increasing at a slower pace compared to deposit rates.** This phenomenon has been particularly noticeable in the current economic cycle, **presenting various implications for different stakeholders in the financial system.**

Deposit Rate Increase: The Weighted Average Domestic Term Deposit Rates (WADTDR) for fresh deposits have witnessed a significant rise, **partly driven by banks' requirements for funds to support rapid credit growth. Larger depositors have received relatively**

higher rewards compared to smaller ones.

- **Limited Transmission in Lending Rates**: Despite the policy rate hikes**, lending rates have not increased at a proportionate rate.** The overall increase in lending rates has been notably lower than that of deposit rates, with existing loan rates exhibiting a slower rise.
- **Impact of CASA Deposits**: Banks have managed to **maintain lower lending rates by leveraging their current account and savings account (CASA) deposits**, which constitute a significant portion of their total deposits. **These accounts have not experienced any changes in interest rates during this cycle, allowing banks to sustain comparatively lower lending rates.**
- **Effect of MCLR and EBLR Loans**: While a **significant proportion of loans (around 44.8%) remain linked to the Marginal Cost of Funds Based Lending Rate (MCLR), the transmission of rate changes is relatively slower** due to various operational factors influencing the MCLR calculation.
- Conversely, **loans (around 50.2%) linked to the External Benchmark Linked Loan Rate (EBLR) have the advantage of immediate resetting when policy rates change,** ensuring a more rapid transmission of rate changes.
- **Competition for Deposits and Incremental Credit**: Tight liquidity conditions have **intensified competition among banks for deposits, potentially leading to increased rates for depositors**. Simultaneously, **competition for incremental credit might have restrained some banks from sharply increasing lending rates, especially in specific segments like housing, vehicle, and education loans.**

About Internal Benchmark Lending Rate (IBLR):

- **Lenders establish an internal benchmark rate for determining interest rates on loans.** Several benchmark rates were introduced over the years, **including BPLR, Base Rate, and MCLR.** These **rates aimed to ensure transparent and efficient pricing** in the lending market.

Issues with IBLR Regime:

- **Banks often did not pass on the full benefits of RBI's repo rate cuts to borrowers**. **Complex internal variables within the IBLR-linked loans hindered the seamless transmission** of policy changes.

BPLR (Benchmark Prime Lending Rate):

- Used as a benchmark rate by banks for lending until June 2010. Loans were priced based on the actual cost of funds.
- The rate varied across banks and depended on the cost of funds, among other factors.

Base Rate:

- Replaced BPLR and was used for loans taken between June 2010 and April 2016.
- Considered the minimum interest rate at which commercial banks could lend to

customers.

- Calculated based on the cost of funds, unallocated cost of resources, and return on net worth.

MCLR (Marginal Cost of Funds based Lending Rate):

- Introduced in April 2016 as a benchmark lending rate for floating-rate loans. Considers the marginal cost of funds, negative carry on account of the cash reserve ratio, operating costs, and tenor premium.
- Linked to actual deposit rates, ensuring that when deposit rates rise, MCLR increases and lending rates go up accordingly.

External Benchmark Lending Rate (EBLR):

- RBI mandated the **adoption of a uniform external benchmark by banks from October 1, 2019**, it was intended to plug the deficiencies in MCLR.
- Four external benchmarking mechanisms were introduced, RBI repo rate, 91-day T-bill yield, 182-day T-bill yield, any other benchmark market interest rate as developed by the Financial Benchmarks India Pvt. Ltd.
- Banks have the flexibility to set the spread over the external benchmark, with interest rate resets required at least once every three months

Significance of EBLR:

- Aims to facilitate faster and effective transmission of monetary policy changes. Enhances transparency in interest rate setting and standardizes the process of fixing interest rates for different loan categories.
- Introduces a more dynamic and responsive lending environment in line with the objectives of the RBI's monetary policy framework.

Monetary Policy Normalization in India:

- Involves adjustments made by the **Reserve Bank of India to control the amount of money in the economy.**
- Entails a **shift from a loose monetary policy, involving increased liquidity and reduced interest rates, to a tight monetary policy that raises interest rates and reduces liquidity.**

Reverse Repo Normalization:

- Refers to an **increase in the reverse repo rates** by the Reserve Bank of India.
- Part of the broader strategy of monetary policy normalization **to counter rising inflation and bring the rates back to their usual positions.**
- Aims to **reduce excess liquidity, elevate interest rates across the economy, and discourage excessive borrowing by consumers** and businesses.

Repo Rate:

- The rate at which the RBI lends short-term money to banks against securities.

- One of the key tools used by the central bank to control the money supply in the economy.

Reverse Repo Rate:

- The rate at which banks park their short-term excess liquidity with the RBI. Used by banks when they have surplus funds that they are not able to invest for reasonable returns.

SLR (Statutory Liquidity Ratio):

- Mandates that every bank maintain a minimum proportion of their Net Demand and Time Liabilities as liquid assets in the form of cash, gold, and un-encumbered approved securities.
- A tool used by the RBI to restrict the bank's leverage position to pump more money into the economy.

CRR (Cash Reserve Ratio):

- Mandates that banks hold a certain proportion of their deposits in the form of cash with the RBI or currency chests.
- Used by the RBI to control liquidity in the banking system and ensure that banks have enough cash to meet their payment obligations.

Marginal Standing Facility (MSF):

- A window for banks to borrow from the Reserve Bank of India during emergency situations when inter-bank liquidity dries up completely.
- Banks pledge government securities at a rate higher than the repo rate under the Liquidity Adjustment Facility (LAF).

Topic 42. DEBUT OF 50-YEAR ULTRA LONG TERM INDIA BONDS

Important for the subject: Economy

Government plans to sell ₹10,000 crore of 50-year bond that matures in 2073. 40-year bond that matures in 2063 is currently the longest-duration bond sold by India. Government now plans to sell ₹10,000 crore of a 2073 bond. The bonds are likely to be sold at a yield that will only be one-to-two basis points higher than the yield on the 40-year bond at around 7.54%. Strong demand for the bonds is anticipated as **insurers try to lock in higher yields** to take care of long-term commitments.

Why ultra long term bonds?

- Over one-third of the government's fiscal second-half bond supply is in papers maturing in 30-50 years.
- The Reserve Bank of India said last month it plans to add the 50-year bond in response to market demand for ultra-long papers, **extending the nation's yield curve.**

- Government may be trying to **increase the tenure of debt sold** and **expect yields to decline** once India's sovereign bonds get included to JPMorgan Chase & Co.'s emerging market index next year.
- The anticipated strong demand for the 50-year bond will likely lead to a **flat yield curve**, elongating the maturity of the government's debt while keeping its overall interest costs in check.
- The issuance of longer-maturity debt will also extend the weighted average maturity of outstanding bonds.

Changing trend in holding of government bonds?

- Between 2018 and 2022 Insurers' holdings of government bonds rose to 26% at the end of March 2022, up from over 23% in 2018, reflecting their growing heft in the local debt market. Meanwhile Bank's ownership fell to 38% from 43% in the period.

Why are insurance companies the bigger takers of long term bonds?

- India's first-ever issuance of 50-year government bonds can be easily absorbed by insurance companies and provident funds, which **are keen and have been looking for avenues to park long-term funds.**
- Long-term investors like insurers will have a **natural demand for the 50-year paper**.
- Most insurance companies require longer-duration bonds for their **asset-liability management.**

Topic 43. INDIA EXIM BANK LISTS $1 BILLION SUSTAINABILITY BOND AT LONDON STOCK EXCHANGE

Important for the subject: Economy

Export-Import Bank of India (India Exim Bank) has listed its maiden 10-year $1billion sustainability bond on the **Sustainable Bond Market (SBM) platform** at the **London Stock Exchange (LSE)**.

What are sustainability bonds?

- Sustainability bonds are issues where proceeds are used to finance a combination of green and social projects. The listing will give India Exim Bank access to a deeper pool of capital and a wider investor base.
- India Exim Bank, which finances and facilitates India's international trade, had in January raised $1 billion issuing 10-year Sustainability Bond under its **Environmental Social Governance (ESG) Framework.**
- Apart from the LSE, the India Exim Bank has listed its maiden 10-year $1 billion sustainability bond on the **India International Exchange (INX),** the country's first international exchange located at the International Financial Services Centre (IFSC) in Gujarat International Finance Tec-City (**GIFT City**).
- The bond is also listed on **AFRINEX Ltd. (Afrinex)'s AFEX Green**

platform dedicated to social, green, and sustainable financing on the **Singapore Exchange Securities Trading Limited (SGX-ST)**.

Exim Bank of India

- Exim Bank of India (Exim Bank) was established in 1982 under an Act of Parliament as the apex financial institution for financing, facilitating and promoting India's international trade. Exim Bank is fully owned by the Government of India.
- The Bank primarily lends for exports from India including supporting overseas buyers and Indian suppliers for export of developmental and infrastructure projects, equipment, goods and services from India. It is regulated by RBI.
- Exim Bank extends Lines of Credit (LOCs) to overseas financial institutions, regional development banks, sovereign governments and other entities overseas, to enable buyers in those countries to import developmental and infrastructure projects, equipment, goods and services from India, on deferred credit terms.

Topic 44. INDIA CLEARS THE DECK FOR DIRECT LISTING OF COMPANIES IN THE OVERSEAS MARKET

Important for the subject: Economy

Indian companies can now list on foreign stock exchanges, according to a **Ministry of Corporate Affairs (MCA) notification** of Section 5 of the **Companies Amendment Act, 2020**.

The plan is to initially roll-out overseas listings through the GIFT City's International Financial Services Centre (IFCS), followed by a broader direct listing.

Which companies can get listed on foreign exchanges?

- The government might come out with clear guidelines and norms for the types of securities and companies that will be eligible for this direct listing.
- Even as the recent notification speaks only about public companies, the government can also consider allowing such direct listing for unlisting private companies.
- **MCA** and the **Department of Economic Affairs (DEA)** are in the advanced stages of creating the eligibility norms for such direct overseas listings of Indian companies.

Importance of the move:

- This notification brings us one step closer to permitting Indian companies to list abroad. This could particularly be beneficial for new-age companies and start-ups looking to list abroad, where valuations and investor appetite/understanding may differ.
- One of the key aspects to consider is the **tax implications in India for foreign shareholders** who trade such shares on overseas exchanges
- Currently, Indian companies can access the overseas equity markets **only through depository receipts** or by listing their debt securities on foreign markets.

Topic 45. UNDERSTANDING WORKER PRODUCTIVITY

Important for the subject: Economy

In News: Narayan Murthy's statement that young Indians need to work more hours has brought the idea of worker productivity in focus.

What did Narayan Murthy say?

- Murthy said that India has one of the lowest productivity rates in the world and suggested that the country's youth should consider working 70 hours a week to bolster the nation's growth and development.
- Murthy's statement does draw attention to a critical issue—the declining productivity rate in India.
- Data shows that India's labour productivity growth has dropped from 9.1 percent in 2016 to 2.5 percent in 2022.

What explains the low productivity growth?

- India's productivity problem is not of fewer working hours, for data shows that there is little correlation between working hours and productivity. India faces a trade off between productivity growth and employment growth.
- Agriculture which still employs over 45% of workforce, and has low or stagnant productivity growth. There is also an increased trend towards sub-contracting of work, which results in lower wage growth for workers.
- Indian average productivity growth has been amongst the highest in the world. While this has helped in narrowing the gap with advanced economies the absolute level of productivity is still low.

How does India compare in productivity with other countries?

- India's labour productivity is only three-fourth of that of China, around half that of Brazil and Thailand, a mere 20 per cent of that in Japan and 13 per cent of that in US

Do work hours equal productivity?

- Not necessarily, as for similar jobs a more productive worker will achieve same output in less time. Thereby for all other things being same there is an inverse relationship between hours worked and productivity.
- Countries that are among the top 10 in clocking long working hours, such as Gambia, Bhutan, Lesotho, and the Congo, have very poor productivity.
- Countries such as the UAE and Qatar have managed higher productivity with longer hours due to the massive capital investments made by these countries.

Measuring Productivity

- Productivity of an activity is usually measured as the quantum of output value per unit of labour (time) cost at a micro level.
- At a macro level, it is measured in terms of the labour output ratio or change in Net Domestic Product (NDP) per worker in each sector (where working hours are assumed to be 8 hours per day).
- Productivity in a more sophisticated usage is an attribute not of time but of skill. Human capital (a more reductionist version of Human Development) including education, training, nutrition, health etc., enhances the ability of labour to become more productive, or churn out greater quantum of value within the same number of working hours.
- Based on this understanding, the reduction in the number of working hours does not hamper the value of output produced, but in turn enhances the leisure and quality of life of workers in real terms, while the value added to the economy could still be increasing, nominal wages remaining the same.

Topic 46. DIGITAL LENDING IN INDIA

Important for the subject: Economy

RBI's Monitoring of Evergreening and Delinquencies: RBI Deputy Governor Rajeshwar Rao stated that the Reserve Bank of India is actively monitoring and engaging with banks to address instances of **evergreening of loans** and higher delinquencies in certain loan segments. Banks are instructed to create additional provisions and disclose divergences as required.

- **Challenges from Digital Lending:** With the exponential growth in digital lending post the pandemic, several business conduct issues have emerged. These include **exploitative customer and recovery practices, gaps in existing regulations, and aggressive marketing strategies.** The RBI aims to balance innovation with stability, which can be challenging as the pace of change often exceeds regulatory agility.
- **Risk Management and Regulatory Measures:** He emphasized the need for **robust data governance frameworks, consideration of environmental impacts, effective supervision, and measures to prevent the spread of misinformation over social media**. The RBI is adopting a forward-looking, data-driven, and collaborative approach in its regulations to ensure a sound and robust financial system.
- **Principle-Based Regulations:** The RBI is gradually granting banks greater operational freedom within the regulatory framework and **moving toward more principle-based regulations**. The principle of **"same activity, same risk, same regulation" is being followed, with an emphasis on establishing a level playing field for market participants.**
- Overall, the RBI is actively engaging with banks to ensure financial stability and address challenges arising from the **rapid expansion of digital lending**, while also

emphasizing the importance of proportionate regulations and risk management.

Evergreening of loans

- The term "evergreening of loans" refers to a practice in which **banks attempt to sustain a loan that is on the brink of default by providing further loans to the same borrower**. This process is often a temporary fix that obscures the true condition of stressed loans and delays the recognition of losses. The objective is to **prevent the loan from being classified as a non-performing asset (NPA) to minimize the impact on the bank's profitability and provisioning requirements.**

- Evergreen loans themselves refer to a **specific type of loan where the principal payment is deferred, and typically only the interest is expected to be paid until the end of the loan term.** This setup allows for indefinite postponement of principal repayment and operates similarly to revolving credit.

Reasons for Evergreening of Loans:

- **Impact on Profitability:** Banks need to make higher provisions if an account turns into an NPA, which can impact their profitability.
- **Avoiding NPA Classification:** Banks resort to evergreening loans to avoid classifying them as NPAs, thereby delaying the recognition of losses.
- **Liquidity and Provisioning:** Evergreening allows banks to avoid provisioning to cover loan losses and helps them maintain liquidity.

Methods of Evergreening:

- **Interbank Arrangements: Banks collaborate to evergreen each other's loans** through the sale and buyback of loans or debt instruments.
- **Structured Deals: Encouraging sound borrowers to engage in structured deals** with stressed borrowers to conceal stress.
- **Internal Adjustments:** Use of **internal or office accounts to adjust borrower's repayment obligations.**
- **Renewal of Loans: Renewing loans or disbursing new/additional loans to stressed borrowers** or related entities closer to the repayment date of earlier loans.

What is an FLDG arrangement?

- The Reserve Bank of India (RBI) has permitted the **use of First Loss Default Guarantee (FLDG) for fintech Lending Service Providers (LSP).**

- It is a lending model involving **Regulated Entities (REs) like banks or non-banking finance companies and lending service providers (fintech firms).**

- The FLDG system ensures that the **fintech firm bears the initial loss on defaults within a predetermined percentage of the loan portfolio.**

How does FLDG work?

- The FLDG arrangement implies that the **fintech firm guarantees the first loss up to a certain percentage of loans it generates.**

- The lender doesn't participate directly in the lending process, but the nominal loans appear on their balance sheet. **The credit risk is borne by the LSP without the need to maintain regulatory capital.**

Need for FDLG:

- It helps **prevent 'synthetic securitization**,' which is prohibited by the RBI.

- Additionally, it **addresses the hesitation of REs to lend through fintechs without a commitment towards loan loss.**

- The FLDG serves as a **demonstration of the fintech's underwriting skills** and also ensures the platform's commitment to the business from the lender's perspective.

RBI's Circular on FDLG:

- The RBI has issued a circular outlining the scope, eligibility, structure, form, cap, disclosure requirements, and exceptions related to FLDG. It **stipulates that the total amount of the guarantee does not exceed 5% of the outstanding loan portfolio.**

Benefits of FDLG:

- It promotes the **development of the digital lending ecosystem** and enhances fintech activity in the financial sector.

- It also facilitates **increased credit penetration through the digital space** and encourages small and medium fintechs to enter the digital lending space in partnerships with banks or NBFCs.

RBI Working Group on digital lending

- The **RBI Working Group on digital lending submitted key recommendations in**

2021, addressing the rising concerns related to digital lending apps and platforms.

Some of the crucial proposals and the challenges are as follows:

Key Recommendations:

- **Enactment of separate legislation:** To oversee lending activities conducted through online platforms and mobile apps.
- **Establishment of a Nodal Agency:** For vetting Digital Lending Apps, ensuring compliance with prescribed regulations.
- **Formation of a Self-Regulatory Organization (SRO):** To monitor and regulate participants within the digital lending ecosystem.
- **Development of Baseline Technology Standards:** Mandatory compliance with these standards before offering digital lending solutions.
- **Direct Disbursement and Servicing:** Loans should be disbursed directly into borrowers' bank accounts, and servicing should be done solely through the accounts of digital lenders.
- **Data Collection and Storage Guidelines:** Prior consent of borrowers for data collection, with verifiable audit trails, and local storage of data.

Benefits of Digital Lending:

- **Enhanced Access to Financial Products:** Digital lending can promote greater access to financial services, fostering inclusivity and efficiency.
- **FinTech-Led Innovation:** FinTech innovations have transitioned from a supporting role to a central role, influencing the design, pricing, and delivery of financial products and services.

Challenges in Digital Lending:

- **Deceptive Practices:** Digital lending apps often allure borrowers with the **promise of quick and hassle-free loans but impose exorbitant interest rates** and concealed additional charges.
- **Unethical Recovery Practices:** Some platforms resort to aggressive and unacceptable recovery methods, causing distress to borrowers.
- **Data Privacy Concerns:** These platforms exploit agreements to access data on the mobile phones of borrowers, raising serious data security and privacy issues.

Topic 47. 'OLIGOPOLIES' CONTROL OVER RARE EARTHS IS KEY GREEN TRANSITION SNAG

Important for the subject: Economy

Countries energy transition efforts face significant uncertainty due to the oligopolistic

control over mining and processing of rare earth elements that were **critical to scale up green technologies**, Chief Economic Advisor V. Anantha Nageswaran observed, adding that external funding to help developing **countries move away from fossil fuels could also be potentially weaponised.**

What can be done:

- Investors in green transitions should avoid excessive greed and prioritize public goods creation.
- Public investment is essential for green transitions, similar to past major transformations like post-World War II reconstruction and space exploration.
- Market-based solutions to carbon emissions have limitations; focusing on economic growth is important.
- Capital market liberalization may not precede economic evolution and can lead to over-financialization. Supporting countries in prioritizing economic growth is crucial for climate security.
- Access to rare earth elements and critical minerals is vital for green technologies but is controlled by an oligopoly so there is a need for decentralization.

About Rare Earth Minerals:

- Rare Earth Elements or Rare Earth Metals are a **set of 17 elements** in the periodic table – the 15 lanthanides, plus scandium and yttrium, which tend to occur in the same ore deposits as the lanthanides, and have similar chemical properties.
- They are used in production in a huge number of sectors, including **renewable energy technology, oil refinery, electronics, and the glass industry.**
- Rare Earth elements are used in **space shuttle components, jet engine turbines, and drones.**
- **Cerium, the most abundant** Rare Earth element, is essential to NASA's Space Shuttle Programme.
- **Although called "rare", they are actually found relatively abundantly in the Earth's crust.**
- However, they are **hazardous to extract**, and there are relatively few places in the world that mine or produce them.
- According to the Rare Earth Technology Alliance (RETA), the estimated size of the Rare Earth sector is between $10 billion and $15 billion. About 100,000-110,000 tonnes of Rare Earth elements are produced annually around the world.

Topic 48. IMPACT OF HIGH US TREASURY YIELDS ON INDIA

Important for the subject: Economy

Recent Trends in US Treasury Yields and Global Markets:

US 10Yr Treasury yield was rangebound **between 3.25% and 4.1% from January to April before gradually rising.** A **sharp increase in the yield to 5% in October** resulted in a strong selloff in global equities.

Gold prices rose in October due to increased risk aversion after the Hamas-Israel conflict. The **recent fall in the US 10Yr yield post-Federal Reserve meeting provided relief for stock indices.**

Interest Rates and Peak Forecasts:

- The US Federal Reserve's projection **indicates a peak fund rate of 5.6% for 2023**, with a potential rate cut in 2024. Historical data suggests that **previous interest rate peaks were followed by recessions, indicating a possible recession in the US by 2024.**

US 10Year Yield Forecast:

- **Anticipated range for the US 10Yr Treasury yield is 4.5% to 5% in the near term,** with a possible peak around 5.3-5.5%. Forecast suggests a potential decline to 4.8-4.6% or 4.5% as the interest rate starts to decrease.

Impact on Other Asset Classes:

- The **US dollar index is expected to rise to 108-110 before falling back to 105-103. Equities may face prolonged pressure**, with potential falls for the Dow Jones and Nasdaq Composite indices, as well as India's Nifty. Gold is anticipated to reach $2,100-$2,150 in the coming months.
- **Brent Crude oil may rise to $100-$105, supported by production cuts and supply disruption worries.**

Indian Yield Trends:

- **India Government Bond (IGB) 10Yr yield is expected to rise to 7.5-7.6% and then fall back to 7.3-7.2% in the first half** of the next year.

- Highlights the **recent trends in the US Treasury yields and their potential impact on various asset classes, as well as forecasts for the future movements** of these assets.

Bond:

- A **bond is a form of debt investment issued by corporates or governments directly to investors for financing various projects and activities.** It serves as a means to raise funds outside of traditional bank loans.

Bond Yield:

- A bond yield represents the **return an investor gains from a bond. Investors lend money to bond issuers, who promise to pay interest and repay the bond's face**

value.

- Yield includes **earnings from holding and selling bonds**. **Bond prices and yields have an inverse relationship**.

Factors Influencing Variation in Bond Yields:

- **Economic conditions affect bond yields,** with safer investments preferred during economic instability.
- **Increasing interest rates generally lead to lower bond prices** and vice versa. **Lower-rated bonds offer higher yields due to the increased risk of default.**

Perceived risk of inflation influences bond yields.

Impact on the Economy:

- Banks face losses on treasury operations due to rising bond yields.
- **Money market stability is affected by surging yields.**
- Top-rated public-sector companies delay tapping into the debt market.
- Bond market weakness persists until stabilization of oil prices or global yields.
- **Higher bond yields raise production costs, impacting earnings.**

Impact on Bond Investors:

- **A rise in bond yield indicates an anticipation of increased interest rates,** leading investors to sell their existing bond holdings to limit capital losses.
- Debt funds' net asset values, comprising government securities, **may decline due to falling bond prices caused by rising yields**.
- **Corporate bonds, priced higher than government bonds, are also affected by the decline in bond prices.**
- **Debt investors suffer as higher yields cause a decline in bond prices and net asset values of debt funds.**
- **Rising bond yields negatively impact equity investors as they lead to increased costs for companies, potentially affecting their earnings.**

Bond Yields vs. Equity:

- Bond yields and equities have an inverse relationship, **with a rise in bond yields suggesting a need for an increased risk premium on equities.**

Relationship between Bond Price and Yield:

- Bonds and their yields have an inverse relationship, with higher bond prices leading to lower yields.
- **Fixed-rate nature of bonds results in investors selling bonds when they expect interest rates to rise and vice versa.**
- Conversely, **bond investors might purchase bonds if they anticipate future interest rate reductions**, thereby driving prices higher.

RBI's Control of Bond Yields:

- The **RBI endeavors to keep yields lower to reduce government borrowing costs and prevent upward movements in market lending rates.**
- It achieves this **by repurchasing government bonds or conducting open market operations to temper yields.**

- The **potential impact of a rate hike in the US on other markets, including India**, can be summarized as follows:

Currency Carry Trade Impact:

- The **narrowing gap between interest rates in the US and countries like India could make India less attractive** for currency carry trade.
- This **shift may result in capital outflows from India, affecting its currency value and overall market stability**.

Global Growth Concerns:

- A higher rate signal by the US Federal Reserve **may indicate a reduced impetus to growth in the US, which could have negative implications for global economic growth.**
- Slower growth in the US **might indirectly impact the demand for goods and services globally, including in India.**

Equity Market Concerns:

- **Higher returns in the US debt markets could lead to a reevaluation of investments by foreign investors, potentially impacting emerging market equities**, including those in India.
- This **could lead to a reduction in foreign investor enthusiasm and create volatility in Indian equity markets.**
- **Currency Market Volatility:**
- The **potential outflows of funds due to the shift in investor sentiment and changes in interest rate differentials may result in increased volatility** in currency markets, impacting the value of the Indian rupee and other emerging market currencies.

Yield Curve Inversion:

- A yield curve represents the interest rates on bonds of increasing maturities.
- An **inverted yield curve occurs when short-term debt instruments offer higher yields than long-term instruments of the same credit risk profile.**
- **Inverted yield curves are atypical and can signal an impending recession, with implications for consumers and investors.**

Reverse Currency War:

- As a response to the US Federal Reserve's aggressive interest rate hikes, **more investors are rushing to invest money in the US, strengthening the dollar against other currencies.**
- **Central banks are working to counter the US Fed by raising their own interest rates to prevent excessive devaluation of their currencies against the dollar.**
- However, raising interest rates carries its own risks, **potentially hampering the chances of achieving a soft landing for any economy.**

Soft Landing:

- A soft landing refers to a **cyclical slowdown in economic growth that avoids a recession**.
- **Central banks aim for a soft landing by raising interest rates to curb an overheating economy without causing a severe downturn.**
- It can also **indicate a gradual slowdown in a particular industry or economic sector**, with a focus on minimizing negative impacts.

Topic 49. EMBEDDED FINANCE ON THE CUSP OF A BREAKOUT

Important for the subject :Economy

As financial institutions press the pedal on digital adoption to enhance customer experience and widen their reach, **embedded finance has emerged as an innovative approach** to connect with a vast pool of consumers who may have a digital footprint but no direct interaction with the financial institution.

What is embedded finance?

- Embedded finance is the **integration of financial services into non-financial offerings**.
- Examples of embedded finance might include an e-commerce merchant providing insurance, a coffee shop app that offers 1-click payments, or a department store's branded credit card.
- Effective embedded finance solutions meet the customer where they are with a financial option they need, whether that be a loan, payment program, insurance plan, or easy way to make a payment.
- Some embedded financial services have been around for a while, like airline credit cards, car rental insurance, and payment plans for high-priced items.
- Now embedded finance is taking hold online, as e-commerce retailers are offering banking services directly on their websites without re-directing customers to a bank.
- This phenomenon is enabled by third-party **'banking-as-a-service'** companies that use API integrations to embed financial services into the user experience of non-financial companies.

Some use cases of embedded finance are:

- **Non-financial companies offer their users a branded checking account to hold funds and make payments**. Embedded banking typically makes the most sense for sellers or service providers using a company's platform to conduct business. It likely offers faster access to funds and perks that only platform users can access.
- **Branded credit cards** predate fintech, as shoppers have long been able to get branded cards from their favorite department stores. However, fintech has expanded companies' ability to offer branded credit cards and increased the use cases where it makes sense.
- **Embedded lending** is a type of embedded finance that allows users to access more favorable loan options at the point of sale. "**Buy now, pay later" (BNPL)** is one of the most visible forms of embedded lending seen by online shoppers.

Topic 50. PRICE STABILIZATION FUND (PSF) RUNS DRY

Important for the subject: Economy

Department of consumer affairs (DoCA) under the **Ministry of Consumer Affairs, Food & Public Distribution** plans to approach the Union finance ministry for about ₹5,400 crore for its **price stabilization fund (PSF)** to procure onion and pulses in the rest of the financial year.

When prices of vegetables and pulses shot up this year, the department began **buying them at steep prices and selling them at cheaper rates**.

Since the department needs to procure more onions and masur (lentil) to enhance the buffer stock, it has decided to move the finance ministry without waiting for a budget allocation.

Setting up of PSF:

- The Price Stabilization Fund (PSF) was set up in 2014-15 under the Department of Agriculture, Cooperation & Famers Welfare (DAC&FW) to help regulate the price volatility of important agri-horticultural commodities like onion, potatoes and pulses were also added subsequently.
- The PSF scheme **was transferred from DAC&FW to the Department of Consumer Affairs (DOCA)** w.e.f. 1st April, 2016.
- The fund allowed the government agency **National Agricultural Cooperative Marketing Federation of India (Nafed)** to purchase a food item for which the government foresaw a possibility of high inflation and then sell it at a reasonable rate when the prices go up.
- Nafed procured rabi onions from the open market in March-April of 2016-17 and sold them in July-October when onion prices shot up.
- Some states have used the Public Distribution System and ration shops to distribute certain food items, apart from wheat and rice, at a lower rate than the market.
- The Union government has also directly sold pulses and edible oils through Mother Dairy booths and outlets of government-owned retail stores.

What is the Price Stabilisation Fund?

- Under the PSF, government agencies **can even purchase a food item at a price higher than the minimum support price (MSP)**, and the same can be sold with a reasonable markup or even at a subsidy if the market prices move up in the off-season.
- The PSF is utilized for **granting interest free advance of working capital** to Central Agencies, State/UT Governments/Agencies to undertake market intervention operations.
- Apart from domestic procurement from **farmers/wholesale mandis**, **import** may also be undertaken with support from the Fund.
- The Price Stabilization Fund will be managed centrally by a **Price Stabilization Fund Management Committee (PSFMC)** which will approve all proposals from State Governments and Central Agencies.
- The PSF will be maintained in a Central Corpus Fund account to be opened by **Small Farmers Agri-Business Consortium (SFAC)**, which will act as Fund Manager.

Topic 51. INDIA'S AGRICULTURAL EXPORTS DECLINE

Important for the subject: Economy

Impact of Global Prices:

Farm exports decreased by 11.6% in April-September 2023.

Farm trade surplus declined marginally from $7.4 billion to $7.2 billion in 2023.

Impact of Export Curbs:

- Government restrictions, **like bans and duties, contributed to falling farm exports.**
- Wheat, rice, and sugar faced bans or restrictions leading to plummeting exports.

Concerns for Farmers:

- **Declining international prices impacted cost competitiveness** and increased vulnerability to imports.
- **Cotton and edible oils, especially soyabean, faced significant challenges due to global price fluctuations.**

Effect on India's Agricultural Trade:

- **India's farm exports hit** an all-time high in 2021-22 and 2022-23 but **declined in 2023-24.**
- The country's agricultural trade is **closely correlated with global prices**, which have recently decreased.

Policy Measures and Impact:

- Government restrictions on exports were introduced to **manage domestic availability and inflation concerns.**
- Focus on **controlling food inflation influenced the government's stance on import** and export regulations.

Challenges Faced:

- Farmers faced a double whammy as **global price fluctuations affected their export competitiveness and increased their vulnerability to imports.**
- **Import duties on essential commodities like edible oils and pulses continued**, further impacting the farming community.

Background:

- **Farmer Connect Portal: APEDA established a Farmer Connect Portal** on its website for fostering interaction **between Farmer Producer Organisations (FPOs) and Farmer Producer Companies (FPCs) with exporters.**

About APEDA:

- **Establishment:** The Agricultural and Processed Food Products Export Development Authority **(APEDA) was founded under the Agricultural and Processed Food Products Export Development Authority Act 1985.**
- **Mandate:** It facilitates the export of agricultural and processed food products from India, operating under the **Ministry of Commerce and Industries**.
- **Scheduled Products:** APEDA is responsible for the **export promotion and development of various scheduled products, including fruits, vegetables, meat, poultry, dairy, confectionery, and more.**

Administrative Setup:

- **Chairman:** Appointed by the Central Government.
- **Director:** Appointed by APEDA.
- **Secretary:** Appointed by the Central Government.
- **Other Officers and Staff:** Appointed by the Authority.

About Farmer Producer Organisation (FPO):

- An **FPO is a registered entity comprising a group of farm producers, where the producers are shareholders.**
- It **engages in various business activities related to agricultural produce, aiming to benefit the member producers.**

Trade Infrastructure for Export Scheme (TIES):

- **Objective:** TIES aims to develop and **upgrade export-related infrastructure and provide assistance for setting up and upgrading infrastructure projects with an export link.**

- **Focus Areas:** The scheme emphasizes addressing the issues related to the export value chain, including the **creation of quality infrastructure, capacity building, and modernization of infrastructure.**
- **Implementation: TIES is implemented by the Directorate General of Foreign Trade (DGFT) under the Ministry of Commerce and Industry.**

Market Access Initiatives (MAI) Scheme:

- **Objective:** MAI Scheme is **designed to assist exporters and export organizations** in accessing and expanding their markets.
- **Focus Areas:** It primarily **focuses on market studies, market entry expenses, and other export promotion activities to facilitate market access for Indian products.**
- **Implementation:** The scheme is **implemented by the Department of Commerce, Government of India, to promote India's exports.**

Export Promotion Schemes of APEDA:

- **Objective:** APEDA's export promotion schemes **aim to promote and develop export-oriented activities for various agricultural and processed food products from India.**
- **Incentives:** These schemes **provide incentives, subsidies, and assistance for various activities related to the export of scheduled products,** such as fruits, vegetables, meat, poultry, dairy, and more.
- **Implementation:** The export promotion schemes of APEDA are **administered by the Agricultural and Processed Food Products Export Development Authority (APEDA) under the Ministry of Commerce and Industries.**

About MEIS:

- **Objective:** The **Merchandise Exports from India Scheme (MEIS) is a part of the Foreign Trade Policy (FTP) of India 2015-20**. It aims to offset infrastructural inefficiencies and associated costs involved in the export of goods/products manufactured in India, **particularly those with high export intensity and employment potential, thereby enhancing India's export competitiveness.**
- **Implementation:** The scheme is notified by the **Directorate General of Foreign Trade (DGFT) and implemented by the Ministry of Commerce and Industry.**
- **Incentives:** MEIS provides rewards in the **form of duty credit scrips to exporters, allowing them to import inputs or goods without paying duty. These scrips can be used to pay various duties, including the basic customs duty.**
- **Replaced Schemes:** MEIS replaced several other incentive schemes from the previous Foreign Trade Policy 2009-14, including the Focus Product Scheme (FPS), Focus Market Scheme (FMS), Market Linked Focus Product Scheme (MLFPS), Infrastructure Incentive Scheme, and Vishesh Krishi Gramin Upaj Yojana (VKGUY).

Foreign Trade Policy (FTP):

- The Ministry of Commerce and Industry launched the Foreign Trade Policy 2023,

which will come into effect from April 1, 2023.

- The Foreign Trade Policy (FTP) 2023 is a **comprehensive framework aimed at facilitating exports and trade, fostering partnerships with exporters, and streamlining processes for businesses.**

- It is built on the **principles of trust and partnership, promoting a responsive and agile environment** for trade. Some key details of the FTP 2023 include:

Process Re-Engineering and Automation:

- Shift from an **incentive-based regime to a facilitating regime, emphasizing technology interface and collaboration.**
- Reduction in fee structures and IT-based schemes for **enhanced accessibility to export benefits, particularly for MSMEs.**
- Implementation of duty exemption schemes for export production **through Regional Offices in a rule-based IT system environment, reducing manual intervention.**

Towns of Export Excellence (TEE):

- Addition of four new towns, **namely Faridabad, Mirzapur, Moradabad, and Varanasi, as TEEs, in addition to the existing 39 towns.**
- Priority access to export promotion funds **under the MAI scheme and Common Service Provider (CSP) benefits under the EPCG Scheme for TEEs.**

Recognition of Exporters:

- Exporter firms recognized **with 'status' based on export performance will participate in capacity-building initiatives.**
- Encouragement for 2-star and above status holders to provide trade-related training based on a model curriculum.

Promoting Export from the Districts:

- Establishment of partnerships with State governments and the **Districts as Export Hubs (DEH) initiative to boost exports at the grassroots level.**
- Introduction of State Export Promotion Committee and District Export Promotion Committee for addressing concerns at the district level.

Streamlining SCOMET Policy:

- Strengthening the **"export control" regime with enhanced outreach and understanding of SCOMET among stakeholders.**
- Implementation of a robust export control system in India to facilitate controlled items/technologies under SCOMET.

Facilitating E-Commerce Exports:

- **Development of e-commerce hubs and related elements such as payment reconciliation, book-keeping, and returns policy.**
- Increase in the consignment-wise cap on E-Commerce exports through courier from ₹5 Lakh to ₹10 Lakh in the FTP 2023.

Facilitation under EPCG and Advance Authorization Scheme:

- Rationalization of the EPCG Scheme with the addition of schemes like PM MITRA and exemptions for the dairy sector.
- **Inclusion of various green technology products under the reduced Export Obligation requirement under the EPCG Scheme.**
- Extension of the Special Advance Authorization Scheme to the apparel and clothing sector for prompt execution of export orders.

Amnesty Scheme:

- **Launch of an online portal and a six-month window for exporters to avail the scheme.**
- Coverage of all pending cases of default in export obligation of authorizations, regularized on the payment of all customs duties exempted proportionally to unfulfilled export obligations.

- The previous foreign trade policy for 2015-2020 had **targeted exports of USD 900 billion by 2020, which was extended till March 2023. However, it is expected that India will end 2022-23 with total exports of USD 760-770 billion, showing improvement from USD 676 billion in 2021-22.**

Topic 52. AFGHANS HEADS TO PAKISTAN BORDER AS DEPORTATION DEADLINE LOOM:

Important for the subject: International Relations

Tens of thousands of Afghans flee Pakistan as deadline looms. Over 20,000 Afghans residing in **Pakistan rushed to the borders** ahead of a government deadline for **1.7 million undocumented individuals** to leave or face arrest and deportation.

The Pakistan government **plans to arrest undocumented Afghans** who refuse to leave and process them **for forced return to Afghanistan.** Many Afghans are **reluctant to return due to the dire situation** in their home country.

In the border areas, thousands waited to cross into Afghanistan, facing further registration hurdles once over the border. Pakistan's actions have **drawn criticism from the Taliban** government's defense minister.

What is The UN Refugee Convention 1951:

- The **UN Refugee Convention** is a **United Nations treaty** that **defines the status of refugees** and **outlines their rights**, as well as the **obligations of nations that provide asylum.**

- The **1951 UN Refugee Convention** grants **specific rights to individuals** who are **escaping persecution** based on **factors like race, religion, nationality, social group affiliation, or political opinion.**

- The Convention also **specifies criteria for excluding certain individuals** from refugee status, such as those involved in war crimes.

- It includes **provisions for visa-free travel** for individuals holding travel documents issued under the convention.

- The Convention is **based on Article 14 of the 1948 Universal Declaration of Human Rights,** which recognizes the right of people to seek asylum in other countries when facing persecution.

- Refugees **may enjoy additional right**s and **benefits in a host country** beyond what the Convention prescribes.

- **The 1967 Protocol expanded** the scope of the convention to **include refugees from all regions,** whereas the **1951 Convention initially covered only European refugees.**

- Both the **1951 UN Convention and the 1967 Protocol remain** the **foundation of refugee protection,** with their provisions remaining as relevant today as when they were initially formulated. India is **not a signatory to this convention**.

Topic 53. G20 REGULATORS' MEET ON STANDARDS TO FOCUS ON SUSTAINABILITY, INCLUSIVITY

Important for the subject: International Relations

G20 regulators' meet on standards to focus on sustainability, inclusivity. The **G20 Standards Dialogue**, taking place in **New Delhi**, is a two-day event coordinated by the **Bureau of Indian Standards (BIS)** and focuses on **inclusive standardization and good regulatory practices.**

The event, **part of India's ongoing G20 presidency**, aims to **facilitate discussions and best practice sharing** among important regulatory bodies from various countries to streamline actions, **reduce costs, and benefit the MSME sector.**

- The dialogue **brings together industry leaders, government officials, standards professionals, regulators, and policymakers** to drive progress in standardization and global regulatory practices.

- It explores **how sustainability can be achieved** through **inclusive standardization** and good regulatory practices, promoting the concept of "zero defect and zero effect."

- The **event features three main sessions**, addressing topics like **standards for**

sustainability, technical regulations, and good regulatory practices, and stakeholder engagement in standardization.

- It **seeks to tackle challenges** such as **resource constraints, technical knowledge gaps, and cultural differences in standardization processes**

- **India will continue to hold the G20 Presidency** till **November 30** after which **Brazil will take over.**

What is G20 Summit:

- **G-20** was a **group of finance ministers** and **central bank governors from 19 individual countries and the European Union**.

- It was **established in 1999 and** was **elevated to a forum of Heads of Government in 2008** to effectively **respond to the global financial crisis of 2008.**

- G-20 is a forum, **not a legislative body** and its **agreements and decisions have no legal impact,** but they do influence countries' policies and global cooperation.

- The G20 membership accounts for **Two-thirds** of the **world's population, 85%** of global **gross domestic product**, **80%** of **global investment 75%** of **global trade**. Contribute **79% of the world carbon emissions**

- G20 **does not have any permanent secretariat** or headquarters. The **G20 Summit** is formally known as the **"Summit on Financial Markets and the World Economy".**

Topic 54. ISRAEL DEPLOY MISSILE BOATS IN RED SEA AFTER HOUTHIS' ATTACK

Important for the subject: International Relations

Israel deploy missile boats in red sea after Houthis' attack. The Israeli military **deployed missile boats** in the **Red Sea** as **reinforcements after the Iran-aligned Houthi movement claimed** to have launched missile and drone attacks on Israel. Images from the military showed Saar-class corvettes patrolling near **Eilat port** in the **Red Sea,** marking this region as a new front for potential conflict.

The **Houthi movement announced three drone and missile attacks** on Israel since the start of the Hamas-Israel war on October 7, pledging more attacks to support the Palestinians.

Israel intercepted an "aerial threat" over the Red Sea, suggesting a new attack from the Houthi movement.

Who are the Houthis:

- The Houthis are a **large Zaidi Shia** clan that began a **movement against the dictatorship of Ali Abdullah Saleh** in the 1990s.
- Today, they are a faction in the bloody civil war that has raged in Yemen since 2014. The Houthis are **backed by Iran and control territory in the west and northwest of Yemen, including the capital Sana'a.**
- They are fighting against the **Sunni-led internationally recognised Yemeni government, backed by Saudi Arabia and the UAE**.

Why have they attacked Israel:

- The **Houthi attack on Israel** is part of a **series of attacks by groups belonging to the "Axis of Resistance"** against Israel and the United States, both of which are strong allies of Israel.
- Reuters reported that **Iran-backed Iraqi militias** have been targeting **U.S. forces in Iraq and Syria, while Hezbollah has engaged in clashes with Israeli forces** along the Lebanese-Israeli border.
- The **Houthi movement** has **consistently held anti-Israel and anti-West sentiments**, as evidenced by their long-standing **slogan: "God is the greatest, Death to America, Death to Israel, Curse on the Jews, Victory to Islam."**
- Houthi spokesperson **Saree blamed Israel** for contributing to **instability in the Middle East,** expanding the **"circle of conflict"** through its ongoing actions.
- The Houthi movement pledges to continue launching attacks until they perceive an end to Israeli aggression.

Why is this a concerning development for the conflict in the Middle East:

- The **Houthi movement** has demonstrated its **missile and drone capabilities, notably in the 2019 attack on Saudi oil installations**, temporarily reducing Saudi Arabia's oil output by over 50%.
- However, in the current situation, where the **Houthis are about 2,000 km away from**

Israel, they pose limited actual danger to the Israelis.

- Houthi **missiles and drones have been intercepted** during recent hostilities, leading experts to view their attacks more as a **form of messaging than a substantial military threat.**
- The potential danger lies in the risk of these attacks **escalating into a larger conflict in the Middle East.** Israel's actions have **not prompted a military response from its Muslim neighbors** so far, but Houthi attacks present a dilemma for Saudi Arabia.
- The **flight path for drones or missiles launched from Yemen passes over western Saudi Arabia,** putting Saudi Arabia in a sensitive position.
- Saudi Arabia **may not want to be perceived as supporting Israel** by condemning the Houthi attack, but they **also want to avoid openly siding with the Houthis**, who are **backed by Iran**, Saudi Arabia's geopolitical rival.
- Saudi Arabia has **issued strong statements against Israel but hasn't taken direct military action.** However, they might be pushed to escalate if Israel responds by targeting Sana'a, potentially using Saudi airspace.
- **Saudi involvement in the conflict** could lead to a broader **escalation and potentially trigger a larger war in the Middle East.**

Topic 55. FINANCIAL ACTION TASK FORCE (FATF)

Important for the subject: International Relations

As per FATF violent extremist organization' in India collected funds through well-structured networks

The FATF report on '**Crowdfunding for Terrorism Financing'has** reported on a **violent extremist organization in India** using well-structured networks for fundraising, involving **both offline and online mechanisms**, such as distributing QR codes and account details.

- Though not explicitly named, the report alludes to the **Popular Front of India** soliciting **funds at mosques and public places**. Funds collected were used to **procure arms, ammunition, and training for the organization.**
- The accounts involved domestic and foreign transactions, making investigations challenging.
- The report mentions the arrest of eight individuals in leadership positions on terrorist financing charges and the pursuit of confiscating assets worth Rs 3.5 crore.
- The FATF emphasizes the **misuse of crowdfunding platforms for terrorist financing purposes,** with terrorists exploiting multiple methods to raise funds.
- **Crowdfunding's global market** is valued at **billions, and although most activity is legitimate**, it has been exploited by terrorist groups like ISIL and Al-Qaeda.
- The FATF calls for **consistent anti-money laundering and counter-terrorist**

financing regulation and comprehensive risk assessments of crowdfunding activities.

What is FATF:

- The Financial Action Task Force (FATF) is **an inter-governmental body established in 1989 during the G7 Summit in Paris.**
- The objectives of the FATF are to **set standards and promote effective implementation of legal, regulatory and operational** measures for combating **money laundering, terrorist financing** and other related threats to the integrity of the international financial system. Its **Secretariat** is located at the **Organisation for Economic Cooperation and Development (OECD)** headquarters **in Paris.** FATF members **include 39 countries**, including the **United States, India, China, Saudi Arabia, Britain, Germany, France, and the EU** as such.

India became a member of FATF in 2010.

- The FATF Plenary is the **decision-making body** of the FATF. It **meets three times per year.**

What are the two type of list of FATF:

- **Grey List**: Grey list is also called as **"Jurisdictions under Increased Monitoring"**.Countries that are considered **safe haven for supporting terror funding** and money laundering are put in the FATF grey list. This **inclusion serves as a warning to the country** that it may enter the blacklist.
- **Black List**: The black list is called as **High-Risk Jurisdictions Important for the subject to a Call for Actio**n.
- Countries known as **Non-Cooperative Countries or Territories (NCCTs)** are put in the blacklist. These countries support terror funding and money laundering activities. The FATF **revises the blacklist regularly**, adding or deleting entries.**North Korea,Iran and Myanmar** are in the black list.

What are the consequences of being on the FATF blacklist:

- **No financial aid** is given to them by the In**ternational Monetary Fund**, the **World Bank, the Asian Development Bank** and the **European Union**. They also face a **number of international economic and financial restriction**s and sanctions.

Topic 56. UNESCO NAMES KOZHIKODE 'CITY OF LITERATURE'

Important for the subject: International Relations

UNESCO names Kozhikode 'city of literature'. The city of Kozhikode in Kerala was added to **UNESCO's Creative Cities Network (UCCN).**

Gwalior from Madhya Pradesh was also among the **55 new cities** to join the network. These cities have been **handpicked to represent seven creative fields** i.e **crafts and folk**

arts, design, film, gastronomy, literature, media arts, and music.

Kozhikode was included in the category of literature and Gwalior in the category of music.

What is UNESCO's Creative Cities Network (UCCN):

- The UCCN was **created in 2004** to promote **cooperation among cities that have identified creativity as a strategic factor** for sustainable urban development.
- It now includes **350 cities** in over a hundred countries. The network is **aimed at leveraging the creative, social, and economic potential of cultural industries**.
- It was launched to **promote UNESCO's goals of cultural diversity** and strengthen resilience to threats such as climate change, rising inequality, and rapid urbanization.
- It **encourages a culture of creativity** in urban planning and solutions to urban problems.

What is the Objective of the CCCN:

- The UNESCO Creative Cities Network **allows member cities to recognise creativity** as an essential component of urban development, notably **through partnerships involving the public and private sectors and civil society.**
- It envisages to **develop hubs of creativity** and **innovation and broaden opportunities** for creators and professionals in the cultural sector.
- These cities have to **achieve the UN agenda of sustainable development**.

What is the annual conference of network cities:

- An integral feature of the network is the **yearly gathering of mayors and various stakeholders** representing cities within the network.
- This event provides a **distinct opportunity to enhance connections among creative cities** worldwide. The l**ast conference was held in Santos, Brazil**, and **this year's conference was in Istanbul.** The **next conference** will be held in **July 2024 in Braga, Portugal.**

What members have to do

- Every **four years**, **member cities** are required to **submit a Membership Monitoring Report.** This report is **presented with an aim of demonstrating** their steadfast commitment towards the implementation of the **UCCN Mission Statement.**
- They **present an action plan** for the **following four years**, providing **insights into their achievements and lessons learnt,** as well as the impact of the designation.

What are the Indian cities in the network:

- Apart from **Kozhikode and Gwalior**, **Varanasi (music), Srinagar (crafts and folk arts) and Chennai (music)** are part of the network.

Topic 57 . BLETCHLEY PARK BIRTHPLACE OF MODERN COMPUTING:

Important for the subject: International Relations

Bletchley Park where **'computers' helped the Allies win WWII,**

Some Historical Importance of Bletchley Park

- Bletchley Park, an **English country house**, known as the **birthplace of modern computing,** hosts the world's **first global AI summit**.
- During **World War II**, it **housed Britain's Government Code and Cypher School**, playing a crucial role in **deciphering the Enigma code**, **shortening** the **war by two years.**
- From the **Battle of El Alamein (1942) to the Normandy landings (1944)**, **Bletchley Park's fingerprints** can be seen all over **Allied Successes**
- It also **contributed to the development of the Colossus**, considered **one of the world's first computers**.
- Many regard the **Colossus as the world's first programmable**, **electronic, digital computer,** although it was **programmed by switches and plugs**, rather than a stored program.The site is also **known for creating the Turing Bombe**, a device that **expedited code-breaking efforts.** Bletchley Park's **legacy continues to influence modern computing and AI**.
- Notably, it underscores the **vital role of women in its operations,** as they operated machines and **formed the backbone of the institution**, though often underappreciated and underpaid.

Topic 58. BLETCHLEY DECLARATION

Important for the subject: International Relations

The United Kingdom hosted a **two-day Artificial Intelligence (AI) Summit** which concluded with the Bletchley Declaration.

What is Bletchley Declaration:

- The declaration **provides a comprehensive overview** of the **global consensus on both the potential benefits and risks associated** with **artificial intelligence.**
- It underscores the **importance of aligning AI systems** with **human intentions and encourages a deeper exploration** of the full range of AI capabilities.
- The declaration **acknowledges the potential for significant harm**, including **catastrophic consequences, arising from AI,** whether these harms are

intentional or unintentional.

- It places a **strong emphasis on safeguarding human rights, ensuring transparency, explainability, fairness, accountability, regulation, safety, human oversight, ethical considerations, bias mitigation, privacy protection, and data securit**y within AI development and deployment.
- The declaration reflects the **intricate negotiations that took place among nations with differing interests and legal systems**, including major players such as the United States, the United Kingdom, the European Union, and China.
- It highlights the **importance of involving civil society in addressing AI safety concerns, even though some civil society groups had voiced concerns** about being excluded from the summit.
- The declaration also **places a significant responsibility on companies developing cutting-edge AI systems** to **prioritize safety through thorough testing, evaluation, and the implementation of appropriate safety measures**.

Why is this declaration significant:

- **Twenty-nine countries** such as the **US, the UK, China, Australia, Brazil and India,** along with the **European Union** have **agreed to work together** to prevent **"catastrophic harm, either deliberate or unintentional"** which may arise from artificially intelligent computer models and engines.
- The member countries include:**Australia, Brazil, Canada, Chile, China, France, Germany, India, Indonesia, Ireland, Israel, Italy, Japan, Kenya, Saudi, Arabia, Netherlands, Nigeria, The Philippines, the Republic of Korea, Rwanda, Singapore, Spain, Switzerland, Turkey, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, the United States of America, and the European Union**

What was India stance:

- During the o**pening plenary session** at Bletchley Park, **Union Minister of State for IT, Rajeev Chandrasekhar**, emphasized the **need to address the weaponization of social media**.
- He also stressed the **importance of ensuring the safety and trustworthiness** of artificial intelligence (AI).
- The Minister's statement at the summit **signifies the highest-level endorsement of India's shift from** its **previous stance of not contemplating legal interventions** to **regulate AI in the country**.
- In **April 2023,** the **Ministry of Electronics and IT** had stated that **it had no plans for enacting laws to oversee the AI sector.**

Topic 59. INDIAN SHIPPING NEEDS A DOMESTIC PROTECTION AND INDEMNITY (P&I) CLUB

Important for the subject: International Relations

West backed sanctions against Russia highlight the importance of a domestic Protection & Indemnity club.

Effects of sanctions on Russia have shown that India needs its own **Protection & Indemnity** entity, like the Western countries.

In the absence of an Indian P&I Indian shipping needs to toe the line taken by the Price Cap Coalition or risk loosing insurance related services provided by London based P&Is.

What are P&I clubs?

- P&I clubs are mutual insurance associations that provide risk pooling, information, and representation for their members, mainly shipowners. Their primary focus is on **liabilities related to marine activities**, including cargo damage, environmental damage, and personal injury.
- Shipping operations can face a wide array of liabilities, ranging from cargo damage to crew negligence. P&I clubs cover these multifaceted risks, **often overlooked by standard marine insurance**. Most of these P&I clubs are affiliated to **the International Group**:
- The **International Group**, composed of 12 P&I clubs, **provides marine liability cover for about 90 per cent of the world's oceangoing tonnage**.
- The Group's main functions are claims pooling and reinsurance, serving as an information sharing platform, and acting as a representative body for external engagement, especially concerning maritime regulations and policies.
- The **pooling agreement,** where liabilities **exceeding $10 million** are **shared among clubs**, is a pivotal function of the Group. This structure ensures that shipowners have adequate insurance and promotes balanced maritime policies and regulations.
- Surprisingly, none of these P&I entities which are part of the International Group is based out of India.

Why India needs own P&I?

- India's extensive coastline and major maritime activities underscore the need for such an entity. As one of the world's largest economies, a significant chunk of India's trade happens via sea.
- The surge in maritime trade, commercial shipping, and fleet size necessitates an entity addressing the intricate liabilities these operations encounter. A domestic P&I entity would facilitate risk pooling for Indian shipowners, offering cost benefits, especially to smaller operators.
- Furthermore, an incountry P&I club would provide valuable legal and compliance

guidance, adhering to local laws and norms.

- Such an entity could also champion the interests of Indian shipping globally, influencing maritime law and environmental policies.
- In the context of geo-political sanctions having own P&I would allow India to take an **individual stand based on economic self interests** and not ally to any strategic bloc.

Price Cap Coalition

- The international coalition (the Price Cap Coalition), comprises of the G7, the European Union, and Australia, and have agreed to prohibit the import of crude oil and petroleum products of Russian origin.
- They have agreed to restrict a broad range of services related to the maritime transport of crude oil and petroleum products of Russian origin—unless that oil is bought and sold at or below the specific price caps established by the Coalition or is authorized by a license.
- This policy is known as the "price cap." The price cap is intended to maintain a reliable supply of crude oil and petroleum products to the global market while reducing the profits the Russia earns from oil after its aggression against Ukraine inflated global energy prices.

Topic 60. MIYANWALI

Important for the subject: International Relations

Militants attack Pakistan Air Force training base in Miyanwali.

Some facts about Miyanwali:

- Miyanwali is a **city located in Punjab province** of Pakistan, on the **west bank of the Indus River.**
- It is the **capital of Miyanwali District.** It is located in the **Potohar Plateau region of**

Punjab. The Mangla Dam, a large reservoir on the **Jhelum River, is located** here.

- The **Chashma Nuclear Power Plant** is a large commercial nuclear power plant located in the vicinity of **Chashma colony in Mianwali District** Punjab in Pakistan.

Topic 61. COURT IN THE HAGUE REJECTS INDIAN GOVT PLEA AGAINST $111-MILLION AWARD TO DEVAS INVESTORS

Important for the subject: International Relations

Court in The Hague rejects Indian govt plea against $111-million award to Devas investors

More about the news:

- The **district court of The Hague** has **rejected India's reques**t to set aside a **compensation award of $111 million**, **awarded to foreign investors in the Bengaluru satellite services startup Devas Multimedia,** over the **cancellation of a 2005 satellite deal with ISRO's Antrix Corporation.**
- The **tribunal's award was made** in favor of **three Mauritius-based investors in Devas Multimedia in 2020.** India's p**lea was based on a Supreme Court order from January 2022**, upholding the **liquidation of Devas Multimedia** on charges of fraud.
- The **district court ruled that the allegations of fraud** had already been considered and **rejected by the Court of Appeal of The Hague**, and thus the award stands.

What is United Nations Commission on International Trade Law (UNCITRAL):

- The **United Nations Commission on International Trade Law** is a **subsidiary body of the United Nations General Assembly.** Its mandate is to **further the progressive harmonization and unification** of the law of international trade.
- It is the **core legal body of the United Nations system** in the **field of international trade law.** UNCITRAL was **established by the UN General Assembly in 1996**.
- The Commission is **composed of seventy Member States** elected by the **General Assembly**. Membership is **structured so as to be representative of the world's various geographic regions and its principal economic and legal systems**.
- Members of the Commission are **elected for terms of six years, the terms of half the members expiring every three years.**

Topic 62. UNESCO DECLARES GWALIOR THE 'CITY OF MUSIC'

Important for the subject: International Relations

UNESCO declares Gwalior the 'city of music'

What is the story of Gwalior musical past:

Gwalior, known for its **rich musical history,** played a pivotal role in the development of the **Gwalior gharana**, one of the **oldest and most influential gharanas** in **Hindustani classical music.**

- **Raja Man Singh Tomar,** a patron of music and a ruler of Gwalior during the 15th century, made **significant contributions to the gharana's growth**.
- He inherited his musical lineage from his **great-grandfather, Dungarendra Singh Tomar,** who was a musician and scholar.
- Dungarendra **composed Vishnupadas** and **introduced a unique singing style** that he **passed down to Man Singh.**
- Man Singh is also **credited with the invention of dhrupad**, a **classical musical genre**, and he wrote **Manakutuhala, the first music treatise in Hindi,** making classical music more accessible to a wider audience.
- His efforts to **promote Indian music extended to replacing Sanskrit songs with simpler Hindi compositions** and conducting music sessions in grand music halls within his palace. His musical contributions were appreciated not only by his Important for the subjects but also by Sufis and Muslim Sultans.

The glory of the Gwalior gharana:

- Gwalior, the f**irst significant gharana of Hindustani classical music**, played a pivotal role in the evolution of the musical genre.
- Under **Mughal rule**, early ustads like **Naththan Khan and Naththan Pir Baksh**, along with his grandsons, contributed to the gharana's development. The gharana was **instrumental in transforming dhrupad into khayal singing**, incorporating **elements of qawwali**.
- **Ustad Naththan Pir Baksh** was a key figure in the **creation of khayal**, a **structured raga presentation system** that gained immense popularity in the 18th and 19th centuries and remains relevant today.
- Notably, Gwalior gharana **incorporated Persian words** into its compositions and introduced the **concept of bandish ki thumri,** a structured form of thumri or love song.
- Despite the diversity of artists from Gwalior gharana, they maintained a distinctive yet unified style.

What are some famous name from Gwalior gharana:

- The Gwalior gharana **produced influential figures** in Hindustani classical music, including **Bade Inayat Hussain Khan, Vasudeva Buwa Joshi, Balakrishnabuwa Ichalkaranjikar, BR Deodhar, and Farida Khanum**.
- The **next generation featured** artists like **Pt Kumar Gandharv, Malini Rajurkar, Veena Sahasrabuddhe, and Pt Venkatesh Kumar**, who incorporated elements of **Kirana gayaki**.
- Their techniques and nuances continue to influence students of Hindustani classical music to this day.

Some facts about Tansen the Gwalior's crown musician:

- **Mian Tansen,** born as **Ramatanu**, was a celebrated musician who t**rained under Swami Haridas and Sufi saint Mohommad Ghous** in the Gwalior gharana style.
- He served as the **court musician for King Ram Chandra Singh of Rewa** before joining the **Mughal court of Akbar** at the age of 60.
- Akbar's admiration for Tansen is well-documented in **Abul Fazl's Ain-i-Akbari**, with many stories about the musician's musical brilliance and knowledge. Tansen's legacy remains an integral part of Indian musical history and culture.
- **Tansen** was the title given to him by **Raja Vikramjit of Gwalior.** Among the many works attributed to him are a **treatise named the 'Rāgamala', many 'Dohas' describing the 'lakshanas' or the attributes of rāgas, 'Sangeet Saar', and 'Shri Ganesh Stotra'**. The **Gharana of Tansen** is known as **Senia Gharana.**

Topic 63. WHY DID INDIA ABSTAIN FROM THE CALL FOR A TRUCE?

Important for the subject: International Relations

The **United Nations General Assembly (UNGA)** voted on a resolution calling for an **"immediate, durable and sustained humanitarian truce"** in the hostilities, that was voted for by **120 member countries,** while **14 countries voted against it. India** was amongst **45 countries** that **abstained.**

Why did the government abstain from voting?

- **India's external Minister** said that **India's vote was consistent with its stand on terrorism,** adding that India takes a strong position on it because Indians are **"big victims of terrorism".**
- **UNGA resolution (A/ES-10/L.25)** lacked an explicit condemnation of the **October 7 terror attacks by Hamas**.
- The **UNGA resolution** did condemn acts of violence against **Palestinian** and **Israeli civilians "including terrorism",** and also called for the immediate unconditional release of the hostages.
- **India** has **not** as of yet designated **Hamas** a **terror group**, something **Israeli Ambassador to India Naor Gilon** has demanded.

Is India's vote a break from the past?

- Historically, **India voted against the partition of Palestine** and the **creation of a separate state of Israel** in **1948,** and was the **first non-Arab state** to recognise the **Palestine Liberation Organisation (PLO)** as the representative of the people, and to recognise Palestine in **1988,** and **consistently voted against Israel** at the United Nations.
- In the **1990s,** once India established full diplomatic ties with Israel, India started abstaining from many votes that directly criticised Israel.
- In **December 1991,** just weeks before **India and Israel opened their embassies, India** was part of a majority that voted at the **UNGA** to revoke an earlier resolution that equated **Zionism** with **"racism and racial discrimination".**
- **India** raised its annual contribution to the **United Nations Relief and Works Agency for Palestine Refugees (UNRWA)** from a million dollars each year to five million dollars a year. **India** voted against the U.S.'s decision to recognise Jerusalem as the Israeli capital.
- In **2016, India** even voted **against** a **UNHRC resolution** that called for an **International Criminal Court (ICC) investigation** into **Israeli war crimes,** and voted with Israel at the **United Nations Economic and Social Council** in **2019** to stop a **Hamas-linked NGO from receiving observer status**.

What does India's stand signify?

- Among countries that abstained were **India's** other Quad partners **Australia** and **South Korea,** and **NATO members,** including **Canada** and **European countries**.
- **Countries that voted for the resolution: Bhutan**, **ASEAN countries** (exceptthe **Philippines**, which abstained), all other **11 members** of the **newly extended BRICS grouping**, the **entire Arab world** (except **Tunisia**) and most countries of the **'Global South'**.

Topic 64. IIT MADRAS OPENS OFFSHORE CAMPUS IN ZANZIBAR, TANZANIA

Important for the subject: International Relations

IT Madras opens offshore campus in Zanzibar, Tanzania. The **Indian Institute of Technology Madras (IIT-Madras) inaugurated** its **first-ever international campus in Zanzibar.** This historic event was attended by **Dr. Hussein Ali Mwinyi, President of Zanzibar, along with Tanzanian and Indian officials and academics**.

- The Zanzibar campus is **part of the Indian government's efforts to showcase India's education system** on the global stage. It is **located in the Bweleo district, near Zanzibar Town**, and will offer **programs in Data Science and Artificial Intelligence at the Bachelor's and Master's levels**.
- The inaugural batch includes **students from Zanzibar, mainland Tanzania, Nepal, and**

India, with a noteworthy 40% representation of women.

- The campus will also **engage in academic collaborations,** including study abroad programs, internships, and **exchanges with the Chennai-based IIT-Madras campus**. It marks a significant step toward internationalizing India's educational reach.

Some facts about Zanzibar:

- Zanzibar is an **archipelago in the Indian Ocean off** the coast of **Tanzania,** and is a **semi-autonomous province of Tanzania**.

Some facts about Tanzania:

- Tanzania is a **country in East Africa** within the **African Great Lakes region. It borders Uganda to the north; Kenya to the northeast; Comoro Islands and the Indian Ocean to the east; Mozambique and Malawi to the south; Zambia to the southwest; and Rwanda, Burundi, and the Democratic Republic of the Congo to the west.**
- The capital of Tanzania is **Dodoma Mount Kilimanjaro, Africa's highest mountain**, is in **northeastern Tanzania**.
- **Three of Africa's Great Lake**s are **partly within Tanzani**a. To the **north and west lie Lake Victoria, Africa's largest lake**, and L**ake Tanganyika**, the **continent's deepest lake,** known for its unique species of fish. To the **south lies Lake Malawi.**

Topic 65. THE INDO-PACIFIC MARITIME DOMAIN AWARENESS (IPMDA) INITIATIVE, ANNOUNCED BY THE QUAD GROUPING

Important for the subject: International Relations

The Indo-Pacific Maritime Domain Awareness (IPMDA) initiative, announced by the Quad grouping,

What is Indo-Pacific Maritime Domain Awareness (IPMDA) initiative:

- The Indo-Pacific Maritime Domain Awareness (IPMDA) initiative was **announced by the Quad grouping** at the **2022 Quad Leaders' Summit in Tokyo**.
- It was **announced to track "dark shipping" and build a "faster, wider, and more accurate maritime picture** of near-real-time activities in partners' waters", **integrating three critical regions in the Indo-Pacific** i.e **the Pacific Islands, Southeast Asia, and the IOR.**
- IPMDA aims to **promote a free, open, inclusive, and rules-based Indo-Pacific region.** It aims to **enhance security and stability in the Indian Ocean Region (IOR).**
- It **utilizes advanced technology**, like the collection of **radio frequency data from commercial satellites,** to deliver **near real-time information** to partners in Southeast Asia, the Indian Ocean region, and the Pacific regarding activities within their maritime

areas.

What is the Goa Maritime Conclave (GMC)

- The GMC serves as an **outreach initiative** by the **Indian Navy,** creating a **multinational platform for collaboration** between **maritime security practitioners** and academia to generate practical maritime insights.
- Previously, this **biennial event was conducted in 2017, 2019, and 2021**. The **4th edition of the GMC** was held from October 29 to 31 under the auspices of the Indian Navy and in partnership with the Naval War College in Goa.
- During **GMC-23,** Admiral R Hari Kumar, Chief of the Naval Staff, hosted **chiefs of navies, heads of maritime forces, and senior representatives from 12 Indian Ocean littoral countries.** These countries include **Bangladesh, Comoros, Indonesia, Madagascar, Malaysia, Mauritius, Myanmar, Seychelles, Singapore, Sri Lanka, and Thailand.**
- The **theme** for the 2023 GMC was "**Maritime Security in the Indian Ocean Region: Converting Common Maritime Priorities into Collaborative Mitigating Frameworks.**"
- In the latest Goa Maritime Conclave edition, **all Members unanimously adopted the 'Common Maritime Priorities (CMPs),'** indicating a **shared approach** to finding regional solutions for regional challenges. The current edition **aims to further develop these CMPs into Collaborative Mitigating Frameworks.**

What is Information Fusion Centre-Indian Ocean Region (IFC-IOR):

- In **December 2018**, India inaugurated the **Information Fusion Centre for the Indian Ocean Region (IFC-IOR)** at the **Information Management and Analysis Centre (IMAC) in Gurugram.**
- This center was **established to facilitate regional cooperatio**n on various maritime security issues, including concerns related to maritime terrorism, illegal, unregulated, and unreported fishing, piracy, armed robbery on the high seas, as well as human and contraband trafficking.
- The **primary objective of IFC-IOR** is to **actively engage with partner nations and various multinational maritime organizations**.
- Its aim is to **develop a comprehensive understanding** of the **maritime domain while sharing valuable information** about vessels of interest. This **"white shipping"** information **entails the exchange of advanced data regarding** the identity and **movements of commercial, non-military merchant vessels**. In this context, **"white" represents the color code** used for **commercial ships, while "grey" is reserved for military vessels,** and **illegal ships are categorized differently.**
- To enable better correlation, compressed information cycles and timely inputs, the Centre also hosts **International Liaison Officers (ILOs) from partner nations**.
- The Centre hosts **ILOs from 12 partner nation**s viz., **Australia, France, Italy, Japan, Maldives, Mauritius, Myanmar, Sri Lanka, Seychelles, Singapore, United Kingdom and United States of America.**

- The Centre **monitors the Indian Ocean and adjoining seas** to understand each region and generates various periodic reports viz., **Weekly Maritime Security Updates (WMSU), Monthly Maritime Security Updates (MMSU), Half Yearly Overviews and Annual Reports.**

Topic 66. N. MOVES SC AGAINST GOVERNOR RAVI OVER DELAY IN CLEARING BILLS

Important for the subject: Polity

The Tamil Nadu government has moved a writ petition in the Supreme Court against Governor R. N. Ravi for creating a "**constitutional deadlock**" by inexplicably delaying or even failing to consider   and give assent to crucial   Bills passed by the Assembly, and stymieing day   to   day   governance in a way   which is threatening to bring administration in the State to a grinding halt.

Allegations and Criticisms

- **Failure to Fulfill Constitutional Duties:** The opposition, represented by DMK spokesperson Saravanan, alleges that Governor RN Ravi has not fulfilled his constitutional responsibilities by delaying the approval of bills and resolutions.
- **Constitutional Mockery:** The attorney accused the Governor of mocking the Constitution and emphasizes the need for swift action on **pending bills** and resolutions.
- **Previous Rulings:** The Supreme Court has previously delivered judgments, notably in the Perarivalan case, reprimanding Governors for not approving Cabinet resolutions.

Provisions related to Governor

- **Advisory Council: Article 163** establishes a council of ministers headed by the Chief Minister to aid and advise the Governor in performing their functions, except in specific discretionary cases.
- **Bill Assent Process: Article 200** outlines the process for a bill passed by the Legislative Assembly of a State to be presented to the Governor for assent or other actions.
- **Reservation of Bills:** The Governor may reserve a bill for the President's consideration if they believe it may infringe upon the powers of the High Court, as outlined in **Article 201.**
- **Presidential Assent:** Article 201 states that the President may assent to or withhold assent from a reserved bill.
- **Constitutional Immunity:** Under **Article 361**, Governors enjoy complete immunity from court proceedings for actions taken in the exercise of their powers.

Recent Instances of Withholding Assent

- **Chhattisgarh (2020):** The Chhattisgarh Governor withheld assent to a bill amending the **Chhattisgarh Lokayukta Act, 2001.**

- **Tamil Nadu (2021):** The Tamil Nadu Governor reserved a bill exempting state students from **NEET medical entrance exams** for the President's consideration after a significant delay.
- **Kerala (2023):** Kerala's Governor signed five bills into law but withheld assent to six others, citing concerns about their constitutionality and legality.

Some Recommendations

- **Nabam Rebia and Bamang Felix vs Dy.Speaker (2016):** The SC clarified that a Governor's discretion under Article 200 is limited to deciding whether a bill should be reserved for the President's consideration. The Court emphasized that actions or inactions by the Governor regarding bill assent can be Important for the subject to judicial review.
- **Punchhi Commission (2010):** This commission recommended the establishment of a time limit within which the Governor should decide on granting assent or reserving a bill for the President's consideration.
- **National Commission to Review the Working of the Constitution (NCRWC):** NCRWC proposed a four-month time limit for the Governor to decide on a bill's fate. It also suggested the removal of the Governor's power to withhold assent except in cases explicitly stipulated in the Constitution.

Conclusion

- The dispute between the government and the Governor underscores the importance of timely decision-making to ensure the effective functioning of the state administration.

Topic 67. UPSC TIGHTENS RULES FOR APPOINTMENT OF STATE POLICE CHIEFS

Important for the subject: Polity

The Union Public Service Commission (UPSC) has tightened its guidelines for the appointment of State Directors General of Police **(DGPs)**.

Key Highlights of the guidelines:

Minimum Service Left

- The UPSC guidelines now mandate that candidates eligible for the position of DGP must have **at least six months** of active service left before their retirement.
- This ensures that the appointed DGP will have a reasonable period to serve in the position, preventing short tenures and promoting stability in the leadership of state police forces.
- It allows the DGP to effectively implement policies and initiatives without the imminent pressure of retirement.

Central Deputation

- The new guidelines state that if an Indian Police Service (IPS) officer is serving on a central deputation and the Union Ministry of Home Affairs (MHA) informs the respective State government that it cannot relieve the officer, that individual will not be considered for the position of DGP.
- This change strikes a balance between state and central requirements. It ensures that officers serving in crucial national-level roles are not abruptly withdrawn, preserving the functioning of essential institutions at both state and central levels.

Experience Requirement

- The **previous requirement of 30 years of service for DGP eligibility has been reduced to 25 years.**
- This alteration acknowledges that officers can gain significant and diverse experience within 25 years, making them well-qualified for the responsibilities associated with the DGP role.
- It broadens the pool of potential candidates, allowing competent officers with varied experiences to be considered for the position.

Shortlisted Candidates

- The guidelines limit the number of shortlisted officers to a **maximum of three candidates.**
- This limitation ensures a competitive selection process. Having a manageable number of candidates allows decision-makers to thoroughly evaluate each contender, promoting a fair and merit-based selection

Willingness of Officers

- Officers must express their willingness to be considered for the DGP position under the new guidelines.
- This requirement ensures that **officers who genuinely desire the role and are prepared for the responsibilities associated with it are included in the candidate pool.**
- It prevents officers from being appointed to a position they might not be interested in or fully committed to, ensuring a higher level of dedication and engagement in the role.

Conclusion

- These changes in the UPSC guidelines aim to enhance the transparency, fairness, and efficiency of the process of appointing DGPs in Indian states. By setting clear criteria, ensuring a competitive selection process, and considering officers' willingness, these guidelines promote the appointment of qualified and dedicated leaders, ultimately strengthening the professionalism and effectiveness of state police forces across the country.

Topic 68. IMPACTING A WOMAN'S FREEDOM TO REPRODUCTIVE CHOICES

Important for the subject: Polity

On October 16, in X vs Union of India, the Supreme Court of India declined permission to a woman who was seeking to terminate a 26 week-long pregnancy.

A Bench presided over by the Chief Justice of India (CJI), D.Y. Chandrachud, held that the woman's case fell outside the scope of the Medical Termination of Pregnancy (MTP) Act, 1971. The **Court said the statute permitted the termination of pregnancy beyond 24 weeks only in cases where the fetus exhibited substantial abnormality, or where the woman's life was under direct threat.**

Viable foetus versus woman's right

- The **judgment falls short of bestowing any explicit rights to the unborn**. But the upshot of its conclusion is just that, when a foetus becomes viable, and is capable of surviving outside the mother's uterus, the woman's right to choose stands extinguished, barring circumstances where the specific conditions outlined in the MTP Act are met.

- In so holding, the judgment suffers from at least two errors. The judgment does not engage with these questions and, as a result, **places the rights of a fetus at a pedestal**, above that of the rights of a pregnant woman to her privacy and dignity.

- Second, the Court fails to examine whether the MTP Act is merely an enabling legislation. Had these questions been posed and answered, the Court may well have considered whether a woman ought to be allowed to terminate her pregnancy outside the terms spelled out in the legislation. If the right to freely make reproductive choices is fundamental, flowing from the Constitution, the Court ought to scarcely feel injuncted from issuing directions beyond the MTP Act's remit.

Fetuses and rights

- Even more damaging, though, is the judgment's implicit assertion that foetuses have constitutional rights. Our jurisprudence on abortion has been built on a converse premise. The **guarantees of Articles 14 and 21 of the Constitution** — the rights to equal protection and life are conferred on persons, and the Constitution decidedly does not award personhood to a foetus. As it happens, even the MTP Act makes no such assertion. For if it did, it could not plausibly create an exception from the timelines it stipulates to cases where a pregnant woman's life is under immediate and direct threat.

Salient features of the "Medical Termination of Pregnancy Act 2021":

- **Abortions before 20 weeks of pregnancy:** Terminating a pregnancy up to 20 weeks will only require the medical advice of one doctor. **Abortions up to or beyond 24 of pregnancy:** Abortion is legal for women in certain circumstances up to 24 weeks. It would include:

- Survivors of rape, victims of incest and other vulnerable women (like differently-abled women, minors) etc. **Opinion of 2 doctors** is required for termination of pregnancy of 20-24 weeks of gestation.

A **state-level medical board will be set up to decide:**

- if pregnancy may be terminated beyond 20 months till 24 months. Such a decision can be taken by the medical board only after due consideration and ensuring that the procedure would be safe for the woman.

The time frame available to the Medical Board is 3 days.

- The upper gestation limit does not apply in cases of substantial fetal abnormalities diagnosed by the Medical Board.
- **Anonymity:** Name and other particulars of a woman whose pregnancy has been terminated shall not be revealed except to a person authorized in any law for the time being in force.

Marital and age criteria:

- **Unmarried women** can also access abortion under the above-mentioned conditions because it does not mention the requirement of spousal consent.
- If the woman is a minor, however, the consent of a guardian is required. **Intentionally causing a miscarriage:** Section 312 of the Indian Penal Code holds intentionally causing a miscarriage as a **criminal offense.**

Conclusion

- There is no place within our constitutional structure to see a foetus as anything but dependent on the mother. To see it as a separate, distinct personality would be tantamount to conferring a set of rights on it that the Constitution grants to no other class of person.

- Such a reading would efface altogether a jurisprudence that grants primacy to a woman's freedom to make reproductive choices — a right that is intrinsic in **Articles 14 and 21 of the Constitution.**

Topic 69. GOVERNMENT PUT DONOR PRIVACY OVER VOTER RIGHT TO KNOW:

Important for the subject: Polity

Government puts donor's privacy over voter's right to know, and gives itself a waiver during Supreme Court hearing on electoral bonds

Solicitor General of India, **Tushar Mehta**, argues that **protecting a citizen's right to privacy when donating to a political party** is essential because the **donation reflects the donor's "political affiliation," a core element of privacy.**

- This argument forms the **basis of the Indian government's defense** of the opacity in the electoral bond scheme.
- The government **contends that the donor's right to privacy takes precedence** over the **voter's right to know**, even if this means the **state grants itself an exemption.**
- **Chief Justice of India D Y Chandrachud pointed** out during the hearing that the **donor's identity is not entirely anonymous**, as the **State and the State Bank of India possess this information.**
- A **citizen's fundamental rights** are **protected against the state**, as per **Article 13** of the Indian Constitution, which **prohibits the state from making laws inconsistent with or infringing on fundamental rights.**
- The **electoral bond system does not disclose** the **buyer's or payee's name to protect the citizen's right to privacy** regarding their political affiliation and choice of funding a political party.
- Mehta states that this **approach aligns with the state's positive obligation** to safeguard **citizens' privacy, including their right to informational privacy and political affiliation.**
- The government's stance **heavily relies on the Supreme Court's 2017 ruling in KS Puttaswamy v Union of India**, which unanimously affirmed the right to privacy as a fundamental right under the Constitution.
- It's ironic that the **government initially argued against elevating the right to privacy to the status of a fundamental right**, as it did not specifically find mention in the Constitution.
- In the **2021 Pegasus spyware case,** the Supreme Court **refused to accept the government's national security argument to violate the fundamental right to privacy**.
- Government transparency and openness are considered important values under the Indian Constitution, emphasizing the need for information flow in legal proceedings.

What is the issue all about:

- A five-judge constitution bench of the Supreme Court presided by Chief Justice of India

D Y Chandrachud will hear petitions challenging the 2018 Electoral Bonds Scheme

- The bench will also comprise Justices Sanjeev Khanna, B R Gavai, J B Pardiwala and Manoj Misra.
- A **batch of petitions** was filed by various parties, including the **NGO Association for Democratic Reforms, CPI(M), Congress leader Jaya Thakur**, and an individual named **Spandan Biswal.**
- On October 16, a **three-judge bench presided by Chief Justice Chandrachud referred the petitions to a Constitution bench** and scheduled the hearing for October 31.
- The decision to refer the case to a Constitution bench was based on the significance of the issue and **Article 145(3) of the Constitution**, which requires **at least five judges to hear cases involving substantial constitutional** questions.
- The electoral bond scheme, introduced in the 2017 Union Budget, **allows for anonymous donations to political parties.** The government claims it is a **step toward electoral reform, ensuring transparency** and accountability.
- The petitioners **argue that the scheme makes political funding less transparent,** as it **allows political parties not to disclose their annual contribution** reports to the Election Commission of India (ECI) or reveal the identities of bond donors.

What was Supreme Court previous judgements:

- In **April 2019**, a **three-judge Supreme Court bench** directed political parties that received donations through electoral bonds to **submit details of the bonds to the ECI.**
- The **Supreme Court** had **previously dismissed** a request to **halt the sale of new bonds in March 2021,** disputing the claim that the bond scheme provides complete anonymity to donors. The court noted that **it had already ordered certain safeguards in its April 2019 interim order.**
- The court also mentioned that the **Election Commission had received details of contributions made through bonds** as per the April 2019 order.
- The Supreme Court expressed **uncertainty regarding the extent of anonymity in political party financing by corporate houses**, both within India and abroad, under the scheme. The court **questioned whether the allegation of complete anonymity was sustainable at this stage.**

What has the ECI's stance been

- The Election Commission of India (ECI) expressed s**trong objections to amendments in the Representation of the People Act (RPA)** that exempted political parties from disclosing donations received through electoral bonds in May 2017.
- They considered this exemption as a **regressive step** and urged the government to reconsider and modify these amendments.
- Additionally, in **March 2019, the ECI highlighted concerns** about changes in the law that allowed political parties to **accept contributions from foreign companies**.
- They believed this **could lead to unchecked foreign fundin**g of political parties and

the **potential influence of foreign companies** on Indian policies

What are the features of Electoral Bonds Scheme:

- A **person being an individual** can buy Electoral Bonds, **either singly or jointly with other individuals.**
- The **bonds are like banknotes** that are **payable to the bearer on demand** and are **interest-free.**
- Only the **Political Parties registered under Section 29A of the Representation of the People Act, 1951** and **which secured not less than one percent of the votes polled in the last General Election** to the House of the People or the Legislative Assembly of the State, shall be **eligible** to receive the Electoral Bonds.
- The **Finance Act(s) of 2016 and 2017 amended four separate legislations** to make way for the electoral bonds scheme, including the **Foreign Contribution Regulation Act, 2010; the RPA, 1951; the Income Tax Act, 1961; and the Companies Act, 2013**.

What is the procedure to purchase the electoral bond:

- The **State Bank of India** has been **authorized** to **issue and encash Electoral Bonds through its 29 Authorized Branches.**
- The **bonds** are **sold by the SBI** in **denominations of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh and Rs 1 crore.**
- One can **purchase these bonds only digitally or through cheques.**
- The Electoral Bonds can be **encashed by an eligible Political Party only through a Bank account with the Authorized Bank**.
- The Electoral Bond **deposited by an eligible Political Party** in its account is **credited on the same day.**
- Electoral Bonds shall be **valid for fifteen calendar days** from the **date of issue** and **no payment** is being made to any payee Political Party if the Electoral Bond is deposited **after expiry of the validity period.**

Topic 70. IN FSSAI INDEX, NEARLY ALL MAJOR STATES SLIP ON FOOD SAFETY COMPARED TO 2019

Important for the subject: Polity
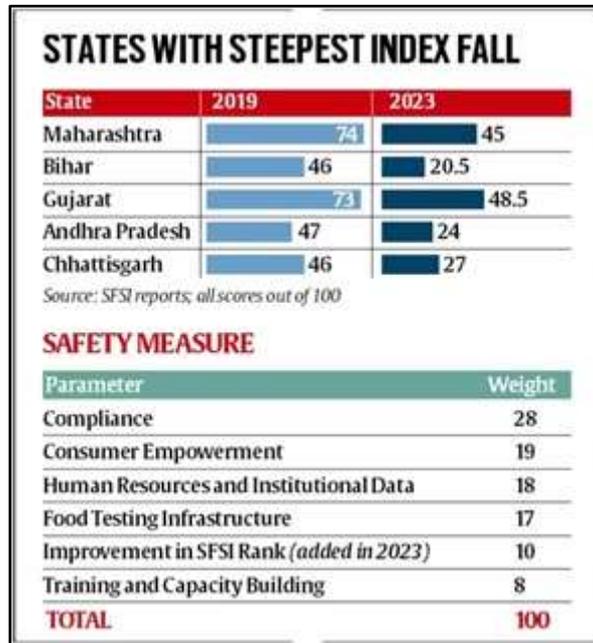
19 out of **20 large states** — including **Maharashtra, Bihar, Gujarat** and **Andhra Pradesh** — recorded a **drop** in their 2023 scores from 2019, in the **Food Safety and Standards Authority of India (FSSAI) index**.

The **steepest fall** in scores over five years was seen in **Maharashtra** (45/100 in 2023 compared to 74/100 in 2019), followed by **Bihar** (20.5 in 2023 compared to 46 in 2019), and **Gujarat** (48.5 in 2023 compared to 73 in 2019).

- Over five years, the **worst drop** has been recorded in the **'Food Testing Infrastructure'** parameter, where the **average score for all large states** dropped to **7 points** out of **17 in 2023** from **13 points out of 20 in 2019**.
- States including **Maharashtra, Bihar, Andhra Pradesh** and **Chhattisgarh** all recorded lower scores for this parameter.
- **Gujarat, Madhya Pradesh** and **Jharkhand** recorded lower scores for the **'Compliance'** parameter. The only parameter which recorded significant improvement was **'Training and Capacity Building'.**

Performance of states in previous years:

- In **2020**, the **average of total scores** given to **all large states improved marginally** to **56** points out of 100 from **52** points in 2019.
- In **2021** and **2022** the average score **dropped** to **51 points** for both years. In **2023**, the average score dropped to **40 points.**

State Food Safety Index (SFSI):

- Released by **FSSAI** in **2019.** It is released **annually** on **7 June** on the occasion of **World Food Safety Day.**
- It serves as a tool to propel States and Union Territories to enhance their performance and establish robust food safety ecosystems within their jurisdictions.
- It is calculated on the basis of **five parameters** with **different weightages** — 'Human Resources and Institutional Data', 'Compliance', 'Food Testing Infrastructure', 'Training and Capacity Building', and 'Consumer Empowerment'.
- In the **2023 index,** a **new parameter** called **'Improvement in SFSI Rank'** was added. The **'Compliance'** parameter was given the **highest weightage** of **28 per cent** in **2023** (30 per cent in previous years).
- It measures licensing and registration of food businesses, inspections conducted, special drives and camps organized, and other such compliance-related tasks carried out by each state's food safety authority.
- The **'Consumer Empowerment'** parameter was given the **second highest weightage** of **19 per cent** in **2023** (20 per cent in previous years).
- It measures a state's performance in various consumer empowering initiatives of FSSAI including participation in Food Fortification, Eat Right Campus, BHOG (Blissful Hygienic Offering to God), Hygiene Rating of Restaurants, and Clean Street Food Hubs.
- The **'Human Resources and Institutional Data'** parameter was given the **third highest weightage** of **18 per cent** in **2023** (20 per cent in previous years).
- It measures availability of human resources including number of Food Safety Officers, Designated Officers, and facility of adjudications and appellate tribunals in each state.
- The **'Training and Capacity Building'** parameter was given the **least weightage** of **8 per cent in 2023** (10 per cent in previous years).

Topic 71. SLIGHTLY DIFFICULT TO ACCEPT VOTER HAS NO RIGHT TO KNOW SOURCE OF FUNDING

Important for the subject: Polity

More about the news:

The Indian Supreme Court is **currently examining the constitutionality of the Electoral Bond Scheme 2018,** which enables parties to receive donations without disclosing the sources.

Chief Justice D Y Chandrachud **heading the Court expressed skepticism** regarding the **government's argument that voters do not have a right to know where political party funding comes from.**

- The Bench **proposed that the current scheme** has **shortcomings and suggested the establishment of a robust electoral bond system**.

- **Instructing the Election Commission** of India the Court **requested details of contributions received** through bonds **until September 30 2023**.
- The **Solicitor General** argued for **maintaining confidentiality in order to safeguard donors' identities** while the **Court stressed the importance of striking a balance** that promotes transparency in elections.
- Moreover **concerns were raised regarding** eligibility, for donations and **citizens' right to be aware of funding sources** for parties.
- The government **claimed that the electoral bonds scheme** encourages money in politics and **does not impact voters' decisions** based on party funding sources.
- Declining an offer to privately interact with bank officials, the **Court emphasized transparency as an element during proceedings.**
- It was clarified that **this scheme is intended for running parties and not for election funding.** The Court **continues to deliberate** on the matter of **electoral bonds** in India's political finance system.

What is the issue all about:

- A five-judge constitution bench of the Supreme Court presided by Chief Justice of India D Y Chandrachud will hear petitions challenging the 2018 Electoral Bonds Scheme
- The bench will also comprise Justices Sanjeev Khanna, B R Gavai, J B Pardiwala and Manoj Misra.
- A **batch of petitions** was filed by various parties, including the **NGO Association for Democratic Reforms, CPI(M), Congress leader Jaya Thakur**, and an individual named **Spandan Biswal.**
- On October 16, a **three-judge bench presided by Chief Justice Chandrachud referred the petitions to a Constitution bench** and scheduled the hearing for October 31.
- The decision to refer the case to a Constitution bench was based on the significance of the issue and **Article 145(3) of the Constitution**, which requires **at least five judges to hear cases involving substantial constitutional** questions.
- The electoral bond scheme, introduced in the 2017 Union Budget, **allows for anonymous donations to political parties.** The government claims it is a **step toward electoral reform, ensuring transparency** and accountability.
- The petitioners **argue that the scheme makes political funding less transparent,** as it **allows political parties not to disclose their annual contribution** reports to the Election Commission of India (ECI) or reveal the identities of bond donors.

What was Supreme Court previous judgements:

- In **April 2019**, a **three-judge Supreme Court bench** directed political parties that received donations through electoral bonds to **submit details of the bonds to the ECI.**
- The **Supreme Court** had **previously dismissed** a request to **halt the sale of new bonds in March 2021,** disputing the claim that the bond scheme provides complete anonymity to donors. The court noted that **it had already ordered certain safeguards in its April**

2019 interim order. The court also mentioned that the **Election Commission had received details of contributions made through bonds** as per the April 2019 order.

- The Supreme Court expressed **uncertainty regarding the extent of anonymity in political party financing by corporate houses**, both within India and abroad, under the scheme. The court **questioned whether the allegation of complete anonymity was sustainable at this stage.**

What has the ECI's stance been

- The Election Commission of India (ECI) expressed s**trong objections to amendments in the Representation of the People Act (RPA)** that exempted political parties from disclosing donations received through electoral bonds in May 2017.
- They considered this exemption as a **regressive step** and urged the government to reconsider and modify these amendments.
- Additionally, in **March 2019, the ECI highlighted concerns** about changes in the law that allowed political parties to **accept contributions from foreign companies**.
- They believed this **could lead to unchecked foreign fundin**g of political parties and the **potential influence of foreign companies** on Indian policies

What are the features of Electoral Bonds Scheme:

- A **person being an individual** can buy Electoral Bonds, **either singly or jointly with other individuals.** The **bonds are like banknotes** that are **payable to the bearer on demand** and are **interest-free.**
- Only the **Political Parties registered under Section 29A of the Representation of the People Act, 1951** and **which secured not less than one percent of the votes polled in the last General Election** to the House of the People or the Legislative Assembly of the State, shall be **eligible** to receive the Electoral Bonds.
- The **Finance Act(s) of 2016 and 2017 amended four separate legislations** to make way for the electoral bonds scheme, including the **Foreign Contribution Regulation Act, 2010; the RPA, 1951; the Income Tax Act, 1961; and the Companies Act, 2013**.

What is the procedure to purchase the electoral bond:

- The **State Bank of India** has been **authorized** to **issue and encash Electoral Bonds through its 29 Authorized Branches.** The **bonds** are **sold by the SBI** in **denominations of Rs 1,000, Rs 10,000, Rs 1 lakh, Rs 10 lakh and Rs 1 crore.**
- One can **purchase these bonds only digitally or through cheques.** The Electoral Bonds can be **encashed by an eligible Political Party only through a Bank account with the Authorized Bank**. The Electoral Bond **deposited by an eligible Political Party** in its account is **credited on the same day.**
- Electoral Bonds shall be **valid for fifteen calendar days** from the **date of issue** and **no payment** is being made to any payee Political Party if the Electoral Bond is deposited **after expiry of the validity period.**

Topic 72. SC COLLEGIUM PROPOSES NEW CHIEF JUSTICES FOR THREE HCS

Important for the subject: Polity

The Supreme Court Collegium headed by Chief Justice of India D.Y. Chandrachud on Thursday recommended to the government the appointment of three new Chief Justices to the High Courts of Uttarakhand, Orissa, and Meghalaya.

What are the Procedures for Judicial Appointments?

For CJI:

- The **President of India appoints the CJI and the other SC judges**.
- As far as the CJI is concerned, the outgoing CJI recommends his successor.
- In practice, it has been **strictly by seniority** ever since the supersession controversy of the 1970s.

For SC Judges:

- For other judges of the SC, the **proposal is initiated by the CJI.** The **CJI consults the rest of the Collegium members**, as well as the senior-most judge of the court hailing from the High Court to which the recommended person belongs.
- The consultees must record their opinions in writing and it should form part of the file. The Collegium sends the **recommendation to the Law Minister**, who forwards it to the Prime Minister to advise the President.

For Chief Justice of High Courts:

- The Chief Justice of the High Court is appointed as per the policy of having Chief Justices from outside the respective States.
- The Collegium takes the call on the elevation. High Court judges are recommended by a Collegium comprising the **CJI and two senior-most judges.**
- The proposal, however, is initiated by the outgoing Chief Justice of the High Court concerned in consultation with two senior-most colleagues.
- The recommendation is **sent to the Chief Minister, who advises the Governor to send the proposal to the Union Law Minister**.

What is the collegium system in the Indian judiciary?

- The Collegium system is a system for the **appointment and transfer of judges** in the Supreme Court and High Court. It is not rooted in the Constitution. Instead, it has **evolved through judgments of the Supreme Court.**
- Under the system, the Chief Justice of India (CJI), along with four senior-most Supreme Court judges, recommends the appointment and transfer of judges.

- A High Court Collegium, meanwhile, is led by the incumbent **Chief Justice and the two senior most judges of that court.**
- The government can also raise objections and seek clarifications regarding the Collegium's choices, but if the Collegium reiterates the same names, the government is bound to appoint them to the post.

Topic 73. NCERT TO INTRODUCE ELECTORAL LITERACY CONTENT IN TEXTBOOKS

Important for the subject : Polity

In a bid to address voter apathy among young Indians, the National Council of Educational Research and Training(NCERT) will introduce **and update textbooks to include content on electoral literacy** and will advise the State Education Boards and other Boards to follow suit.

More about News:

- It will integrate voter education and electoral literacy into the curricular framework, starting **from classes 6 to 12 in all schools**.
- **From Classroom to Polling Stations**: the move will 'catch them young' and prepare students in schools for their first vote; democratic values and ethos to be ingrained at formative age.
- **'Democracy Room'** in senior secondary schools for display of voter education materials and activities.
- NCERT to include content on electoral literacy in school textbooks and to advise State Education Boards to follow suit.

About Systematic Voters' Education and Electoral Participation (SVEEP)

- It is the flagship program of the Election Commission of India (**ECI**). It is a programme of multi-interventions through different modes and media designed to **educate citizens**, electors and voters about the electoral process in order to increase their awareness and participation in the electoral processes.
- It is designed according to the socio-economic, cultural and demographic profile of the state as well as the **history of electoral participation in previous rounds of elections and learning thereof.**

Other Initiatives by ECI

- **e-VIGIL App** to make complaints against violation of election conduct.
- **SUVIDHA Portal** for filing nomination, permission etc.
- Radio series – **'Matdata Junction'** in collaboration with All India Radio for voter awareness.

Topic 74. LEGISLATURE CAN ENACT NEW LAW, CANNOT OVER DIRECTLY RULE COURT JUDGMENT

Important for the subject: Polity

Chief Justice D Y Chandrachud discussed the **separation of powers**, noting that the legislature can create new laws to address legal gaps but cannot directly overturn a court judgment.

More about the news:

- **Chief Justice of India D Y Chandrachud** emphasized the **separation of powers** and explained that the l**egislature can create new laws to address legal gaps but cannot directly overturn court judgments**.
- He **mentioned the example of the Parliament amending the law to introduce reservations in educational institutions** following a Supreme Court decision. He highlighted the **difference between the judiciary's focus on constitutional morality and the elected government's responsiveness to popular morality**.
- The CJI **addressed issues of gender and marginalized community** representation in the **judiciary, acknowledging structural barriers** in the legal profession and the need for a **level playing field.**
- He discussed e**fforts to improve people's access to justice**, such as **translating judgments into regional languages** and using technology for transparency.
- Regarding the retirement **age of Supreme Court judges**, he noted that **it's a matter for Parliament to decide,** emphasizing the **importance of passing on responsibilities to succeeding generations.**

What is the Doctrine of Separation of Powers:

- **Separation of powers** is the **division of the legislative, executive, and judicial functions** of government among **separate and independent bodies.** The **Legislature is responsible for legislating, the Executive for executing laws, and the Judiciary for interpreting and upholding the law.**
- The **primary objective** of this separation is **to mitigate the potential for government** abuse of power.
- By distributing power across multiple branches, it acts as a **check against the abuse or concentration of power** in a few hands, ensuring protection against arbitrary government authority.

What are the various Constitutional Provisions involving separation of Power:

- **Article 50** directs the **State to take steps to separate the judiciary from the executive**.

- **Articles 74 and 163** r**estrict the courts** from **inquiring into the advice tendered by the Council of Ministers** to the President and the Governor.
- **Articles 122 and 212 restrict the court**s from **questioning the validity of proceedings in the Parliament and the Legislatures.**
- **Articles 121 and 211** restrict the **Parliament and the State Legislature from discussing the Judicial conduct** of a judge of the Supreme Court and the High Courts **unless the resolution of removal of the judge** is under consideration.
- **Article 361** provides **immunity to the President or the Governor from being answerable to any court** for the **exercise and performance of the powers and duties of his office.**

What are the various judicial pronouncements on the doctrine of separation of powers in India:

- In the case of **Ram Jawaya Kapoor vs State of Punjab (1955)**, it was established that the **Indian Constitution doesn't rigidly adhere to the doctrine of separation of powers**, but it **effectively distinguishes the functions** of various branches of the government.
- In **Golak Nath vs State of Punjab (1967)** emphasized that the **three government organs should operate** within **their designated boundaries**, respecting the constitutional framework.
- In the landmark case of **Indira Gandhi vs Raj Narain (1975),** a **clause in Article 329A meant** to shield the **Prime Minister's election dispute from judicial review was invalidated** by the Supreme Court, highlighting the **inclusion of the separation of powers as an essential part** of the Constitution's Basic structure.
- In **Kartar Singh vs State of Punjab (1994)** articulated the **distinct roles of the legislature, executive, and judiciary,** clarifying that the **legislature makes laws, the executive implements them, and the judiciary interprets them** while adhering to constitutional limits.

Topic 75. CAN A TRANS WOMAN INVOKE THE DOMESTIC VIOLENCE ACT

Important for the subject: Polity

The Supreme Court recently agreed to examine whether a transgender woman can claim maintenance under the Protection of Women from Domestic Violence Act, 2005 (DV Act)

More about the news:

- The Supreme Court has **agreed to examine** whether a **transgender woman who underwent sex-reassignment surgery** can be considered an **"aggrieved person"** under the **Domestic Violence Act of 2005**.
- This decision comes in response to an **appeal filed by the transgender woman's**

husband against a Bombay High Court ruling that upheld her status as an **"aggrieved person"** based on her self-identified gender.

What is the case all about:

- A **trans woman and her male partner,** who **got married in 2016** but faced marital differences, entered a l**egal dispute**.
- The **trans woman** filed a **plea for interim maintenance under the 2005 Domestic Violence Act,** leading to a **trial court's order for the husband to pay Rs. 12,000 per month**.
- After his appeal was dismissed, the h**usband argued in the Bombay High Court** that the **trans person did not qualify as an "aggrieved person"** as the term referred to "**women" in domestic relationships**.
- He also claimed that the t**rans woman did not possess a certificate issued under the Transgender Persons (Protection of Rights) Act, 2019,** and thus **could not be considered a woman under the DV Act**.

Who is an "aggrieved person":

- **Section 2(a) of the Domestic Violence Act, 2005** defines an **"aggrieved person" as a woman** who has **experienced domestic violence** in a domestic relationship with the respondent.
- A **"domestic relationship," as per Section 2(f)** of the Act, **pertains to individuals who have lived together** in a **shared household due to consanguinity, marriage, a marriage-like relationship, adoption, or as family members in a joint family.**
- The **2005 Act was created** to enhance the **protection of women's rights as guaranteed by the Constitution** and includes **provisions for monetary relief provided** to an aggrieved person by the respondent, following a **Magistrate's order, to cover expenses and losses caused by domestic violence.**
- **In this specific case**, a **trans woman who underwent sex reassignment surgery in June 2016 claimed eligibility as an "aggrieved person"** under the DV Act, **asserting a transition from transgender to female.**

What is the process for a transgender person to change their gender:

- The **Transgender Persons (Protection of Rights) Act, 2019,** gives **transgender individuals the right to be recognized** according to their **own sexual orientation**
- **Section 5 of the Act** allows t**ransgender persons to apply for an "identity certificate"** through a **district magistrate**, to be **supported by the necessary documents**
- **Section 7 of the Act** defines the **procedure for changing gender**. It allows **trans individuals undergoing gender affirmation surgery** to **apply for an "amended certificate" from a county judge.** This **certificate allows them to change their first name on their birth certificate and other official documents** related to their identity.

What is Domestic Violence Act (DV Act):

- The **Domestic Violence Act** was **enacted by the Indian Parliament** on September 13, 2005, and it applies throughout the entire country.
- The **primary purpose** of the DV Act is to **safeguard wives or female live-in partners from violence** inflicted by **their husbands, male live-in partners, or their respective relatives.**
- Domestic violence, as **defined by the Act, encompasses actual physical, sexual, verbal, emotional, economic abuse, or threats** thereof. It also includes **harassment related to dowry demands.**
- The Act **extends its coverage to all women, including mothers, sisters, wives, widows, or partners living in a shared household**. This **may involve relationships** resembling **marriage or adoption**, as well as those within families living together as a joint family.
- **Any woman** who **claims to have experienced domestic violence** by an offender or any person **can file a complaint**. A c**hild is also entitled to relief under the DV Act**, and their **mother can file on their behalf.**
- The **Act does not allow female relatives of the husband or male partner to file a complaint against the wife or female partner.**
- **Complaints can be filed against adult males** who have been in a domestic relationship with the woman, as well as r**elatives of the husband or male partner, encompassing both male and female relatives.**
- The **DV Act provides several remedies**, including **Protection Orders, Residence Orders for staying in the matrimonial house, Monetary Orders for maintenance of the woman and her children, temporary custody of children, and compensation orders for damage**s.
- Criminal action is taken against the respondent when the orders granted by the courts are violated.
- **Protection Officers appointed under the DV Act** assist aggrieved women in filing cases. They are **associated with the Magistrates of the courts** within their designated areas, providing legal aid and court relief assistance.
- **Aggrieved individuals have the option to file petitions** before the **Judicial Magistrate Court**, service providers, or nearby police stations.
- **Service Providers**, members of **recognized Non-Governmental Organizations,** collaborate with various stakeholders to **seek justice and relief for victims of domestic violence.** They **assist aggrieved women** in filing **Domestic Incident Report**s, **offer accommodation** in **short-stay homes for women and their children,** provide counseling, facilitate medical treatment, and offer vocational training for employment and income generation.

Topic 76. WHAT IS THE ADVOCATE-ON-RECORD SYSTEM IN THE SUPREME COURT

Important for the subject: Polity

The Supreme Court pulled up an Advocate-on-Record (AoR) for filing a frivolous case and dismissed the public interest litigation.

Who is an Advocate-on-Record (AoR):

- **"Advocate on record"** is a title given to an **advocate who can represent a cause or pleading before the SC.**
- Only these **advocates are entitled to file any matter** or document before the SC. They can also **file an appearance or act for a party in the SC.**

How does one become an Advocate-on-Record(AoR):

- To become an **Advocate-on-Record (AoR)** in India, candidates must meet specific **eligibility criteria set out in the Order IV Rule 5 of the Supreme Court Rules, 2013**.
- This includes **completing one year of training** with a **court-approved AoR** and having a **minimum of four years of legal practice**.
- To qualify for the AoR examination, **an advocate needs to achieve a score of at least 60%**, with a **minimum of 240 out of 400 marks**, and at **least 50% in each Important for the subject,** including **Practice and Procedure, Drafting, Professional Ethics, and Leading Cases**.
- Approximately 200-250 lawyers successfully clear the exam to attain the AoR designation. Furthermore, **an AoR must maintain an office in Delhi within a 16-kilometer radius** of the Supreme Court and commit to **employing a registered clerk** within **one month of AoR registration.**
- **Once registered**, an AOR is **issued a unique identification number** that must be **used on all documents** filed in the SC.

What are the rules governing the AoR system:

- **Section 30 of the Advocates Ac**t in India grants **all lawyers enrolled with the Bar Council the right to practice law** before any court or tribunal nationwide.
- However, this **provision explicitly recognizes the Supreme Court's authority to create rules under Article 145 of the Constitution. Article 145** of the **Constitution empowers the Supreme Court** to establish rules and **regulate its own procedures** for case hearings.
- The **Advocate-on-Record (AoR) system in India is akin to the British legal practice** of **barristers and solicitors. Barristers argue cases, while solicitors handle**

client representation.

- In the **former Federal Court**, the **precursor to the Supreme Court**, "agents" **managed cases, and barristers presented arguments.**
- The AoR system is **rooted in the historical context** of India's legal practices, maintaining a **distinction between those arguing cases and those handling client matters.**
- **Senior advocates in India, designated by the Court**, follow a model similar to barristers, w**ithout soliciting clients and instead being engaged by other lawyers,** including AoRs.
- The Supreme Court meticulously **maintains its rules and advocates' registrations** in accordance with its historical traditions and procedures.

Topic 77. NITI AAYOG WEIGHS DISCONTINUING KEY WATER REPORT LAUNCHED 5 YRS AGO

Important for the subject: Polity

No	Themes	Weights
1	Source augmentation and restoration of waterbodies	5
2	Source augmentation (Groundwater)	15
3	Major and medium irrigation — Supply side management	15
4	Watershed development — Supply side management	10
5	Participatory irrigation practices — Demand side management	10
6	Sustainable on - farm water use practices — Demand side management	10
7	Rural drinking water	10
8	Urban water supply and sanitation	10
9	Policy and governance	15

NITI weighs discontinuing key water report launched 5 years ago. Niti Aayog, the Indian government's think tank, has decided to **keep the 'Composite Water Management Index' (CWMI) reports for 2018-19 and 2019-20** for **"internal use"** instead of releasing them publicly.

The **CWMI reports,** which **evaluate states' performance in water management** based on **28 parameters**, have previously been made public. This decision comes as the **Union Ministry of Jal Shakti has not responded to Niti Aayog's request regarding the "use and applicability" of the Index.**

The latest unreleased report states that **water scarcity is a "national problem" in India, with Gujarat leading in performance,** closely **followed by Rajasthan, Andhra Pradesh, and Madhya Pradesh.**

What is Composite Water Management Index (CWMI):

- NITI Aayog introduced the **Composite Water Management Index (CWMI) in 2018** to enhance water management in Indian states.
- The CWMI report is **prepared in collaboration with three key ministries: Water Resources, Drinking Water & Sanitation, and Rural Development.**
- The Objectives of the Index include **fostering improvements in water resource management, providing an annual snapshot of water sector status** across states and UTs, and measuring progress over time.
- The CWMI aims to **promote evidence-based policy decisions for sustainable water management and encourages competitive and cooperative federalism.**
- The Index comprises **9 themes (each having an attached weight)** with **28 different indicators.**
- For the CWMI, the r**eporting states were also divided into two special groups** – **Non-Himalayan states and North-Eastern and Himalayan states,** to account for the different hydrological conditions across these groups

Topic 78. STATES IN COURT AGAINST THEIR GOVERNORS

Important for the subject : Polity

Some States ruled by political parties in opposition to the party in power at the Center have approached the Supreme Court (SC) accusing their Governors of using a nonexistent discretion to unreasonably delay the passing of crucial Bills into law. The Bills in limbo cover sectors such as public health, higher education, Lokayukta and cooperative societies.

Some accusations on the Office of Governor

- Tamil Nadu has accused its Governor of **sitting on the Bills by neither assenting nor returning them.**
- Kerala, in its separate petition, said that eight proposed laws passed by its Legislative Assembly were **pending with the Governor, not for months, but years.**
- Kerala has asked the Supreme Court to form a 7 judge Bench to review a 5 judge Bench judgement in the 1962 **Purushothaman Nambudiri case** which held the view that Article 200 did not provide **"for a time limit within which the Governor should come to a decision on the Bill referred to him for his assent".** The State said that, at the time, the court did not consider the possibility of Governors holding back Bills for an indefinite time.
- SC had to intervene in April for the Telangana Governor to clear Bills pending since 2022, compelling the advocate appearing for the State to submit that legislatures in Opposition Ruled States were at the mercy of the Governors, who had become a law unto

themselves.

How is assent granted?

- **Article 200** of the Constitution enables the Governor, when a Bill passed by both Houses of the Legislature, to either **declare his assent to the Bill or withhold the assent if it is not a Money Bill, or reserve the law for the consideration of the President.**
- **Article 163 There shall be a Council of Ministers with the Chief Minister at the head to aid and advise the Governor** in the exercise of his functions except in so far as he is by or under the Constitution required to exercise his functions or any of them in his discretion.
- The top court in the **Shamsher Singh case verdict** has held that as a formal head of the State a "**Governor exercises all his powers and functions conferred on him by or under the Constitution on the aid and advice of his Council of Ministers save in spheres where the Governor is required by or under the Constitution to exercise his functions in his discretion.**" The assent or return of the Bill does not involve the discretion of individuals occupying the Governor's post.

By when should Bills be returned?

- The first provision of **Article 200 says it should be "as soon as possible".** The Constitution is silent on what exactly this phrase means. **Justice Rohinton F. Nariman,** in his 2020 judgment in the **Keisham Megha Chandra Singh case,** said a **'reasonable time' would mean 3 months.**

Conclusion:

- The States have urged the court to interpret the phrase in the proviso and fix a time limit by which Governors should assent or return a Bill. The 1988 **Sarkaria Commission** report on Centre-State relations had suggested consultation with the Governor while drafting the Bill and fixing a deadline for its disposal.

Topic 79. STANDING PANEL ADOPTS REPORTS ON CRIMINAL LAWS

Important for the subject: Polity

Standing panel adopts reports on criminal laws

The parliamentary **standing committee on Home Affairs** has adopted its **draft reports regarding three Bills aimed at replacing the Indian Penal Code, CrPC, and the Evidence Act,** despite **opposition members submitting multiple dissent notes**.

The report **suggests various changes in the Bills**. Some members, including **former Union Home Minister P Chidambaram, requested more time to submit their dissent notes**, which they have until Wednesday to do.

- It is expected that **Chidambaram, along with other opposition members, will**

present detailed dissent notes.

- The **usage of Hindi in the Bills** has **raised concerns among some opposition members, but the committee has maintained the Hindi names of the bills**.
- Additionally, there are **debates over the definition of community service**, as it is included as an a**lternative form of punishment for certain offenses, and some members are against bringing terror, corruption, and organized crime under the new penal law.**

Some facts about the revamp of Criminal law:

- The Centre has introduced **three new Bill**s that propose a **complete overhaul of the country's criminal justice system**.
- The three Bills are **set to replace the Indian Penal Code (IPC), 1860; the Code of Criminal Procedure (CrPC), 1973 and the Indian Evidence Act, 1872.**
- **IPC** is set to be replaced by the **Bharatiya Nyaya Sanhita, 2023.** The **CrPC** will be replaced by the **Bharatiya Nagarik Suraksha Sanhita, 2023.**
- **The Indian Evidence Act** will be replaced by the **Bharatiya Sakshya Bill, 2023**

What were the old Criminal law in India:

- **Indian Penal Code, 1860: Defines criminal offenses and their punishments. Code of Criminal Procedure, 1973: Regulates the procedural aspects of criminal cases.**
- **Indian Evidence Act, 1872: Governs the rules for the admissibility of evidence in court.**

Parliament Standing Committee

- Is appointed or elected by the House or nominated by the **Speaker / Chairman** Works under the direction of the **Speaker / Chairman**
- Presents its report to the House or to the **Speaker / Chairman**. Has a secretariat provided by the **Lok Sabha / Rajya Sabha**
- The introduction of 17 department-related standing committees (DRSCs) on **March 31, 1993** was a significant innovation that increased parliamentary scrutiny and gave MPs a larger role in examining legislation and important decisions of the day.
- There are 24 DRSCs — 16 from Lok Sabha and 8 from Rajya Sabha. Each committee has 21 MPs from Lok Sabha and 10 from Rajya Sabha. The role: Given the volume of legislative business and the time constraints it is not possible for MPs to discuss and scrutinise all bills in the House.
- Parliamentary committees, either formed for a specific bill (select committee) or permanent (standing committees that are reconstituted annually) allow for a scrutiny with the possibility of tapping Important for the subject experts from outside and other stakeholders in an environment where MPs are not bound by party positions or whips.

Topic 80. APPOINTMENT OF NEW CIC

Important for the subject :Polity

Adhir Ranjan Choudhry the leader of opposition writes to the President on appointment of new CIC Heeralal Samariya

The appointment of **Heeralal Samariya as Chief Information Commissioner (CIC)** has sparked a political controversy in India.

Congress MP **Adhir Ranjan Chowdhury, a member of the selection committee,** expressed his dismay, **alleging that he was not consulted or informed** about the selection.

- **The Right to Information Act** mandates that the **CIC and Information Commissioners are appointed by the President upon the committee's recommendation, which includes the Prime Minister, Leader of the Opposition in Lok Sabha, and a nominated Union Minister.** Chowdhury had **requested a rescheduled meeting** due to prior commitments but was **not informed,** leading to Samariya's appointment.
- This has **raised concerns about transparency and democratic norms** in the appointment process, f**urther deepening the trust deficit between the opposition and the government.**

What are Central Information Commission (CIC):

- CIC is a **statutory body** constituted under **section 12 of the Right to Information Act, 2005.**

Composition:-

- CIC consists of a **Chief Information Commissioner and not more than ten Information Commissioners.**

Appointment:

- They are **appointed by the President of India** on the **recommendation** of a **committee consisting of the Prime Minister as Chairperson, the Leader of Opposition in the Lok Sabha, and a Union Cabinet Minister** nominated by the Prime Minister.

Eligibility

- The **members of CIC** shall be **persons of eminence in public life** with wide knowledge and **experience in law, science and technology, social service**, management, journalism, mass media, or administration and governance.
- Members shall **not be a Member of Parliament**, or **Member of the Legislature of any State or Union Territory** as the case may be, or **hold any other office of profit** or **connected with any political party or carry on any business or pursue any**

profession.

Tenure and Salary

- The members shall hold office for **such term as prescribed by the Central Government or until they attain the age of 65 years,** whichever is earlier. They are **not eligible for reappointment.**
- The **salary, allowances and other service conditions** of the Chief Information Commissioner shall be such as **prescribed by the Central Government.**

Removal:

- **President can remove** the Chief Information Commissioner or any Information Commissioner from the office under the **following circumstances:**
- If he is **adjudged an insolvent**; or **Convicted of an offence** which (in the opinion of the President) involves a **moral turpitude;** or Engages during his **term of office in any paid employment** outside the duties of his office; or He is (in the opinion of the President) **unfit to continue in office** due to **infirmity of mind or body**; or **Acquired such financial or other interest** as is likely to affect **prejudicially his official functions.**
- The President **can also remove the Chief Information Commissioner or any Information Commissioner** on the ground of **proven misbehavior or incapacity.**
- The President has to **refer the matter to the Supreme Court** for an enquiry. If the **Supreme Court, after the enquiry, upholds** the cause of **removal and advises so, then the President can remove him.**

Power and Function:

- **Complaint Inquiry**: CIC and SIC are **obligated to investigate complaints** received from any person regarding information requested **under the RTI Act, 2005, as per Section 18.**
- **Adjudication in Second Appeals:** They have the **authority to adjudicate on second appeals** related to the disclosure of information, as **outlined in Section 19.**
- **Penalty Imposition**: CIC and SIC can **impose penalties** when they believe that the **Public Information Officer,** at the central or state level, has **unjustifiably rejected or refused** to entertain an application without reasonable cause, in accordance with **Section 20.**
- **Access to Public Records**: During their investigations, **CIC and SIC have the authority to request any records within the control of a public authority**.
- **Suo-Moto Powers:** They can **initiate inquiries into matters with reasonable grounds** and **possess civil court-like powers,** including **summoning individuals and requesting documents. Enforcement of Decisions:** CIC and SIC have the **power to ensure that public authorities comply with their decisions.**
- **Annual Reporting**: CIC **submits an annual report to the Central Government,** and the **central government presents it before the Parliament.**

What is the Right to Information Act (RTI Act):

- The Right to Information (RTI) is an **act of the Parliament of India** enacted on **15 June 2005** which sets out the rules and procedures regarding citizens' right to information.
- It **replaced the former Freedom of Information Act, 2002.**

What is the objective of the Right to Information Act:

1. **To empower the citizens**
2. **To promote transparency and accountability**
3. **To contain corruption**
4. **To enhance people's participation in democratic process**

What are some Key provisions of RTI:

- **Section 1(2)**: The act extends to the **whole of India.**
- **Section- 2 (f)**: This section is related to **Information which means any material** in any form, including **Records, Documents, Memos, e-mails, Opinions, Advices, Press releases, Circulars, Orders, Logbooks, Contracts, Reports, Papers, Samples, Models**,
- **Section- 2(j)**: The Right to Information means the right to information **accessible under this Act** which is held by or under the control of any public authority.
- **Section 4** of the RTI Act: Requires **suo motu disclosure of information** by each public authority.
- **Section 8 (1)**:- It mentions **exemptions against furnishing information** under RTI Act.
- **Section 8 (2)**:-It provides for **disclosure of information exempted under Official Secrets Act, 1923** if **larger public interest is served.**
- **Section 13** of the Act:-It sets the **term of the central Chief Information Commissioner and Information Commissioners** including salaries, allowances and other terms of service.
  Section 22 of the RTI Act:-It states that the **provisions of the act will have effect notwithstanding anything** that **is inconsistent with the OSA.**

What is the functioning of Right to Information Act:

- A **three-tier structure f**or enforcing the right to information has been set up under the RTI Act 2005. **Public Information Officers:** The **first request** for information goes to the **Assistant Public Information Officer** and **Public Information Officer**, designated by the Public Authorities.These Officers are **required to provide information to an RTI applicant within 30 days of the request.**
- **Appellate Authority:** It caters to the appeals against **decisions of the Public Information Officer. State Information Commission or the Central Information Commission**: Their major function is to **listen to appeals against the order of the Appellate Authority.**

What was RTI Amendment Act, 2019:

- The RTI Amendment Act, 2019 **amended Sections 13, 16, and 27 of the RTI Act.**

Topic 81. THIS IS THE WORLD'S FASTEST-GROWING ECONOMY, AND IT COULD GROW AN 'EXPLOSIVE' 100%

Important for the subject: Geography

Guyana, a country in **South America** with a population of about **800,000** people, is projected to grow **38%** by the end of the year — an **"extremely fast"** pace, according to recent **gross domestic product forecasts** by the **International Monetary Fund**.

- It is the **world's fastest growing economy** (**GDP growth** of **62.3%** in **2022**) and on track to **grow by more than 100%** by 2028. The growth is largely fueled by **profits from its oil production** and **export sector.**
- Forecasts say that the **real GDP** in **Guyana** will **rise about 115%** in the next five years.
- **Guyana's** agriculture, mining and quarrying sectors are also performing well.

Growth in Real GDP around the world in 2023

Risks to the forecast:

- Over time, **oil prices** will be quite volatile and eventually stay low. That's why Guyana should diversify its economy.
- **Guyana** may face risks of **Dutch disease. Dutch disease** is an **economic term** referring to the **negative repercussions** that arise from **rapid development** as a result of **newfound resources**, which paradoxically harms the broader economy.
- **Challenges:** Political risks, division in society between Indo- and Afro-Guyanese populations, corruption and organized crime.

Stabroek offshore field:

- It is at the **Atlantic coast** of **Guyana,** operated by **Exxon mobile.**
- The **oil production** in **Guyana** will jump from around **390,000 barrels per day** this year to over **a million barrels per day by 2027** as new offshore fields in the country's **Stabroek Block** are opened.

Guyana:

- It is a country on the northern mainland of South America. Guyana is an **indigenous** word

which means **"Land of Many Waters"**.

- The capital city is **Georgetown**. It is the **third-smallest sovereign state by area** in mainland **South America** after **Uruguay** and **Suriname. Bordered by** the **Atlantic Ocean** to the **north, Brazil** to the **south** and **southwest, Venezuela** to the **west,** and **Suriname** to the **east.**

Topic 82. BRAZZAVILLE SUMMIT OF THE THREE BASINS ENDS WITH A DECLARATION

Important for the subject: Geography

The **Summit of the Three Basins** concluded with the declaration by the Heads of State and Government of the States. The meeting was attended by delegates from countries in the **three basins** of the **Amazon, Congo** and **Borneo-Mekong-Southeast Asia,** at **Brazzaville,** capital of the **Republic of Congo**.

The **three ecosystems of biodiversity and tropical forests** provide ecosystem services. These three tropical forests cover a **third of the world's land surface**, are protected in the future.

The seven-point declaration urged nations to:

- Recognise the value of enhanced cooperation between the three basins
- Recognise that sovereign management of biodiversity, forests and associated resources of the three basins is essential

Develop solutions together

- Pool and capitalise on existing knowledge, experience, resources and achievements
- Involve all states and national authorities, including indigenous peoples, youth, women, civil society, academia and the private sector
- Encourage financial mobilisation and the development of traditional and innovative financing mechanisms
- Establish a sustainable system of remuneration for the ecosystem services provided by

the three basins

Amazon basin:

- The **Amazon basin** is the part of **South America** drained by the **Amazon River** and its tributaries. The **Amazon drainage basin** covers an area of about 7,000,000 km2 (2,700,000 sq mi), or about **35.5 percent** of the South American continent.
- It is **located** in the countries of **Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela,** as well as the **territory of French Guiana.**
- Most of the basin is covered by the **Amazon rainforest**, also known as **Amazonia.** With a 5.5 million km2 (2.1 million sq mi) area of **dense tropical forest, it is the largest rainforest in the world**.
- Politically the basin is divided into **Peruvian Amazonia, Amazônia Legal of Brazil, the Amazon natural region of Colombia, Amazonas** (Venezuelan state), and parts of **Bolivia** and **Ecuador**.
- It is home to **10% of the world's biodiversity** with **40,000 species of plants, 3,000 species of freshwater fish, and over 370 reptiles,** in addition to other still unknown and unrecorded species.
- Amazon Basin has an organization, the **OCTA (Organization of the Amazon Cooperation Treaty)** bringing together **eight states** with the **Amazon rainforest** in common, who have signed the **Amazon Cooperation Treaty (TCA).**

Congo basin:

- It is the **sedimentary basin** of the **Congo River.** It is **located** in **Central Africa,** in a region known as **west equatorial Africa.**
- It is sometimes known simply as the **Congo**. It contains some of the **largest tropical rainforests in the world** and is an **important source of water** used in agriculture and energy generation.
- The **rainforest in the Congo Basin** is the **largest rainforest in Africa** and **second only to the Amazon rainforest in size**, with 300 million hectares compared to the 800 million hectares in the Amazon.
- Deforestation and degradation of the ecology by the impacts of climate change may increase stress on the forest ecosystem, in turn making the hydrology of the basin more variable.
- **Eight sites of the Congo Basin** are inscribed on the **World Heritage List,** five being also on the **list of World Heritage in Danger** (all five located in Democratic Republic of the Congo). Fourteen percent of the humid forest is designated as protected.
- **Countries wholly or partially in the Congo region:** Angola, Gabon, Burundi, Cameroon, Central African Republic, Democratic Republic of the Congo, Republic of the Congo, Rwanda, Tanzania, Zambia.
- **Congo Basin Climate Commission (CCBC) was established** in **2016** under the auspices of the **African Union**, including all states in the extended **Congo River basin** and **neighboring basins** of the **Atlantic, Indian Ocean, and Morocco,** an

original associate member.

- Its **objective** is to accelerate the implementation of climate transition and economic transformation of the Congo Basin in a logic of sustainable development.
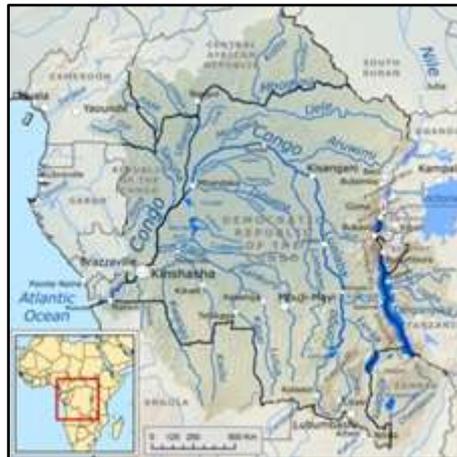
Borneo-Mekong-Southeast Asia basin:

- It is the **world's third largest carbon sink,** and is composed of **two sub-regions,** the **island of Borneo** and the **Mekong River.**
- The **Mekong River** is **one of the largest rivers in the world**, crossing **six countries: China, Myanmar, Thailand, Laos, Cambodia,** and **Vietnam,** which share the natural resources and land surrounding it.
- **Borneo,** the **fourth largest island** in the world, is **divided** between **Brunei, Malaysia, and Indonesia.**
- The island represents **only 1%** of the world's land, but holds about **6% of the world's biodiversity in its tropical forests**, which are the habitat of local populations and indigenous peoples who depend on them for their food and clean water supply.
- The massive expansion of oil palm cultivation for the production of biofuels could lead to the destruction of the last primary forests in the area.
- **Other activities that led to deforestation in this region are:** palm oil, rubber, pulp and paper, or timber trade.

Topic 83. HAMOON MOST UNUSUAL CYCLONE IN INDIA IN 30 YEARS, CHANGED CATEGORIES 4 TIMES IN A DAY: EXPERTS

Important for the subject: Geography

The **very severe Bay of Bengal cyclone Hamoon** made landfall about 16 hours earlier than the IMD predicted timeline at Chattogram, Bangladesh.

The **landfall timing, location** and **speed at landfall,** appeared to **change within four hours** between morning and noon on October 24.

The landfall category changed from **deep depression** to a **cyclonic storm.** The **landfall point** shifted south from the initial predicted location in between **Khepupara** and **Chittagong**.

- The **cyclone quickened considerably under the influence of westerly winds** and hence had **landfall earlier than initially predicted**.
- **Various factors influencing the cyclone hamoon:** High pressure zone over the China region, Westerly trough, Weakening of cyclone Tej in the Arabian Sea, cooler than normal northern Bay of Bengal.
- The **upper-level westerly wind flow,** which remains atop the cyclonic system, often has **shearing effects on the clouds.** This results in the cyclonic system **losing strength** and the **rainfall getting reduced** — exactly what happened in the case of Hamoon.

It was unusual on several fronts-

- Traditionally, the cyclone track should have been towards **Tamil Nadu, Andhra Pradesh** and the **Odisha coast,** but instead it recurved towards **Bangladesh,** which was captured and predicted by **IMD** much earlier.
- But what could not be captured and predicted was the **dominating role of westerly wind that pushed the cyclonic system quickly towards the north-east**.
- **Hamoon** changed categories at least **four times** in the **24 hours** before the landfall.

The conditions favourable for the formation and intensification of tropical storms are:

1. Large sea surface with temperature higher than 27° C.
2. Presence of the Coriolis force.
3. Small variations in the vertical wind speed.
4. A pre-existing weak low-pressure area or low-level-cyclonic circulation.
5. Upper divergence above the sea level system.

Topic 84. A GAGANYAAN FOR THE SEAS: INSIDE INDIA'S 'DEEP OCEAN MISSION'

Important for the subject: Geography

Deep Ocean Mission (DOM)- Samudrayaan:DOM is **one of nine missions** under the **Prime Minister's Science, Technology, and Innovation Advisory Council (PMSTIAC).** It is imperative that DOM supports the **blue-economy priority area, blue trade,** and **blue manufacturing in India.**

- It is India's ambitious quest to explore and harness the depths of the ocean, implemented by the **Ministry of Earth Sciences (MoES).**
- Approved in **2021** at a cost of nearly **Rs 4,077 crore** over a **five-year period** in a phased manner.

- **India** will, for the **first time,** embark on a journey to a **depth of 6,000 metres** in the ocean using an **indigenously developed submersible** with a **three-member crew (called 'Aquanauts')**.
- The **'New India 2030'** document outlines a **blue economy** as the **sixth core objective** for India's growth.
- The years **2021-2030** have been designated by the **United Nations** as the **'Decade of Ocean Science'**.
- **Countries** such as the **U.S.A., Russia, China, France,** and **Japan** have already achieved successful deep-ocean crewed missions

The mission has six pillars:

- Development of technologies for **deep-sea mining** and a **manned submersible** to carry **three people to a depth of 6,000 metres** in the ocean.
- The submersible will be equipped with a **suite of scientific sensors, tools** and an **integrated system for mining polymetallic nodules** from the **central Indian Ocean;**
- Development of **ocean climate change advisory services**, involving an array of ocean observations and models to understand and provide future climate projections;
- Technological innovations for the exploration and conservation of **deep-sea biodiversity;**
- **Deep-ocean survey and exploration** aimed at identifying potential sites of **multi-metal hydrothermal sulphides mineralisation** along the **Indian Ocean mid-oceanic ridges; Harnessing energy and freshwater** from the ocean; and Establishing an **advanced Marine Station for Ocean Biology**, as a hub for nurturing talent and driving new opportunities in ocean biology and blue biotechnology.

Institutional collaboration for DOM:

- **MoES** institutes, especially the Centre for Marine Living Resources and Ecology (CMLRE), Indian National Centre for Ocean Information Services (INCOIS), National Centre for Coastal Research (NCCR), National Centre for Polar and Ocean Research (NCPOR) and National Institute of Ocean Technology (NIOT) will **collaborate** with other national institutes and academia to achieve the objectives outlined in DOM.
- The minerals we can mine from the ocean bed in the **central Indian Ocean region,** allocated to us by the **United Nations International Seabed Authority (ISA)**, include **copper, manganese, nickel,** and **cobalt Matsya6000**
- The **NIOT**, an autonomous institute under **MoES,** has been entrusted with the mandate of developing indigenous technologies for DOM.
- **Matsya6000**, a deep-ocean submersible designed to accommodate a crew of three members.
- Equipped with a suite of scientific sensors and tools, **Matsya6000** boasts an operational endurance of **12 hours**, which is extendable to **96 hours** in the event of an emergenc
- Its **sub-sea endurance** is limited, it offers an **excellent intervention mechanism** and

operates untethered. Constructed from a **titanium alloy,** the sphere is engineered to withstand pressures of up to 6,000 bar.

- **Communication** is achieved through **sound – an acoustic phone and modem.** The **navigation and positioning systems** are **state-of-the-art**, too. It will not be actively lowered through sinking; instead, it will function as a **free-floating system,** for **energy efficiency.** It can move at a speed of about 5.5 km/hr using underwater thrusters, which is adequate.
- With Matsya, India will be the only country to have an entire ecosystem of underwater vehicles encompassing deep-water ROVs, polar ROVs, AUVs, deep-water coring systems, and more.

Deep ocean mining vehicle- Varaha

- A deep-sea locomotion trial was conducted on the seabed at a depth of 5,270 m using our **underwater mining system, 'Varaha'**.
- It is a self-propelled track-based seabed mining system. It operates on the **flexible riser technique:** the mining vehicle is lowered to the ocean bed from a surface ship using a high-strength flexible cord system.
- Once the vehicle reaches the ocean bed, it will be able to move around while the surface ship moves in tandem.
- It uses a **high-power pressure pump system** to facilitate the extraction of precious polymetallic nodules.

Why has the mission decided to explore the depth of 6000m

- **Polymetallic nodules,** which contain precious metals like **copper, manganese, nickel, iron, and cobalt**, are found approximately **5,000 m deep,** and **polymetallic sulphides** occur at around **3,000 m** in the **central Indian Ocean.**
- Therefore, our interests span depths of **3,000-5,500 m.** By equipping ourselves to operate at a **depth of 6,000 m,** we can effectively cater to both the **Indian Exclusive Economic Zone** and the **central Indian Ocean**

Exploring the deep oceans is more challenging than exploring outer space

- The fundamental distinction lies with the **high pressure in the deep oceans.** While **outer space is akin to a near perfect vacuum,** being **one meter underwater** puts as much **pressure** on an object of **one square meter area** as if it were carrying about of **10,000kg of weight**
- **Landing on the ocean bed** also presents challenges due to its **incredibly soft and muddy surface.** Extracting materials requires a large amount of power and energy.
- **Remotely operated vehicles** prove **ineffective** in the deep oceans due to the **absence of electromagnetic wave propagation** in this medium.
- **Visibility** also poses a significant hurdle.
- **Other factors:** variations in temperature, corrosion, salinity, etc.

Topic 85. COFFEE AROUND THE WORLD

Important for the subject: Geography

World Bank's commodity markets outlook **predicts a likely decrease in global coffee prices in 2024 due to increased supplies** from key producing countries like Brazil, Vietnam, and Colombia.

Arabica coffee prices declined by 14% in the third quarter of 2023, representing a 30% drop from the same period the previous year.

Prices for **Robusta coffee experienced a minor increase of about 2% in the same quarter**, marking a 17% rise from the previous year.

- The robusta market is expected to remain tight, with **decreases in production from Indonesia and Uganda outweighing the increase in Vietnam's output.**
- The World Bank anticipates **arabica prices to soften slightly in 2024 and remain relatively stable in 2025, whereas robusta prices are projected to decline by nearly 8% in 2024.**
- The **intensification of El Niño and a severe downturn in the global economy** pose both upward and downward price risks, respectively.
- In India, **arabica prices have decreased by over a third from their peak levels, while robusta parchment prices remain firm.**
- Current farmgate **prices for Arabica parchment hover around ₹10,900-11,200 per 50 kg bag, whereas Arabica cherry prices are around ₹6,450-6,650.** Robusta parchment prices are around ₹10,000-10,400, and robusta cherry prices range from ₹5,900-6,200.

About Commodity Markets Outlook Report

- World Bank publishes the Commodity Markets Outlook report **biannually, in April and October each year.** This report offers a comprehensive analysis of **major commodity groups, including energy, metals, agriculture, precious metals, and fertilizers.** It also provides **price forecasts for 46 key commodities, serving as a valuable resource for investors and stakeholders** seeking insights into global commodity market trends.

Comparison between Robusta and Arabica coffee:

- **Robusta coffee and Arabica coffee are the two primary species of coffee beans** that dominate the global coffee market. **Each has its own unique characteristics and is used in various coffee blends, offering different flavor profiles and growing conditions**.

Robusta Coffee:

- **Flavor Profile:** Robusta coffee is known for its **strong and harsh taste**, often described as grain-like, with a **distinct earthy or woody flavor**. It tends to have a higher caffeine content and is **more bitter than Arabica**.
- **Cultivation Conditions:** Robusta plants are **hardy and can be grown at lower altitudes**, making them suitable for regions with warmer climates. They are more resistant to pests and diseases compared to Arabica plants.
- **Caffeine Content:** Robusta beans typically **contain around 2.2-2.7% caffeine, which is almost double the amount** found in Arabica beans.
- **Usage:** Robusta beans are **commonly used in espresso blends** and instant coffee due to their strong flavor and crema-enhancing properties. They are also used as a filler in various coffee blends.
- **Production:** Robusta coffee is **primarily produced in countries such as Vietnam, Brazil, and Indonesia,** which have suitable low-altitude tropical climates.

Arabica Coffee:

- **Flavor Profile:** Arabica coffee is known for its **milder and more nuanced flavor profile**, often characterized by its **sweetness, acidity, and aromatic** It can offer a wide range of flavors, **from fruity and floral to sugary and tangy notes.**
- **Cultivation Conditions:** Arabica plants are more sensitive to environmental factors and require specific conditions to thrive, **such as higher altitudes, cooler temperatures, and ample rainfall.**
- **Caffeine Content:** Arabica beans **contain approximately 1.2-1.5% caffeine**, which is significantly lower compared to Robusta beans.
- **Usage:** Arabica beans are **commonly used for specialty coffee and gourmet blends, renowned for their complex flavors and aromatic qualities.**
- **Production:** Arabica coffee is cultivated in various countries, **including those in Latin America, Africa, and Asia, known for their high-altitude regions** and suitable climates for growing Arabica plants.

Summary of the coffee production and distinct characteristics from different regions around the world:

North America & The Caribbean:

- **Hawaii:** Kona coffee is famous for its **rich, aromatic flavor, cultivated in the volcanic soil** on the slopes of **Mauna Loa volcano.**
- **Mexico:** Known for its **sharp and pronounced flavor,** often used in blends, especially dark roasts.
- **Puerto Rico:** Features balanced body and **acidity, with fruity aroma**, from regions like Grand Lares and Yauco Selecto.

Central America:

- **Guatemala:** Offers a distinctive taste with **spicy or chocolatey notes, influenced by microclimates in regions like Antigua, Coban, and Huehuetanango.**
- **Costa Rica:** Recognized for its **balanced medium body and sharp acidity**, produced through careful **wet-processed Arabicas**.

South America:

- **Colombia:** Maintains a high standard of excellence, **providing consistently good, mild coffees with balanced acidity, despite challenges in transportation.**
- **Brazil:** Produces a **clear, sweet, and medium-bodied coffee**, grown in large plantations under varying climate and soil conditions.

East Africa:

- **Ethiopia:** Known for full-bodied and down-to-earth flavors, often wet-processed from regions like Sidamo, Harrar, and Kaffa.
- **Kenya:** Grown on the foothills of Mount Kenya, **featuring sharp fruity acidity and rich fragrance, emphasizing quality through controlled processing.**

West Africa:

- **Ivory Coast:** A major producer of strongly **aromatic Robusta coffee**, suitable for **dark roasts and often used in espresso blends.**

The Arabian Peninsula:

- **Yemen:** Home to ancient coffee cultivation practices, **yielding a distinctive deep, rich taste, historically associated with the term "Mocha."**

Asia:

- **Indonesia:** Known for its aged coffees, offering a rich **full-bodied flavor with mild acidity, often dry processed in the warm, damp climate.**
- **Vietnam:** A rapidly growing producer, **specializing in Robusta coffee with a light acidity and mild body, frequently used for blending.**

- Coffee from these diverse regions carries distinct flavors and characteristics, influenced by the environment, soil, altitude, and unique processing techniques specific to each area.

Coffee Producing Countries:

- **Brazil:** The **largest global producer** of coffee.
- **Vietnam:** Second largest coffee producer worldwide.
- **Colombia:** A major coffee producer **known for its high-quality Arabica beans.**
- **Indonesia:** Renowned for its **distinct and rich coffee varieties**.
- **India:** Among the top coffee producing countries, with a **significant production**

contribution.

Coffee Producing Regions in India:

- **Karnataka:** Largest coffee producing state, with **Chikmagalur, Kodagu, and Hassan being major coffee production regions, contributing nearly 71% of India's coffee production.**
- **Kerala:** The **Malabar region accounts for 21% of India's coffee production**.
- **Tamil Nadu:** Nilgiris District in Tamil Nadu contributes approximately 5% to the overall coffee production in India.
- **Andhra Pradesh: Araku Valley Hill station is a notable coffee-producing region**.
- **North-eastern States:** States like **Tripura and Nagaland are also involved in coffee production.**

Topic 86. INDIA'S COTTON YIELD MAY BE LOWEST IN 15 YEARS, TO DROP BY 20%

Important for the subject: Geography

The **first estimates** by the **Cotton Association of India (CAI)** showed production would be around **29.51 million bales**. A **bale of cotton** amounts to **170 kilogrammes**.

The **cotton production in India** for **2023-24** is projected to be the **lowest in the last 15 years.**

In **2022-23,** the production was **31.89 million bales** and if the predictions come true, the **cotton production will register a low of 7.49 per cent**. In India, the lowest cotton production was recorded in **2008-09** with **29 million bales.**

Causes of decline in production:

- Reduction in total area in cotton sowing:
- El Nino conditions
- Pink bollworm attack on cotton crop

State Wise cotton production for 2023-24:

- **8.5 million bales** in **Gujarat, 7.6 million bales** in **Maharashtra**, **three million bales** in **Telangana, 1.85 million bales** in **Karnataka, 1.8 million bales** in **Madhya Pradesh,** and **1.6 million bales** in **Haryana.**

Cotton Association of India (CAI):

- Established in **1921**
- Engaged in providing a **wide range of services to the entire cotton value chain**
- **All segments of the cotton trade and textile industry** of the country including Mill Buyers, Growers & Growers Co-operatives, Ginners, Brokers, Merchants, Importers and Exporters, etc. are represented in **CAI**

- **17 Regional Cotton Associations** and **4 Co-operative Marketing Societies** representing all upcountry cotton producing regions of the Country are affiliated with CAI and represented on its Board as Associate Directors
- Represented on various **International Cotton Fora** i.e. **ICAC, ICA, CICCA, IFCP, ITMF** and several other **International Cotton Associations**

Activities of CAI:

- Cotton testing services at various locations
- Maintains Indian Cotton Grade Standards
- Fixes Daily Spot Rates for all major growths of Indian cotton. **Arbitration and Conciliation mechanism** for speedy resolution of disputes relating to cotton trade
- **Cotton developmental activities** through its research wing, **COTAAP Research Foundation** along with farmers in various cotton growing States

Issues Certificates of Origin to Indian cotton exporters

- Training Programmes on various topics of interest to Cotton trade through its **'Learn with CAI'** series of One-day Seminars
- Disseminates data through its bulletin, **'Cotton Statistics & News**,' **'Indian Cotton Annual'** and website, 'www.caionline.in'
- Monthly estimates of Cotton Crop. Philanthropic and Religious activities through its various Trusts.

Topic 87. WEAPONS, AMMO, POLICE VEHICLES LOOTED IN IMPHAL MOB ATTACK

Important for the subject: Geography

Three Central Reserve Police Force (CRPF) personnel were injured as they tried to stop the miscreants from looting weapons at the 1st Manipur Reserve Battalion camp.

It is a part of the ongoing ethnic conflict between the Meitei and Kuki-Zo communities.

Moreh, Manipur:

- Founded by- **Gambhir Singh. Chinglen Nongdrenkhomba** (1788–1834), also known as **Raja Gambhir Singh**, was a ruler of the **Manipur Kingdom**.
- Moreh is a border town located on the **India–Myanmar border** in **Tengnoupal** district of the Indian state of **Manipur.**
- As a rapidly developing international trade point with the integrated customs and international immigration checkpoint, **Moreh** plays an important role in **India's Look East Policy, trade and commerce** under **ASEAN–India Free Trade Area, India-Myanmar relationship, India–Myanmar–Thailand road connectivity, and Trans-Asian Railway connectivity.**
- Moreh via **two roads:** The **Indo-Myanmar Friendship Bridge** and a newer **Moreh ICP Bridge** which connects the **Moreh Integrated Check Post (Moreh ICP).**
- Tamu in Myanmar connects Moreh in India to **Kalewa-Yagyi-Mandalay** in **Myanmar** and **Mae Sot** in **Thailand** through the **India–Myanmar–Thailand Trilateral Highway.**
- The local population includes **Kuki** and **Naga tribals** and **Meiteis.** It is **one of the fastest growing** towns in **Manipur.**

Topic 88. INDIA TAPS INTO BOLIVIA, CHILE FOR LITHIUM AVAILABILITY

Important for the subject: Geography

India is in talks with **Chile** and **Bolivia** for tapping into **lithium mining** and sourcing of the mineral that remains the cornerstone for the country's switch to **green mobility**.

India imports all major components that go into **lithium-ion cell manufacturing. India's**

lithium-ion import bill for **FY23** was **₹23,171 crore.** It covered electric accumulators, including separators.

Chile-Bolivia-Argentina together forms the **world's lithium trinity or triangle** and account for **nearly half of the global resource base** for the **white metal (lithium)**.

Why Bolivia?

- **Bolivia** has a **lithium resource base of 23 million tonnes (mt).**
- **Newly explored location of lithium:** Coipasa and Pastos Grandes salt flats
- **Other investments:** from Russia and China
- **Local laws** there allow for investments in the **downstream sector** or **processing of lithium** rather than **mining. Mining** is **restricted to local companies** there.

Lithium:

- It is a delicate, white-silver alkali metal. It is the least dense metal and the least dense solid element under typical conditions.
- It never occurs freely in nature, but only in (usually ionic) compounds, such as pegmatitic minerals, which were once the main source of Li.
- Due to its solubility as an ion, it is present in ocean water and is commonly obtained from brines. Li metal is isolated electrolytically from a mixture of lithium chloride and potassium chloride.

Application:

- Li is best known for its role in **energy-storage technology**. Lithium-ion batteries, rechargeable and lightweight, power the most-used electronic devices on the planet, from cell phones to laptops.
- The design of the battery laid the foundations for a wireless society. Used in solar panels, pharmaceuticals, glass and ceramics, aerospace and military, and lubrication.

Lithium triangle:

- It is a region of the **Andes** that is **rich in lithium reserves**, encompassed by the borders of **Argentina, Bolivia, and Chile.**
- The **lithium** in the triangle is concentrated in various salt pans that exist along the **Atacama Desert** and **neighboring arid areas,** the **largest areas** including **Salar de Uyuni in Bolivia, Salar de Atacama in Chile,** and **Salar del Hombre Muerto** in **Argentina**.Of those, **Salar de Atacama in Chile** has the **highest concentration lithium (0.15% by weight)** among all World's brine sources.
- **Chile's lithium reserve** estimate is close to 11 mt. **Argentina** has 20 mt of reserves.

Lithium reserves in India:

- Lithium deposit estimated to be **5.9 million tonnes** in the **Salal-Haimana area** of the **Reasi District of Jammu & Kashmir (UT)** has been discovered. Southern Karnataka's Mandya district.

Topic 89. OZ BILLIONAIRE TURNS CLIMATE EVANGELIST, CAUTIONS AGAINST 'LETHAL HUMIDITY'

Important for the subject: Geography

Andrew Forrest, Australia's second richest man and Chairman of the **Fortescue group of companies**, has been going around the world flagging an under-realised consequence of climate change—**lethal humidity**.

Lethal humidity:

- The term was coined by **Andrew Forrest**. It refers to a **very bad situation of rising humidity** because of **hot air** scooping more ocean waters. With high humidity, our sweat cannot cool us.
- Such high humidity could be **lethal. Rising body temperatures** result in **endotoxins** released from **gut flora, poisoning** the **bloodstream**—the first to die are **babies** and the **elderly. No country or city is free** from the risk of **'lethal humidity'.**

Andrew Forest's efforts for environmental conservation:

- The **carbon-centric lifestyle** of the developed world was chiefly responsible for **climate change**. He is emphasizing the decarbonisation of the company's operations—running mining equipment on green fuel or buying green power for its operations.
- One of its tricks is a **freight train that runs downhill one way** and **uphill the other**—**batteries** on the train **charge** themselves while the **train is sliding downhill;** the **stored energy** is used to run the train on the return journey

High humidity and human health:

- **High humidity** can have an **adverse effect** on the human body. Because the **air feels warmer than the official, recorded temperature,** it can **contribute to feelings of low energy and lethargy.**
- In addition, **hyperthermia,** or **overheating** as a result of your body's inability to effectively let out heat, can **negatively impact your health in conditions of high humidity.** Some health risks which result from **overexposure to humidity** (hyperthermia) **include:**
1. Dehydration
2. Fatigue
3. Muscle cramps
4. Heat exhaustion
5. Fainting
6. Heat stroke

Topic 90. 157 KILLED AS STRONG EARTHQUAKE JOLTS NEPAL'S MOUNTAINOUS WESTERN REGION

Important for the subject: Geography

A powerful **6.4 magnitude earthquake,** the worst since 2015, struck Nepal's remote mountainous region.

According to the **National Earthquake Monitoring and Research Centre,** the epicentre of the earthquake was in **Jajarkot district**, about 500km west of **Kathmandu.**

Areas affected: Jajarkot and **Rukum** districts of **Nepal**, **New Delhi** and neighbouring areas of India.

Earthquake:

- Earthquakes are natural geological phenomena that occur when there is a sudden release of energy in the Earth's crust.
- **Epicenter:** The epicentre is the point on the Earth's surface directly above the underground point where an earthquake originates. It is the location where the seismic waves, generated by the release of energy during the earthquake, first reach the Earth's surface.
- **Hypocenter (or Focus):** The hypocenter, also known as the focus, is the actual point within the Earth where the seismic energy is released during an earthquake. It is underground, and its depth can vary. Earthquakes can have shallow hypocenters, which are closer to the Earth's surface, or deep hypocenters, which are further below the surface.

Why is Nepal prone to so many earthquakes?

- **Nepal** lies in **one of the most active tectonic zones** (seismic zone IV and V) of the world, making the country extremely vulnerable to earthquakes.
- **Large tectonic plates** make up the **crust of the Earth.** These land masses, which contain

entire continents, are in motion and colliding with one another all the time.

- **Earthquakes** are common in **Nepal** which is situated on the ridge where the **Tibetan** and **Indian tectonic plates** meet and **advance two meters closer to one another every century** which results in **pressure** which is released in the form of earthquakes.

- A collision between the **Indian and Tibetan plates** has been going on underground for a long time which has **accumulated tremendous energy** due to which **western Nepal** is under the threat of bigger earthquakes.

- **United Nations Development Programme (UNDP)** ranks Nepal **11th** on the list of the most vulnerable countries to earthquakes and Nepal's capital Kathmandu is one of the top cities prone to earthquakes.

Topic 91. INDIA SET TO AUCTION VALUABLE MINERAL BLOCKS, INCLUDING GRAPHITE, NICKEL, AND CHROMIUM

Important for the subject :Geography

India's Mines Ministry would look at the auction of select critical mineral blocks. Amendments to the **Mines and Minerals (Development and Regulation) Act** allowed for **private investments** in **select critical minerals,** including **lithium,** the cornerstone for India's switch to green mobility.

The Mines Ministry also released a list of **30 key critical minerals,** including **17 rare earth elements (REEs)** and **six platinum-group elements (PGE).** These are classified as **'critical'** because of their **economic importance** and **limited availability in India**.

Critical Minerals:

- Critical minerals are elements that are the **building blocks of essential modern-day technologies,** and are at risk of **supply chain disruptions.**

- These minerals are now used everywhere from making mobile phones, computers to batteries, electric vehicles and green technologies like solar panels and wind turbines.

- Based on their individual needs and strategic considerations, different countries create their own lists. However, such lists mostly include **graphite, lithium, cobalt, rare earths and silicon** which is a key mineral for making **computer chips, solar panels and batteries.**

- Aerospace, communications and defence industries also rely on several such minerals as they are used in manufacturing fighter jets, drones, radio sets and other critical equipment.

- Government has released a list of **30 critical minerals for India.** These minerals are **Antimony, Beryllium, Bismuth, Cobalt, Copper, Gallium, Germanium, Graphite, Hafnium, Indium, Lithium, Molybdenum, Niobium, Nickel, PGE, Phosphorous, Potash, REE, Rhenium, Silicon, Strontium, Tantalum, Tellurium, Tin, Titanium, Tungsten, Vanadium, Zirconium, Selenium and Cadmium.**

Rare earth Elements:

- These are a set of **17 chemical elements** in the periodic table, specifically the **15 lanthanides plus scandium** (Atomic Number 21) and **Yttrium** (Atomic Number 39).
- **Lanthanide series** comprises **15 metallic chemical elements** with atomic numbers **57 through 71,** from **lanthanum** through **lutetium**.
- **Scandium** and **yttrium** are considered rare-earth elements because they tend to occur in the same ore deposits as the lanthanides and exhibit similar chemical properties, but have different electronic and magnetic properties.
- **Cerium (AN 58)** is the most abundant **rare earth metal.** Their colour ranges from **Shiny Silver** to **Iron Gray.** They are **soft, malleable, ductile** and usually reactive, especially at elevated temperatures or when finely divided.
- Its application ranges from **Civilian** (smartphones, laptops, petroleum refining catalysts) to military including **nuclear applications.** Rare minerals that are essential to electric vehicles, wind turbines and drones.
- **China** has the largest reserve (37 percent), followed by **Brazil** and **Vietnam** (18 percent each), **Russia** (15 percent), and the remaining countries (12 percent). Deng Xiaoping said once, The Middle East has oil and China has rare earth.

Why these elements called RARE?

- There is no shortage of rare earths. But their extraction is difficult (Requires high skill, Capital intensive, Environmental issues).

Graphite mineral:

- Deposits of economic importance are located in **Chhattisgarh, Jharkhand, Odisha** and **Tamil Nadu.**
- **Arunachal Pradesh** accounts for **36%** of the total resources which is followed by **Jammu & Kashmir (29%), Jharkhand (9%) Madhya Pradesh (5%) Odisha (9%),** and **Tamil Nadu (4%).** However, in terms of reserves, **Tamil Nadu** has the leading share of about **36%** followed by **Jharkhand (30%)** and Odisha (33%) of the total reserves
- Mining can be started in **Jharkhand, Odisha** and **Bihar. Odisha** was the **leading producing State** contributing **42%** to the total output during 2020- 21, followed by **Tamil Nadu.**
- **Active mining centres of graphite** are in **Palamu** district in **Jharkhand; Nawapara & Balangir districts** in **Odisha;** and **Madurai & Sivagangai districts** in **Tamil Nadu**.
- **Graphite** is used across industries covering categories like writing instruments, lubricants, refractory, batteries, nuclear reactors and graphene sheets. **China** is the world's largest producer and exporter of graphite minerals.

Nickel mineral:

- **Pentlaudite** (a mixture of nickel, iron, and sulfur) is **Nickel Ore.**
- **Nickel** is a hard, silvery-white metal. **Nickel does not occur naturally.** It is found in

association with **copper, uranium and other metals.** It is an important alloying element.

- Mining in Odisha.

Distribution in India:

- The **Sukinda valley** in the **Jajapur district** of **Odisha** has significant occurrences of **nickeliferous limonite.** It appears as oxide here.
- Nickel occurs in sulphide form alongside **copper mineralization** in **Jharkhand's east Sighbhum district.**
- Furthermore, it has been discovered in association with **uranium deposits** in **Jaduguda, Jharkhand. Nickel** is also found in significant quantities in **Karnataka, Kerala,** and **Rajasthan.**

Global distribution:

- **Indonesia** is the **world's largest producer,** followed by the **Philippines** and **Russia. Australia** has the **highest reserves,** followed by **Brazil, Russia,** and **Cuba. Nickel mineral is currently not mined in India.**
- **Properties:** High tensile strength, magnetic properties, good thermal and electric conductivity, not highly reactive, but can react with strong acids and oxidizing agents.
- It is used as a **coating item** to **slow down corrosion**. It is used for a variety of purposes, including the **production of coins, nickel-cadmium** and **nickel-metal hydride batteries;** bulletproof jackets, aircraft and internal combustion engine, and also as a **catalyst** for certain chemical reactions.

Chromium mineral:

- **Chromite (Cr)** is the only commercially viable chromium ore, also known chemically as iron chromium oxide.
- Industrial production of chromium proceeds from **chromite ore (mostly, $FeCr_2O_4$)** to produce **ferro-chromium,** an **iron-chromium alloy. Ferro-chromium** is then used to produce alloys such as **stainless steel.**
- Chromium increases the strength, hardness, and toughness of its alloys.

Distribution in India:

- **Odisha** has more than **93 per cent** of the resources (**Sukinda valley** in **Cuttack** and **Jajapur**). **Manipur, Nagaland, Karnataka, Jharkhand, Maharashtra, Tamil Nadu,** and **Andhra Pradesh** have minor deposits. **Odisha** is the sole producer of **Chromite Ore** (around 99 per cent). More than **85%** of the ore is of high quality (Keonjhar, Cuttack, and Dhenkanal).
- **Karnataka** is the state with the **second-highest production.** The main production comes from the districts of **Mysore** and **Hassan.** Other producers include **Andhra Pradesh's Krishna district** and **Manipur's Tamenglong** and **Ukhrul districts**.

Global distribution:

- South Africa, Kazakhstan, India, Albania, and Turkey are among the countries that mine

it.

- **Uses of chromium:** production of stainless steel, electroplating to provide a hard, durable, and corrosion-resistant coating, alloying element, leather tanning process, used as pigments in paint, ceramics and plastic industries, and used to produce **refractory materials,** which are used in high-temperature applications such as furnace linings.

Molybdenum mineral:

- It is a **refractory metal** used principally as an alloying agent in **steel, cast iron & superalloys** to enhance **strength** and **resistivity to wear & corrosion.**
- It does **not occur in nature** in a **free state.** Usually, it is found in a **chemically combined form** with other elements. **Molybdenite (MoS2)** is the **principal ore of molybdenum.**
- About **two-thirds** of global molybdenum production is as a **by-product of copper mining** and **only about one-third** is obtained from **primary molybdenum mines.**

Distribution In India:

- By-product concentrates of molybdenum are produced intermittently from the **uranium ore** of the **Jaduguda mine** belonging to **Uranium Corporation of India Ltd (UCIL)** in **Jharkhand.** The internal demand for **molybdenum** and its products is met mostly through imports.
- **Rakha** copper deposit in **Jharkhand, Malanjkhand** copper deposit in Madhya Pradesh, **Dariba-Rajpura lead-zinc** deposit in Rajasthan, Multimetal deposit at **Umpyrtha** in **Khasi and Jaintia Hills,** Meghalaya, **Karadikuttam** in Madurai district, Tamil Nadu,
- **Molybdenum** block auctions are likely in the **South Indian state** of **Tamil Nadu.** Most **molybdenum** is used to make **alloys.** It is used in **steel alloys** to increase strength, hardness, electrical conductivity and resistance to corrosion and wear.

Global distribution:

- The **world reserves of molybdenum** are at **18 million tonnes,** located mainly in **China (46%), Peru (16%), USA (15%), Chile (8%)** and **Russia (6%).**

Use of molybdenum:

- It is a **versatile alloying agent** for alloy steel, cast iron, nickel, cobalt and titanium alloys.
- The **'moly steel' alloys** are also used in parts of **engines.** Estimate global use of the metal is around **35 per cent** in **structural steel, 25** per cent in **stainless steel, 14** per cent in **chemicals**, **9** per cent in **tool and high-speed steel,** and **6** per cent in **cast iron,** among others.
- Used as refractory metal, lubricants, catalysts, pigments, as an additive in oil and greases, in aerosol sprays, in reducing surface friction and as an antiwear and antifriction agent in plastics, critical role in energy industries and green technologies.

Lithium mineral:

- It's a **silvery-white metal** with a delicate texture, the **lightest metal** and the **lightest solid element** under normal circumstances.
- It is both an **alkali** and a **rare metal.**

Global production:

- **Australia, Chile, China** and **Argentina** are the world's **top four** lithium-producing countries.
- **Australia** is by far the world's top producer of lithium, with an output of 42,000 tonnes in 2019.

Distribution in India:

- According to the Indian Mines Ministry, the government agencies made the small discovery of lithium resources at a site in **Mandya, Karnataka.** It is the country's first lithium reserve.
- Now, Lithium-influenced resources have been found in the **Reasi District of Jammu & Kashmir (UT).**
- **Other states:** Rajasthan and Jharkhand.

Topic 92. JAMMU-POONCH HIGHWAY UPGRADATION

Important for the subject: Geography

The Border Roads Organisation last **month achieved a breakthrough** in a vital tunnel along the **250-km long and strategically important National Highway 144A** in Jammu and Kashmir.

The tunnel forms **part of the Rs 5,100-crore NH upgradation project** under the Rs 80,068-crore **Prime Minister's Development Package** announced in November 2015 as **Reconstruction Plan for Jammu and Kashmir**

What is NH 144A and when did it come into existence:

- It is a **double-lane road** which starts from **Jammu and goes up to Rajouri and Poonch districts.** It provides **road connectivity to Akhnoor sub division and part of Reasi district**.
- The **double-lane road** was **given the status of national highway** and named **NH 144A by the central government in 2015**

What is the significance of its upgradation:

- The **National Highway 144A** is undergoing an **upgrade from two lanes to four lanes**, with the aim of p**roviding improved, rapid, and all-weather road connectivity** to residents in the border districts of **Rajouri, Poonch, and parts of Jammu and Reasi districts.**

- This project is expected to **boost socio-economic development in these areas and reduce travel time** between **Poonch-Rajouri and Jammu from 6-7 hours to 4.5 hours.** Additionally, this **strategically vital highway will facilitate the swift movement of defense vehicles** along the Line of Control, enhancing connectivity during both peace and wartime.
- The need for this upgrade stemmed from the increased traffic and frequent accidents, as well as the long-standing demand from the local population for road widening.

Who is executing this project

- The **four-laning project** of the highway from **Jammu to Akhnoor** is managed by the **National Highway and Infrastructure Development Corporation Limited (NHIDCL),** while the **section from Akhnoor to Poonch** is under the responsibility of the **Border Roads Organisation** as part of **Project Sampark.**
- The Ministry of Road Transport and Highways has set a **target of March 2025 for completing the four-laning** of the highway between **Jammu and Akhnoor,** including the **construction of a 4.6-kilometer flyover from Jammu city's Canal Head to Muthi.**
- Despite this timeline, most of the work on this stretch has already been finished, and the flyover is open for vehicular traffic.

What about the Akhnoor to Poonch stretch:

- The **road-widening** project from **Akhnoor to Poonch** is managed by the **Border Roads Organisation (BRO)** under **Project Sampark**. The challenging terrain of the **Pir Panjal mountainous region will include four tunnels** to **reduce the road length by 32 kilometers and travel time to 4.5 hours.**

The project is divided into eight packages:

- **Package 1**: Stretch from **Akhnoor to Chowki Choura**, including the **260-meter Kandi tunnel.**
- **Package 2**: From **Chowki Choura to Bhamla** with a **2.78 km** tunnel through **Sungal village,** expected to be **completed by August 2024.**
- **Package 3:** Stretch from **Bhamla to Bakhar** with a **4-kilometer bypass.**
- **Package 4:** From **Bakhar to Nowshera**, passing through **Thandapani, Siot, and Lamberi.**
- **Package 5**: From **Nowshera to Kallar**, including the construction of a new bridge and a **0.700 km tunnel bypassing the existing Tain bridge**.
- **Package 6**: From **Kallar to Dhari Dhara** near **Manjakote**, including a **2.7 km bypass.**
- **Package 7**: From **Dhari Dhara to Bhatadhurian,** with a **15-kilometer new road and a 1.1-kilometer tunnel at Bhatadhurian.**
- **Package 8**: Stretch from **Bhatadurian to Poonch Police Lines** via various locations. While **most of the road stretch from Akhnoor to Rajouri** has been completed,

the **road-widening work in Poonch district has not yet commenced**

Some facts about the Border Roads Organisation (BRO)

- It was **formed in 1960** by Pandit Jawaharlal Nehru for **coordinating the speedy development of an adequate road** communication network of roads in the North and the North-Eastern border regions of the country.
- It works **under the administrative control of the Ministry of Defence.** The Motto of BRO is "**Shramena Sarvam Sadhyam**" (everything is achievable through hard work).
- It is **staffed by officers and troops drawn from the Indian Army's Corps of Engineers, Electrical and Mechanical Engineers, Army Service Corps, Military Police and army personnel** on extra regimental employment.
- **Engineering Service and personnel from the General Reserve Engineer Force (GREF)** form the **parent cadre of the Border Roads Organisation.** The BRO also **undertakes projects in India and friendly countries.**
- In order to ensure c**oordination and expeditious execution of projects**, the Government of India set up the **Border Roads Development Board (BRDB)** with the **Prime Minister as Chairman of the Board and Defence Minister as Deputy Chairman.**

Topic 93. POPPY GROWTH HAS FALLEN BY 95% IN AFGHANISTAN SINCE TALIBAN BAN: UN

Important for the subject: Geography

Farmers in **Afghanistan have lost an income of more than $1 billion from the sale of opium** after the Taliban banned poppy cultivation, a report by the United Nations Office on Drugs and Crime (UNODC) said on Sunday (Nov 5). As per the report, opium cultivation fell throughout Afghanistan to just 10,800 hectares this year from 233,000 hectares in 2022, **slashing supply by 95%** to 333 tons.

- The UNODC said that this sharp decline was putting pressure on farmers, and it could have major consequences for the economy in a country where around two-thirds of the population is already in need of humanitarian aid.
- Before the Taliban seized power in Afghanistan in 2021, the country had been the biggest opium producer globally and a major source of heroin in Europe and Asia. **Taliban imposed a ban on opium poppy cultivation in April last year, dealing a heavy blow to hundreds of thousands of farmers and day laborers who relied on proceeds from the crop to survive.**
- In its report, the UNODC also said that a huge contraction in the supply of opium from Afghanistan could eventually lead to a drop in its use internationally, but it also risked escalating the global use of alternatives such as **fentanyl or synthetic opioids.**
- Another report from the UN drugs agency in September said that Afghanistan was the

world's fastest-growing maker of **methamphetamine**, **with seizures of the synthetic drug increasing as poppy cultivation shrank.**

About United Nations Office on Drugs and Crime (UNODC):

- **UNODC is a global leader in the fight against illicit drugs and international crime**, in addition to being responsible for implementing the United Nations lead programme on terrorism.
- It was established in 1997 through a merger between the **United Nations Drug Control Programme** and the Centre for International Crime Prevention.

Headquarters: **Vienna**, Austria

Functions:

- **UNODC works to educate people throughout the world about the dangers of drug abuse**. Strengthen international action against **illicit drug production and trafficking and drug-related crime.**
- It also works to improve crime prevention and assist with criminal justice reform in order to strengthen the rule of law, promote stable and viable criminal justice systems and combat the growing threats of transnational organized crime and corruption.
- In 2002, the UN General Assembly approved an expanded programme of activities for the **Terrorism Prevention Branch of UNODC**. The activities focus on providing assistance to States, on request, in ratifying and implementing the eighteen universal legal instruments against terrorism.

Working:

- UNODC has 20 field offices covering over 150 countries.
- By working directly with Governments and non-governmental organizations, UNODC field staff develop and implement **drug control and crime prevention programmes** tailored to countries' particular needs.

- **Funding**: UNODC relies on **voluntary contributions**, mainly from governments, to carry out the majority of our work.

Topic 94. AS ANDHRA PRADESH ALTERS PMAY NAME, CENTRE PUTS ₹4,000-CR. FUNDS ON HOLD

Important for the subject: Schemes

The Andhra Pradesh government's decision to add the ruling YSR Congress Party's imprint to the Union government's flagship rural housing scheme Pradhan Mantri Awas Yojana Gramin (PMAYG) and rebrand it to Pradhan Mantri Awas Yojana YSR are proving costly for the State.

About the PMAY-G:

- Although **Indira Awas Yojana** (started in 1996) addressed the housing needs in the rural areas, certain gaps were identified (lack of transparency in selection of beneficiaries, low quality houses, weak monitoring, etc) by CAG in 2014.
- To address these gaps in the rural housing program and in view of the Government's commitment to providing "Housing for All'' by 2022, the IAY has been **restructured** into PMAY-G w.e.f. 1st April 2016.
- PMAY-G aims at **providing a pucca house, with basic amenities**, to all houseless householders and those households living in kutcha and dilapidated houses, by 2022.
- The immediate objective is to cover 1.00 crore households living in kutcha houses/ dilapidated houses in three years from 2016-17 to 2018- 19.
- According to data available, of the Centre's allocation of 2.93 crore houses till July 17 2023, 2.90 crore have been sanctioned, of which 2.31 crore have been completed.

Salient Features of the PMAY-G:

- The minimum size of the house has been increased to 25 sq.mt (from 20 sq.mt) with a hygienic cooking space.
- The unit assistance has been increased from Rs 70,000 to Rs 1.20 lakh in plain (to be shared in the ratio 60:40 between Central and State Government) and from Rs 75,000 to Rs 1.30 lakh for North Eastern and the Himalayan States (90:10).
- The assistance for construction of toilets shall be leveraged through convergence with **SBM-G, MGNREGS** or any other dedicated source of funding.
- For convergence for piped drinking water, electricity connection, LPG gas connection, etc., different government programmes are also to be attempted.

What makes PMAY-G unique?

- PMAY-G instead of selecting the beneficiary from among the BPL households, selects them using housing deprivation parameters in the SECC 2011 which is to be verified by the Gram Sabhas.
- Towards better quality of construction, setting up of a **Nation Technical Support Agency (NTSA)** at the national level is envisaged. Also, a **pan-India training and certification programme of Masons** has been launched in the States/UTs.
- In PMAY-G, programme implementation and monitoring are to be carried out through an **end-to-end e-Governance model – using AwaasSoft and Awaas App.**
- Also, the programme implementation is to be monitored through community participation (**Social Audit), Member of Parliament (DISHA Committee),** etc.

Government schemes classification:

- **Central Sector Schemes and Centrally Sponsored Scheme**
- Central sector schemes are 100% funded by the Union government and implemented by the Central Government machinery.

- **Central sector schemes** are mainly formulated on Important for the subjects from the Union List. They **account for 11% of the Central Government's expenditure**.
- In **Centrally Sponsored Scheme (CSS) a** certain percentage of the funding is borne by the States and the implementation is by the State Governments.
- **Centrally Sponsored Schemes** are formulated in Important for the subjects from the State List to encourage States to prioritize in areas that require more attention. They **account for 10% of Central governments expenditure**.
- Usually Centrally Sponsored Schemes are revisited at the end of each five year plan period.
- However, after the discontinuation of Five Year Plan, it has been decided that sunset date will be coterminous with Finance Commission Cycles.

Topic 95. ISSUE OF FOOD SUBSIDY IN INDIA

Important for the subject: Schemes

The **decision to extend the free food grains program by five years**, as announced by Prime Minister Narendra Modi, is viewed as a **medium-term policy with potential fiscal risks and implications for competitive populism,** according to Nomura economists.

While this extension is not anticipated to significantly impact the fiscal calculations for the current financial year, the **potential for additional populist measures leading up to the general elections in 2024 remains a concern.**

Key points highlighted by Nomura economists in their research note include:

- The announcement cements the free foodgrains scheme as a medium-term policy, **reflecting the challenges associated with rolling back populist policies, particularly in the context of upcoming elections**. This move is seen as an attempt to align with public sentiment.
- While the **immediate fiscal and inflationary effects** of the extended 5 kilograms free foodgrain scheme appear manageable, the **government's food subsidy expenditure is likely to escalate over time due to increasing procurement costs.**
- The foregone revenues from subsidized food sales to the poor, estimated to be 0.05% of GDP annually, contribute to the **overall fiscal implications** of the policy.
- Although the necessity of subsidized grains for low-income households is acknowledged, there are **inherent risks associated with the competitive populism induced by the introduction of free schemes.**
- The economists express **concerns about the potential rise in revenue expenditure, particularly linked to growing rural employment guarantee spending, and the inclination to announce further populist measures, potentially impacting the fiscal deficit target of 5.9% of GDP.**

- The current expenditure on food subsidy by the central government is reported to have been lower than the previous fiscal year, suggesting some control over spending, despite the extension of the free foodgrains scheme.

- Overall, while the short-term impact is expected to be manageable, the economists emphasize the **need for cautious fiscal management, especially considering the potential escalation of costs over time and the possibility of additional populist measures being introduced in the future.**

About National Food Security Act (NFSA)

- The National Food Security Act (NFSA) is a significant legislation **enacted by the Indian government to ensure food and nutritional security for the population.**

Notified On: 10th September, 2013.

- **Objective**: The primary objective of the NFSA is to **ensure access to an adequate quantity of quality food at affordable prices, enabling people to live a life with dignity. It adopts a human life cycle approach to provide food and nutritional security.**

- **Coverage**: The NFSA **extends its coverage to 75% of the rural population and up to 50% of the urban population, ensuring that they receive subsidised food grains under the Targeted Public Distribution System (TPDS). Overall, it covers approximately 81.35 crore citizens.**

- Eligibility: The Priority Households are identified and covered under the TPDS based on the guidelines provided by the respective State governments. **Additionally, households falling under the Antyodaya Anna Yojana are also eligible for coverage under the NFSA.**

- Provisions: The NFSA provides several crucial provisions, **including the distribution of 5 kgs of food grains per person per month at affordable rates (Rs. 3/2/1 per Kg for rice/wheat/coarse grains).** Furthermore, the Act ensures that existing AAY households receive 35 kgs of food grains per household per month. It also includes **provisions for meal and maternity benefits for pregnant women and lactating mothers, meals for children up to 14 years of age, and a food security allowance to beneficiaries in cases of non-supply of entitled food grains or meals.** Additionally, it emphasizes the establishment of grievance redressal mechanisms at both the district and state levels.

- The NFSA serves as a critical instrument in **addressing food security concerns and promoting the well-being of vulnerable sections of society, ensuring they have**

access to essential food and nutrition.

About Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY)

- The Pradhan Mantri Garib Kalyan Anna Yojana (PM-GKAY) has been a **critical intervention by the Indian government to provide essential food security to vulnerable populations, especially during the challenging times brought on by the COVID-19 pandemic.**

- Introduction: The **scheme was initially launched in response to the COVID-19 pandemic**, and **its scope has now been extended to distribute wheat and rice free of cost to approximately 80 crore people.**

- About the Scheme: PM-GKAY is **recognized as one of the world's largest food security schemes**, with the primary aim of ensuring adequate food supplies for the underprivileged and those in need during the pandemic. It **operates as a part of the relief package** introduced in response to the COVID-19 crisis.

Nodal Ministry: Ministry of Finance.

- Features and Eligibility: The scheme encompasses the **distribution of 5 kg of food grains and 1 kg of gram per month to eligible beneficiaries, including families falling below the poverty line, as identified under the Antyodaya Anna Yojana and Priority Household categories.** The identification of eligible families is conducted by the respective state governments and union territory administrations.

- **Necessity and Concerns:** While the PM-GKAY addresses the immediate need for food security, challenges persist, particularly in **reaching certain vulnerable groups and effectively implementing the scheme.** Migrant workers, in particular, face constraints in **accessing affordable and nutritious food, especially without adequate cooking arrangements or fuel.**

The scheme has faced several challenges and issues that need to be addressed:

- **Inadequate updates in ration records since the 2011 Census** have led to a significant portion of the population being excluded from the benefits of both the NFSA and PMGKAY, **especially vulnerable groups such as migrants, sex workers, and transgender individuals.**
- Although the scheme is designed to assist to the needy, certain flaws have limited its effectiveness. **The 25 kg limit on the collection of free grains for a family of five is a reduction from the earlier provisions, and the repeated extensions of the scheme have raised concerns about political motivations.**

- Steps have been taken by some states, such as Tamil Nadu, Odisha, Rajasthan, Chhattisgarh, and West Bengal, to **universalize or expand the coverage of the scheme using state cards**.
- Additionally, **the Supreme Court has directed the central government to broaden the coverage of the NFSA.**

- **Fiscal Impact of Free Food Grains under NFSA:**Center's food subsidy bill on NFSA was around ₹2 lakh crore annually.

- **PMGKAY effectively doubled the sum for the past two years, but the termination will save the government a significant burden.**

Impact of Decision on Food Grain Stocks:

- Relief for stressed food grain stocks as **production and procurement levels faced challenges in 2022.**
- **Continuation of PMGKAY was unsustainable without increasing procurement levels.**

About FCI

- **The Food Corporation of India (FCI) is a statutory body** established under the Food Corporation Act of 1964. It was set up with the **primary objective of fulfilling various aspects of the Food Policy in India.** The key responsibilities and functions of the FCI include:

Effective price support operations to safeguard the interests of farmers.

- **Distribution of food grains across the country** through the Public Distribution System (PDS) to ensure food accessibility for the general population, especially those in need.
- Maintenance of a **satisfactory level of operational and buffer stocks of food grains** to ensure national food security and stabilize food prices in the market.

- **Under the Ministry of Consumer Affairs, Food and Public Distribution, Government of India**, the Food Corporation of India plays a vital role in ensuring food security and stability in the country. Since its establishment, the FCI has played a significant role in **transforming India's food security system, shifting the focus from crisis management to a more stable and sustainable approach.**

Open Market Sale Scheme (OMSS)

- **Objective:** Ensure **food security, moderate open market prices, and enhance food grain supply during lean seasons.**
- **Initiative: FCI sells surplus food grains (wheat and rice) from the central pool**

through e-auctions to traders, bulk consumers, and retail chains.

- **Revision:** Quantity restrictions imposed on single bidders (3,000 MT to 10-100 MT) to **encourage small and marginal buyers, curbing monopolies of bulk purchasers.**
- **Impact on States:** Sale of rice and wheat from central pool under OMSS to state governments stopped, leading states to seek alternative procurement methods.
- **States' Reactions:** Criticisms from states like Tamil Nadu and Karnataka, citing adverse effects on their welfare schemes.
- **Centre's Stance:** Restrictions implemented to **manage inflation and supply, with emphasis on existing distribution to 80 crore marginalized beneficiaries under NFSA.**

Topic 96. GOVT. EXPANDS 'BHARAT ATTA' SALE TO CURB RISING PRICES

Important for the subject :Schemes

With wheat flour (atta) becoming costly around the festival season, the Union Food and Consumer Affairs Ministry on Monday released more stocks of the 'Bharat' brand atta through 100 mobile vans and the outlets of Kendriya Bhandar, National Cooperative Consumers' Federation of India Ltd. (**NCCF**), and National Agricultural Cooperative Marketing Federation of India Ltd. (**NAFED**).

About Bharat Atta, A Subsidized Wheat Flour Scheme:

- In order to **maintain stability in food prices during the festive season**, the Indian government has unveiled a subsidized packaged wheat flour initiative accessible to all consumers.
- Termed "**Bharat Atta**," the scheme aims to release a quarter of a million tonnes of state-owned wheat to various cooperative outlets and federations.
- The government has chosen **Kendriya Bhandar**, a network of cooperative general stores, along with the National Agricultural Cooperative Marketing Federation and National Cooperative Consumers' Federation, as the primary channels for distributing Bharat Atta.
- **Bharat Atta is offered at a reduced price of ₹27.50 per kilogram, which is lower than the earlier rate of ₹29.50 at Kendriya Bhandar.** To ensure accessibility, the subsidized flour will be available at Kendriya Bhandar, NAFED, NCCF, government cooperative outlets, and food vans operated by NAFED and NCCF.
- The government is facilitating this scheme by milling the wheat through firms selected through a tender process, thereby minimizing the milling cost, which is approximately ₹1.80 per kilogram for large wheat millers.

Why such initiative?

- **Free cereals for five years:** PM recently announced that cereals would be provided free of cost to 800 million beneficiaries entitled to subsidized food for the next five years.
- **Food Price Controls:** The government has implemented various measures such as banning wheat and rice exports, setting a floor price for onion exports, and reducing import duties on pulses to combat rising food prices.
- **Election Context:** These anti-inflation measures come as India faces key assembly elections in five states and a general election in the near future.

Issues in implementation

- **Cereal Inflation:** Despite a significant wheat harvest, India continues to grapple with high cereal inflation, which has persisted for over a year, reaching double digits.
- **Record Foodgrain Production:** The fourth and final round of estimates for the 2022-23 crop output indicates a record high in foodgrain production.However, wheat production slightly decreased from initial estimates.
- **Positive Outlook:** Despite minor fluctuations, wheat production remains higher than the previous year, reflecting a positive outlook for addressing food price concerns.

Conclusion

- The initiative of government's subsidized wheat flour, Bharat Atta, exemplifies its dedication to ensuring that the joy of the festive season is not marred by soaring food prices.

Topic 97. ENEMY PROPERTY BUTLER PALACE TO TURN INTO A TOURIST HAVEN

Important for the subject: History

Butler Palace in Lucknow, a century-old structure, is undergoing a facelift to become a tourist attraction.

Owned by the **royal family of Mahmudabad,** which migrated to India in the 13th century and settled in Lucknow in the 16th century.

- Declared "enemy property" by the Indian government after the India-Pakistan war in 1965. **Lucknow Development Authority (LDA)** received a no-objection certificate from the Custodian of Enemy Property Department for renovation.
- **LDA plans to rejuvenate the Butler lake,** construct pathways, landscaping, lighting, and a cafeteria for visitors. The project aims to create a tourist attraction with a **heritage look.**
- The legal battle over the property is ongoing in the Supreme Court, involving the former royal family.
- The palace has historical significance and was frequented by notable figures before and after Independence.

About Enemy property:

- The enemy properties are **those left behind by the people who took citizenship of Pakistan and China after leaving India during the partition and after 1962 war.**
- The enemy properties are vested with the **Custodian of Enemy Property for India (CEPI),** an authority created under the Enemy Property Act 1968.
- The 2017 amendment to the Act (Enemy Property (Amendment and Validation) Act, 2017) stated that the **successors of those who migrated to Pakistan and China ceased to have a claim over the properties left behind in India.**
- The amended law stated that enemy **property should continue to vest in the Custodian even if the enemy, enemy Important for the subject, or enemy firm ceases to be an enemy due to death, extinction, business winding up, or change of nationality** or if the legal heir or successor is an Indian citizen or a citizen of a non-aggressive country.
- Of the total **9,406 enemy properties** in India, 9,280 are left behind by Pakistani nationals and 126 properties by Chinese nationals.
- **Maximum number of enemy properties is in Uttar Pradesh** – 4,991. Bengal has 2,735, and Delhi has 487.

Topic 98. DECLINE IN WATER AVAILABILITY IN THE SOUTHERN HEMISPHERE

Important for the subject: History

Driven in part by large scale atmospheric climate modes, the Southern hemisphere accounts for more than **95% of the recent decline in global water availability, according to a new study.**

More About News:

- Global land water availability has varied due to **climate change and increased human water use.**
- In the **Northern hemisphere, there is negligible change in land water availability**. The new analysis reveals a **strong decrease in water availability** in South America, most of Africa, and central and northwestern Australia.
- However, some regions such as the southern part of South America will have more water available.
- South America includes the **Amazon rainforest**, which is a key regulator for the climate, as well as a globally important habitat for species and home to many Indigenous communities.
- **Drying of the rainforest would reduce vegetation and increase the risk of fire.** This would be bad news for humans and animals that live in the forest, and has the potential to release billions of tons of carbon currently locked into forest vegetation and soils.
- The experts suggest the principal cause is the **weather phenomenon known as El Nino,** which occurs every few years when ocean water in the eastern Pacific is warmer

than usual.

El Nino

- **About:** It is the name given to the occasional development of warm ocean surface waters along the coast of Ecuador and Peru.
- **Frequency:** El Niño events occur irregularly at intervals of 2–7 years, although the average is about once every 3-4 years.
- **Impact of El Nino across the globe:** El Nino impacts ocean temperatures, the speed and strength of ocean currents, the health of coastal fisheries, and local weather.

Topic 99. THE STORY OF BALBAN TOMB

Important for the subject : History

Lieutenant Governor VK Saxena unveiled **six renovations nestled inside** the park, one among which was the **tomb of Balban.** The **Tomb of Balban,** situated inside **Mehrauli's Archaeological Park**, dates back to the 13th century and has undergone various transformations.

- **Ghiyas-ud-din Balban**, a Sultan of the **Mamluk dynasty,** ruled Delhi from **1266 to 1287.** He was initially **sold as a slave to Sultan Iltumish** in **1232** and later released.
- The tomb is **architecturally significant** for being one of the **first structures to feature true arch construction in India,** with **evenly distributed weight through** the placement of the keystone in the center.
- It is referred to as **Dar-ul-Amaan (Haven of Safety)**, and the building **houses the tomb of Ghiyas-ud-din Balban.**
- The structure once **served as a sanctuary for debtors, fugitives, and even murderers**, offering refuge from debt collectors and pursuers. The Sultan would **compensate the victims' families in murder cases.**
- While the tomb has been historically significant, it is **currently locked and not accessible to the public.**

Some facts about Balban:

- Balban was the **ninth Sultan of Delhi** from the Slave Dynasty. He ruled from **1266 to 1287 AD.**
- His original name was **Baha Ud Din**. He was known for his policy of **"blood and iron".** He was the **first Sultan of Delhi** to introduce the **Persian festival of Navroz i**n India.

Topic 100. PRESIDENT TERMINATES SERVICES OF ARMY MAJOR

Important for the subject: Current Affairs

President terminates services of Army Major posted with Strategic Forces Command unit

President Draupadi Murmu has **terminated the services** of an **Indian Army Major** who was posted with a **Strategic Forces Command (SFC) unit.** This action was taken following an **Army inquiry that found the Major involved in multiple lapses compromising national security.**

- **T**he termination was carried out under the **powers conferred by Section 18 of the Army Act, 1950, and Article 310 of the Constitution.**
- The **investigation** into the Major's activities began in **March 2022** when a **Board of Officers** was formed to **look into matters** related to the **compromise of national security by the officer**.
- This board was **authorized to seize digital devices and conduct an initial investigation** into various suspicions, **including social media violations**, **sharing/leakage of classified information, and espionage activities.**
- The inquiry revealed that the **Major had stored secret documents** on his electronic devices in violation of Army regulations. He was also found to be in **communication with a Pakistani intelligence operative** through social media chats.
- Additionally, the **Major's association with other senior officers of the Army**, some of whom were part of a WhatsApp chat group called **'Patiala Peg,' was investigated**, and he was called as a witness in a Court of Inquiry against some officers related to this group.
- Furthermore, the Army has **issued a show cause notice to a Brigadier and a Lieutenant Colonel for administrative/disciplinary action** due to their violation of social media policies and membership in the 'Patiala Peg' WhatsApp group, where **objectionable content was shared.**
- The group **had been suspected of infiltration by a Pakistan Intelligence Operative**, and an investigation was underway to determine **if any classified military information** had been **shared by its members**.
- Mobile phones and **personal digital assets of these officer**s were **seized in March 2022** for this investigation.

What is Army Act,1950:

- **The Army Act, 1950** is an Indian act **governing military law** in the Indian Armed Forces.
- The Army Act was **passed by the Parliament** on **22 May 1950** and was effective on 22 July 1950.
- It is the **primary legislation governing the Indian Army**. It was enacted to **consolidate**

and amend the law relating to the government of the regular Army. The Act covers a wide range of topics, including the following:

- The **composition** and **organization of the Army**
- The **powers and duties** of **officers and soldiers**
- The **discipline and maintenance** of **good order** in the Army
- The **trial and punishment** of **offenses under military law**
- The **rights and privileges** of soldiers
- The Army Act **applies to all members of the regular Army**, including **officers, soldiers, and civilian employees.**
- It also applies to **certain other persons,** such as **reservists and persons accompanying the Army on active service.**

Some of the important provisions of the Army Act include:

- The **power of the Central Government** to **raise and maintain the Army**
- The power of the Central Government to **make regulations for the government, discipline, and administration of the Army**
- The establishment of a **system of courts-martial** for the trial of offenses under military law. The power of the Central Government to **grant pardons and remissions** of sentences.
- The **provision of certain rights and privileges to soldiers**, such as **immunity from arrest for debt and immunity from seizure of property.**
- The Army Act is an important piece of legislation that ensures the **effective functioning of the Indian Army.** It is also a **safeguard for the rights and privileges** of soldiers.
- The **Army Act, 1950** is **not the only law** that **governs the Indian Army**. There are also other laws, such as the **Army Rules, 1954**, and the **Army Regulations, 1987**, which provide more detailed guidance on the implementation of the Army Act.
- **The Army Act, 1950 is not applicable to the Indian Navy or the Indian Air Force**. These two services have their **own separate laws**, namely the **Navy Act, 1957, and the Air Force Act, 1950.**

What is Article 310 of Indian Constitution:

- It states that e**very person in the defence or civil service** of the **Union holds office during the pleasure of the President**, and **every member of the civil service in the States holds office during the pleasure of the Governor.**

What are some military powers of the President:

- The President is the **supreme commander** of the **defence forces** of India. In that capacity, he **appoints the chiefs of the Army, the Navy and the Air Force**.
- He can **declare war or conclude peace**, Important for the subject to the **approval of the Parliament**.
- **Article 53** clearly specifies that the **President is the Supreme Commander of the Union of India's Armed Forces.**

Topic 101. AKHAURA-AGARTALA RAIL LINK TO BE INAUGURATED VIRTUALLY BY PM MODI, SHEIKH HASINA TODAY

Important for the subject: Current Affairs

In a historic move, Bangladeshand northeast India **will reestablish rail connectivity** through Tripuraon Wednesday, after a gap of nearly seven and a half decades.

About Akhaura-Agartala Rail Link

- This rail link stretches over 12.24 km, with a 6.78 km **dual gauge rail line** in Bangladesh and 5.46 km in Tripura.
- **Akhaura junction,** located in Bangladesh's Brahmanbaria district, has historical ties with India's northeastern region, dating back to the colonial era.
- The connection was originally constructed in the late 19th century to cater to Assam's tea industry's demand for **access to the Chittagong port**.
- The project gained momentum in 2010 when then-**PM Manmohan Singh** signed an agreement to rebuild the rail link during PM Sheikh Hasina's visit to Delhi.

Significance of the project

- **Multilevel connectivity**: Akhaura is currently well-connected by rail, river, and road to several industrial areas in Bangladesh, including Dhaka, Chittagong, and Sylhet.
- **NE connectivity**: The rail link to Agartala is expected to enhance connections between India's northeast and Chittagong, facilitating the transportation of goods.
- **Shortened Routes**: The Akhaura link has the potential to significantly reduce travel time and distance for trains traveling to Tripura, southern Assam, Mizoram, Kolkata, and the rest of India, compared to the longer route via Guwahati and Jalpaiguri stations.
- **Unique Event**: This event is unique as it marks the first direct rail connection between Akhaura and Agartala, with the first trains anticipated to run between Nischintapur and Gangasagar stations.

Economic Potential

- **Trade Expansion**: The rail link is expected to boost India-Bangladesh trade in various sectors, including agriculture products, tea, sugar, construction items, iron and steel, and consumer goods, while also fostering **people-to-people** relationships.
- **Expanded Connectivity**: The Akhaura-Agartala rail route is seen as a significant initiative to enhance India's connectivity with Southeast Asian regions, holding potential for regional economic growth.