

WEEKLY CURRENT AFFAIRS MAGAZINE for

**U.P.S.C.-C.S.E.**

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## **Topic 1. ARTEMIS ACCORD**

### ***Important for subject: Science and Technology***

United States-Africa Summit Leadership: Nigeria as well as Rwanda become the first African signatories to the Artemis Agreements regarding space collaboration

### **Artemis Space Accord collaboration:**

- Announced by NASA and the US Department of State in 2020.
- They're a set of guidelines that will guide the next step in space exploration, and encourage the use of space to benefit humanity for the benefit of all humanity.
- This treaty assures that space exploration is carried out in a secure way, sustainable and transparent manner, and in full respect of international law.
- An estimated 23 countries have signed the Artemis Accords.
- Nigeria along with Rwanda were the first two countries from Africa to agree to the agreement.
- Its additional signatories to the agreement include those from the U.S., Australia, New Zealand, Britain, Canada, Italy, Japan, Luxembourg, South Korea as well as South Korea, the United Arab Emirates, and Ukraine.
- Brazil is set to sign the agreement.
- India hasn't yet signed the Artemis agreement yet.

### **US-Africa Leadership Summit:**

- Held on Dec 13, in Washington D.C., USA.
- To improve space exploration and tackle issues like climate change as well as our global hunger crisis.
- Space cooperation for commercial purposes that involves with the private industry was the subject of discussion among US as well as Africa.
- The World Bank-funded drought risk protection program referred to as DRIVE, is run in partnership together with governments from Djibouti, Ethiopia, Kenya and Somalia.

## **Topic 2. FAST BREEDER REACTOR**

*Important for subject: Science and Technology*

Kalpakkam rapid breeder reactor is nearly fully operational: says the minister

### **Is a reactor bred by a breeding program?**

- The breeder reactor is a nuclear reactor that produces more fissile material than it consumes.
- Breeder reactors can achieve this due to the fact that their neutron economy is large enough to produce more fissile fuel than they consume, by irradiation of fertile material, like the uranium-238 or Thorium-232 which is then added to the reactor in conjunction as fissile energy.
- An Fast breeder reactor (FBR) uses quick (i.e. moderated) neutrons to produce fissile plutonium, and possibly higher transuranics using fertile 238 uranium.
- The rapid spectrum is versatile enough to also produce fissile Uranium-233 from the element thorium should you wish.

### **Information about the prototype Rapid Breeder Reactor (PFBR):**

- The Prototype Fast Breeder Reactor (PFBR) is a 500 MWe fast breeder reactor presently in construction in Madras Atomic Power Station (MAPS). Madras Atomic Power Station (MAPS) in Kalpakkam, India.
- It is the Indira Gandhi Centre of Atomic Research (IGCAR) is responsible for the design of this reactor.
- The facility is built on years of experience gained operating the smaller power Fast Breeder Test Reactor (FBTR).
- It is the Kalpakkam PFBR is specifically designed to make use of uranium-238 to produce plutonium within the sodium-cooled design of a fast reactor.
- The excess plutonium (or uranium-233 for Thorium reactors) from each fast reactor could be used to construct further reactors of this type and expand the capacity of nuclear power in line with the power requirements of India.

### **Three-stage nuclear power program**

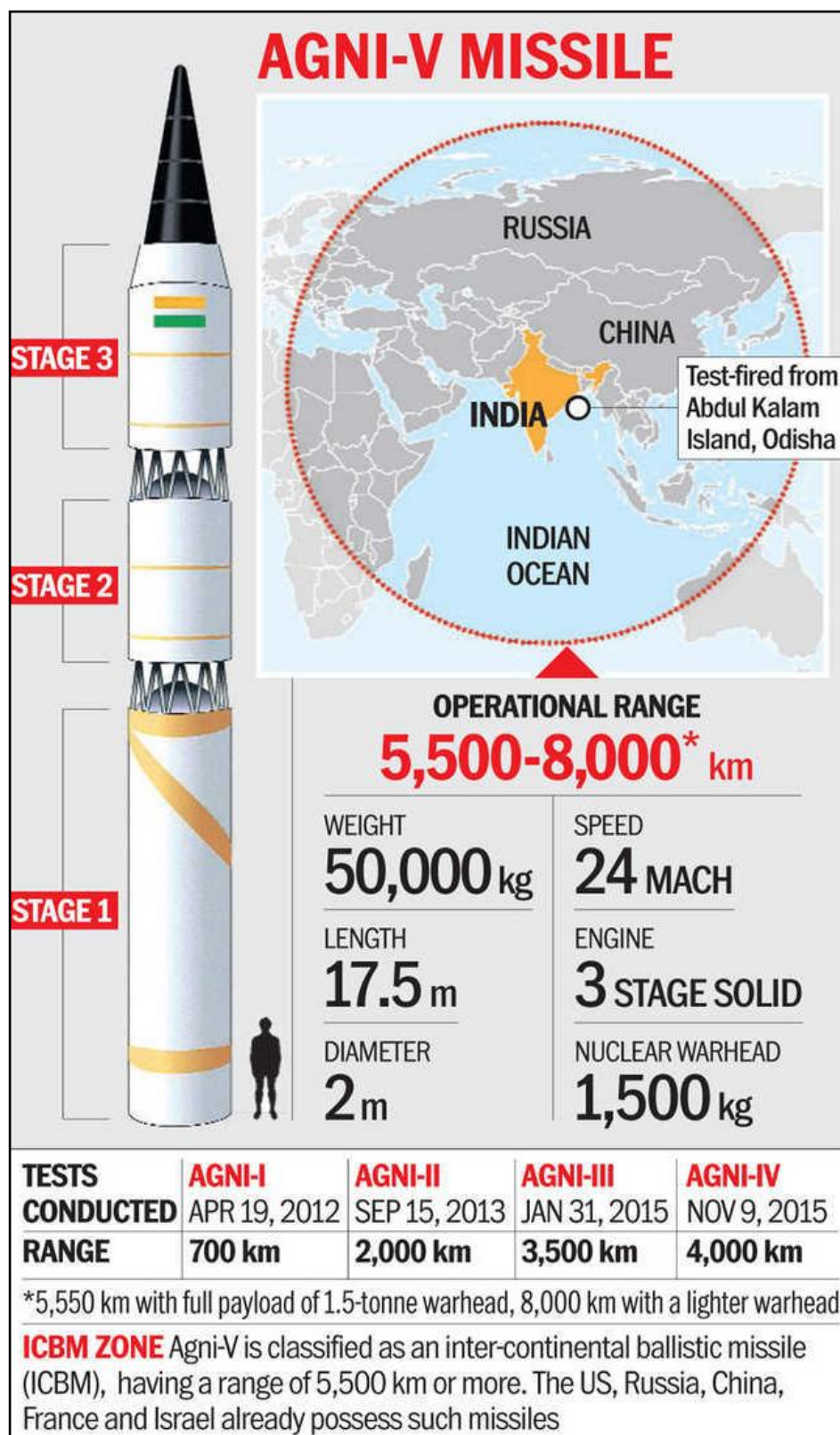
- It was created in the 1950s by Homi Bhabha at the time of the 1950s to ensure the

country's sustainable energy independence.

- This was achieved by the use of uranium as well as Thorium reserves located inside the monazite sands of the coastal areas in South India.
- India has huge amounts of Thorium in monazite sands. But it's not a good choice at this time.
- If we adhere to the three-stage strategy, in future the Thorium could be utilized in the production of Nuclear energy.
- The first phase would result in the construction of the first of a series of 'pressurised heavy water reactors' that make use of the scarce Uranium to create Plutonium.
- The second phase would see the establishment of several 'fast breeder reactors' (FBRs).
- The FBRs will make use of the mix of Plutonium and the reprocessed 'spent' Uranium from the initial stage to create energy, and also more Plutonium (hence "breeder") as the Uranium transforms into Plutonium.
- In addition, the reactors could transform some of the Thorium to Uranium- 233 which can be used to create energy.
- After three to four years of operation, the FBRs could be producing enough Plutonium to use in the "third stage".
- At the third phase these reactors based on Thorium would be constructed as well as Uranium- 233 would be utilized to create special reactors to generate electricity and convert further Thorium to Uranium-233--one is able to add Thorium indefinitely.
- The PFBR is a part of the nuclear power program that has three stages.

### Topic 3. AGNI-5 BALLISTIC MISSILE

Important for subject: Science and Technology





Test of Agni-5's ballistic missile successfully fired

### **Agni V Missile:**

- It is the most sophisticated indigenously constructed surface-to-surface fire that does not include ballistic missiles.
- "Fire and forget" is a reference to the fact that once fired, it is ineffective, unless stopped through an interceptor missile.
- The launch was successful at APJ Abdul Kalam Island in Odisha.
- The solid-fuelled engine missile with three stages can hit targets from distances of up to 5,000 kilometers.
- With the very high level of precision and is able to reach all areas of China.
- It's already put in a canister, which makes it easier of operation and handling.
- The Agni series is the core of nuclear weapons delivery. It also includes Prithvi ballistic missiles with short ranges as well as fighter aircraft.
- It has the capacity to carry an nuclear warhead that weighs around 5 tonnes.
- India is also completing its nuclear trinity and fully operationalized its second strike capability with the ballistic missile submarines Ins Arihant performing patrols of deterrence.
- It was developed as part of the Integrated Guided Missile Development Programme (IGMDP).
- A few countries, such as those in the US, China, Russia, France and North Korea do not have InterContinental Ballistic Missiles (ICBM).

### **About IGMDP:**

- It was developed by Dr. A.P.J. Abdul Kalam.
- Its goal was to help India to achieve independence in the field of missile technology.
- The five missiles created under this program are Prithvi, Agni, Trishul, Nag, and Akash.

### **Agni Class of Missiles:**

- Agni missiles have a long range surface-to-surface ballistic missiles , which can be equipped with nuclear explosives.



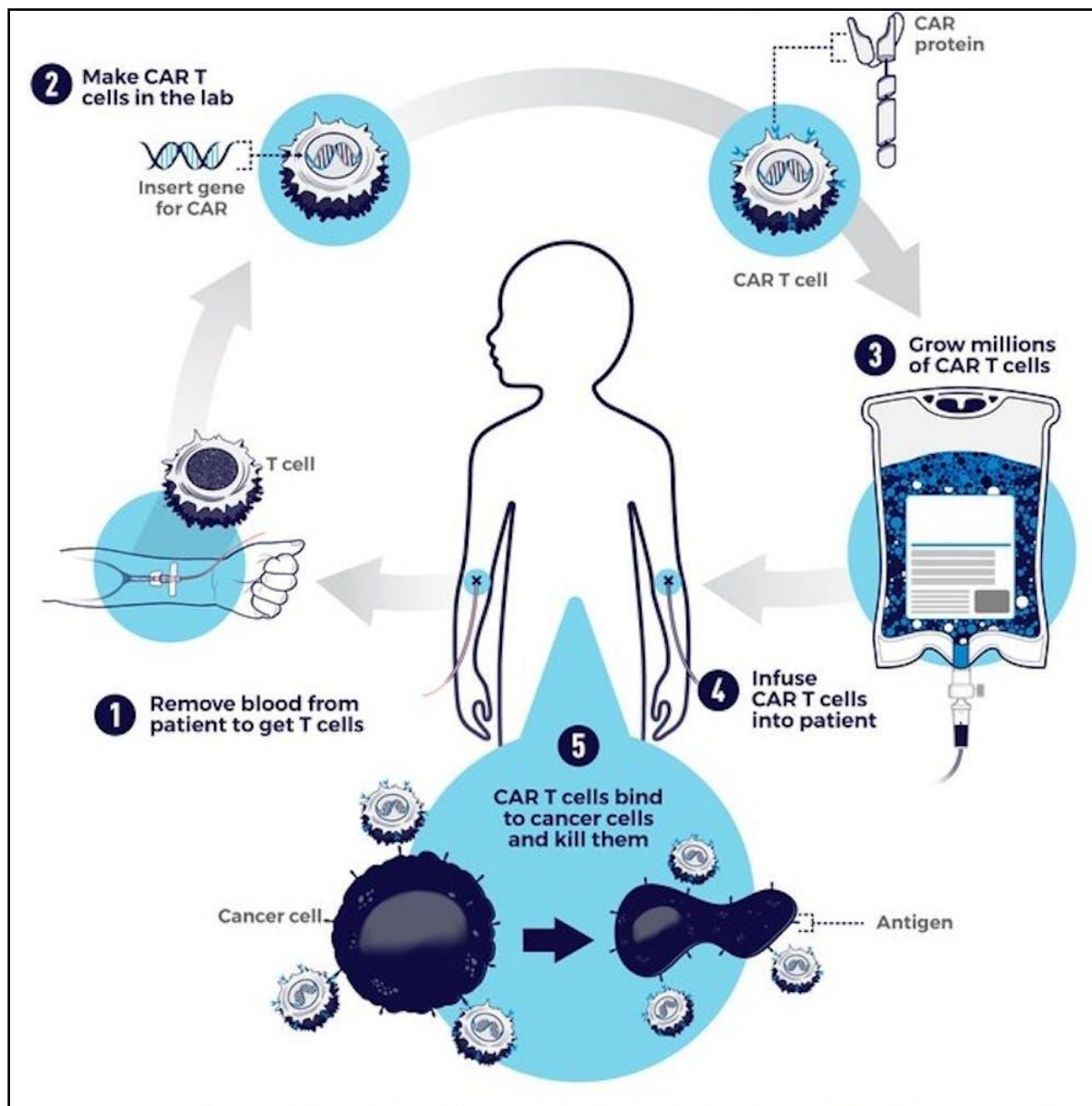
- They're the core in India's nuclear launches capabilities.
- Range:
- Agni II: A range of between 700 and 800 km.
- Agni II More than 2 000 km of range.
- Agni III More than 2,500 km
- Agni IV Range exceeds 3,500 km . It is able to be fired from a mobile launcher for road vehicles.
- Agni-V The most extensive of the Agni series it is as an Inter-Continental Ballistic
- Missile (ICBM) with the range of over 5,000 kilometers.
- Agni-P (Prime) Agni-P (Prime): It's canister-based missile that has an effective range of between 1,000 to two thousand kilometers. It is expected to be replacing Agni I. Agni I missile.

### **Cruise missiles vs Ballistic missiles**

- Cruise Missile
- Missile ballistic
- A cruise missile can either find its target or has a pre-set target.
- It operates with an aid system that includes inertial or beyond vision distance satellite GPS guidance. It also includes a payload as well as an propulsion system for aircraft.
- Cruise missiles can be fired either from the sea, land, or air to attack land as well as anti-shipping and are capable of traveling in subsonic, hypersonic or hypersonic speeds.
- Because they are so near to Earth Since they are so close to the surface of the earth, they cannot be easily identified by anti-missile systems and are built to transport large payloads using high accuracy.
- Ballistic missiles are launched directly into upper layers of earth's atmosphere.
- They are launched outside of the atmosphere. The warhead is detached from the missile, and then falls toward a target that has been predetermined.
- They are self-guided self-propelled rockets that carry nuclear or conventional weapons.
- It is possible to launch them by aircraft or submarines as well as from on land.
- Similar to cruise missiles, they are easily detected by radars.

## Topic 4. ANTI-CANCER CAR-T THERAPY REENGINEERS T CELLS TO KILL TUMOURS — AND RESEARCHERS ARE EXPANDING THE LIMITED TYPES OF CANCER IT CAN TARGET

*Important for subject: Science and Technology*



Researchers are developing the unique type of treatment which provides patients with the new group of cells specifically designed to fight cancer: chimeric antigen receptor T cells also known as CAR-T cells for short.

### **How do you define T cell?**

- The T cell is a kind of white blood cells. Also known as T lymphocyte or the

thymocyte.

- T cells are a part of our immune system. They arise from stem cells in the bone marrow.
- They protect the body from infection, and can aid in fighting cancer.

### **What exactly is CAR-T therapy and how does it work?**

- CAR-T cells are an option to treat a variety of kinds of cancers, such as lymphoma and multiple myeloma.
- It begins with the isolation of a patients' T cells from a small amount of their blood.
- These T cells have been genetically engineered to create an antigen receptor chimeric, also known as CAR.
- CARs are synthetic receptors specifically created to divert T cells away from their normal targets in order to destroy cancerous cells.
- The surface of a CAR an adhesive that allows the T cells to adhere to tumor cells. Binding to a tumor cell stimulates the engineered cell to kill and generate anti-inflammatory cytokines that aid T cell function and growth. They also enhance their ability to kill cancer.
- The CAR-T cells are then stimulated to divide into massive quantities over seven to 10 days. They are then transferred to the patient through infusion.

### **What kind of cancer the treatment is successful?**

- It's being used already in the treatment of lymphoma as well as multiple myeloma..
- However, it isn't effective against solid tumours.
- In contrast to cancers that originate in blood vessels These types of cancers develop into a large, solid masses (For e.g. Kidney and Pancreas) which creates an environment of cells, molecules, and structures that stop T cells from gaining access to the tumor and initiating the immune system to respond.
- This is because CAR-T cells designed specifically to focus on the specific tumour of a patient aren't able to get access to it, thereby limiting its ability to destroy tumor cells.

### **Synthetic Notch Receptor (SynNotch):**

- Researchers have created the new type of synthetic receptor which could be a

complement to the CAR concept.

- This receptor, dubbed Synthetic Notch receptor or synNotch is based upon the nature-based version of Notch that is present in our body, and plays a crucial role in the development of organs across a variety of species.
- Like CARs and synNotch, the exterior of synNotch contains a binder which lets T cells stick to tumor cells.
- Contrary to CARs synNotch is not a CAR. inner synNotch is an proteins which is released whenever a T-cell connects with the tumor.
- Its protein is also known as transcription factor allows researchers to better manage the T cells by stimulating it to make an individualized protein.

#### **SynNotch's use in the treatment of cancer:**

- The most beneficial application for synNotch so far is to make sure that T cells engineered by synNotch can only be activated when they are connected to a tumor cell and not to healthy cells.
- If the test is successful, T cells will be able to use both synNotch and CAR receptors to detect tumours which increases the efficiency of killing T cells.
- Then, it can be used to enhance CAR-T cell therapy against cancerous solid tumors by causing them to create more inflammatory cytokines like IL-2 which enable the cells to kill cancerous cells.
- Researchers have created CAR-T cells that produce the IL-2 via synNotch.
- When the CAR-T cells come across a tumor and is exposed to a tumour, it releases the hormone IL-2 within the tumour, instead of outside, thus avoiding damaging healthy cells.
- Since synNotch is able to break through the obstacles that tumours create and aid T cells in amplifying and sustain levels of IL-2 they create, allowing the T cells to continue to function even in hostile environments.

**Topic 5. NASA SET TO LAUNCH FIRST GLOBAL WATER SURVEY SATELLITE*****Important for subject: Science and Technology***

An SpaceX rocket was set to take off from California early on Friday , carrying an U.S.-French satellite that was designed to conduct the world's first examination of the oceans of Earth's surface providing new insight into the mechanisms and effects on climate change.

**Information about The Surface Water and Ocean Topography satellite (SWOT):**

- The launch was made in the name of: NASA
- Vehicle for launch: Falcon 9 rocket of SpaceX
- Launching location: Space Launch Complex 4E located at Vandenberg Space Force Base in California.
- Satellite created by NASA as well as French CNES, the space agency. CNES
- This Surface Water and Ocean Topography (SWOT) spacecraft also features assistance from Canadian Space Agency (CSA) as well as The UK Space Agency.
- The goal: To observe nearly all the oceans that lie on the globe's surface with an initial mission of three years.
- The satellite will be able to measure the water's height in freshwater bodies and also the oceans that cover greater than 90 percent of the Earth's surface.
- This info will give you insight on how oceans affect the climate; how warming can affect lakes, rivers and reservoirs; and also how people can be better prepared themselves for emergencies such as flooding.

**Satellite features:**

- SWOT will be able to cover the entirety of the Earth's surface between the latitudes of 78 degrees south to 78° north at least in 21 consecutive days. and send around one terabyte worth of raw data every day.
- The science-based heart that makes up this spacecraft is an ingenious instrument known as Ka-band radar interferometer (KaRIn). Ka-band radar (KaRIn), which is a significant technological advancement.
- SWOT mission will offer details regarding over 95 percent of the lakes larger than fifteen acres (62,500 square meters) and rivers wider than more than 330 feet (100 meters) across.



## Topic 6. GI TAGS

*Important for subject: Science and Technology*



Kerala State's agricultural items are tagged with GI.

**Five of these five items include:**

- Attappady Attukombu Avara (beans),
- Attappady Thuvara (red grams),
- Onattukara Ellu (sesame),
- Kanthalloor-Vattavada Veluthulli (garlic), and

- Kodungalloor Pottuvellari (snap melon)
- This success is due to the cooperation from Kerala Agricultural University, the Department of Agriculture, and farmers' associations from the respective regions.
- With the new five GIs 17 agricultural products from Kerala supported with Kerala Agricultural University Kerala Agricultural University are now granted an GI status.
- The distinctive characteristics of the products, derived from the climate and agroclimate of the region of their production, are the basis to obtain a geographical indication tag.

#### **Attappady Attukombu Avara (beans):**

- It is grown throughout the Attappady region of Palakkad and is shaped as the shape of a the horn of a goat like its name implies.
- The greater amount of anthocyanin in it in comparison to other dolichos beans creates a purple hue on the fruits and stems.
- Anthocyanin can be beneficial against cardiovascular disorders and has anti-diabetic properties.
- In addition, calcium, protein and fibre levels are as well.
- The higher amount of phenolics found in Attappady Attukombu Avara confers protection against diseases and pests and makes it fit for organic farming.

#### **Attappady Thuvara (red grams):**

- It's got seeds that have the white color.
- As compared to other red grams Attappady Thuvara seeds tend to be larger and weigh more seeds.
- The delicious red gram that is utilized as a vegetable as well as dal is full of fiber, protein, carbohydrates and calcium. It also contains magnesium and calcium.
- Kanthalloor-Vattavada Veluthulli (garlic):
- In comparison to the garlic that is produced in other regions The garlic grown in Idukki's Kanthalloor Vattavada area of Devikulam block panchayat in Idukki has a higher concentration of flavonoids, sulphides and proteins.
- It is high in the chemical allicin that has proven effective against cancer, blood sugar heart disease, cholesterol and blood vessel damage.



- The garlic grown in this region is abundant in essential oil.

**Onattukara Ellu (sesame):**

- Onattukara Ellu and its oil are renowned for their unique health benefits.
- The more antioxidant-rich level of Onattukara Ellu assists in fighting free radicals which cause the destruction of body's cells.
- Furthermore, the large amount of unsaturated fats can be beneficial for patients with heart disease.

**Kodungalloor Pottuvellari (snap melon):**

- Kodungalloor Pottuvellari that is grown within Kodungalloor along with areas of Ernakulam is consumed in the form of juice and other forms.
- The snap melon that is picked in summer, is excellent for quenching thirst.
- It is a significant quantity of Vitamin C.
- As compared to other cucurbits minerals like calcium, magnesium, fiber and fat content are plentiful in Kodungalloor.

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**Topic 7. THE CHALLENGES OF QUANTUM COMPUTING**

***Important for subject: Science and Technology***

In 2021, the Indian government announced the National Mission to study quantum technologies, with an investment of \$8,000 million; the army established the first quantum research center within Madhya Pradesh, and the Department of Science and Technology launched a second project in Pune.

**Quantum computer (QC):**

- Quantum computer replicate the behavior of subatomic particles and atoms to dramatically increase the speed of processing.
- Qubits are the primary component of the Quantum Computer (QC).
- They can be found in multiple states at the same time which is a puzzle known as quantum superposition.
- The theory behind Quantum superposition quantum particles form interlocking bonds that bind, or connect with each other and affect each other's behavior, even at distances of a great distance.

- A number of quantum objects create an intricate environment called a composite quantum system.
- If one of the objects in the system is damaged by another object, all objects with which it is in contact will be affected.

### **How does a computer use quantum superposition?**

- Bits are the basic element of a traditional computer.
- This value will be 1 in the event that a transistor is turned on, and the value is 0 in the event that it is turned off.
- The transistor could be in two states at the same moment - either on or off and a bit could have two different values at any given time, either 0 , or 1.
- In the Qubits instead of being 1 or 0, the data is encoded as an overposition. For example 45% 0 plus 55 percent 1.
- This is completely different from the two distinct states of the states 0 and 1. It is the third type of state.
- One qubit can encode two states. Five qubits can encode 32 states. A computer that has N qubits can encode two states, whereas computers equipped with N transistors is able to encode  $2^N$  states.
- Thus, a computer based on qubits has access to more states than a transistor-based machine and, as a result, access more computational options and solutions to more complex issues.
- It's generally a particle that resembles an electron.

### **What are Transmons?**

- The term "transmon" is used in quantum computing especially in superconducting quantum computing transmons are transmon is a form of superconducting charge qubit which was developed to be less sensitive to noise caused by charge.
- Google as well as IBM were noted to utilize transmons which are connected electrons are oscillated between superconductors to indicate both states.

### **Problems with their use:**

- Researchers are faced with a variety of fractious issues.

- Practical QC requires at minimum 1,000 qubits. The largest quantum processor currently is 433 qubits.
- There aren't any theoretical limits for larger processors. The problem is primarily engineering-related.
- Qubits are superposed in certain conditions, such as extremely cold temperature (~0.01 K) and radiation shielding and protection from physical shock.
- Even a small shock can cause quantum states to collapse which is a phenomenon known as decoherence.
- Electromagnetic or material defects in the qubit's circuitry can "corrupt" their states and alter the final outcome.
- Researchers are still working on QCs that eliminate all disruptions in systems that have just a few qubits.
- Correction of errors is also a challenge. The theorem of no-cloning states that it is impossible to completely replicate the state of one qubit.

#### **Opportunities:**

- Quantum is a technology that has the potential to substantially increase connection, safety, as well as speed of the internet.
- "The so-called quantum web connects quantum devices by the entanglement.
- It is a secure communication technology using quantum cryptography.

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### **Topic 8. COP15 MONTREAL: 'COALITION FOR NATURE' FORMED BY SMALL ISLAND DEVELOPING STATES**

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

A few Small Island Developing States (SIDS) have formally agreed to establish a "Coalition for Natural Resources" to facilitate the adoption and implementation of Global Biodiversity Framework (GBF) at the 15th Conference of Parties (COP15) to the Convention on Biological Diversity.

#### **About the Nature Coalition:**

- The coalition is headed by Cabo Verde, Samoa and Seychelles.
- goal: enhancing the methods of achieving ambitious goals to protect nature within

SIDS in the Post-2020 Global Biodiversity Framework (GBF).

- The purpose for the group is to promote a common understanding of SIDS priorities and requirements for better ways for achieving biodiversity targets in these areas by putting up a united front.
- The objective for SIDS Coalition is to SIDS Coalition will be to highlight the fact that SIDS are the home of large proportions all of our biodiversity and to demonstrate how they are making use of natural solutions and are leading the way by an example.
- It will also demonstrate how increasing the method for implementation of SIDS could be a strategic way to save the earth.

**Members:**

- Belize, Cabo Verde, Comoros, Dominican Republic, Guinea Bissau, Kiribati, Samoa, Saint Lucia, Sao Tome and Principe, Seychelles, Solomon Islands, Tuvalu and Vanuatu are currently members of the coalition.
- Germany, France, Italy, Luxembourg, Monaco, Netherlands, Portugal, Spain and the United Kingdom as Friends of the SIDS Coalition.

**Global support for Coalition:**

- SIDS Coalition SIDS Coalition will be supported by the Friends of the Coalition in the form of a 'voice for support'.
- The UK has pledged to double the amount of climate finance by establishing an 500 million Blue Planet Fund to help SIDS create blue economies.

**What is the reason that small islands developing states (SIDS) have this demand?**

- SIDS hosts 19 percent of this ocean's coral reefs and their geographical isolation protects the diversity of indigenous species and animals that can be found nowhere anywhere else on the planet.
- The islands state is responsible for an ocean that is nearly 28 times larger than their landmass.
- Small size of land, a little population, geographical isolation, a limited resources as well as the vulnerability of lower-lying zones places small island states at an increased threat of external earthquakes.

**Topic 9. WAYANAD RICE FESTIVAL PROMOTES CLIMATE-RESILIENT CROPS*****Important for subject: Environment***

An organization based in Kerala called Thanal has begun an innovative conservation project that has planted 300 climate-resilient varieties of rice that are traditional in 1.5 acres located at the Agroecology Centre located in Panavally within the Wayanad district.

**Information about the project:**

- Ikki Jathre Ikki Jathre, also known as Ikki Jathre, or the Festival of Rice, launched by the Kerala-based group Thanal.
- The festival sees Thanal initiates planting 300 climate-resistant varieties of rice traditional to help promote the traditional agricultural system.
- Thanal has been organizing annually "rice fields weeks" since 2012.
- The majority of the species were collected in Kerala, Karnataka, Assam, Tamil Nadu, Arunachal Pradesh, Maharashtra and West Bengal.
- There are three rice traditional varieties that hail from Vietnam in addition to Thailand.
- A plethora of researchers, farmers students, environmentalists, and farmers are descending on Panavally to participate in the festival.
- The goal of the initiative: To sensitise people to the importance of conserving crops from the past which are able to endure harsh climate conditions.
- The festival also provides the stage for sharing knowledge and collaboration between experts and tribal farmers.

**Agro Ecology Centre, Wayanad:**

- Agro Ecology Centre is an off-campus facility located in Thanal located at Panavally within the city of Wayanad.
- The center facilitates documentation and research on the biodiversity of agro, organic farming, and other related activities with Agriculture and Food Safety.
- The center is home to around 200 rice varieties that are traditional.
- The center offers training to students, farmers, and government officials.
- The Center also helps with seed production, conservation, and exchange.

### **The importance of the traditional rice cultivation**

- India has almost 1.5 million varieties of rice, including approximately 3,000 varieties exclusive to Kerala.
- Many of them have vanished. There are only 6000 varieties currently being used by farmers across the countryside.
- It is believed that the Thondy varieties is an well-known and traditional rice with the people of Wayanada just a few years ago, was able to compete with hybrid rices in terms of its productivity.
- Additionally it is true that the input cost for conventional rice farming is extremely affordable owing to its natural resistance to diseases and pests.
- Its nutritional value is quite high.
- Many farmers have stopped cultivating traditional rice seeds following the time that hybrid rice varieties gained popularity due to the myth that they are less production.

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### **Topic 10. FUNDING THE ENERGY TRANSITION: INDIA'S G20 PRESIDENCY MUST FOLLOW LESSONS FROM COP27**

*Important for subject: Environment*

#### **V20: V20 Group:**

- The Vulnerable Twenty (V20) Group was established by the first gathering of the V20 Ministers of Finance of the Climate Vulnerable Forum, chaired by the Philippines on 8 October, 2015 at Lima, Peru in conjunction with the annual meetings that are held annually by the World Bank Group and International Monetary Fund.
- It is a committed collaboration initiative between economies that are at risk of climate change.
- Presently, Marshall Islands hold the presidency since the year 2018.

#### **Background:**

- The idea of forming the V20 (group comprised of 58 countries) originated from the Climate Vulnerable Forum's Costa Rica Action Plan (2013-2015) in a major effort to improve financial and economic solutions to climate-related change.
- It was envisioned a high-level policy dialogue regarding actions to combat changes in

the environment and its promotion of low-emission and climate-resilient development with the full power to address financial and economic issues that are that are beyond the reach of single organization.

### **Green Climate Fund (GCF):**

- GCF was established in 2010. GCF was established in the year 2010 in the UNFCCC's financial mechanism to channel money from developed countries to developing nations in order to help them mitigate climate change, and also to adjust to the disruptions that result from climate change.

### **What is the best way to help?**

- The Green Climate Fund will fund projects, programmes policies, and other actions in developing countries Parties through thematic window of funding.
- It is envisioned to be the central piece in efforts for raising Climate Finance that is \$100 million annually until 2020.
- The Fund will help to promote the paradigm shift toward sustainable development that is low-emission and climate resilient by providing assistance for developing countries to reduce or limit emission of greenhouse gases, and in adjusting to impact of climate changes, taking into consideration the specific needs of in the developing world that are most vulnerable to the adverse impacts of climate change.
- The Fund will work to maximize the effect of its funds to help adapt and mitigate, and to strike an equilibrium between the two and promoting environmental, economic, social and developmental co-benefits while taking a gender sensitive approach.

### **Who will run the Fund?**

- The Fund is managed and controlled by an Board which will take complete responsibility for decisions regarding funding and will be guided by the recommendations by the Conference of Parties (COP).
- The Fund is accountable to, and operates under the direction of the COP.

### **How much are the carbon-based border tax?**

- Carbon border taxes is placing an import duty on a product that is manufactured in a



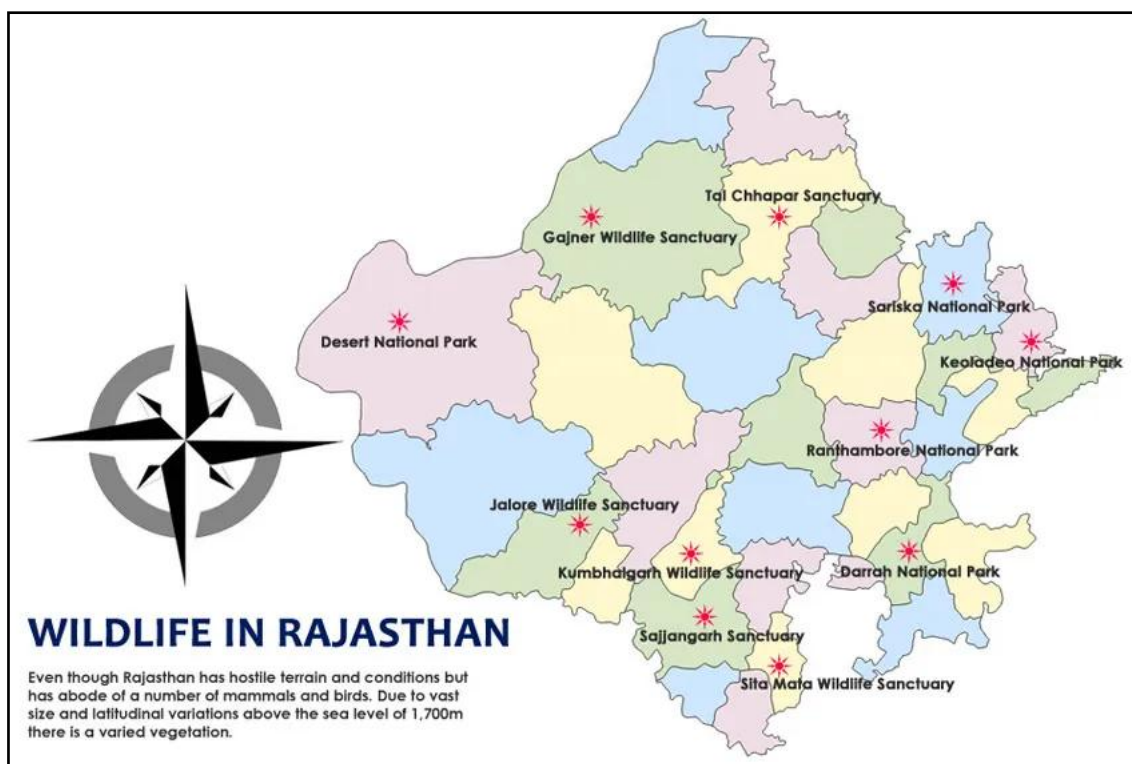
country that has more relaxed climate regulations than the buyer.

### Carbon Border Adjustment Mechanism (CBAM):

- The carbon border adjustment mechanism (CBAM) is an initiative from the European Union (EU) to tax carbon-intensive goods like steel and iron cement, fertiliser aluminum, electricity generation starting in 2026.
- CBAM CBAM will even out the cost of carbon for domestic goods and imports , and ensure that the EU's climate targets are not harmed by the transfer of production to countries that have less aggressive policies.

## Topic 11. RAJASTHAN'S TAL CHHAPAR SANCTUARY GETS PROTECTION FROM PLAN TO REDUCE ITS SIZE

*Important for subject: Environment*



Tal Chhapar sanctuary for blackbucks located in the Rajasthan's Churu district has been granted a shield against a plan by the state government to cut the size of its ecologically sensitive zone.

- The court recently issued the court to impose a "complete ban" on any action to decrease the size of the sanctuary's wildlife.

- The World Wildlife Fund for Nature (WWF) has been involved in a large conservation project to protect the raptors of the sanctuary that covers 7.19 sq. km.

### **Information about the Tal Chhapar sanctuary:**

- Tal Chhapar Sanctuary is a sanctuary situated inside the Churu district in Northwestern Rajasthan, in the Shekhawati region of India.
- It is well-known for its blackbucks and also is home to many species of birds.
- The sanctuary lies 210 kilometers away from Jaipur at the edge of the Great Indian Desert.

### **Climate and geology:**

- Tal Chhapar Sanctuary, with an almost level tract with a few low-lying areas that are shallow and open grassland, is home to scattering Acacia as well as Prosopis trees, giving it the appearance that resembles an savanna typical of.

### **Flora and Fauna:**

- The sanctuary hosts around 4,000 blackbucks as well as various wild animals. more than forty species of predators as well as over 300 different species of migratory and resident birds.
- The raptors, which comprise predators and scavengers, sit at the top on the food pyramid and manage the population of birds, small mammals and reptiles, as well as insects.
- The sanctuary was once home to an earlier significant number of desert foxes and other burrowing animals. Likewise, the vast populations of the only herbivore lizard the spiny-tailed Lizard, serve as the main prey source for predators.

### **Threats at the sanctuary:**

- The challenges facing the sanctuary are hyper-aridity the pressure of grazing as well as the invasion of the invasive plant Prosopis juliflora and salt mining in the area.
- The sanctuary's land area is inadequate for the large blackbuck population..
- The monitoring of sanctuary
- Since Tal Chhapar has a significant amount of Raptors to their habitat and habitat, the World Wildlife Fund for Nature (WWF) has been monitoring them in order to

know their situation and their distribution within the sanctuary.

**Blackbucks (Antelope cervicapra):**

- Also called the Indian Antelope, also known as the Indian.
- Native to India and Nepal.
- It's a part of the grassy plains and forests that are lightly forested with water sources that are perennial.

**Blackbuck sanctuary located in India:**

1. Tal Chhapar sanctuary Rajasthan
2. Ranabennur blackbuck sanctuary, Karnataka
3. Jayamangali blackbuck sanctuary, Karnataka
4. Rehekuri blackbuck sanctuary, Maharashtra
5. Velavadar national park for blackbucks Gujrat

**Conservation Efforts:**

- Raptors MoU (Global) It is the Memorandum of Understanding on the Conservation of Migratory Birds of Prey in Africa and Eurasia is also called Raptors MoU.
- The agreement can be described as an agreement that is part of the Convention on the Conservation of Migratory Species of Wild Animals (CMS).
- CMS also known as Bonn Convention provides a global platform to promote the conservation as well as sustainable utilization of animals that migrate and their habitats.
- It isn't legally binding.

**India's Conservation Efforts:**

- India has been a signatory to the Raptors MoU.
- To help save Vultures, India has launched a Vulture Action Plan 2020- 25.
- India is also member of SAVE(Saving Asia's Vultures from Extinction) consortium.
- The Jatayu Conservation Breeding Centre located in Pinjore(Haryana) is largest in the world within Haryana's Bir Shikargah Sanctuary, which is dedicated to conservation and breeding of Indian Vulture species.

**Topic 12. COP15: KUNMING-MONTREAL GLOBAL BIODIVERSITY  
FRAMEWORK ADOPTED**

*Important for subject: Environment*

The 15th Conference of Parties (COP15) to the UN Convention on Biological Diversity (CBD) adopted the Kunming-Montreal Global Biological Diversity Framework (GBF) December 19 2022.

**About the Kunming-Montreal Global Biodiversity Framework (GBF):**

- The framework contains four long-term objectives to be fulfilled by 2050, and 23 goals that the world must reach by 2030.
- As of 2020, we did not manage to meet the previous set of goals, known as the Aichi Targets.
- The nations will keep track and publish each five-year period or so on a broad set of indicators that measure progress.
- CBD CBD will consolidate national information provided by the end of 2026 in February and into late June 2029 to create global progress reports and trends.

**4 Long-term objectives are:**

**Goal A**

- Integrity, connectivity, and robustness of the ecosystems are preserved as well as enhanced or restored, significantly expanding the natural ecosystems by 2050. The human-caused extinction of threatened species is reduced and by 2050, the the risk of extinction for all species are reduced by tenfold and the number of wild species native to the area increases to healthy and robust levels The genetic diversity of the populations of domesticated and wild species is maintained by securing their potential to adapt.

**Goal B**

- Biodiversity is used sustainably and managed. Nature's benefits to humans, such as ecosystem functions and ecosystem services are valued, preserved and improved. Those that are currently declining being restored, which aids in the attainment of

sustainable development to benefit the our future and present generations up to 2050.

### **Goal C**

- The financial and non-monetary advantages from the use of genetic resources and digital sequence information for genetic resources, as well as of traditional knowledge related to genetic resources, if appropriate, are shared equally and fairly, which includes when appropriate, with indigenous communities and indigenous peoples and significantly increased by 2050, while also ensuring the traditional knowledge that is associated with genetic resources is properly safeguarded, contributing to the sustainable conservation and use of biodiversity, conformity with internationally agreed accessibility and benefit-sharing agreements.

### **Goal D**

- The appropriate means for implementation such as the financial resources, capacity building technological and scientific cooperation as well as access to and transfer of technology in order to fully implement the global biodiversity framework of Kunming-Montreal are available and fair to all Parties, particularly developing countries, and in particular those with the lowest development levels and small island developing states, and countries that have economies in transition. They are gradually closing the gap in the financing of biodiversity of 700 billion dollars each year, while aligning financial flows to the Kunming-Montreal Global Biodiversity Framework as well as the 2050 Vision for Biodiversity.

### **Targets Details**

1. Make sure that all zones are subject to the umbrella of participatory, integrated biodiversity inclusive spatial planning, and/or effective management procedures that address changes in land use and marine use and in order to bring the loss of regions that are of great biodiversity and ecosystems with high ecological integrity near zero by 2030, all the while protecting the indigenous rights of communities and local communities.
2. In the year 2030, ensure that at least 30% of degraded aquatic, terrestrial and marine ecosystems are in the process of being restored to their original condition.
3. Assist and ensure that by 2030, at a minimum 30% of inshore and terrestrial water bodies

and marine and coastal zones in particular areas that are of great important for ecological functions as well as services are efficiently conserved and controlled.

4. Take immediate management steps to prevent the extinction caused by humans of threatened species.
5. You must ensure that the harvesting, use and trading of wildlife is safe, sustainable and legal, while preventing overexploitation, while minimizing the impact on ecosystems and species that are not targeted and minimizing the risk of spreading pathogens through the concept of ecosystems, in keeping with the traditional sustainable ways of use for the indigenous communities and their people.
6. Reduce, eliminate, or limit the impact of alien species that are invasive to the environment on ecosystem services and biodiversity in the minimum of 50 by 2030.
7. Reduce the risks of pollution and negative effects caused by pollution from any source in 2030.
8. Reduce the impacts of the effects of climate change and ocean acidification on biodiversity, and enhance its resilience by reducing as well as adaptation and risk reduction measures, for example using ecosystem-based solutions and/or nature-based methods.
9. Make sure that the management and usage of wild animals is sustainable, thus providing the economic, social and environmental benefits to the individuals
10. Afford to ensure that agricultural areas or aquaculture, fisheries, and forest management are sustainable particularly by ensuring the sustainability of biodiversity
11. Restore, sustain and improve the benefits of nature for humans such as ecosystem functions and ecosystem services, like the control of water, air and climate, soil health, pollination , and decrease of the risk of getting sick and protection against natural disasters and hazards using ecosystem-based or nature-based methods that are beneficial to all humans and nature.
12. Increase the size and quality as well as connectivity accessibility to and benefit from green and blue spaces in heavily populated areas environmentally sustainable
13. Adopt effective policy, legal administrative, and capacity-building measures on all levels



if appropriate to ensure the fair and equitable distribution of the benefits which result from the use of genetic resources, and the digital information about genetic resources along with the traditional knowledge that is related to genetic resources and providing access to these resources and by 2030, facilitating an exponential increase in benefits shared in accordance with the applicable international instruments for benefit-sharing and access.

**14.** Incorporate biodiversity and its numerous benefits into regulations, policies or planning and development procedures including poverty-eradication strategies and strategies for environmental assessments, environmental impact assessments, and the appropriate national accounting, both within every level of the government, and across all sectors.

**15.** Implement administrative, legal or policy measures to support and facilitate business, and specifically, to ensure that major multinational companies as well as financial institutions

- Continuously monitor, evaluate, and clearly disclose their risk, dependencies, and impact on biodiversity and in compliance with the requirements of all large and transnational corporations and financial institutions throughout their value chains, supply chains, and portfolios;
- Inform consumers about the necessary information to encourage sustainable consumption patterns;
- Report on the conformity of accessibility and benefit-sharing regulations as well as the appropriate measures

**16.** Make sure that consumers are encouraged and empowered to make sustainable choices about their consumption and, by 2030, decrease the footprint of consumption around the world in a fair manner 5/24

**17.** Develop, enhance capacities, and put in place across all countries biosafety procedures as laid out within Article 8(g) of the Convention on Biological Diversity and procedures for handling biotechnology and the distribution of its benefits, as laid in Article 19 of the Convention

**18.** Determine by 2025 the best way to eliminate and phase out or modify incentives that are harmful, such as subsidies, to biodiversity in a proportionate, fair efficient, fair and fair manner, as well as drastically and gradually cutting them down by at least 500 billion United



States dollars per year by 2030.

**19.** Gradually and significantly increase the amount of funds coming from every source efficiently quick and accessible way. By 2030, mobilizing at minimum \$200 milliards United States dollarsper year

**20.** Enhance capacity-building and development, the transfer and access to technology, and encourage the advancement and access to innovation as well as scientific and technical collaboration

**21.** Make sure that the highest quality available data, information and understanding available to decision makers as well as practitioners and the general public in order to facilitate the most efficient and equitable governance. that integrates and enables participation in the management of biodiversity.

**22.** Provide full, equitable effective, inclusive and gender-sensitive representation of women and men in decision-making as well as accessibility to information and justice about biodiversity for indigenous peoples as well as local communities.

**23.** Make sure that gender equality is maintained in the application of the framework by implementing a gender-sensitive approach.

- The creation of dedicated funds
- The Global Environment Facility has been asked to create the Special Trust Fund to support the implementation of the Global Biodiversity Framework ("GBF Fund").
- The delegates have decided to create within the GBF an international fund to ensure an equitable distribution of the benefits between both the providers and users of digital sequence data on the genetic resource (DSI) which will be completed at COP16 in Turkiye in 2024.

### **Topic 13. INDIA NOT JOINING THE OIL & GAS METHANE PARTNERSHIP IS A MISSED OPPORTUNITY**

*Important for subject: Environment*

The Methane Alert and Response System (MARS) initiative was announced in the United Nations Environment Programme (UNEP) at the 27th Conference of Parties (COP27) to the United Nations Framework Convention on Climate Change on 11 November 2022.

#### **About the Methane Alert and Response System (MARS):**

- MARS is an satellite-based system that uses satellites to find methane emissions and assist government agencies and industries in reducing their effects.
- It's the first openly available system for monitoring greenhouse emissions of gases.
- It will outline important methane-detection incidents which will assist UNEP be able to verify methane emissions reported by businesses and analyze variations over time.
- The initiative is supported with the help of the European Commission, the US government, Global Methane Hub and the Bezos Earth Fund.

#### **Mechanism of operation in MARS**

- It operates by integrating various satellite systems, beginning with the satellite controlled through the European Space Agency called Sentinel 5P. (Sentinel 2 and PRISMA are two additional satellites in the network.)
- It provides global coverage that is daily that we're going to use to detect massive methane plumes each day.
- The data will be used to create an improved map of hotspots for methane.
- MARS will collaborate closely with Oil and Gas Methane Partnership (OGMP) members.
- There are two systems in operation to analyze methane emissions.
- The more rapid one can detect methane emissions at a rate of 10 ton per hour.
- It is the slower one can detect methane emissions that are slower about 1 tonnes per hour. It can be utilized for more detailed analysis.

#### **Oil and Gas Methane Partnership (OGMP):**

- The Oil and Gas Methane Partnership (OGMP) was officially established in 2014 at

the United Nations (UN) Secretary General's Climate Summit, was created by the Climate and Clean Air Coalition (CCAC) as well as the United Nations Environmental Programme (UNEP) as a non-profit initiative to assist businesses in reducing methane emissions from the oil and gas industry.

- International organizations, government agencies as well as non-governmental organizations and the oil and natural gas industry work together via the OGMP to increase awareness and address methane emissions responsibly.
- The OGMP offers an instrument to assist businesses efficiently manage their methane emissions from their upstream oil and gas production in addition to providing an efficient platform to help members demonstrate real reductions to stakeholders in the industry.
- Over 15 % of world natural gas extraction is comprised of the 10 OGM members: BP, Ecopetrol, Eni, Equinor, Neptune Energy International SA, Pemex, PTT, Repsol, Shell and Total.
- There aren't any Indian firms which are members of the OGMP.

#### **Global Methane pledge:**

- Methane was the main ingredient in the global pledge signed at COP26.
- In the framework of this agreement, nations came to an agreement to cut global methane-related emissions by 30% until 2030.
- This will keep global temperatures by 1.5 degrees above preindustrial levels.
- Methane is about 25x more powerful as greenhouse gas than carbon dioxide, and is responsible for about one half of the global temperature.
- The reduction in carbon dioxide is, therefore vital to limit the effects of climate change.

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### **Topic 14. COMMODITIES BOARD**

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

The Commerce Ministry is expected to work in a dialogue with NITI Aayog to rework the five draft Bills regarding cash crop tea, coffee and spices, rubber and tobacco.

- It is proposed to repeal the Tea Act, 1953; Spices Board Act, 1986; Rubber Act, 1947; Coffee Act, 1942 and an update of the Tobacco Board Act, 1975.

### **Commodity Boards:**

- There are five statutory commodity Boards that are part of the Department of Commerce.
- The Boards are responsible for the production, development and export of coffee, tea, rubber, spices , and tobacco.

### **Coffee Board**

- Coffee Board Coffee Board is a statutory institution established pursuant to the provisions of Section (4) in the Coffee Act, 1942.
- The Board comprises 33 members including the Chairperson who is also the Chief Executive. The Chief Executive is located in Bangalore.
- The Board is focused on efforts on research extension development, quality enhancement and economic and information technology, market research and internal promotion, as well as labour welfare.

### **Rubber Board**

- The Rubber Board is a statutory body established by section (4) in the Rubber Act of 1947.
- The Board is led by a Chairman who is appointed by the Central Government and has twenty seven members that represent different aspects in the industry of natural rubber.
- The headquarters is in Kottayam within Kerala.
- The Board is accountable to promote the development in the field of rubber across the country, by supporting and stimulating research development, extension, and other training activities that are that are related to rubber.
- It also collects statistics of rubber. It also takes measures to encourage the marketing of rubber as well as undertake work-related welfare initiatives.

### **Tea Board**

- It was established as a statutory entity on April 1 1954, as per section (4) in the Tea Act, 1953.
- As an apex authority, it is responsible for the development of the tea industry.

- The Board is led by a Chairman. It is comprised of 30 members who are selected from the Government of India.
- To aid in tea promotion, there are three overseas offices are located in London, Moscow and Dubai.
- The responsibilities and functions for Tea Board are varied. The responsibilities of Tea Board include increasing production and productivity, increasing the standard of tea and market development and welfare programs for plantation workers , and assisting Research and Development.
- Collation, collection and dissemination of statistical data to all parties.
- The Board has control over exporters, manufacturers, producers auction organisers, tea brokers and warehouse keepers by means of various control orders that are issued under the Tea Act.

### **Tobacco Board**

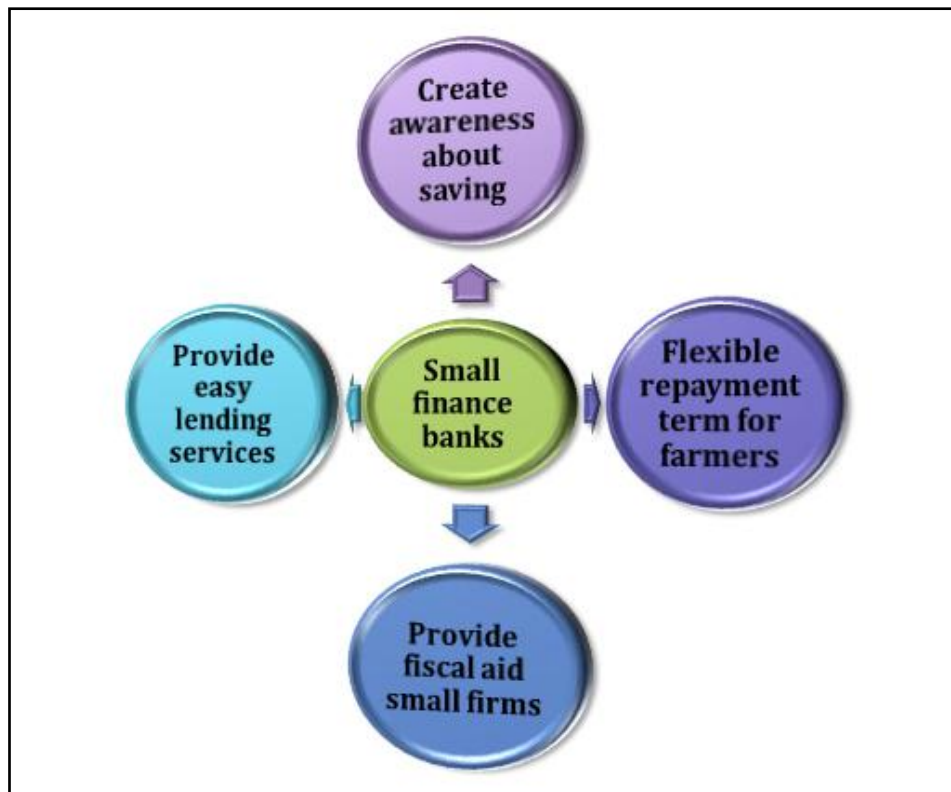
- The Tobacco Board was constituted as an official body on the 1 January 1976, under section (4) in the Tobacco Board Act, 1975.
- Although the main function for the Board is the promotion of exports for all varieties of tobacco as well as its related products, its responsibilities include distribution, production (for exports and domestic consumption) and promotion of exports for Flue Cured Virginia (FCV) tobacco.

### **Spices Board**

- The Spices Board was created as an official body on the 26th February 1987, pursuant to the provisions of Section (3) (3) of the Spices Board Act 1986.
- It is the one responsible for the growth of the cardamom business and the promotion of exports for the 52 spices on the Schedule of the Spices Board Act in 1986.
- The main duties of the Board is to develop the production of large and small cardamoms in addition to the promotion and development of exports of spices.
- The Board is also running programs for the development of seasonings within the North Eastern region, post-harvest improvement of the quality of spices and organic spices across the country.

## Topic 15. CONVERSION TO SMALL FINANCE BANKS

*Important for subject: Economy*



The urban co-operative bank (UCBs) appear to have expressed their gratitude but not to the Reserve Bank of India for its plan to allow their voluntary conversion in to smaller finance banks (SFBs).

### **On-tap Licensing?**

- The specific plan for the an easy transition of UCBs from SFBs was revealed in September of this year.
- Capital Requirements: A minimum of Rs. 200 crores in paid-up votes net worth or equity capital is required.
- The minimum requirement for net value to be met by primary (Urban) Co-operative Banks (UCBs)desiring to transition into SFBs on their own is at least Rs. 100 crores. It is to be increased to the amount of Rs. 200 crores within five years from the date of commencement of the business.
- Priority sector-specific lending (PSL) rules for UCBs are on par with SFBs. scheduled bank status for SFBs. SFBs are scheduled to receive bank status once their operations begin.

- Conversion of Payment Banks into SFBs: Payment banks which meet these guidelines are eligible to apply to convert in to SFBs following five years operation.

### **Small Finance Banks:**

- They are financial institutions that provide financial services to the unbanked and unbanked areas of the nation.
- Public Limited Company under the Companies Act, 2013.
- It is required to operate at minimum 25 of its branches in rural areas that are not banked.
- Mandated to extend 75 percent of its adjusted net bank credit to Priority Sector Lending (PSL).
- At minimum half of the loan portfolio must comprise advances and loans up to 25 lakhs. 25 lakhs.
- The maximum amount of a loan dimension and maximum amount of investment the risk to a group or single debtor will be limited to 10 as well as 15% the capital funds, respectively.
- Important for the subject to the Cash Reserve Ratio (CRR) in addition to the Statutory Liquidity Ratio (SLR) requirements.
- Promoters must contribute at least 40% capital investment. The amount is expected to reduce it to 30% over 10 years.
- The minimum capital to be paid is Rs 100 cr.
- Capital Adequacy Ratio must be at least 15% risk-weighted assets.
- Shareholding in foreign companies is capped to 74% capital paid FPIs are not allowed to have more than 24 percent.
- Eligibility for Setting up SFBs:
- Resident individuals/professionals with 10 years of experience in banking and finance.
- The societies and companies that are controlled and controlled by residents.
- Established Non-Banking Finance Companies (NBFCs), Micro Finance Institutions (MFIs), Local Area Banks (LABs) and payment banks controlled and owned by the residents of the area.



### **What are they able to do?**

- Make small deposits and then disburse loans.
- Distribute mutual funds as well as insurance products and other financial products.
- Lend 75 percent of their adjusted net credit from banks to the priority sector.
- The maximum loan amount is 10 percent of capital funds for a one borrower and 15% for the group.
- The minimum loan amount of 50% are required to be at least 25 lakhs.

### **What can they not do?**

- Lender to large corporations and group.
- Branch openings cannot be opened without prior RBI approval in the first five years.
- Other financial activities of the promoter should not cross-check with the bank.
- It is not able to establish subsidiaries to carry out non-banking financial service activities.
- You cannot be a correspondent for business at any financial institution.

### **Regulations:**

1. Reserve Bank of India Act, 1934;
  2. Banking Regulation Act, 1949;
  3. Foreign Exchange Management Act, 1999;
  4. Payment and Settlement Systems Act, 2007;
  5. Credit Information Companies (Regulation) Act, 2005;
  6. Deposit Insurance and Credit Guarantee Corporation Act, 1961;
- Other pertinent statutes and directives issued by Reserve Bank of India (RBI) and other regulators from time to time.

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## **Topic 16. EXPORT CREDIT SCHEMES**

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

Export financing fell to approximately 28 percent in the first seven months of the current fiscal year.

- RBI data RBI data Export credit has dropped by a staggering amount of Rs. 23,330 crore the 25th of March, 2022, to the amount of Rs 16,909 crore on the 21st of

October, 2022.

### **Export Credit Guarantee Corporation of India**

- ECGC Ltd. (Formerly known as Export Credit Guarantee Corporation of India Ltd) which is owned 100% by the Government of India (Ministry of Commerce and Industry) was founded in the year 1957 under the name Export Risks Insurance Corporation with the aim of promoting exports to India through the provision of credit risk insurance and other services to exports.
- Following the introduction of insurance cover for banks in the time period 1962-64, the company's name has been changed Export Credit & Guarantee Corporation Ltd in 1964.
- The name became ECGC Ltd ECGC Ltd in August 2014.
- The goal was to increase exports out of the country through the insurance of credit risks and related services to exports.

### **ECGC offers**

- The ECGC offers a range of insurance policies for credit risk for exporters in case of loss during export of services and goods because of economic risks, commercial risks or political risks, as well as risk of payment.
- ECGC categorizes states into seven groups according to the order in which risks are perceived.
- Different kinds of credit insurance cover banks and other financial institutions , to allow them to provide credits to entrepreneurs as well as
- Export Factoring facility is for MSME sector that is a bundle of financial products that include working capital financing and credit risk protection. maintaining sales ledgers and the collection of export receivables by the buyer who is located in an out of the country.

### **National Export Insurance Account (NEIA) Scheme:**

- NEIA Trust was established in 2006 to support exports of projects from India which are of significant national significance and strategic.
- It helps promote medium and long-term (MLT)/project exports through extending (partial/full) assistance to cover issued through ECGC to project exports and MLT.

- Exim Bank, in April 2011, along together with ECGC Ltd., introduced the new initiative known as. Buyer's credit under the NEIA scheme, which the Bank helps finance and facilitate exports for projects coming from India.

#### **NIRVIK Scheme:**

- Export Credit Guarantee Corporation of India (ECGC) has introduced the Export Credit Insurance Scheme (ECIS) named NIRVIK to improve loan access and facilitate lending.
- It's an insurance guarantee, which covers the full 90% amount of principal as well as interest.
- The package will contain credit for post-shipment and pre-shipment.
- The ECGC currently provides a credit guarantee up to 60 percent loss.
- The new cover will ensure that foreign as well as Rupee rate of export credit will be lower than 4 and 8 percent and 8% respectively, for those exporting.

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### **Topic 17. DECRIMINALISATION OF OFFENCES UNDER GST**

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

According to the conclusions at the conclusion of the 47th GST Council meeting, the GST Council chaired by Finance Minister, recommended that certain crimes be decriminalized in accordance with Section 130 of the Central Goods and Services Tax (CGST) Act, 2017.

- The need to criminalize offenses: The GST law is still in the process of being developed and is at its infancy.
- Therefore it is essential to realize that implementing penalties in an undefined system can impact the ability of businesses to be able to conduct business.

#### **The Key Highlights from the meeting**

- In the 48th GST Council meeting has recommended measures like - increasing the minimum threshold for tax amount to be prosecuted for prosecution under GST between one and two crore.
- Reduces the amount of compounding from the current range of 50-150 percent of tax to a range of 25-100 to 100 percent.
- The decriminalisation of certain crimes within Section 132 of the CGST Act,

2017 that include preventing any official from carrying out his duties and knowingly altering the evidence of a material nature and failing to disclose details.

- Other suggestions include the possibility of reimbursing people who are not registered and facilitation of e-commerce for micro-businesses.

### **Criminalization of offenses under the GST Act**

- The GST law provides severe penalties and rules that taxpayers must follow to ensure a smooth intrastate or interstate trade of goods as well as fight corruption while maintaining an efficient taxes collection process.
- The GST Law provides for two different kinds of penalties.
- They could be simultaneously and concurrently.
- The department's officials are able to impose fines in the form of monetary penalties and the confiscation of goods in order to punish those who violate the lawful provisions.
- Criminal penalties may include imprisonment as well as fines. They are made available under the GST Law but which can only be granted by a criminal court after an investigation.
- Sections 122-131 in the CGST Act of 2017 contain provisions regarding penalties and penalties, while Sections 132 through 138 have provisions that pertain to the prosecution of compounding and.

### **GST Council:**

- The Article 279A in the Indian Constitution gives power to the President of India to create an open forum between States and the Centre and States called the GST Council, consisting of the following:
- Union Finance Minister - Chairperson
- The Minister of State for the Union responsible for Revenue of Finance Member of the Finance Committee Member
- The Minister in charge of taxation or finance, and any Minister appointed by the State Government. Members
- GST Council GST Council is an apex committee that is tasked with modifying, reconciling or provide proposals to the Union as well as States on GST. States on

GST as well as the products and services that are excluded or subject to GST models, GST laws, etc.

- The decisions made by the GST Council are taken by the majority of not less than three-fourths of the weighted votes that are cast.
- The Centre is one-third of the votes cast. The other states have a combined two-third of the weightage of all votes that are cast.
- The GST Council has taken all decisions. GST Council have been arrived via consensus.

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### **Topic 18. BLACK HOLE OF PUBLIC FINANCE: UNEQUAL FISCAL BURDEN ON CITIZENS**

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

The economic inequality in India affects every aspect of our daily life, despite India being an welfare state. The citizens who live in poverty in India remain facing an increased tax burdens as a result of rising the rising cost of living and taxes and less benefits.

- The Constitution of India envisaged the role of the state as a welfare state.
- The government is able to manage taxes and transfer them.
- But 'transfers' are described as freebies, and the lives of people who are poor are burdened by the regressive "taxes".
- Inflation serves as an invisible tax on middle- and lower-income citizens.

#### **Inequality scenario in India:**

- Oxfam noted that in their 2021 study that 70% from the total wealth created in
- India as of 2017 was among the highest one percent, while 670 million Indians, who comprise the most deprived half of the population, saw just a single percent increase in their income.
- The Lorenz curve can be used to illustrate the degree of economic inequality and uneven distribution of wealth. The farther away the curved line is away from the diagonal straight line more severe the level of inequality.
- Gini coefficient. Gini coefficient is the ratio of the distance between an absolute equality line as well as the Lorenz curvature to the space between both the lines of equality perfect and perfect.

- Amount of Gini coefficient ranges from the zero mark to one. Zero is the absolute equality, while one is the absolute inequality.

### **Governance inequalities:**

- The roads are supposed to be accessible at no cost, since they are public goods.
- However because of the privatisation process and PPP models, these services are charged a fee.
- In the year 2021-2022 the government splurged \$35,000 crore of toll tax. This figure is expected to be at 1.34 lakh crore by 2025.

### **Refining of funds**

- The year 1999, it was enacted by the federal government the Central Road Fund Act (CRF), under which fuel tax were used pay for the road construction and maintenance.
- In the year 2018, CRF was amended into the Central Road and Infrastructure Fund (CRIF).
- This allowed sanitation and water schemes, as well as communication infrastructure for social services, etc that could be financed with the fund.
- However, the utilization of CRIF funds in 2021-22 ranged from Jal Jeevan Mission to Swachh Bharat Scheme.
- The government is hoping to generate the equivalent of 1.6 lakh crore through the monetisation process of public highways. This will raise the cost of tolls for the public.
- The commercialisation of public spaces could reduce the relationship between state and citizen.

### **Inequality heightened because of the burden of taxation:**

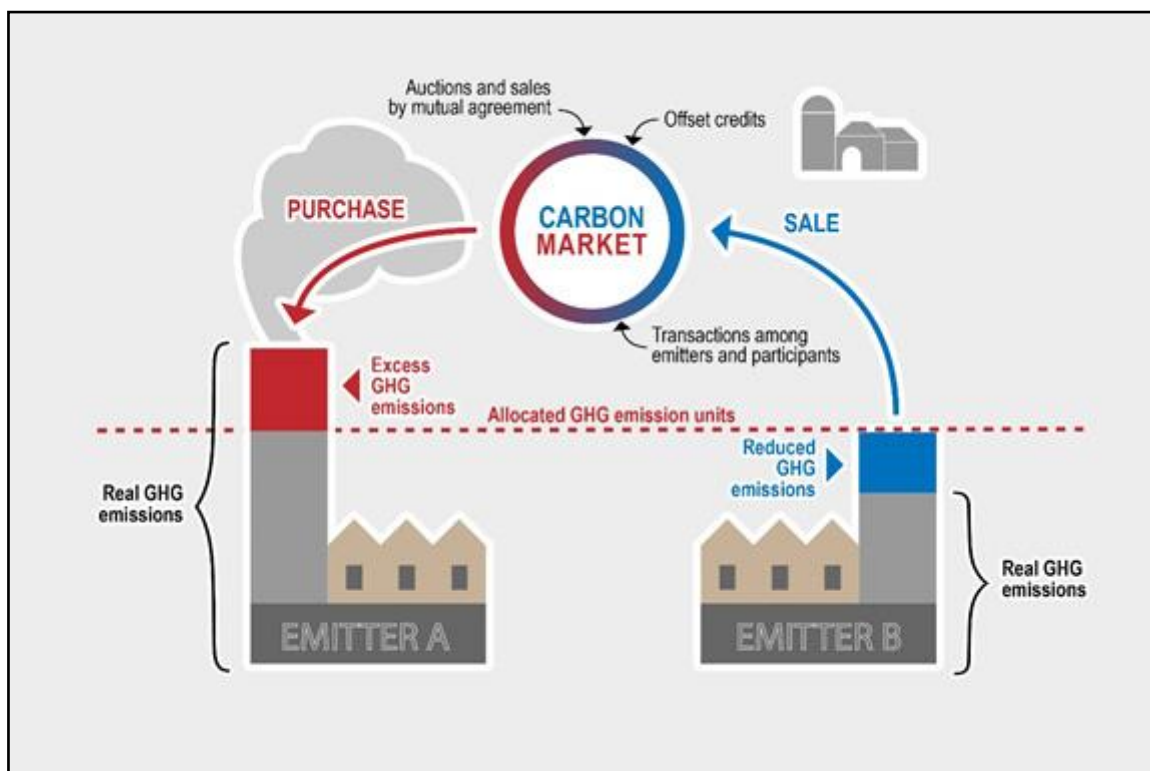
- The 2020-21 Budget speech the finance minister has announced the creation of a Public-Private Partnership (PPP)-based railways, smart cities, and warehouses in addition to other.
- The PPP infrastructure and user fees as well as taxes have created an parallel framework to generate revenues and could impose the financial burden on the citizens.



- If citizens pay taxes to the municipality, the municipality is required to provide sanitation and hygiene facilities.
- However, they also announced that the Ahmedabad Municipal Corporation (AMC) introduced a "User Cost" of Rs 365 per household to ensure that the city is tidy, which amounts to 15 percent of the amount of municipal tax.

## **Topic 19. STABILISATION FUND AND CARBON MARKET**

*Important for subject: Economy*



India plans to establish a stabilisation fund in order to encourage carbon credits.

- A stabilisation fund is set to be set in order to ensure that the prices of carbon credits on its carbon market in the threshold.
- It will ensure that price of credit remains attractive for investors, and also that the market can cut emissions.
- The fund's money could be utilized by the market regulator to purchase carbon credits in case prices dropped to a level that was too low.

**Why?**

- Within the European Union, a credit for 1 tonne carbon dioxide was cut from 5 to five

euros as of 2012 after approximately 30 euros in 2008. However, the establishment of a reserve for market stability in the year 2019 resulted in the price to rise between 75-95 euros per tonnes.

### **Carbon market:**

- They are basically a method to determine the price of carbon emissions. They create trading systems in which carbon credits and allowances can be purchased and traded.
- Carbon credits is an example of a tradable permit, which, as per United Nations standards, equals one tonnes of carbon dioxide that has been removed either reduced, absorbed, or sucked from the atmosphere.
- Carbon allowances, or caps meanwhile are decided by the governments of countries or nations in accordance with their emission reduction goals.

### **What are the different types and types of markets for carbon?**

- There are two kinds of carbon markets in existence currently: voluntary and compliance markets.
- Markets that are voluntary are ones in which emitters-companies, private individuals, and so on purchase carbon credits in order to offset the emission of a tonnes of CO<sub>2</sub> or similar greenhouse gases.
- Carbon credits are created through activities that reduce CO<sub>2</sub> emissions from the air for example, the afforestation process.
- In a market that is voluntary, an organization seeking to pay for the emissions it cannot avoid purchase carbon credits from an organization involved in projects to reduce emissions, eliminate, capture or reduce emissions.
- For instance, in the aviation sector, airlines are able to purchase carbon credits in order to reduce the carbon footprint of the flights they fly.
- In voluntary markets, the credit ratings are vetted by private companies in accordance with the standard of public opinion.
- There are traders as well as online registries in which climate projects are listed, and where certified credits are available for purchase.
- Compliance markets -- established by policy at the regional, national or international level they are legally regulated.

- In the present, markets for compliance mainly follow a model known as "cap-and-trade" which is most well-known in the European Union (EU).
- The entities in this sector are granted annual permits or allowances by governments that are equal to the amount of emissions they are able to produce. If companies emit emissions above the amount that is capped they are required to buy additional permits either through auctions held by the government or from businesses that have did not exceed the limit, and leaving them with excess allowances. This is known as the "trade component of cap-and trade.
- The cost of carbon is determined by market forces when buyers and sellers trade in emission allowances.
- These markets could encourage the reduction in energy consumption and promote the switch to more sustainable fuels.

### **What is the process behind how does the Carbon Market work?**

- A nation sets a maximum on its emissions, and then assigns the same amount of tradeable credits or permits to emitters.
- The quantity decreases as time passes.
- If a firm would like to increase its emissions the amount of carbon dioxide, it is able to purchase more credits at a market value however, it should look into whether restricting or cutting emissions could be more profitable.
- It is believed that the Indian market would be able to cover the carbon dioxide emissions as well as five other greenhouse gases that are measured in relation to their carbon dioxide equivalent
- The Central Electricity Regulatory Commission would likely be the market regulator.
- In the market of compliance participation will be mandatory for businesses in more than a dozen industries like steel, oil refining aluminum, cement and steel
- The market for voluntary transactions could be opened to other organizations.

### **India Carbon Market?**

- The carbon market in India is established in two stages. In the first between
- between 2023-2025 the current certificates for energy savings will be converted into carbon credits.

- Energy Conservation (Amendment) Act, 2022 empowers the Centre to establish the trade scheme for carbon credits.
- In the Bill the central government or an authorized agency can give carbon credits to corporations or even individuals that are registered and compliant with the scheme.
- The carbon credit certificates are able to be traded within the nature.
- Other people might be able buy carbon credits on a free basis.
- It is interesting to note that kinds of certificates that can be traded are made available in India---
- Renewable Energy Certificates (RECs) and
- Energy Savings Certificates (ESCs).
- They are issued by companies that make use of renewable energy or energy, both of which are actions that can reduce carbon emissions.
- Trade in derivatives: Sebi extends suspension in seven agricultural commodities
- The Securities and Exchange Board of India (Sebi) has extended the suspension of derivatives trading for seven commodities for an additional year, until December 20, 2023.
- The prohibition was on paddy (non-basmati), wheat as well as the mustard seeds, chana, soyabean crude palm oil, and moong
- The regulator for capital and commodities markets Securities and Exchange Board of India (SEBI) has been able to suspend futures and options trading for one year on various agricultural commodities like chana, mustardseed crude palm oil paddy, moong (Basmati) wheat, soybean and derivatives of it.
- Derivatives based on various commodities have been suspended or banned up to 19 times over the last two decades, and certain commodities being subject to multiple suspensions. The latest was the year long futures trading ban on 7 agricultural commodities on December 20, 2021. A report from September by
- NCDEX has stated that the suspensions of futures contracts has not had the intended effects of regulating the prices. In the best case it has been a few minor corrections over the course of a short time.
- The extension will impact the NCDEX since these commodities contributed to nearly 54 percent of total deposits between April 2021 to July 2021.
- Derivative is an item that's value is determined by its value derived from one of

fundamental variables, referred to as bases (underlying index, asset and reference rate) and in a contract-based manner.

- The asset that is the basis for the investment could be forex, equity commodity, or any other asset.
- A derivative is a product that can be traded through an exchange or over-the counter.
- Common derivatives comprise forwards, futures options, swaps and options.

### Options

- An option grants the buyer the option but not the obligation, purchase (or to sell) an asset for a certain price at any point during the term that the option contract.
- They are generally complicated, and options contracts are known to be extremely risky.
- Both put and call options typically carry the same risk.
- If an investor purchases an option to purchase stock the only financial obligation is the the premium when the contract is bought.
- They are determined by the worth of an underlying security , such as stocks. As mentioned above an option contract provides investors the option but not the obligation to purchase or trade the security for an agreed price, as long as the contract remains in force.
- Investors don't need to buy or sell the investment if they decide not to.

### Futures

- A futures contract grants buyers the obligation to buy a specific asset and the seller the obligation to transfer and sell the asset on a specified date in the future, unless the position is terminated prior to the expiration date.
- Options can be more risky, however futures can be more risky for an individual investor. Futures contracts are liable for both the buyer as well as the seller.
- The futures agreement requires that a buyer purchase shares and a seller sell them on the specified date in the future, provided that the holder's position has not been ended prior to the date of expiration.
- Futures contracts typically are used to purchase large amounts of money. The obligation to purchase or sell at a specific price increases the risk of futures by their

nature.

- They are favored by speculators.

### Swaps

- Swaps are private contracts between two parties to trade cash flows in the near future in accordance with a formula that has been pre-arranged. They can be considered an array made up of forward-looking contracts.
- The two most commonly swaps that are commonly used are:
- Rate swaps: These entail swapping only the interest-related cash flows between the two parties using the same currency.
- Exchange of currency: These involve swapping interest and principal between parties, with cash flows from one direction coming from the currency of the other, and vice versa that flow in the other direction.

### Forwards

- Forward contracts, or forwards, are like futures, however, they are not traded on exchanges.
- These contracts are only available for trading over-the-counter

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## **Topic 20. FIVE EYES INTELLIGENCE ALLIANCE**

*Important for subject: International Relations*

What is it? Five Eyes intelligence alliance?

- The Five Eyes (FVEY) is an intelligence alliance that includes Australia, Canada, New Zealand and The United Kingdom, and the United States.
- The beginnings for FVEY's history FVEY can be traced back to informal meetings in secret between code-breakers during World War II between British and American code-breakers.
- It was initiated prior to the time that the US officially entered into war. This was and was followed with the Allies in 1941. Atlantic Charter that set out their idea of the post war world.



**Topic 21. IRAN EXPELLED FROM UN WOMEN'S COMMISSION**

*Important for subject: International Relations*

Iran was exiled by the United Nations Commission on the Status of Women.

- Iran was removed by its position on the United Nations Commission on the Status of Women in the following the brutal arrests of women's protests.
- CSW is the main intergovernmental organization in the world solely committed to the advancement for gender equality and advancement of women.
- The decision was made following intensive advocacy from US officials. US after massive protests in Iran that were sparked by anger over the decree that forces females to dress in hijabs.
- Simple majority required in order to approve the plan and was opposed by eight nations comprising Russia as well as China.
- India as well as 15 other nations abstained the vote, while 29 nations were in support of the resolution.
- The Iran's term, which started in the year 2000, was scheduled to last until 2026.

**What is UN Commission on Status of Women?**

- The Commission on the Status of Women is a functional committee that is part of UN Economic and Social Council.
- It was established through ECOSOC Resolution 11(II) 21 June 1946.
- It helps to promote female's droits, brings to light the real-life experiences of women all over the world and assists in defining global standards for gender equality and empowerment of women.
- 45 members from the United Nations serve as members of the Commission at any given time. India is currently one of the members of this prestigious organization for four years, beginning in 2021 to 2025.

**What is UN Women?**

- UN Women is the United Nations agency that promotes gender equality and empowerment of women.
- It was established in July of 2010. through The United Nations General Assembly.
- It was formed by the union of all four organizations within the UN system:

- Division for the Advancement of Women (DAW)
- International Research and Training Institute for the Advancement of Women (INSTRAW)
- Office of the Special Adviser on Gender Issues and Advancement of Women (OSAGI)
- United Nations Development Fund for Women (UNIFEM)
- It is its headquarters in New York, which is the home of United Nations in New York

## Topic 22. CENTRAL CONSUMER PROTECTION AUTHORITY

*Important for subject: Governance*



उपभोक्ता मामले विभाग  
DEPARTMENT OF  
CONSUMER AFFAIRS







**BECOME TALLER IN A WEEK**

AGE

### Central Consumer Protection Authority (CCPA) is empowered to

**Ensure that no false or misleading advertisement is made of any goods or services which contravenes the provisions of Consumer Protection Act, 2019 or the rules or regulations made thereunder.**

Following the fatal acid attack on a 17-year-old girl from Dwarka in India, the Central Consumer Protection Authority (CCPA) on Thursday issued a notice at Flipkart along with

Amazon.

### **What is the Central Consumer Protection Authority?**

- Central Consumer Protection Authority is an authority for regulation established in the year 2020 in the provisions contained within the Consumer Protection Act in the year 2019, and is under the supervision by the Ministry of Consumer Affairs.
- Its headquarters are at New Delhi

### **What are the Objective of Central Consumer Protection Authority?**

- To ensure, protect and ensure rights of consumers as a class. right of the consumer as a whole.
- Conduct investigation into violations the consumer's rights and initiate complaints.
- To order the recall of unsafe goods and services, discontinuation of unfair trade practices and misleading advertisements.
- To impose penalties on manufacturers, endorsers and publishers of misleading advertisements.

### **What's the makeup of Central Consumer Protection Authority**

- The Central Consumer Protection Authority consists of the following members, chosen by the Central Government.
- Chief Commissioner
- Two Commissioners. One commissioner for each of items and services.
- The department is an Investigation Wing headed by a Director General.
- District Collectors are also granted the ability to examine complaints of violation in consumer protections, unfair trade practices, and misleading or false advertisements.

### **What are the powers and functions of the Central Consumer Protection Authority (CCPA)?**

- CCPA is able to investigate issues related to violation of consumer rights as well as unfair business practices in section 20 of the Act empowers the CCPA to request recalls of dangerous goods.
- CCPA is able to apply the fine of up to 10 lakh and imprisonment of up to two

yearson the producer as well as the endorser of misleading and false advertisements.

- The penalty could go to up to fifty lakh rupees or prison time of up to 5 years for each subsequent infraction committed within the exact same endorser or manufacturer.
- CCPA is empowered to prohibit the endorser of an untrue or false advertisement from expressing endorsements of products and services at any time in the near future for a time period which could last up to a year. The ban could extend to three years for every future violation to the Act.

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### **Topic 23. DIRECTORATE GENERAL DEFENCE ESTATES (DGDE) TO CONDUCT SURVEY ON ENEMY PROPERTIES**

*Important for subject: Polity*

Minister of Defence Rajnath Singh said that the DGDE will begin the process of surveying Custodian of Enemy Property for India (CEPI).

- The government has taken the decision to sell off more than 9,400 of the properties owned by enemies within the country. This could bring in around one lakh crore for the Treasury.
- A Ministerial Group led by the Home Minister Amit Shah was put in the year 2020 to oversee the sale of property belonging to enemies, which includes real estate remaining during the partition.

#### **Background**

- After the 1965 Indo-Pakistan war The Union government passed the Enemy
- Property (Custody and Registration) Order and established Department of Property (Custody and Registration) Custodian of Enemy Property of India (CEPI) department to manage the property that were left behind by people who moved from Pakistan as well as other nations which India has hostile relations.

#### **About enemy property:**

- In the aftermath of the Indian-Pakistan war of 1965 and 1971, there was a an exodus to India towards Pakistan.
- In the Defence of India Rules framed under The Defence of India Act 1962 The Government of India took over the businesses and properties of those who acquired

Pakistani nationality.

- The "enemy assets" were held in the hands of central authorities the Custodian of Enemy Property for India.
- Similar was the case for properties left behind by people who moved to China after the Sino-Indian war.
- The Tashkent Declaration of January 10 in 1966 included the following clause: India and Pakistan discussed the return of assets and property taken by either party as a result of the conflict.
- However they did not. Government of Pakistan disposed of all of these properties within their country during the year 1971.

### **Regulation of properties of enemies In India:**

- The Enemy Property Act, adopted in 1968 it provided for the perpetual the transfer of enemy property to the Custodian of Enemy Property for India.
- Certain properties that can be moved are classified as enemy property.
- In 2017, the Parliament passed The Enemy Property (Amendment and Validation) Bill of 2016 that changed The Enemy Property Act, 1968, as well as The Public Premises (Eviction of unauthorised occupiers) Act, 1971.
- The amended Act extended to include the "enemy subject" and "enemy company" by encompassing the legal successor and heir to an enemy, regardless of whether they are citizens of India or the citizen of a nation that is not an enemy. It also includes the succeeding firm of a firm that is an enemy regardless whether the nation of partners or members.
- The amended law stipulated that property belonging to enemies will remain with the Custodian regardless of whether the subject or the enemy for subject or enemy business ceases being an adversary due to death or extinction, winding down of business, or changing of nationality, or if the legal successor or heir is the citizen of India or is a citizen of a country that is not considered to be an enemy.
- The Custodian, after obtaining the approval from the government at large, can dispose of properties belonging to enemies vested in him according in accordance with the provisions of Act and the central government may issue instructions to the Custodian to accomplish this purpose



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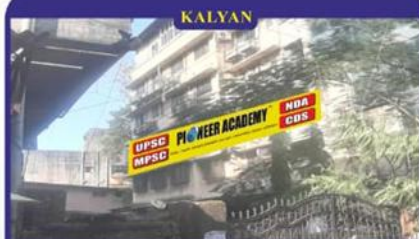
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