

WEEKLY CURRENT AFFAIRS MAGAZINE for

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Topic 1. LEARNING FROM NEW LIFE FORMS

Important for subject: Environment

The anthropocene is the Geological era in which we live.

- This is due to the global impact humans and their activities made after evolution.
- One of the most notable effects of the anthropocene changes has been a rapid rise in the rate at which other species die.
- Each day, 24 to 150 species are lost.
- Both of these numbers are alarming. In the last 400 years, it has been documented that about 1,000 species have disappeared.

Looking for new species

- It can be difficult to find new species. Many species can be found in biodiversity hotspots which are paradise for mosquitos and snakes but not so welcoming to humans.
- Scientists from Zoological Survey of India (ZSI), Kolkata discovered a new species of shrews on Narcondam Island, which is part of the Union Territory of
- Andaman and Nicobar Islands, and named it *crociduranarcondamica*.

This shrew can be found only in one place:

- Narcondam, a small island with a dormant volcano, is home to Narcondam.
- It is almost all densely wooded.
- Narcondam shrews
- Endemic to Narcondam Island of Andaman, Nicobar Islands.
- Scientific name- *crociduranarcondamica*
- They are very small, our latest discovery measuring about 10 cm in length.
- Their hearts beat up to 1,000 times per minute.
- The Nicobar treeshrew
- ZSI has published the mitochondrial genome sequence for a rare mammal that is endemic to Nicobar Islands, the Nicobar treeshrew.
- Treeshrews don't look like shrews, but more like squirrels.
- They are found only on A&N islands.
- IUCN status- Endangered
- These models are promising for studying the Hepatitis and influenza viruses H1N1

infections.

- Documentation is required for new species
- It is impossible to keep a complete list of all the species and plants found on this planet.
- The discovery of new species is still ongoing. A report in The Hindu, dated March 3, 2021 described five new frogs of the Western Ghats.
- A few groups are located in India (at the IISc Bengaluru University of Delhi, Kerala Forest University, University of Delhi).
- Research Institute, etc. a stellar contribution to the creation of lists of new discoveries.

What potential uses could these discoveries have?

- A few species of shrews are venomous, which makes them unusually dangerous for mammals.
- Although not all studies were extensive, it was found that the venom contained chemical entities that could be of value to health professionals.
- Major initiatives have been launched to sequence as many species of life as possible in response to the rapid extinction of living forms.
- We may be able to create a 'Jurassic Park' scenario where extinct life forms can be brought back to life with scientific advancements.
- Comparing genomes can offer clues to improve human health on a more practical level.
- The Wikipedia database of fully sequenced genomes is regularly updated and lists 100 bird species as well as 150 mammals.

Topic 2. CENTRE CONSIDERING SRI LANKA'S PROPOSAL TO TRANSLOCATE GAURS

Important for subject: Environment

Colombo is looking at a proposal by the Indian government to export gaurs (or Indian bisons) to Sri Lanka in order to revive the extinct gavara population that has been on the island since the 17th Century.

Zoological diplomacy

- If the project is approved, it will be the first such agreement between India & Sri Lanka.
- It would also be part of a global trend in "wildlife and zoological diplomacy".

- Sources claim that the Ministry of External Affairs received the request in August and has since forwarded it to MoEF, "seeking comments" about the proposal to transport at most six specimens, including a bull and three to five cattle.
- The proposal states that the Sri Lankan Department of Zoological Gardens will then "captive breed a herd of approximately a dozen specimens over five years before trial reintroduction into the wild could be conducted in accordance to [internationally mandated] guidelines."
- Rohan Pethiyagoda from Sri Lanka, a conservationist and scientist who has worked to restore fresh water and forest biodiversity, suggested the idea.
- Gaur or Indian Bison (*Bos Gaurus*)
- Locality: South and Southeast Asia
- They can be found in India's Nagarhole, Bandipur and Masinagudi National Parks, as well as the BR Hills.
- Conservation Status: Vulnerable in IUCN Red List.
- This item is included in Schedule I of 1972 Wild Life Protection Act.

Important Facts:

- It is India's tallest wild cattle species and the largest extant bovine.
- Recently, the first Indian Gaur (Bison), population estimation exercise was conducted in Nilgiris Forest Division of Tamil Nadu.
- Recent conservation breeding of Gaur at Mysuru Zoo was initiated under the Central Zoo Authority's conservation breeding program (CZA).

Topic 3. CLIMATE CHANGE THREATENS THE HABITAT OF THE ENDANGERED WHITE-WINGED WOOD DUCK, FINDS STUDY

Important for subject: Environment

Alarm bells sound for the white-winged wooden duck (WWWD).

- The bird was declared the state bird in Assam in 2003. However, the conservation situation on the ground has not improved significantly in recent years. The bird could even disappear.

About White-Winged Wood Ducks (WWWD)

- Due to its ghostly calling, the bird is known as Deo Hanh in Assamese.
- This species is only found in India's northeastern states.

- The white-winged wood Duck is an inhabitant of the evergreen tropical forest. It lives mostly in dense forests and wetlands.

Status of WWWD-Protection

- Since 1994, the International Union for the Conservation of Nature has classified the white-winged wood Duck (*Asarcornis.scutulata*), as endangered.
- There are only 800 known individuals of this species left in the wild. 450 of these individuals are found in India.
- Only Namdapha and Dehing Patkai are the best places to spot the duck.
- Since more than 20 years, there have not been any bird sightings at Dibru Saikhowa.
- Many areas in eastern Assam were where birds were first spotted in 2018. However, they have disappeared completely by 2020.
- "The habitat of white-winged wood birds is likely to change"
- Recent research to determine the effects of climate change on the distribution of white-winged wood birds in the Indian Eastern Himalayan region (IEH) for the 2050s, 2070s showed that 436.61 kilometres of highly valuable habitat would be lost by 2070.
- Researchers from Wildlife Institute of India and Assam University, NGO Aaranyak, A.V.C College, and NGO Aaranyak conducted the study.
- This new study was designed to determine the distribution potential of white-winged wood birds in future climate scenarios.
- It also aimed to assist in the creation of conservation plans and mitigation of any subsequent threats.
- This bird is dependent on the forested wetlands in undisturbed forests. These wetlands are extremely shallow and small, and will be affected by climate change first.
- Under future climate scenarios, the study predicts that there will be a decline of habitat potential in Arunachal Pradesh and Tripura.
- The bird's habitat is expected to shift from its easternmost state of northeast India towards the west and Bhutan. This includes the Assam-Bhutan border at Nameri National Park.
- The West Garo Hills in Meghalaya, which share a northern border to Bangladesh, will likely become a more suitable location for white-winged wood ducks by 2070.

Past conservation efforts

- According to Wildlife Trust of India's 2018 report, Project Deo hanh is a white winged wood duck recovery program.
- It was protected from hunting for the first time in 1937 by the Assam Government, then under British rule.
- The ducks were not allowed to hunt during the breeding season (April through September) or outside of designated reserve forests.
- Later, the Indian Board of Wildlife placed the duck on the Special Protected List in 1952.
- This was done in order to encourage conservation of the species. However, the WWWD population has dramatically declined over the years both in terms of its numbers and its extent of occupancy.

Way ahead

- To determine the current species population, a systematic survey is required. Awareness is key to understanding the importance of birds.
- Research is needed on species-specific migration.
- It is also important to identify the most important sites.
- For the survival of the current population, long-term conservation actions and research activities as well as support for aspiring ecologists, nature lovers, and others, are crucial.
- It is essential to provide support to the local leaders in the area to help ensure the protection of the bird's habitat and habitat.

Topic 4. GIRAFFES BROUGHT TO INDIA 150 YEARS AGO FROM AFRICA MAY BE A CRITICALLY ENDANGERED SPECIES

Important for subject: Environment

Around 150 years ago, British colonialists brought from Africa batches of what they believed was one species of the northern Giraffe.

- They now make up a captive population consisting of 29 northern giraffes from across the country.

Genetic study of Giraffes

- Recent genealogical studies of India's largest captive herd at Alipore Zoological

Garden in Kolkata have confirmed that these individuals are either endangered Rothschild giraffes (*Giraffa camelopardalis rothschildi*) or "critically endangered" Nubian giraffes.

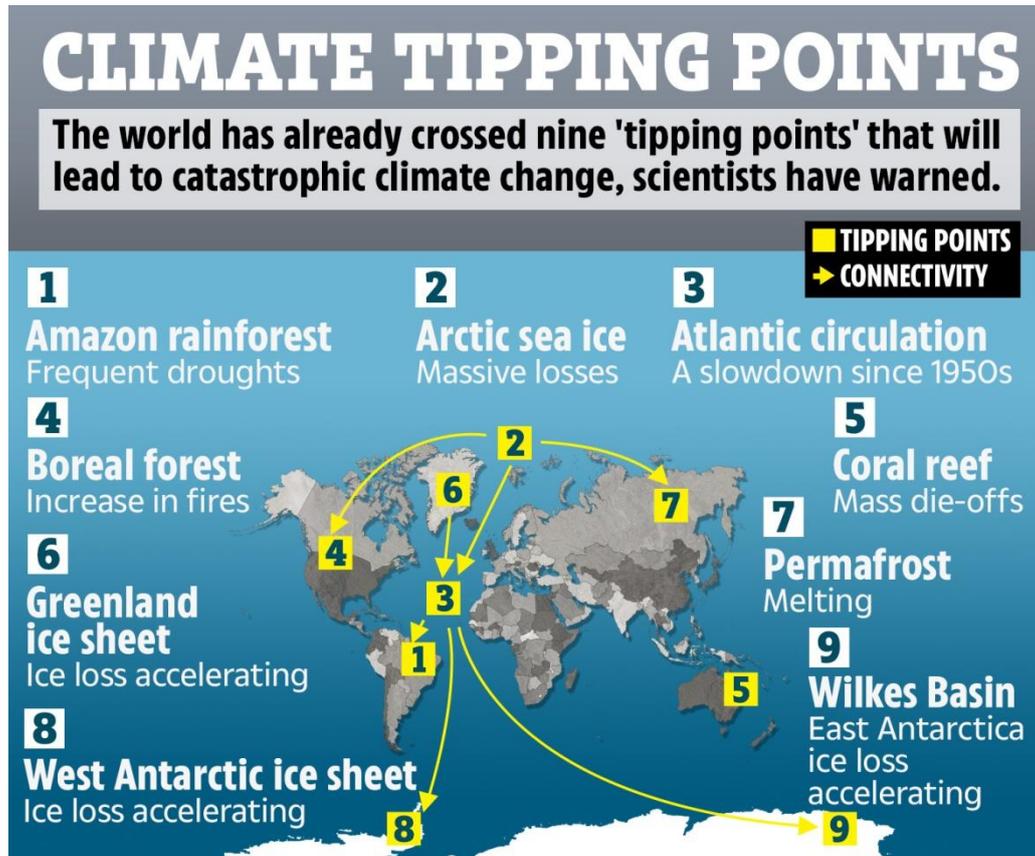
- According to whole genome sequencing studies that were conducted in 2021, the Nubian giraffes may be one of three sub-species within the northern giraffe.
- He mentioned that there were giraffes kept in captivity at Mysuru, Chennai and Patna. Guwahati and Hyderabad also had giraffes. It was important to determine which species each Indian facility has.
- Alipore giraffes were genetically related to Nubian and Rothschild giraffes, according to genetic distance analysis.
- Scientists remain divided on whether the Nubian and Rothschild Giraffes are distinct sub-species.
- We believe it is imperative that both the Nubian and Rothschild Rothschild Giraffes be protected.
- The Central Zoo Authority continues to study the giraffes kept in captivity. This ensures that they are not interbred and preserves the species' genetic material.
- No past record
- Indian zoos had "stud-books", which contained little or no information about where the giraffes from Africa were taken. Therefore, a mitochondrial gene analysis was the only way to identify the species.
- Because giraffes were an exotic species brought into India, management protocols for the population were different from those of native animals.

About the Giraffe

- The habitats where giraffes can be found are savanna/woodland habitats. They also have a wide range of habitats throughout Africa.
- In December 2016, the International Union for Conservation of Nature, (IUCN), classified giraffes in the Red List as endangered. It noted that their population had fallen by more than 40% since 1985.
- According to IUCN the main factors responsible for a decline in giraffe population are habitat loss, poaching, civil unrest and ecological issues.
- The CITES Appendix II includes Giraffes

Topic 5. TIPPING POINTS OF GLOBAL WARMING

Important for subject: Environment



A new study found that the average global temperature is 1.1 degrees Celsius higher than it was in preindustrial times. This can cause catastrophic changes to many climatic systems.

- This research provides an updated assessment on important climate tipping points, or thresholds above which changes in earth's system become irreversible and uncontrollable.

Tipping points

- In the last 15 years, several studies have shown that there are different tipping points. These include the melting of glaciers and the disintegration or spontaneous reduction of Amazon forest cover.
- Researchers have found at least 15 tipping points over the years that are correlated with temperature rises of different degrees.
- The most recent study identified nine tipping points globally and seven at regional levels. It also reassessed their dynamics in relation to global warming.

Tipping points for work

- These climatic systems are experiencing large-scale changes due to rising temperatures. All of these visible and well-documented changes are glacial melt, Arctic ice thinning, and rising sea levels.
- This process is illustrated by the melting Greenland Ice Sheet. The ice sheet's height gradually decreases as it melts.
- It is exposed to more warm air as a result. This is because the air at lower altitudes is warmer than at higher elevations.
- Warmer air speeds up the melting process.
- This becomes a self-sustaining, cyclic system once the tipping point has been crossed.
- Even if global temperatures drop, the system will not reverse.
- Amazon forests are similar.
- They play an important role in causing rainfall in the region.
- If deforestation continues, there will be fewer trees. This would decrease rainfall and cause further stress to the trees.
- It becomes a self-perpetuating cycle.
- Many areas around the globe remain frozen throughout the entire year.
- These are called permafrost. They are known as permafrost because they retain large amounts of carbon from animals and plants that have died over time.
- The permafrost layers may contain as many as 1,700 billion tonnes carbon dioxide and methane, according to estimates.
- Comparatively, the annual global carbon dioxide emissions are around 40 billion tonnes.
- Carbon is already being released into the atmosphere by melting or softening permafrost layer.
- This carbon release is contributing to global warming. It is also speeding up the melting of permafrost.
- There is a tipping point at which the cycle would cease to exist.

Recent findings

- CTP (Climate Tipping Points) were established around 20 years ago. They could only be crossed in cases of warming exceeding 5 degrees Celsius.
- However, more recent data, including that from the Intergovernmental Panel on

Climate Change(IPCC), suggest that these tipping points are most likely to be crossed between 1 and 2.

- Recent evidence suggests that some of these tipping point could be reached even at current levels of global warming, according to the latest study.

Response to policy

- In its sixth assessment report, the IPCC had released this year that the global greenhouse gas emissions needed to peak by 2025 and fall by 43% by 2030 to reach the 1.5 degree Celsius target.
- The world is currently on the right track to become more than 2°C warmer by 2100, if we keep up our current efforts.

Topic 6. TAMIL NADU'S MISSION TO SAVE THE CRITICALLY ENDANGERED VULTURES

Important for subject: Environment

To ensure effective conservation of vultures in the country, the Tamil Nadu Government established a State-level Committee.

- Tamil Nadu is a pioneer.
- Two drugs, Ketoprofen (and diclofenac), were banned by the government because they caused the deaths of vultures a long time back.
- Since then, the State's vulture population is stable and has slightly increased.

The committee

- This committee has a two year term and will monitor the recovery and conservation of existing vulture sites. It will also map vulture populations throughout the State to create safe zones.
- It will eliminate toxic veterinary medications, which are the leading cause of vulture deaths.
- The newly formed committee is also responsible for preventing poisoning cattle carcasses, which are the main food source of vultures.

Tamilnadu Region Vultures

- There are four types of vultures found in Tamil Nadu: the Oriental white-backed, long-billed, red-headed, and Egyptian.
- These three residents can be found in the Nilgiris or Sathyamangalam landscapes.

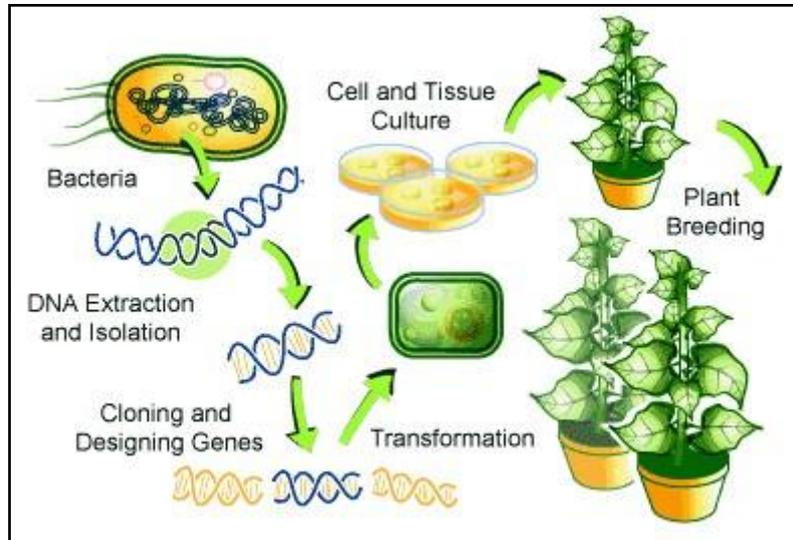
- Only one Dharmapuri site is known to have evidence of Egyptian vultures breeding.
- Vulture populations are affected by the availability of food.
- The Nilgiris landscape has been transformed into a tiger reserve. This has led to an increase in the number of tigers and a rise in the number of vultures that hunt the carcasses.
- As nature's scavengers and keep the environment clean, vultures are an important part of nature.
- Their ecological and social significance cannot be undervalued, Ms. Sahu stated, adding that "it is the last level of scavenger."

Information about Vultures

- It is one among 22 large, carrion-eating birds found primarily in the tropics or subtropics.
 - India is home 9 species of Vultures, including the Oriental white-backed and Slender-billed Vultures, Red-headed Vultures, Egyptian Vultures, Red-headed Vultures, Red-headed Vultures, Red-headed Vultures, Red-headed Vultures, Red-headed VULTURES, the Bearded Vulture, Cinereous Vultures, and the Eurasian Griffon.
 - Many of these species are at risk of extinction.
 - Schedule 1 of the Wildlife Protection Act 1972 protects bearded, long-billed, slender-billed and oriental white-backed. Rest is protected by 'Schedule 4'.
 - **Conservation status** - According to the IUCN Red List of Indian Vultures, 4 species are considered critically endangered, 1 is endangered, 3 species are threatened, and 1 is of least concern.
1. White-rumped Vulture - Critically Endangered
 2. Critically endangered slender-billed vulture
 3. The critically endangered long-billed vulture
 4. Critically endangered red headed vulture
 5. Egyptian vulture- Endangered
 6. Himalayan Griffon- Near Threatened
 7. Cinereous vulture- Near Threatened
 8. Bearded vulture - Near Threatened
 9. Griffon Vulture - Least Concern

Topic 7. 'APPROVAL OF GM MUSTARD MAY THREATEN FOOD SECURITY, INCREASE PESTICIDE TOLERANCE'

Important for subject: Environment



The Union Ministry of Environment, Forest and Climate Change's Genetic Engineering Appraisal Committee, or GEAC, could approve commercial cultivation of modified mustard.

- This approval would mark the first time since 2002 that GM mustard has been grown (DMH-11).
- After trials at the Indian Agricultural Research Institute, New Delhi (IARI) and Punjab Agricultural University (PAU), the central government gave the green light for GM mustard in May 2017.
- It was still awaiting approval by the environment ministry.
- After farmer groups and activists protested the decision, the Supreme Court delayed approval.

GM Mustard (DMH-11)

- Mustard, which is sown in the mid-October to late November, is one of India's most important winter crops.
- It is a self-pollinating plant that is difficult to cross-pollinate.
- It is India's largest edible oil-producing crop.
- DMH (Dhara Mustard Hybrid 11) is a genetically modified mustard variety developed by Centre for Genetic Manipulation of Crop Plants, Delhi University.
- It was a Government-sponsored project.

- Researchers at Delhi University created hybrid mustard DMH-11 by using "barnase/barstar" technology to genetically modify it.
- It is a Herbicide Tolerant crop (HT).
- The Genetic Engineering Appraisal Committee had approved the commercial production in February 2016 of another GM crop, viz. Mustard DMH-11.

Advantages of GM Mustard

- DMH-11 produces about 30% more mustard than traditional reference varieties.
- You can help to increase edible mustard oil production, which will reduce the huge import bill for edible oils.
- Contribute to the promotion of government-led scientific research in Agriculture.
- It is Herbicide Tolerant (HT), which means that it will open the door to pesticide- and insecticide-tolerant companies.

Concerns about GM Mustard

- The approval of GM mustard would allow access to many genetically modified food crops.
- After the GM mustard has been approved, the approval will be extended to other varieties, such as BT cotton and BT brinjal, which can then be used for commercial cultivation.
- The introduction of GM crops may have adverse effects on the environment, animal and human health. This is why environmentalists are concerned about biosafety.
- DMH-11 is a plant that is resistant to herbicides because it has an external gene. It will make it difficult for farmers to use certain brands of agrochemicals.
- The Supreme Court had earlier appointed a technical expert committee to examine the issue and found that HT crops were completely inappropriate in India.
- Manual labourers who weed for their livelihood may be negatively affected by herbicide-resistant crops.
- This could lead to a decrease in crop diversity and food security as well as an increase in tolerance for pesticides.

Topic 8. HOW TO ASSESS DISASTERS: 8 INDIAN STATES ADOPT GLOBAL STANDARDS

Important for subject: Environment

A framework international for assessing the loss and damage in the aftermath of a disaster has been developed to assess the social and financial costs of disasters that have struck eight Indian states.

- The framework helps get recovery and reconstruction efforts right following a disaster. Post-Disaster Needs Assessment (PDNA) is being done simultaneously in Assam, Himachal Pradesh, Gujarat, Karnataka, Jharkhand, Maharashtra, Odisha and Meghalaya.

What is a PDNA?

- The UN Development Group, World Bank, and the European Union developed the PDNA tool.
- It was intended to create and implement common recovery planning and assessment methods in post-crisis situations.
- It is important to determine the extent of the disaster's effects, identify the recovery needs, and then design a recovery strategy. This will also guide funding donors.
- **Objective:** The PDNA focuses on the future and aims to restore damaged infrastructure, homes, livelihoods and services. It also focuses on building resilience and reducing future disaster risk.
- This includes a calculation for the disaster's effect on Gross Domestic Product, the payment balance and the fiscal budget.
- Second, we will examine how this impacts the revenue flow to different sectors.
- This could be the case for example with the impact on farmers' income per damaged acre of soil and the loss of livelihoods.
- A quantitative assessment of the social and environmental effects of the disaster is also done.
- According to the 2019 Indian PDNA manual, this manual is not intended to replace the existing Relief Memorandum.
- PDNA is an additional component of disaster management that adds resilience and recovery. Earlier efforts
- PDNA was not conducted in India for the first time.

- It was adopted for the first time during the 2018 Kerala floods and again in 2019 during the cyclone in Odisha, both unprecedented disasters.
- However, this assessment has been limited to large-scale disasters that require international financing from the World Bank, Asian Development Bank, and the United Nations. This was because state capabilities were affected by the magnitude of the disasters.

Provision 15th Finance Commission

- In the 15th report of the finance commission of 2021, a provision was made for reconstruction and recovery in the national disaster management budget. This is the heart of the PDNA.
- As they are expected to use the money from the budget, the states didn't receive any international funding for the ongoing PDNAs.
- The State Disaster Risk Management Fund divided the amount of Rs 1,60,153 crore into two funds: State Disaster Relief Funds (SDF) and State Disaster Mitigation Funds (SDMF).
- The former receives 80 percent (Rs. 121,182 crore), while the latter gets (32,030 crore).
- The SDRF also provides three additional allocations: Recovery and reconstruction (30%), Response and Relief (40%) and Preparedness and Capacity Building (10%)
- State Disaster Management Authorities' response to PDNAs
- Its goal is to promote building back better but sometimes it can be too optimistic.
- PDNA might not make any difference in funding since the government will only follow the rules of assistance when dispersing money.
- After calculating the damages according to the norms for assistance, we request Rs 4,416 crore in the memorandum.
- In reality, however, the loss and damage cost could reach Rs 15,000 crore.

Global scenario

- Globally, only two droughts were recorded in the 55 PDNAs worldwide conducted since 2008 -- one in Malawi, the other in Marshall Islands, in 2016 -- and they were slow-onset disasters.
- PDNA is more appropriate for flood- and cyclone-prone states. When it comes to drought, the agriculture, water, and irrigation departments must develop strategies for

mitigation.

Topic 9. WHAT IS 'MEAT' FROM PLANTS AND IS 'JUST LIKE' MEAT VEGETARIAN?

Important for subject: Science and Technology

Licious, a meat and seafood retailer, launched a new brand called 'UnCrave' to market "mock" chickens and mutton last week.

- M.S. Dhoni, Riteish and Genelia Deshmukh, ex-Indian cricket captain Virat Kohli, and Anushka Sharma, are investing in, promoting, and switching to plant-based meat products.
- This segment includes Startups and Companies, ShakaHarry, California-based Beyond Meat, and alternative protein startup Blue Tribe, among others.

Plant-based meat-

- Plant-based products are those that look, smell, and taste like animals.
- Beyond Meat's patties are made with coconut oil, which replicates the melting beef fat of a hamburger. They also use beetroot juice-based liquids to "bleed" as they cook.

These are made in what way?

- Just like plants, animal meat also contains fat, protein, vitamins, minerals, water, and other nutrients.
- This biochemical similarity makes it possible to find analogues within the plant kingdom, or to make them through chemical, mechanical, or biological treatment.
- Replicating muscle tissue in plants is the challenge.
- It is the unique spatial arrangement of proteins within these tissues that creates animal meat's distinctive texture.
- Plant-based mutton sausages, kebabs, or keema are simpler to prepare than large cuts of animal meat like chicken breasts or pork chops.
- Plant-based dairy products include milk from oats and almond, soyabean, rice, and coconut.
- Oat milk is the closest to regular milk in texture and taste.
- Because oats absorb more water during soaking than nuts and rice, it is thicker and creamier. Also, more grain is strained to be incorporated into the final product.
- Oat milk players include the Swedish company Oatly and the Bengaluru-headquartered

Alt Co.

What is the industry's size?

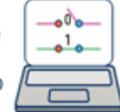
- The Good Foods Institute in Washington DC estimates that in 2021, the US will see \$7.4 billion in retail sales of alternative products made from plant-based animals.
- In 2018, the industry grew to \$4.8 billion.
- In 2021, sales of plant-based meats -- which include other major names like Impossible Foods or the Kellogg Company's Morning Star Farms -- fell flat. Even milk grew at 4%.

What's the potential in India?

- Most likely not, at least for dairy.
- Indians are accustomed to milk as a "superior" food.
- Milk (which includes butter, butter, ghee and other dairy products) is superior food. This is in contrast to cereals and sugar which have a lower share of the value of consumption and are considered "inferior foods".

Topic 10. SECURING INDIA’S CYBERSPACE FROM QUANTUM TECHNIQUES

Important for subject: Science and Technology

Quantum Computing	Vs.	Classical Computing
 <p>Calculates with qubits, which can represent 0 and 1 at the same time</p>		 <p>Calculates with transistors, which can represent either 0 or 1</p>
 <p>Power increases exponentially in proportion to the number of qubits</p>		 <p>Power increases in a 1:1 relationship with the number of transistors</p>
 <p>Quantum computers have high error rates and need to be kept ultracold</p>		 <p>Classical computers have low error rates and can operate at room temp</p>
 <p>Well suited for tasks like optimization problems, data analysis, and simulations</p>		 <p>Most everyday processing is best handled by classical computers</p>

According to reports, the Indian Army was developing cryptographic methods to protect its networks from attacks by quantum-capable systems.

- This is a continuation of the initiative taken last year to create a quantum computing lab at the military engineering institution in Mhow (Madhya Pradesh).
- Defence requires quantum technology
- Traditional encryption models are at high risk, so "quantumresistant" systems have become a necessity.
- Quantum cyberattacks are capable of breaching any hardened target and opening up a significant vulnerability to existing digital infrastructure.
- These systems must be hack-proofed. This will require significant investments.
- Quantum computing increases cyber risks. This is due to the leadership of some countries in this sector.
- The US National Quantum Initiative Act, for example, has already provided \$1.2 billion to support research in defense-related quantum technology.
- Two of the fastest quantum computers in the world are located in China.

Where India stands

- A joint team from the Defence Research and Development Organisation and IIT Delhi successfully demonstrated a QKD connection between Prayagraj and Vindhyachal in UP, 100 kilometres apart.
- China's quantum advancements increase the threat of quantum cyberattacks on India's digital infrastructure. India already faces a barrage from attacks by Chinese state-sponsored hackers.
- India's dependence upon foreign hardware, especially Chinese, is another vulnerability.

India's cyberspace resilience

- The Centre declared quantum technology "mission of national significance" in 2019.
- The Union Budget 2020-21 proposed spending Rs 8,000 crore on the newly established National Mission on Quantum Technologies and Applications.
- India currently has very limited capabilities to develop advanced systems that can withstand quantum cyber attacks.
- India should consider purchasing the United States National Security Agency (NSA) Suite B Cryptography Quantum-Resistant Suite to be its official encryption

mechanism.

- This will allow India to transition to quantum-resistant algorithms.
- India will be looking forward to joining the Open Quantum Safe Project -- a global initiative that was started in 2016 for prototyping, integrating and testing quantum-resistant cryptographic algorithms.
- Quantum Key Distribution (QKDs), especially those that connect military outposts to sensitive communications, can be prioritized to ensure secure communications and protect key intelligence against potential quantum cyber attacks.

National Mission on Quantum Technologies and Applications -

- The Budget 2020 announced the NM-QTA (also known as the National Quantum Mission) with a five-year outlay of Rs.8000 crore.
- Implemented by the Department of Science and Technology under the Ministry of Science and Technology.
- The mission's focus areas will be on addressing national priorities through: Development of fundamental science and Translation Technology
- Quantum principles will be used for engineering solutions to problems in communications, computing and chemistry.
- Quantum computing technology can be used in many areas, including aerospace engineering, simulations and weather prediction. It also secures communications and financial transactions. Education, health, advanced manufacturing and agriculture are some of the applications.

Topic 11. DILIP MAHALANABIS'S MIRACLE CURE, ORS

Important for subject: Science & Technology

Dilip Mahalanabis, a well-known practitioner of oral rehydration therapy, (ORT), died on October 16, 2022.

About him

- Dilip Mahalanabis, 12 November 1934 - 16 Oct 2022 was an Indian paediatrician who pioneered the use of oral water rehydration therapy for treating diarrheal diseases.
- He conducted research in the 1960s on cholera and other diarrheal illnesses at the Johns Hopkins International Center for Medical Research and Training, Calcutta (India).

- He was a medical officer for the WHO's Diarrheal Disease Control Programme in the 1980s and 1990s.
- In the late 1990s, he was appointed Director of Clinical Research at ICDDR, Bangladesh.
- Mahalanabis was made a foreign member of Royal Swedish Academy of Sciences in 1994.
- 2002: Dr. Mahalanabis and Dr. Nathaniel Pierce were awarded the Pollin Prize in Pediatric Research.
- They were recognized for their contributions in the development and implementation of oral water rehydration therapy.
- In 2006 Dr. Mahalanabis, Dr. Richard A. Cash and Dr. David Nalin received the Prince Mahidol Prize in 2006, for their contributions to oral rehydration therapy development and application.

His contribution

- Cholera spread in 1971 during the Bangladesh Liberation War, which took place in Bangaon, West Bengal.
- The situation was becoming critical and the camp was being managed by Dilip Mahalanabis, a Kolkata paediatrician.
- The camp ran out of intravenous fluid salts, which was the standard treatment for severe, often fatal, diarrhoea caused by cholera. It also lacked sufficient staff to administer it.
- Mahalanabis, in desperate times, turned to oral rehydration treatment (ORT) for diarrhoea. Although not widely accepted, it was a viable option. With the support of Johns
- Hopkins University Centre for Medical Research and Training, Kolkata, started administering a specific mixture of table salt and baking soda with clean drinking water.
- It was almost miraculous: In just two weeks, death rates dropped from 30% to 3.6%.

About ORT-

- When intravenous therapy is unavailable or not feasible, oral rehydration therapy can be used as an alternative. It is used to prevent and treat diarrheal dehydration.
- The World Health Organization estimates that oral rehydration therapy has saved

more than 60 million lives.

- A positive contribution to the medical community
- ORT's history spans many decades and includes several key figures. From Yale paediatrician Daniel Darrow, who in the 1940s concluded that oral solutions of potassium, glucose, and lactate could be used to restore electrolytes lost from diarrhoea, to Robert A Phillips, who demonstrated oral therapy's viability during the cholera epidemic in Manila, long dismissed as too simple to work.

Topic 12. CHANDRAYAAN-3

Important for subject: Science and Technology

Chandrayaan-3 launch in June, ISRO Chandrayaan-3 Mission

- Chandrayaan-3 is the follow-up to Chandrayaan-2, which was launched in July 2019. It aimed at landing a rover on South Pole lunar.
- After the Vikram lander failed, another mission was pursued to show the landing capabilities required for the Lunar Polar Exploration Mission (Japan 2024).
- It will be equipped with an orbiter as well as a landing module. This orbiter will not be loaded with scientific instruments such as the Chandrayaan-2.
- Its duties will be limited to transporting the lunar lander to its orbit, supervising the landing and communicating with the earth station.

Chandrayaan-2 Mission

- Chandrayaan-2 was composed of an Orbiter Lander, Rover and Rover. All were equipped with scientific instruments for studying the moon.
- The Orbiter would observe the moon from a 100-km orbit. Meanwhile, the Lander and Rover module were to be dissected to make a soft landing.
- ISRO named the Lander module Vikram after Vikram Sarabhai who was the pioneer of India's space program, and the Rover module after Pragyaan which means wisdom.
- It was launched aboard the most powerful geosynchronous launch vehicle in the country, the GSLV Mk 3.
- Instead of landing safely, Vikram crashed into the ground and stopped Pragyaan's successful journey to the surface of the Moon.
- Information gathered by Chnadryaan-2-Presence of water molecules on moon:
- This mission provided the most accurate information to date about the Moon's H₂O

molecules.

- Prevalence of minor elements
- Remote sensing has made it possible to detect chromium, manganese, and sodium for the first-time.
- This discovery can lead to deeper understanding of magmatic evolution on Moon, as well as deeper insights into planetary differentiation and nebular conditions.
- Information on solar flares
- Large numbers of microflares observed outside of the active area have been discovered for the first-time. This, according to ISRO "has great implications for understanding the mechanism behind the heating of the solar corona", a problem that has been a concern for many decades.
- Exploration of permanently shadowed areas, craters and boulders beneath the regolith (the loose deposit that covers the top surface up to 3-4m deep), is possible. This will allow scientists to pinpoint future drilling and landing sites for human missions.

GSLV-Mk 3-

- Geosynchronous Satellite Launch Vehicle Mark-III, developed by Indian Space Research Organisation (ISRO), a three-stage vehicle designed to launch communication satellites into geostationary orbit.
- It weighs in at 640 tonnes and can hold up to 8,000kg payload to Low Earth Orbit, (LEO), or 4000kg payload to GTO(Geo-Synchronous Transport Orbit).
- Why was the Lunar South Pole chosen for exploration?
- Because the lunar surface area left in shadow at the South Pole is larger than the North Pole, the Lunar South Pole is particularly interesting.
- It is possible that water could exist in permanently shaded areas.
- The South Pole also contains craters that act as cold traps, and have a fossil record from the early Solar System.

Topic 13. RRB UNDER EASE REFORM

Important for subject: Science and Technology

The government plans to use the Regional Rural Banks (RRBs) to provide credit for rural consumers.

- The mandate proposed will require RRBs not only to extend credit for agriculture loans, but also credit for education and housing.
- It will be part the Centre's Enhanced Access & Service Excellence reforms.
- RRBs will receive guidance under the EASE program to become more competitive and more business-friendly, digitize operations, and connect with one another.

Two purposes may be served by giving RRBs a new mandate:

- They will be able to expand their businesses by using their vast rural network and local knowledge.
- It will increase credit access for rural consumers, including education, housing, and micro-businesses.
- To meet the rural credit requirements of farmers and rural communities, the RRBs were created according to the Narasimham Committee's recommendations.
- The Prathama Grameen Bank, which was established 02/10/75, was the first to be opened.
- The Syndicate Bank was the first commercial bank sponsoring the Prathama Grameen Bank RRB
- Regional Rural Banks were established by an Ordinance dated 26 September 1975, and the Regional Rural Banks Act 1976. They provide adequate banking and credit facilities to support agriculture and other rural sectors.
- It holds a 40% market share in total banking business.
- Each RRB has a PSB that is its sponsor bank. It owns 40% of it. Another 25% is owned by India, the state and 20% by India. The rest is with the RRB. .
- The government-owned scheduled commercial banks in India, called Regional Rural Banks (RRBs), operate at the regional level in different parts of India.
- The operation area is restricted to the areas notified by India and covers one or more districts within the State.
- They were created to provide basic financial and banking services in rural India.

- RRBs might have branches for urban operations, and their operation area may also include urban areas.
- RRBs can perform various functions under the following headings:
- Banking facilities are available to rural and semi-urban areas.
- Executing government operations such as disbursement wages for MGNREGA workers, pension distribution etc.
- Offering Para-Banking services such as locker facilities, debit cards, credit cards, mobile banking and internet banking, UPI, etc.

Enhanced Access & Service Excellence reforms (EASE)

- It was jointly launched by the government, PSBs, and was inaugurated in January 2018.
- It was commissioned by Indian Banks' Association, and authored in Boston Consulting Group.
- EASE is a new-age reform initiative in Public Sector Banks (PSBs). It aims to increase profitability, asset quality, customer services, and digital capabilities.
- Every year, the EASE programme establishes a common agenda for reforms in public-sector banking institutions.
- It focuses on data analytics, automating, and digitization.
- EASE 1.0 reported significant improvements in PSB performance in resolutions of Non-Performing Assets transparently.
- EASE 2.0 introduced six new reform Action points across six themes – Responsible Banking, Customer Responsiveness, Credit Off-take and PSBs as UdyamiMitra (SIDBI portal to credit management for MSMEs); Financial Inclusion & Digitalisation (HR); Governance and Human Resource (HR).
- Ease 3.0 aims to improve banking ease in all customer experiences using technology - Dial A Loan and PSBloansin59 Minutes.com. Partnerships with FinTechs, E-commerce companies, Tech enabled agriculture lending.
- EASE 4.0 commits PSBs tech-enabled and simplified banking to advance the agenda for customer-centric digital transformation.
- EASE 5.0 focuses on delivering a better digital experience and data-driven, integrated and inclusive banking across all banks.

Topic 14. REGULATIONS OF GM FOODS IN INDIA

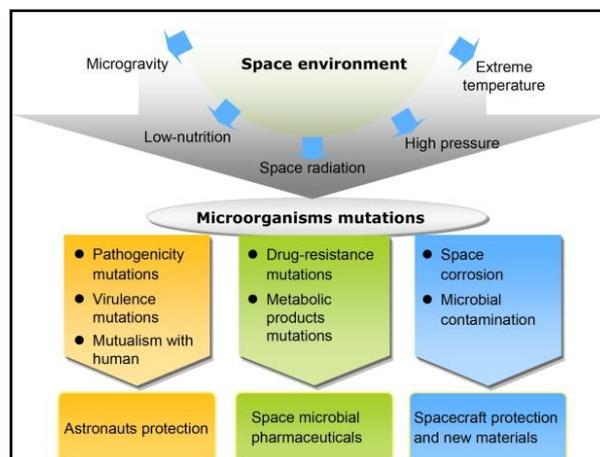
Important for subject: Science and Technology

All GMOs, including GE plants, are regulated in India by the Ministry of Environment, Forest and Climate Change (MoEFCC) according to the Environment (Protection) Act, 1987.

- All activities related GMOs or products are regulated according to "Rules for the
- Manufacture/Use/Import/Export and Storage of Hazardous Microorganisms, Genetically Engineered Organisms or Cells, 1989" (commonly referred to as Rules, 1989) under the provisions of the Environment (Protection) Act, 1986.
- Safety assessment of GM food is done according to established guidelines and protocols.
- Important: GM foods will be subject to regulation by the Food Safety and Standards Authority of India, FSSAI under the Food Safety and Standards Act 2006.
- MoEFCC, the nodal ministry responsible for biosafety regulations, has implemented Phase II Capacity Building Project Biosafety with support by Global Environment Facility (GEF) and the United Nations Environment Programs (UNEP), in order to improve India's biosafety management.
- "Enhancing Public Awareness" is one of the main thrust areas of this project. It is crucial for better understanding the biosafety regulatory framework.
- The Rules, 1989, have notified six competent authorities about their compositions and roles.

Topic 15. RESEARCHERS STUDY MICROBIAL INTERACTIONS IN INTERNATIONAL SPACE STATION

Important for subject: Science and Technology



Researchers from the Indian Institute of Technology Madras and NASA Jet Propulsion Laboratory have examined the interactions of microbes on the International Space Station (ISS).

- This study was inspired by earlier observations that *Klebsiella pneumoniae* dominated the surface of the ISS.
- *Klebsiella pneumoniae*, which is a non-motile, gram-negative, and encapsulated bacterium, can be found in the environment. It has been linked to pneumonia in patients with diabetes mellitus or alcohol abuse disorder.
- The bacterium colonizes the mucosal surfaces of the human oropharynx, GI tract and stomach.
- Once the bacteria enters the body, it can show high levels of virulence or antibiotic resistance.
- This pathogen can cause pneumonia and other nosocomial diseases.
- Nosocomial infections
- Also referred to as healthcare-associated infections (HAI), are infections acquired during the process of receiving health care that was not present during the time of admission.
- These may appear in different healthcare settings such as hospitals, long-term facilities and ambulatory settings. They can also occur after discharge.
- Occupational infections can also be included in HAIs.

The study's aim is to:

- This study will assist in devising strategies to disinfect space stations and minimize any possible impact on astronauts' health by microbes.
- Researchers were interested in understanding how bacteria can affect the growth of microbes around it and what possible consequences this could have.

Research findings

- *Klebsiella pneumoniae* was found to be beneficial to other microbes on the ISS, including the bacteria from the *Pantoea* genus.
- Its presence, however, was hindering *Aspergillus* fungus' growth.
- This bacterial family also includes *Salmonella* and *E.coli* members, which are also found in the human stomach.
- This study shows that the microbial strains discovered in the study are not a threat to

astronauts on the space station. It also provides evidence of why it is important to monitor the microbiome of the ISS.

Topic 16. BANKING SECTOR

Important for subject: Economy

Bernanke, Diamond and Dybvig were awarded the Nobel in Economics for their "research about banks and financial crisis" in the 1980s. This research has been the foundation of modern banking research.

- Diamond and Dybvig proposed theoretical models of banks' roles in an economy and the factors that make them vulnerable to 'runs on their deposits.
- Banks don't hold the money indefinitely, but they lend it to borrowers for longer terms. Depositors need immediate access to their savings.
- This mismatch in the tenure profiles of banks' assets-liability profiles can increase the risk for simultaneous withdrawal rushes and bank runs.
- It offered solutions like deposit insurance and a policy called a "lender of last resort" that governments could consider to avoid these failures.

Concept:

- Profiles of asset-liability for banks
- A balance sheet is an accounting tool which lists assets and liabilities.
- Each scheduled bank must furnish the required form to the Reserve Bank of India every fortnight on Fridays and Last Fridays of each month.
- This statement will show its assets and liabilities in India as per Section 42(2) of The Reserve Bank of India Act, 1934.
- This report provides current information about deposits, advances, and investments of banks.

Asset Liability

- Assets are items that can be described as components of a property owned by a person or company.
- They have a certain value that can be used for their respective accounts, such as debts, legacies, and commitments.
- A liability is a bank's obligation to pay a debt.
- Liabilities are the responsibility of an individual or entity to account for what they

have done.

Various assets:

- Assets with The Banking System-includes balances and advances from the bank with this system
- Balances with other banks
- Short Notice and Money on Call
- Advances to Banks

Other Assets

1. Investments-Investments indicate the outstanding position of the total investment in Government and other approved securities by the banks.

2. Government Securities

3. Other securities

4. Bank credit

5. Credit for food

6. Credit for non-food items

7. Loans, cash credit and overdrafts

8. Inland Bills – Purchased-- Inland

- The total amount of Indian bills that are drawn and payable include demand drafts, cheques, and any discounts or purchases by scheduled banks.
- This does not include bills that have been rediscounted by the Reserve Bank of India or other financial institutions.

Get Discounted

- Foreign Bills – These are foreign bills that have been purchased by scheduled banks and are payable in India. They cover all import and export bills, including demand drafts drawn in foreign currencies.

Get Discounts

Various liabilities:

- Liabilities to Bank System - Banks invest in demand deposits and time deposits of other bank, certificates of deposit(CDs), borrow money from other banks in call/money/notice, market repo, etc.
- Time and Demand
- Bank Deposits

- Bank Borrowings
- Other Time and Demand Liabilities
- Liabilities to Others - This includes customer deposits, bank borrowings and other time and demand liabilities.

Aggregate Deposits -

- Time and demand
- Borrowing
- Other Demand and Time
- Liabilities
- Borrowings from the Reserve
- Reserve - Bank-Borrowing
- Bank is the sum of all borrowings made by the Reserve Bank of India. This head includes all borrowings under Repo account or other refinance options.
- Reserve Bank Cash in hand and Balances
- Reserve Bank is the sum of all cash in hand with banks, and their balances with Reserve Bank of India.

Topic 17. BIGTECH POSE RISKS

Important for subject: Economy

Systemic financial instability is posed by 'Bigtechs.' RBI paper-'Bigtechs in the Financial Domain: Balancing Stability and Competition'.

- Due to their technological benefits, large user base and wide-spread usage by financial institutions, they pose a threat to financial stability.
- Complex governance structures of bigtechs limit the ability to effectively oversee and enforce entity-based regulations.
- It is able to easily acquire cross-functional data that can be used for innovative product offerings, including shadow banking.
- They may be involved in shadow banking, which can cause operational risk due to the failure of non-financial services and further disruption to financing activities.
- The regulatory frameworks must be updated to keep up with the complex inter-linkages among financial institutions and technology companies.

Tech giants

- Large, non-financial technology companies are referred to as "bigtechs".
- Example: Alibaba, Amazon.com, Facebook.com, Google. Tencent.
- They typically hold service licenses through subsidiaries and JVs that offer varying degrees of ownership control and regulatory advantages.
- Bigtechs core business is in information technology and consultancy, including cloud computing as well as data analytics. Shadow banking and financial intermediation are other services.

Shadow banking

- It's a term that describes bank-like activities, mainly lending, that occur outside of traditional banking.
- It can also be referred to market-based finance or non-bank financial intermediary.
- It is generally not regulated the same as traditional bank lending.
- Paul McCulley invented the term "shadow bank" in 2007.
- **Example:** Credit hedge funds, private equity funds, credit funds, exchange-traded money, credit investment funds and structured investment vehicles (SIV), NBFCs, and hedge funds are just a few of the entities that make up shadow banking.
- These institutions act as intermediaries between investors and borrowers. They provide credit and thus facilitate financial inclusion.

Types of Bank Risks

- Banks are exposed to many types of risk and need to manage them carefully.
 - Broadly speaking, there are two types of risks in the banking sector: systematic and unsystematic.
1. Systematic risks: Systematic risk can also be called Undiversifiable risk, Volatility, and Market risk. Systematic risk is a threat to the entire market, not just one stock or industry. It can be used to describe interest rate changes and inflation as well as recessions and wars.
 2. Unsystematic risks:
 - It can also be called Specific Risk, Nonsystematic, Diversifiable, Residual, and Specific Risk.
 - This type of risk is the uncertainty that comes with an investment in a particular industry or company.
 - You can think of a management change, a product recall, or a regulatory change that

could reduce company sales. There may also be a new competitor on the market with the potential for taking away market share from the company you have invested.

Additional risks

- Credit of default risk:-The Basel Committee on Banking Supervision defines credit as the possibility that a bank borrower or counter-party will not pay its obligations under the terms they have agreed to.
- Market Risk: The Basel Committee on Banking Supervision defines it as the risk of losing on-balance and off-balance sheets positions due to fluctuations in market prices.
- Interest Risk: This is a risk that could lead to financial losses from changes in interest rates.
- Equity Risk: This is a risk that banks take when they disburse loans to equity.
- Commodity risk: This is when there are potential losses from changes in commodity prices (agricultural and industrial, as well as energy).
- Foreign Exchange Risk: This is a risk that could lead to financial loss as a result of fluctuations in exchange rates.
- Liquidity Risk is the risk that a bank will not be able to fund its day-today operations.
- Operational risk: The Basel Committee on Banking Supervision defines it as "the risk of loss that results from inefficient or failed internal processes, people or systems, or other external events."
- Human Intervention & Error
- Failure of the IT/internal systems & software.
- Inadequate internal processes to transmit data and information

Topic 18. FINANCIAL LIABILITIES OF HOUSEHOLD SECTOR IN INDIA

Important for subject: Economy

According to the RBI's most recent monthly Bulletin, "Financial Liabilities in India's Household Sector" a report titled "Financial liabilities" of Indian households has revealed that household sector's liabilities have increased in the past year and that their assets (in the form of accumulated savings) have also increased in recent years.

- From March 2019 to September 2020, total household borrowings from institutional sources increased by 28.3 per cent

- Credit to the household sector includes both personal and non-personal loans to individuals, including Hindu undivided Family (HUF), unincorporated enterprises like partnership and proprietary concerns, joint liability group, NGOs, trusts, and groups.
- Personal loans include primarily housing loans, vehicle loans and credit cards.
- The share of personal loans in household total credit has been steadily increasing.
- The non-personal loans for household consisted mainly of agricultural loans, industrial loans and trade loans.
- During the past nine years, credit for agricultural activities declined and trade remained at around 10% of total household credit.
- The sustainability of borrowings can be measured by the amount of savings. This contributes to future assets that can then be used to discharge future liabilities.
- The ratio of household assets and bank credit can be used to capture liabilities.
- The sources of institutional lending include the Institutional source credit --the credit offered to authorised and credential organizations such as:
 1. Scheduled commercial banks (SCBs).
 2. Non-banking financial companies (NBFCs).
 3. Housing finance companies (HFCs).
 4. Banks cooperative
 5. Regional Rural Banks
 6. Ratio of Credit Deposits
- It's the ratio of how much a bank lends to the deposits it has mobilized.
- This indicates how much of the bank's core assets are being used to lend, which is the primary banking activity.
- Divide the total amount of loans and deposits by the bank's loan-to-deposit ratio.
- The regulator (RBI) does not specify a minimum or maximum ratio. A very low ratio means that banks are not using their resources to the fullest extent. If the ratio is higher than a certain point, it may indicate a shortage of resources.
- The ideal ratio of loan-to deposit is typically between 80% and 90%.
- A 100 percent loan-to-deposit ratio means that a bank lends one dollar to customers for each dollar it receives in deposits.
- Credit-deposit ratios exceeding 70% indicate a strain on resources. They must set aside funds to keep a cash reserve ratio (4.5%) and a statutory liquidity rate (23%). In

such a situation, banks can borrow from their capital but it is not prudent.

Importance:

- This ratio is the first indicator of the health and stability of a bank.
- High ratios are considered alarming as they may indicate pressure on resources and capital adequacy issues.
- To assess a bank's liquidity, the loan-to-deposit ratio compares a bank's total loans and its total deposits over the same period.
- LDR is used to measure how well a bank attracts and retains customers.
- Investors can use the LDR to determine whether a bank is being managed well.
- The bank will be less able to lend if it isn't growing its deposits or shrinking its deposits.

Topic 19. FALLING RESERVES

Important for subject: Economy

It is unlikely that the 2013 strategy of the Indian central bank to protect its currency and rebuild foreign reserves will prove successful.

- To protect the rupee's depreciation, the Reserve Bank of India sells dollars to reduce its forex reserves.
- The 2013 RBI swapped the U.S. dollar deposits of banks or foreign currency funding for rupees at concessional rate.
- These methods may not prove as successful now because of the narrower spread in US IN rates and less aggressive rate rises in this cycle than in 2013.
- India's 3-year yields on bonds are 7.5%, and the U.S yields are 4.5%. The 3% spread is unlikely that investors will make any profit given the current hedging cost of 6.5%-7%.
- There are many options
- Floating sovereign bonds such as the Resurgent India Bonds (RIBs), India Millennium Deposit bondss (IMDs) used to boost forex reserves.

Foreign currency non-resident deposits?

- Foreign currency nonresident deposits are often abbreviated to FCNR (B). The B stands for banks and refers to term deposits that Indian non-residents (NRIs), can open with Indian banks.

- These deposits can be denominated using foreign currencies that are permitted by the Reserve Bank of India.
- This term deposit was established in 1993. It is available for tenures from one to five years.
- A term deposit is a loan that lasts for a set period. After that, the amount must be repaid with interest paid either monthly or in a lump sum at maturity.
- Fixed deposits can be considered a term deposit.
- This would allow banks to have forex resources available to them to lend to customers who may need foreign financing.

Does it mean that NRIs cannot invest in India through this method?

- You also have two other options: the external (non-resident) rupee account (NRERA), and the ordinary (NRO) account.
- These accounts are very similar to regular bank accounts, but differ from normal ones in that they can only be opened for a maximum of three years.
- They are not denominated as FCNR (B), but in rupees.

What is a currency-risk under FCNR (B)?

- Indian banks deposit the majority of their rupee deposits and invest in Indian currency.
- A NRI can invest \$1,000 in the FCNR (B), which will raise the bank's deposit by Rs 67,000 for three years (considering that \$1 is Rs 67). This amount is then invested by the bank.
- However, the rupee's value will decrease to Rs 69 over this period. To repay the \$1,000, the bank will need to spend Rs 69,000. This is known as currency risk.
- The bank, on the other hand, stands to benefit from a rupee appreciation.

The Swap Scheme:

- In 2013, the Indian currency lost value, which created currency risk for banks.
- The RBI created the 3-month swap window to allow FCNR (B), deposits with terms of three years or longer, to be placed in FCNR (B).
- This swap window allowed banks to swap (or exchange) their FCNR(B) deposits with RBI by paying interest at a fixed rate 3.5% (three percentage points lower than the market rates of that time).
- The banks exchanged dollars from FCNR (B-deposits) with the RBI for rupees. The

fixed interest rate was 3.5%, and the RBI had the money back in dollars.

- Example: Let's say that the average exchange rate between September and December 2013 was Rs. 62. The current exchange rate is Rs 67. This is a decrease of 8%.
- Banks will repay the amount with an annual interest rate of 3.5%. This means that the banks' effective exchange rate will be Rs 69.
- This was a good hedge for banks, with very little depreciation. They would have used the money they received from RBI to invest in high-return assets.

Impact:

- FCNR (B), deposits rose from \$15.1 Billion at the beginning of August 2013 to nearly \$40 billion by December 2013.
- The rupee was stabilized by the inflow of foreign currency. It rose from a volatile range of Rs67-68 per dollar to Rs62-64 per dollar.
- The RBI was given the responsibility of shifting currency risk. This meant that banks were allowed to receive a 3.5% subsidy for foreign exchange.
- Banks' hedging costs can be referred to as the 3.5% Swap windows would not have been possible without banks entering swap agreements at 7% to hedge rupee appreciation risk.

Topic 20. GIFT TAX

Important for subject: Economy



The Supreme Court ruled shares in the lock-in period are not 'quoted share' and that they must be valued as if they were. This will determine gift tax liability.

- It was a question of whether promoter's locked in shares should be treated as unquoted or quoted shares to determine the taxability of gifting under the Gift Tax Act of 1958.
- SC ruled that equity shares under lock-in could not be traded. Therefore, they remained unquoted on any recognized stock exchange.

Quoted shares

- **Wealth Tax Act:** A quoted share in relation of an equity share or preference share is a share that is quoted/ listed on any recognized stock exchange with regularity.
- These shares are quoted based on transactions that have been made during the normal course of business.
- Officially listed investment instruments, such as shares, bonds, and debentures, on a stock exchange that allows public trading

Unquoted share

- An "unquoted share" is simply a share which is not quoted.
- If the market capitalization or other requirements of the issuing company fall to the point where the share becomes unquoted, it may be considered unquoted.

Gift tax

- In 1958, the Gift Tax Act was introduced in India. This act established the basis for taxing gifts.
- The Gift Tax Act was a donor-based taxation system. Gifts were subject to a flat rate tax of 30% and a basic exemption of 30,000.
- With effect from October 1998, the Gift Tax Act was repealed. Both the donor and recipient no longer had to pay tax on gifts received or given.
- Reintroduction Gift Tax in Income Tax Act 1961
- The emphasis on taxation has shifted from donor-based to recipient-based taxation. The income earned from gifts became taxable for the recipient.
- The current tax law states that any person (donee/recipient) who receives a sum or immovable property, or any other specified property, from another person (donor), without consideration or for inadequate consideration (i.e. Gifts less than the fair value or stamp duty value of immovable properties are subject to tax.

- Property can include immovable property such as land, buildings, or both. Shares and securities are also included.
- Gifts of movable property, such as shares, ETFs and mutual funds, jewellery or drawings, without consideration, exceeding Fair Market Value greater than INR 50,000, are taxable in the hands the recipient under Section 56(2) Income Tax Act.

Exemptions from Taxation

- Any amount of money or property that is received from a specific relative at any time.
- Any amount of money or property that is received from anyone on the occasion of the wedding;
- Any amount of money or property that is received as a result of a will or inheritance.
- Any money or property that is received as a gift in anticipation of the death of the payer
- Any amount of money or property that an individual receives from a trust established or created solely for the benefit or a relative; etc.

Topic 21. CHINA-PLUS-ONE STRATEGY

Important for subject: Economy

India must change its trade policy in order to benefit from the China-plus-one strategy.

China-plus One Strategy

- China Plus One, commonly known as Plus One is a business strategy that allows you to diversify your business beyond China.
- It was first used as a strategy for global business in 2013.
- Due to low labor costs, many overseas companies had moved their operations to China in the past. However, companies are now reviewing their current setup and diversifying their manufacturing strategies.
- These factors include China's declining cost advantage in recent years and growing geopolitical distrust towards the West.
- A group of 18 economies including the US and India presented a roadmap for creating long-term resilient supply chains.
- This road map included steps to combat supply chain vulnerabilities and dependencies. This is part of China-plus-one's overall strategy.
- The clear winners of the China plus-one model are the EU, Mexico and Taiwan across

all sectors, including machinery, automobiles and transport and electric equipment.

- India did not however benefit significantly from this trade diversion.

Topic 22. CHINA'S 'WOLF WARRIOR' DIPLOMACY

Important for subject: International Relations

China's current National Congress of the Chinese Communist Party has employed a style known as "wolf-warrior" diplomacy in international relations.

What is "Wolf Warrior" Diplomacy?

- This term gained popularity during the Xi Presidency.
- "Wolf-warrior diplomacy" is a strategy used by the Chinese government to expand its ideology outside China, counter the West, and defend itself.
- It's an informal term that refers to the aggressive and confrontational style used by 'Chinese diplomats' in communication over the past decade.
- The term was inspired by a 2015 Chinese action movie, called 'Wolf Warrior' and its sequel.
- The 'Wolf Warrior Diplomacy' reinforces the presumed shift in Chinese diplomacy, from passive, conservative, and low-key to assertive and proactive, high-profile, and high-profile.

What's the purpose of wolf warrior diplomacy?

- Many factors have led to the change in strategy, including:
- Xi has more authoritarian tendencies than previous leaders. Deteriorating US-China Relations under former US President Donald Trump. Corona virus-related allegations in China.

Indian experience:

- The new "wolf warrior diplomacy" confronts any criticism of China in public.
- For a time, Delhi was at the receiving end of Doklam's and Ladakh's crises.

What has been the overall success rate of this approach?

- Since it has been criticized by many trusted partners, the wolf-warrior diplomacy already is hurting China's international policy.
- China's soft power has weakened globally, further damaging its global image.
- India has been pushed closer to the U.S. by its Wolf warrior tactics and its military assertiveness at the China-India border.

Topic 23. INDIA – AFRICA DEFENCE DIALOGUE 2022

Important for subject: International Relations

On the 18th of October 2022, the India-Africa Defence Dialogue was held in Gandhinagar (Gujarat).

- The dialogue's broad theme is "India-Africa: Adopting Strategy to Strengthen and Synergize Defence and Security Cooperation".
- India's approach to Africa is guided in part by the Kampala Principles, which were outlined by Shri Narendra Modi, Prime Minister of India, in 2018.
- India's engagement is based on African priorities, as defined by Africans.
- India stressed that the United Nations Security Council should be more representative, and that the global order must be democratic.
- In Lucknow, Uttar Pradesh, the first ever India-Africa Defence Ministers Conclave took place in conjunction with DefExpo, February 6, 2020.

What are the Kampala Principles?

- The Kampala Principles are a collection of ten principles that will help India to deepen its engagement with Africa in order to support their economic growth and address climate change challenges.
- It promotes ownership of the private sector (PSE) by developing co-operation with partner countries. It also ensures that PSE programmes and projects align with national sustainable development priorities.

Gandhinagar Declaration

- The Gandhinagar Declaration was approved as a result of IADD 2022.
- This document proposes to enhance cooperation in different aspects of defense cooperation between the sides.
- It covers the following: training, increasing training slots, deputation of training team members, participation in exercises, humanitarian assistance, empowerment, and capability building for the defense forces of Africa.
- India offered fellowships to experts from African countries through the Manohar Parrikar Institute for Defence Studies and Analysis.

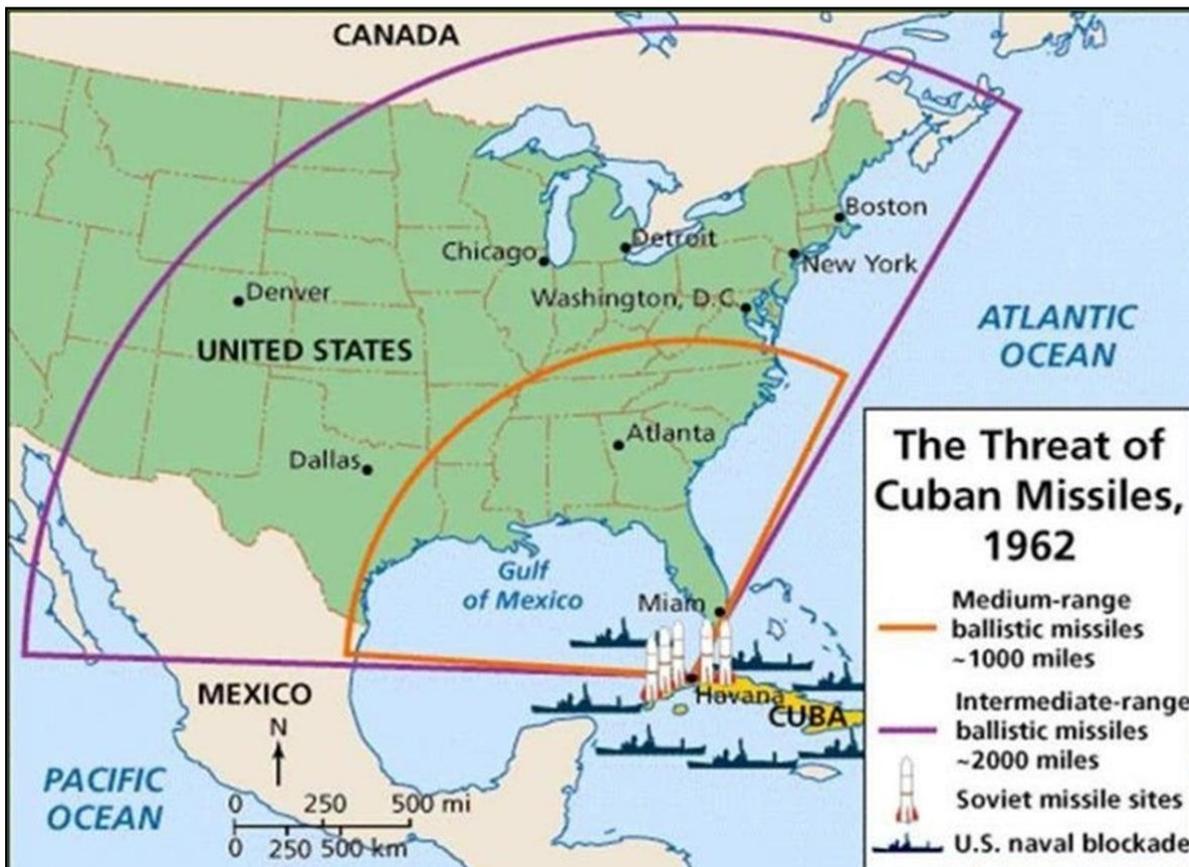
Indo - Africa Fellowship programme

- MP-IDSA will host the Fellowship Programme as the knowledge partner of the IADD.

- This fellowship will allow African scholars to conduct research on security and defence issues in India.
- For a period of between 1-3 months, the fellows would be associated with MPIDSA. The scholar would also receive a stipend.

Topic 24. THE CUBAN MISSILE CRISIS

Important for subject: International Relations



Recent statements by Joe Biden, the US President, stated that Vladimir Putin's veiled threat to use tactical nuclear weapons against Ukraine was the first sign of nuclear "armageddon," since the Cuban missile crisis. .

What was the Cuban Missile Crisis?

- The 13-day-long confrontation between the Soviet Union and the United States was known as the Cuban Missile Crisis.
- This escalated to an international crisis as Soviet deployments, similar to American missiles in Italy or Turkey, created a new conflict.

What was the precursor to the Cuban missile crisis?

- The 1961 failed Bay of Pigs Invasion, in which US-backed Cuban counter-revolutionaries tried to overthrow Fidel Castro's regime to establish a non communist government that was friendly to the US.
- To deter an invasion by the US, Castro turned more towards the USSR after the failed invasion.
- They reached an agreement and a number clandestine missile launch sites were built in Cuba by July 1962.
- In response to the USSR's nuclear arsenal being placed in Cuba, Washington began placing nuclear missiles into Turkey and Italy in the 1950s.

How the Cuban Missile Crisis was avoided?

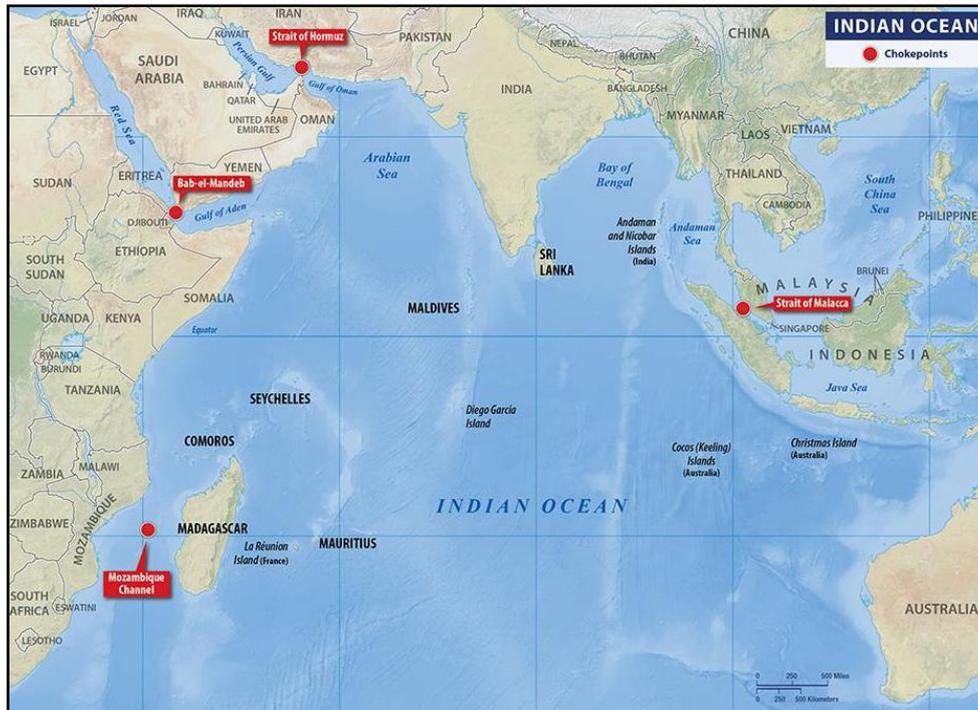
- On October 26, Khrushchev wrote Kennedy a letter stating that he was willing to stop military shipments to Cuba and withdraw his troops from Cuba, provided the US did not invade or support any invasion.
- A few incidents occurred on October 27, which could have escalated into war.
- The U-2 U-2 plane was shot down over Cuba by the US, and the government did not issue a retaliatory strike. Unauthorized entry to the Soviet Union had been made by another U-2 spy.
- The US Navy also dropped non-lethal depth charges against a Soviet submarine equipped with a nuclear torpedo on the same day.
- The submarine's crew, not realizing they were practicing charges, assumed that the vessel was under attack.
- The launch of the nuclear weapon required consent from all three top officers on board. Vasili Alexandrovich Archipov, the chief, refused permission to avoid nuclear war.
- October 28th, Khrushchev declared that Soviet nuclear missile sites in Cuba would be destroyed. Kennedy pledged not to invade Cuba. In secret, Kennedy agreed to eliminate nuclear missiles from Turkey or Italy. The crisis was avoided.

What did you do after the Crisis?

- To prevent tensions from erupting, the two superpowers established the Moscow-Washington hotline.
- The treaty that banned atmospheric and sub-surface nuclear testing was signed by the United States, Soviet Union and Great Britain in August 1963.

Topic 25. THE INDIAN OCEAN REGION

Important for subject: International Relations



Shri Rajnath Singh, Defence Minister at Indian Ocean Region (IOR), plus Defence Ministers' Conclave Gandhinagar said that India is available to supply missiles to friendly countries in this region.

What is IOR+ Conclave and how can I participate?

- In February, the first Indian Region (IOR), Defence Ministers' Conclave took place in Bengaluru
- On the sidelines of DefExpo 2022, Gandhinagar was host to the IOR+ Defence Ministers' Conclave.
- The overall theme of the conference was "Challenges and Opportunities in the Indian Ocean".
- Forty-eight countries from the Indian Ocean region attended the conclave.

What is Indian Rim Association (IORA), and how can it help you?

- The Indian Ocean Rim Association (Inter-Governmental Organization) is a regional organization that aims to strengthen cooperation and sustainable development in the Indian Ocean region.
- It was established in 1997 on the initiative of South Africa and India.

- There are 23 members of the IORA and ten partners in dialogue.
- Australia, Bangladesh and Comoros are among the members.
- China, Egypt and Germany are the ten partners in dialogue. Japan, Russia, Turkey.
- The Republic of Korea is the last to be accepted based on its territory of Reunion Island in India Ocean.
- The Coordinating Secretariat of IORA can be found at Ebene, Mauritius.

Topic 26. RUSSIA REMOVED FROM THE GLOBAL NUCLEAR-ENERGY SUMMIT AT WASHINGTON

Important for subject: International Relations

The International Atomic Energy Agency recently confirmed that Rosatom's executives and Russia's industry regulator had been removed from next week's meeting in Washington.

What's the problem?

- Russia is under increasing pressure from the IAEA to stop threatening nuclear security after it took control of Europe's largest atomic-power station in the war against Ukraine.
- Zaporizhzhia's six reactors are capable of generating a fifth of Ukraine's electricity. Artillery and missiles have since threatened to attack the station.

What is the IAEA?

- IAEA, an intergovernmental organization, aims to encourage peaceful nuclear energy use and to discourage its use for military purposes, including nuclear weapons.
- It was created in 1957 as an independent organization within the United Nations.
- IAEA reports to the General Assembly as well as the Security Council of the United Nations.
- Its headquarters are located at Vienna's UN Office.
- It was awarded the Nobel Peace Prize in 2005 for its work to create a peaceful and safe world.
- It currently has 175 members.
- In 1957, India was admitted to the Union.

Topic 27. GLOBAL LEADERS PLEDGE \$2.5 BILLION FOR POLIO ERADICATION AT WORLD HEALTH SUMMIT

Important for subject: International Organisation

Recent statements by global leaders at the World Health Summit have pledged to donate \$2.54 billion towards eradicating Polio.

- Bill & Melinda Gates Foundation donated \$1.2 billion to the largest international initiative in public health, Global Polio Eradication Initiative.

What is the Global Polio Eradication Initiative?

- The Global Polio Eradication Initiative was the largest private-public partnership established in 1988
- It is led and supported by six partners: the United Nations Children's Fund, Rotary International, the World Health Organization (WHO), Bill & Melinda Gates Foundation, and The United States Centers for Disease Control Prevention (CDC).

What is Poliomyelitis?

- Poliovirus causes it to be a life-threatening and disabling disease.
- Poliovirus can be contagious and spreads from person to person. It lives in the throat, intestines, and can infect food and water.
- Paralysis can result from the virus infecting the spinal cord.

What is the current state of the disease?

- Only two countries are affected by wild poliovirus: Afghanistan and Pakistan.
- After just six cases in 2021, 29 cases have been reported so far in 2019. This includes a few new cases in southeast Africa that are linked to a strain from Pakistan.
- cVDPV is a variant of the poliovirus which can be found in areas where there are not enough immunized people. It continues to spread throughout Africa, Asia, and Europe. Recent outbreaks have been detected in the United States and Israel.

What is nOPV2 and how can it help you?

- GPEI and its partners are developing an innovative tool, the novel oral polio vaccine type 2. (nOPV2), to better address the growing risk of type 2 circulating vaccine derived poliovirus (cVDPV2).
- This vaccine is a modified form of the monovalent OPV type 2 (mOPV2)

- It is genetically more stable, less likely to be linked with the emergence cVDPV2 under low immunity settings, and offers comparable protection against poliovirus

Topic 28. INTERNATIONAL SOLAR ALLIANCE APPROVES FUNDING MECHANISM

Important for subject: International Organizations

International Solar Alliance : Salient Points

What Is International Solar Alliance?
It is an inter-governmental organisation to promote solar energy among member countries. It is headquartered in Gurgaon

What is the concept?
It is meant to bring together 121 countries that lie either completely or partly between the two tropics so as to harness solar energy and make the technology freely available to all nations

How many have joined in?
As of now, 61 nations have joined the alliance while 32 have ratified the Framework Agreement

ISA TARGET

1,000 GW
Solar generation capacity globally by 2030

\$1 trillion
Investment required to achieve the 2030 goal



\$83 bn
India's requirement to meet its **175 GW** goal

Who's behind it?
The idea was conceived and articulated by Prime Minister Narendra Modi during his Wembley Stadium speech at London in 2015

175 Gigawatts (GW) generation from renewable energy is India's target for 2022

20 GW solar power capacity already installed in India, says Modi

International Solar Alliance (ISA) approved the 'Solar Facility' payment guarantee mechanism to boost investments in solar power plants.

Solar Facility

- Two financial components are expected to encourage investment in solar projects.
- Solar Insurance Fund and Solar Payment Guarantee Fund
- The facility's purpose is to attract capital from abroad to invest in "underserved" markets in Africa.
- The ISA would seek to crowdsource investments from different donors around the world and projects in Africa would be able purchase payment guarantees or insurance

premiums from these funds.

Why would you do such a thing?

- ISA's mission, which is US \$1 trillion (Rs80lk crore) in investments in solar power by 2030, is to reduce the cost of the technology as well as its financing.

International Solar Alliance (ISA)

- The ISA is an alliance of over 121 countries. Most of them are sunshine countries that lie between the Tropic of Cancer or the Tropic of Capricorn.
- The President of France, PM Modi, launched the initiative at the 21st Conference of Parties to the United Nations Framework Convention on Climate Change (UNFCCC), held in Paris in 2015.
- Its headquarters are in Gurugram, India.
- The alliance's primary goal is to maximize solar energy and reduce our dependence on fossil fuels.
- The alliance is an intergovernmental organization that is treaty-based.
- The International Solar Alliance (ISA) was granted Observer Status by the United Nations General Assembly (UNGA).

The organization's structure:

- The Director General is the head of the International Solar Alliance.
- The Director General oversees the operations and performs the duties of the ISA Secretariat.
- He is the ISA Assembly's representative.
- The term of the Director General is four years. He or she can be re-elected.

Topic 29. UN CHIEF WANTS INDIA TO MOBILIZE G20 TO HELP DEBT-RIDDEN COUNTRIES

Important for subject: International Organizations

Antonio Guterres, UN chief, sought India's help in mobilizing G20 countries to aid developing countries with high levels of debt. This included three Indian neighbours.

- India assumes the G20 presidency for one year starting December 1, 2022.
- As high oil prices have made it difficult to recover from the economic damages caused by the COVID-19 pandemic, Bangladesh, Pakistan and Sri Lanka have sought IMF loans in recent months.

- The UN chief stressed the importance multilateral initiatives such as G20 Debt Service Suspension Initiative, G20 Common Framework, etc.

G20 Debt Service Suspension Initiative

- It was created in May 2020, during the Covid pandemic.
- The Debt Service Suspension Initiative is a temporary suspension of debt service payments by bilateral official creditors. It applies to the 73 countries with low and middle incomes that request it.
- This is a temporary solution to the financial constraints of these countries. It also frees up scarce funds that can be used to reduce the economic and human impact of the COVID-19 crises.
- While the DSSI can be used to address immediate liquidity needs, it does not solve existing debt sustainability issues in certain countries.
- DSSI is a time-saving tool that allows for more accurate assessments and solutions to debt sustainability.

G20 Common Framework

- G20 later in November 2020 announced a Common Framework for Debt Treatments.
- The Common Framework, which is a better alternative to the DSSI, allows for debt rescheduling that is tailored to specific countries' needs.
- Moreover, while the DSSI did not encourage, but did not require, comparable debt relief from other creditors; the Common Framework requires that the debtor seek similar relief from other creditors including Paris Club, non Paris Club, and private creditors.

Topic 30. 6 VARIETIES OF NEELAKURINJI IDENTIFIED IN SANTHANPARA REGION OF WESTERN GHATS

Important for subject: Geography



Six varieties of the plant have been identified by an expert team as visitors continue to flood in to see the blooming of Neelakurinji in a large area of Kallippara hills at Santhanpara, Idukki, Kerala.

- Jomy Augustine, an expert in neelakurinji and E. Kunjkrishnan (an expert on the Western Ghats), were part of the team that recently identified the plant types.

These are the findings

- According to them, the flowers that are in bloom now belong to the Strobilantheskunthiana variety.
- Alongside Strobilanthesnue land. "To protect our land, we must pass a resolution at the panchayat level and send it to the State biodiversity board.
- The board may also be able to provide funding.
- Udumbanchola Panchayat owns the hills where flowers bloom.
- Job J. Neriampampil is the assistant wildlife warden at the Eravikulam National Park, which is the largest sanctuary for neelakurinji flower species.
- He says that isolated flowerings have been reported from other areas including

Bhadrakali Shola in Puthumala and within the Eravikulam national park.

- Kallippara's bloom was reported to be of the gregarious (massive flowering at one time) type.
- Over 100 varieties from the Mangaladevi ranges to Coorg in Karnataka, experts have identified nearly 100 populations of the *Strobilanthes kunthiana* variety.
- The types of neelakurinji flowers that have been identified from the hill ranges include *Strobilanthes anamallai*, *Strobilanthes heyneanus*, *Strobilanthes pulnyensis* and *Strobilanthes neoasper*.
- These neelakurinji varieties are all endemic to Western Ghats. They can be found on nearly 200 acres of Kallippara hills.
- The neelakurinji species can be considered to be the largest after Munnar's protected areas.
- There are many medicinal plants that can be found on the hills.

About the flower

- It is a shrub found in the Western Ghats of Kerala, Karnataka, and Tamil Nadu.
- The flowers are locally known as Kurinji and can be found at elevations of between 1,300 and 2,400 metres.
- Nilgiri Hills literally means "blue mountains" and is derived from the purplish-blue flowers of Neelakurinji, which only bloom once every 12 years.
- Kurinjimala Sanctuary in Kerala protects the kurinji on approximately 32 km² of core habitat in Kottakamboor, Vattavada villages in Idukki District.
- These plants are also preserved at Kurinji Andavar temple in Kodaikanal, Tamil Nadu. It is dedicated to Tamil God Murugan.
- It was used by the Paliyan tribe people of Tamil Nadu as a reference for calculating their age.
- Karnataka is home to 45 Neelakurinji species. Each species blooms every six, nine, eleven, or twelve years.
- Neelakurinji can also be seen in the Western Ghats and Sanduru hills in Bellary district, Karnataka.

Topic 31. MILLETS AS SMART CROP

Important for subjects: Geography

Millets are being rediscovered as crops that are healthy for the environment, nutrition, and health.

- They are more resistant than other cereals because they are climate-smart.
- They require fewer inputs and are therefore less effective at extracting soil nutrients.
- Their genetic diversity also ensures that agrobiodiversity remains intact.
- India is leading the global discussion on the revival of millet production for better nutrition, lives, and the environment. It also appealed to the UN General Assembly to declare 2023 the International Year of Millets.
- It is the largest producer of millets in the world, producing around 41% of global total production
- The national government is also implementing a Sub-Mission on Nutri-Cereals (Millets) as part of the National Food Security Mission.
- India's determination to revive indigenous crops is evident in the state-level missions in Odisha and Madhya Pradesh.
- Promotion and conservation of millets contribute to food security, better nutrition, and sustainable agriculture. This aligns with Sustainable Development Goals (SDGs) agenda.
- The production of millet has been shown to increase biodiversity and yields for small-holder farmers, as well as rural women.
- The International Fund for Agricultural Development's (IFAD's) Tejaswini programme with Madhya Pradesh showed that growing millets meant a nearly 10 times increase in income (Rs1,800 per month in 2013-14 to Rs16,277 in 2020-21), with better food security because millet crops were not impacted by excessive rainfall.
- FAO's study on Indian millets emphasized the importance of strengthening value chains to increase nutritional benefits and farmers' incomes.
- The country's rainfed regions, which account for 60 percent of its total area, are dominated by millets.
- The minor millets are a rich source of nutrients, minerals, and they can withstand drought and stress in rainfed agriculture.
- Millets can be adapted to many ecological conditions. They are usually grown on soils

less than 15cm deep.

- They don't need rich soils to survive and grow.
- Production:
- Madhya Pradesh has the highest area under small millets (32.4%), followed by Chhattisgarh (19.5%), Uttarakhand (8.8%), Maharashtra (7.8%), Gujarat (5.3%), and Tamil Nadu (1067Kg/ha).
- Table 5 shows the state-specific average area, production, and yield estimates for small millets.
- The highest production and area of finger millets is found in Karnataka, followed closely by Tamil Nadu.
- Karnataka accounted for around 66% of India's total production, while other states have very low production.
- The highest productivity of Tamil Nadu (2464 Kg/ha finger millet) was followed by Karnataka (1782Kg/ha), which is higher than the national average yield (1580kg/ha).
- Negative growth in all states, including Karnataka & Tamil Nadu, is a concern when it comes to compound growth rate.
- The area under finger millet, minor millets, and other small-scale crops is losing its areas to cereal crops and commercial crop despite having higher nutritional value and being more resistant to disease and pests.

Production patterns

- The area under finger and minor millet has decreased dramatically over the past five decades (table no. 4). Minor millet has seen a nearly eightfold decrease in its area, from 53.35 million ha in 1955-56 down to 6.82 lakh ha by 2013-14.
- Further, the production of minor millets decreased fourfold during these times.

Reasons:

- Although a slight increase in minor millets' yield was observed, it is still very small when compared to other crops. This was due to the tradeoff between wheat and rice with minor millet.
- Finger millet has a one fold decrease of area, but there isn't as much as a decrease in production. The yield nearly doubled between 2013-14 (800 kg/ha to 1661).
- Poor policy support for coarse grains on one hand, favorable policies for oilseeds like soybeans and sunflower on the other.

- Cash crops such as cotton, on the contrary, became more profitable due to higher yields and increased prices, spurred by rising consumer demand (Status paper for coarse cereals, Directorate of Millets Development Department of Agriculture and Cooperation).
- Increased consumption has been attributed to the easy availability of wheat and rice at a subsidized rate through PDS.
- The social status attached and rice and wheat have also been increased.

Consumption patterns

- Assam (18.82kg/hsh/m), and Bihar (18.69kg/hsh/m), were the states with the highest consumption of small millets. This was also true in rural India and other parts of India.
- Other states consume less than 10 kg/household/month, which is lower than Assam or Bihar

Topic 32. A CRISIS IS BREWING IN THE COFFEE INDUSTRY

Important for subject: Geography

India's coffee cultivation is losing ground.

Geographical Conditions

- The climate for coffee plant is hot and humid with temperatures between 15 and 28 degrees Celsius and rainfall of 150 to 250cm.
- Coffee crops are not suited to extreme temperatures, such as snowfall or frost, and should be grown under shade trees.
- At the time of ripening the berries, it is important to have dry weather.
- The crop is grown at elevations between 600 and 1,600 metres above the sea level. Coffee cultivation is best done in well-drained loams that are rich in humus and minerals such as iron and calcium.

Geographical Distribution

- India's coffee farms are spread over 4.54 lakh hectares. There are 3.66 lakh coffee farmers, 98% of whom are small.
- Most cultivation takes place in the Southern States of India.
 1. Karnataka - 54%
 2. Kerala - 19%

3. Tamil Nadu - 8%
- It can also be grown in areas other than traditional ones like Odisha (17.2%), Andhra Pradesh (17.2%) and North East States (1.8%).
 - India is the only country where all coffee is grown in shade, hand-picked, and sun dried.
 - India is home to some of the finest coffees in the world. Its coffee is grown by tribal farmers in India's Western and Eastern Ghats. These two areas are important biodiversity hotspots.
 - Indian coffee is highly prized on the global market and is exported as premium coffee to Europe.
 - India is 6th out of the 80 countries that produce coffee worldwide. It has some of the best arabica and robusta cultivated.
 - Nearly 70% of India's coffee exports to European and Asian markets.
 - India's coffee is grown in the forests of the Western Ghats, which include Chikmagalur and Kodagu (Coorg), Wayanad and the Shevaroy Hills.

Coffee industry challenges:

1. Increased labour costs
 2. Low productivity
 3. Climate change
 4. Branding is lacking
- Facts: The top 3 coffee-producing countries are Colombia, Vietnam, and Brazil

Topic 33. CHILD MARRIAGE

Important for subject: Polity

What is Child Marriage?

- Indian law defines child marriage as a marriage in which either the woman or the man are under the age of 18 years.
- Here are some facts about child marriage
- The NFHS-5 data for 2019-20 showed that underage marriages were at 23%. This is still a significant number, considering the stringent rules.
- Further, NFHS-5 data showed that 7% of 15-18-year-old girls were pregnant.
- The highest child marriage rate is in West Bengal (42%), followed by Bihar (40%)

and Tripura (40%).

- According to UNICEF estimates, India is home to 1.5 million child brides each year.

Legislative Protection

- Child Marriage Restraint Act of 1929: This law restricts child marriage.
- Prohibition of Child Marriage Act (2006): This Act was created to fix and address the flaws in the Child Marriage Restraint Act.
- This act prohibits child marriage and carries two years imprisonment or a fine of Rs. 1 lakh Special Marriage Act 1954 and Prohibition of Child Marriage Act 2006: These laws set 18 and 21 as the minimum age for consenting to marriage for men and women, respectively.
- Juvenile Justice Care and Protection Act 2015: Powers to protect the best interests for India's children.
- Child Protection Committees, Child Protection Units, and CWCs were created to accomplish this goal and are currently functioning at district level.

Prevention of Child Marriages

- The Ministry for Women and Child Development has established a Committee to examine issues relating to motherhood and to recommend ways of reducing Maternal Mortality Ratio and improving nutrition among mothers.
- District Child Protection Unit: This unit is responsible for identifying and rescuing children who are in dire need of protection and care.
- District Child Protection Committee (Chairperson of Zilla Parishad): These nodal organizations at district level are responsible for reviewing and monitoring the work that is being done to ensure child rights.
- Section 16 of 2006's PCMA Act authorizes the State Government, to appoint one or more officers to be known under the name "Child Marriage Prohibition Offices."
- To highlight these issues, the Central Government conducts awareness drives, media campaigns, and outreach programs from time to other.
- The Central Government introduced CHILDLINE, short code 1098. This is a 24-hour emergency response service for children in need.
- The Sabla program of Women and Child Ministry gives girls aged 11-18 years legal training, which includes the Prohibition of Child Marriage Act 2006.

Topic 34. POWER OF GOVERNOR TO REMOVE MINISTER

Important for subject: Polity

Ministers who bring down the dignity of Kerala Governor Arif Mohammed Khan have been warned by him that they will be subject to removal.

What's the problem?

- This latest development occurred amid a dispute between Arif Muhammad Khan and Pinarayi Vijayan, the Pinarayi Vijayan led state government over the governor's approval of legislations such the Lok Ayukta or University Laws Amendment Bills. There was also a matter concerning the appointment to universities.
- In his capacity as chancellor of Kerala University, Arif Mohammed Khan drew 15 nominees.
- After they stayed away from the meeting of the university body that should have presented its nominee for the search-cum selection committee for the next V.C of the university, the whip was given to the Senate members.
- Arif Mohammed Khan, an earlier search committee member, had created one without the Senate nominee.
- Khan only notified a two-member panel because the University Act requires that the committee have a nomination from the Senate. There was no recommendation from the CPI (M)-dominated Senate for the nominee.

Constitutional power of the Governor

- Article 163: The chief minister shall head a council consisting of ministers to assist and advise the governor during the exercise of their functions.
- Article 164: On the advice of Chief Minister, the Governor shall appoint the chief minister. The Governor shall also appoint the other Ministers. Ministers will be in office at the Governor's pleasure.
- Article 174: The Governor may also summon, prorogue or dissolve the Legislative Assembly. Conventionally, he does so on the advice of Council of Ministers and while the Assembly is confident.
- Article 200: Each Bill that is passed by an Assembly must be sent to Governor. He then has four options
 - To give your assent to the Bill
 - Do not give your assent

- For consideration of the Bill, reserve the
- Ask the legislature to return the Bill and ask it to reconsider it or to change an aspect.
- The Governor may also propose an amendment to the Bill.

Views from the legal experts

- The constitutional power of a Governor to remove a minister from office is dividing the legal fraternity.
- One section claims that the Kerala Governor's warning was in accordance with the Constitution.
- In fact, the Governor can remove ministers at his discretion when it is no longer possible to do so.
- Another group believed that the governor does not have such dictatorial power.
- P D T Achary, former Secretary General Lok Sabha, stated that the Governor cannot remove a Minister in their own capacity without the approval of the Chief Minister or consulting the latter.
- Based on current political conditions, a Governor can recommend that the President dismiss the state government.
- The President is the one who must make the final decision.
- Based on the recommendation of the Governor, the first Kerala government was disbanded.

Topic 35. BMS SEEKS AFFILIATION WITH ITUC, TWO INDIAN TRADE UNIONS OPPOSE IT

Important for subject: History

In its attempt to be an affiliate of International Trade Union Confederation, the Bharatiya Mazdoor Sangh is being resisted by two Indian unions -- the Indian National Trade Union Congress of the Congress (INTUC) and the Hind Mazdoor Sabha of the Congress (HMS).

- After World War I, India saw the rise of trade unions. These are the main reasons for the rise of trade unions:
 1. Prices of essential commodities are rising.
 2. Fall in real wages for workers
 3. Indian industries are expanding due to increased demand for industrial products.
 4. Gandhi's call to the Non-Cooperation Movement

5. The Russian Revolution
6. HMS and INTUC are two prominent trade unions that are members of the International Trade Union Confederation.
7. HMS and INTUC
8. Indian National Trade Union Congress

Hind Mazdoor Sabha (HMS)

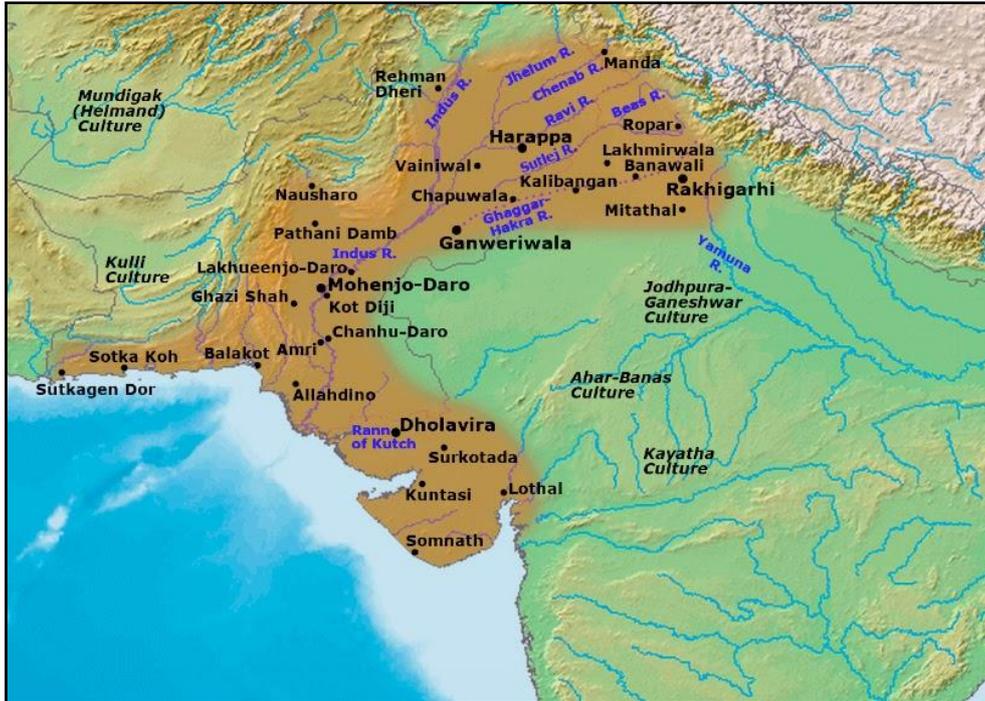
- In October 1920, the foundation was formed.
- In December 1948, the foundation was established.
- Lala Lajpat Rai was elected the first president of AITUC. Joseph Baptista was vice president, and Diwan Chaman Lal was general secretary.
- R.S.Ruikar was elected the first president, while Ashok Mehta served as the general secretary.
- Leaders Involved: Bal Gangadhar Tilak, N.M.Joshi, B.P.Wadia, Diwan Chaman lal, Lala Lajpat Rai and Joseph Baptista
- Leaders involved: Basawon Singh, Ashok Mehta, R.S. Ruikar, Maniben
- Kara, Shibnath Banerjee, R.A. Khedgikar, T.S. Ramanujam, V.S. Mathur, G.G. Mehta.
- AITUC was heavily influenced by the social democratic ideas of British Labour Party. Later, Gandhian philosophy on non-violence and trusteeship had a great influence on AITUC.
- The Labour wing of Socialist Party of India

ITUC

- It is an international organization of independent trade unions representing 187 countries.
- The International Confederation of Free Trade Unions, (ICFTU), and the World Confederation of Labour (WCL) were merged to form the federation on November 1, 2006.
- Its headquarters are in Brussels, Belgium.
- Any union that wants to be elected as workers' representatives in the International Labour Organisation (ILO) governing body must have the support of ITUC.

Topic 36. LOTHAL SET TO GET NATIONAL MARITIME HERITAGE COMPLEX

Important for subject: History



The world's oldest dockyard, Lothal is now ready to receive a heritage complex.

- Lothal, through NMHC will be a center for understanding and learning about India's maritime past

Lothal is located where?

- It is located in the Bhal region of Gujarat, which is the current-day state of Gujarat.
- This port city, which was built around 2,200 BC, was an important trading hub in ancient times. Its trade in beads, gems, and ornaments reached West Asia and Africa.
- After SR Rao, an archaeologist, began the search in Saurashtra for Harappan civilisations post 1947, the team discovered the port city.
- According to the Archaeological Survey of India, Lothal had the oldest known dock in the world. It connected the city with an ancient Sabarmati River course.

Current project: National Maritime Heritage Complex, (NMHC).

- The National Maritime Heritage Complex was established in March 2022. It is currently being developed at a cost Rs 3,500 crore.
- It will include the i-recreation which will recreate Harappan architecture through immersive technology, and four theme parks.

- It will house the world's highest lighthouse museum and 14 galleries that highlight India's maritime heritage, from Harappan times to today.

Significance for Lothal

- Lothal was nominated by UNESCO World Heritage Sites in 2014. However, the application is still pending.
- Its heritage value is comparable with many other ancient port-towns all over the world.
- It can be compared to other Indus port cities of Balakot, Khirasa (in Gujarat's Kutch), and Kuntasi in Rajkot.

Indus Valley Civilization:

- Surrounding the valleys of the river Indus.
- Also known as Harappan Civilization.
- The beginning of city life.
- Harappan sites discovered by Dayaram Sahni (1921), Montgomery district, Punjab.
- Mohanjodaro discovered by - R. D. Banerji - Larkana district, Sind, Pakistan.
- The city was divided into Citadel (west) and Lower Town (east).
- Red pottery with black designs.
- Stone weights, seals and special beads for stone, as well as copper tools, long stones blades, etc. Copper, bronze, silver, gold present.
- Artificially produced – Faience.
- Handicraft specialists.
- Import of raw materials
- Plough was used.
- Bodies were originally buried in wooden coffins. However, in later stages of history, 'Hsymmetry culture' developed where bodies were buried within painted burial urns.
- Sugar cane is not grown, horses and iron are not used.

Specialties and Sites in the Indus Valley

HARAPPA

- Stone seals
- Citadel on the banks of River Ravi

MOHENJODARO

- Great Bath, Great Granary. Dancing Girl, Man with Beard. Cotton. Assembly hall.

- It means "Mounts of the dead".
- Sur the banks of river Indus
- Believed to be destroyed by flooding or invasion. (Destruction wasn't gradual).

CHANHUDARO

- Bank of Indus River - Discovered by Gopal Majumdar & Mackey (1931).
- Pre-Harappan culture - Jhangar Culture and Jhukar Culture
- Citadels are not enough.

KALIBANGAN

- A.Ghosh (1953), discovered Rajasthan, on the banks river Ghaggar
- Fire Altars
- Camel bones
- Evidence of furrows
- Even though the Indus valley people did not use horses, horse remains.
- It is the third capital of Indus Empire.

LOTHAL

- S.R. discovered Gujarat, near Bhogava River, in Gujarat Rao (1957)
- Fire Altars
- Neben dem tributary von Sabarmati
- Storehouse
- Dockyard and the earliest port
- Double burial
- Rice husk
- Front entrance of house (exception).

ROPAR

- Punjab, on the banks river Sutlej. Discovered by Y.D Sharma (1955).
- Dog and humans are buried together

BANAWALI

- Haryana
- Surrounded by the banks of the lost river Saraswathi
- Barley Cultivation.

DHOLAVIRA

- Until the discovery of Rakhigarhi, India's largest site.

- Located in Khadir Beyt Rann of Kutch Gujarat. Discovered by J.P Joshi/ Rabindra Sing (1990).
- Three parts plus large open space for ceremonies
- Large letters in the Harappan script (signboards).

RELIGION OF THE INDUS VALLEY

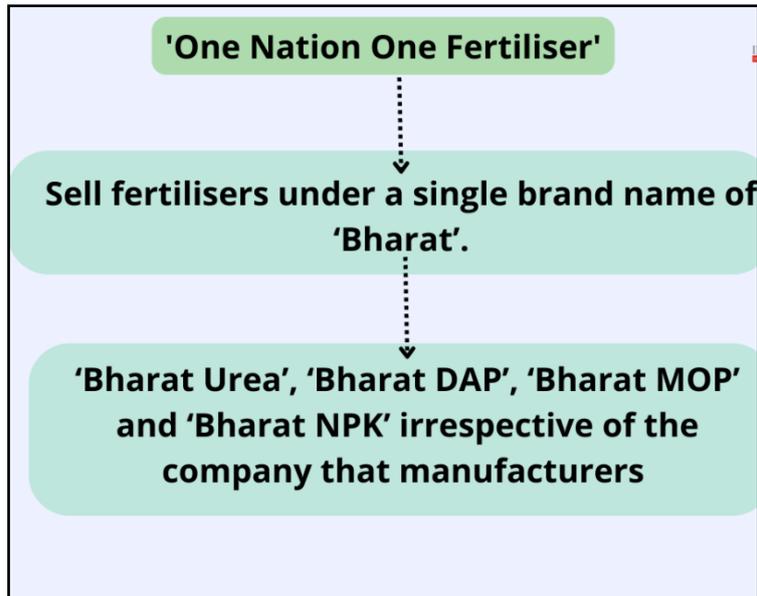
- Pashupathi Mahadev (Proto Siva)
- Mother goddess
- Nature/ Animal worship
- Unicorn, Dove. Peepal Tree. Fire.
- Amulets
- It was a practice of idol worship (not a characteristic of Aryans).
- Temples were not built.
- Similarity to Hindu religious practices. (Hinduism as it exists today was developed later).
- No Caste system.

SOCIETY AND CULTURE

- The systematic method for weights and measurements (16 and its multiples).
- Pictographic Script, Boustrophedon Script - Deciphering efforts of I. Mahadevan
- Women and men have equal status
- Economic Inequality is not an egalitarian society
- Textiles - Weaving and spinning
- There were three types of burial: cremation, burial and post-cremation. However, burial was the most common.
- The majority of the population are Proto-Australoids or Mediterranean (Dravidians), although Mongoloids and Nordics were also present in the city's culture. Learn more about Indian races

Topic 37. ONE NATION ONE FERTILIZER SCHEME

Important for subject: Govt Schemes



Prime Minister Narendra Modi inaugurated 600 Kisan Samridhi Kendras Monday and the 'One Nation, One Fertilizer' scheme.

- He also stated that these initiatives were being taken in order to modernize agriculture.

Information about the Sammelan

- A scheme named- 'Pradhan Mantri Bhartiya Jan UrvarakPariyojan- One Nation, One Fertiliser'-launched.
- Bharat urea bag-which will help companies market fertilisers under one brand name, 'Bharat'.
- Inauguration of 600 Pradhan Mantri Kisan SamruddhiKendras under the Ministry of Chemicals & Fertilisers.
- The Centre will develop more than 325,000 fertiliser shops in the country, as PMKSKs.
- The 12th installment in the PM-Kisan scheme has been released.
- The scheme provides Rs.6000 per year to eligible farmers families. 6000 per annum in three equal payments of Rs. 2000 each.
- To reduce import bills, cars should be powered by ethanol from farms.

Pradan Mantri Kisan Samruddhi Kendras:

- It is administered by the Ministry of Chemicals & Fertilizers.
- The scheme will see the country's fertilizer retail outlets converted to PMKSK over time.
- It allows farmers to purchase fertiliser, seeds, and soil testing. They also get valuable information about farming techniques.
- PMKSK will meet the needs of farmers in a variety of ways and supply agri-inputs (fertilizers seeds implements).
- Test facilities for soil, seeds and fertilizers
- Increase awareness among farmers
- Information about various government schemes is provided. Regular capacity building of retail outlets at block/district level outlets is ensured.

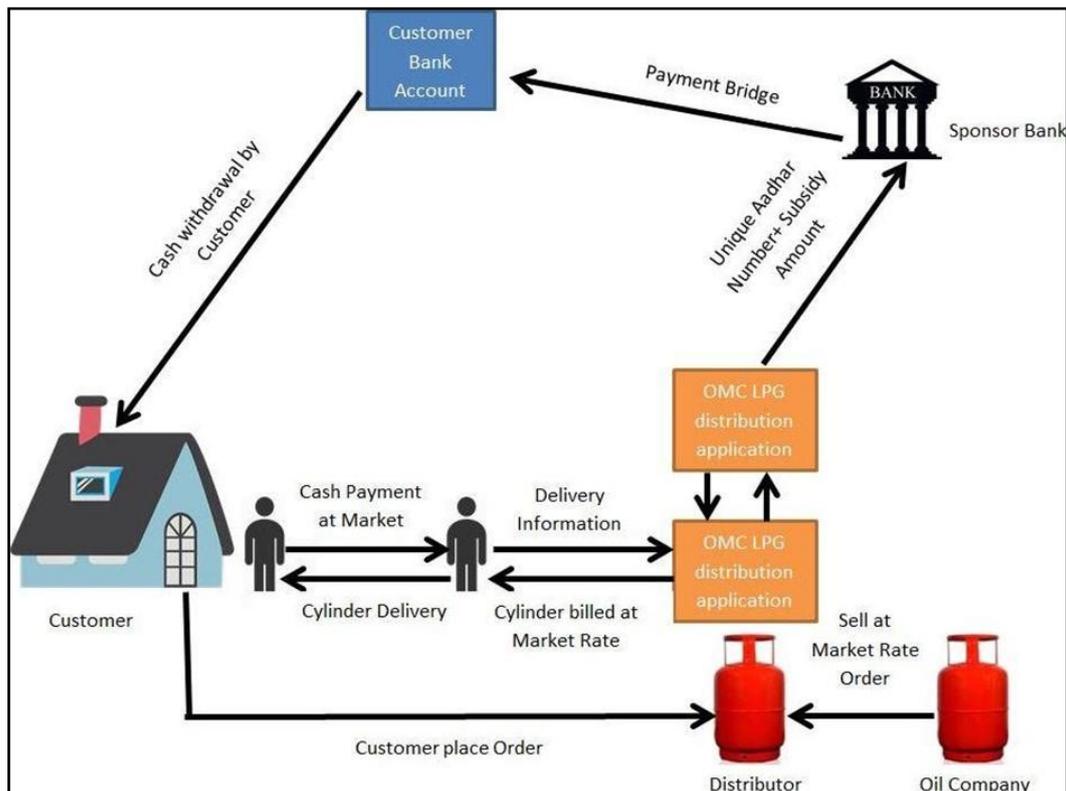
Pradhanmantri Bhartiya JanurvarakPariyojna

- It will brand all subsidised fertilisers under one brand, 'Bharat'. This will eliminate any product differentiation or confusion that farmers may experience from multiple brands.
- The scheme allows companies to display their logo, name and any relevant product information on a third of their bags.
- The remaining space will be used for the Pradhanmantri Bharatiya Jan Urvarak Pariyojana logo and the brand "Bharat".
- UREA, Di-Ammonium Phosphate, Muriate Of Potash (MOP), and Nitrogen Phosphorus Potassium KPK are all under one brand.
- BHARAT UREA and BHARAT DAP, BHARAT MOOP, BHARAT NPK, and BHARAT DAP would all be acceptable respective for all Fertilizer Companies, State Trading Entities(STEs), and Fertiliser Market Entities (FMEs).
- This scheme is applicable to both private and public sector companies.
- ONOF allows companies to display their logo, name and any relevant product information on a third of their bags.
- The remaining space will be used for the Pradhan Mantri Bharatiya Ja UrvarakPariyojana logo and the brand "Bharat".
- BHARAT UREA and BHARAT DAP are the single brands for Urea, Di Ammonium Phosphate DAP and Muriate Of Potash (MOP), and Nitrogen Phosphorus Potassium NPK respectively.

- This applies to all Fertilizer Companies, State Trading Entities and Fertiliser Market Entities (FMEs).
- This scheme is applicable to both private and public sector companies.
- It will ensure consistency across all fertiliser brands in the country

Topic 38. DIRECT BENEFIT TRANSFER

Important for subject: Government Schemes



The International Monetary Fund (IMF), recently praised India's Direct Benefit Transfer Scheme (DBT) as a "logistical wonder" that has reached hundreds and millions of people.

- The President of the World Bank Group had also encouraged other countries to follow India's example of targeted cash transfer and not broad subsidies.

What is Direct Benefit Transfer?

- Direct Benefit Transfer is an attempt at changing the system of subsidy transfers and aims for the establishment of a Giro system that will transfer subsidies directly to people via their linked bank accounts.
- The Government of India launched it on January 1, 2013.
- Inauguration of the DBT took place at Gollaprolu, in the East Godavari District of

Andhra Pradesh.

Structure of the Direct Benefit Transfer

- The Central Plan Scheme Monitoring System, (CPSMS) is the central platform for routing DBT. It is being implemented by Office of Controller General of Accounts.
- CPSMS can also be used to create the beneficiary list and digitally sign it.
- Aadhar is not required to receive benefits under DBT.

Topic 39. WORLD FOOD DAY

Important for subject: Social Issue

The World Food Day, which is October 16th this year, should serve as a reminder that we must ensure that all people in our communities have easy access and safe food. We also need to eliminate hunger by 2030.

World Food Day

- World Food Day (October 16) is observed every year in observance to the anniversary of the establishment of the Food and Agricultural Organization of the United Nations in 1945.
- Our main goals are to eradicate hunger worldwide and combat it.
- The World Food Day 2022 theme is "Leave NO one behind."

Hunger Hotspot Outlook Report

- Recent reports by the Food and Agriculture Organization and the World Food Programme (WFP), entitled Hunger Hotspots (October 22 - January 23) were released by the Food and Agriculture Organization and the World Food Programme.
- The recently released Report estimates that up to 205million people will face severe food insecurity in the coming year and will need urgent assistance (IPC/CH Phase 3, or higher, or equivalent) in 45 different countries.
- Afghanistan, Ethiopia and Nigeria remain at the highest alert level. These countries require urgent attention.
- India has significant food security programs
- National Food Security Act (NFSA), 2013,
- Legally, it is entitled to receive food grains subsidized under the Targeted Public Distribution System to up to 75% of rural residents and 50% of urban residents.
- Subsidized prices of Rs were to be offered for foodgrains in accordance with NFSA.



- 3/2/1 for rice, wheat, and coarse grains
- For the purposes of issuing ration cards, the Act mandates that the household's oldest woman be at least 18 years old.

Antyodaya Anna Yojana - It is for the poorest among-the-poor and they are entitled to 35kg of foodgrains per month per household.

PM Garib Kalyan Ann Yojana (PMGKAY):

- The National Food Security Act 2013 provided for each person a further 5kg of wheat or rice, plus 5kg of subsidised foodgrain through the Public Distribution System.

PM Poshan Scheme

- The Union Cabinet approved the Pradhan Mantri Poshan Shakti Nirman (PM-POSHAN) in September 2021 for the provision of one hot meal per day in Government and Government-aided schools. This was at a cost of Rs 1.31 trillion.
- This scheme was created to replace the Mid-day Meal Scheme or national program for mid-day meals in schools.
- It was launched initially for five years (2021-22 to 2030-256).
- Integrated Child Development Service, (ICDS),-1975
- The Integrated Child Development Service Scheme (ICDS) is a GOI flagship program that provides supplementary nutrition, immunization, and pre-school education for children.
- ICDS is a centrally-sponsored scheme that is implemented by the state governments and union territory.
- It is universal and covers all districts in the country.
- Anganwadi Services has taken over the management of the Scheme.
- Six services are included in the ICDS Scheme package: Supplementary nutrition, Pre-school nonformal education and Nutrition & Health Education are all included in the ICDS Scheme.

Beneficiaries

- Children between 0-6 years of age, pregnant women, and lactating mothers.
- Food and Agriculture Organization
- FAO, UN-specialized agency, leads international efforts to end hunger.
- It is one of the UN food assistance organisations, based in Rome (Italy).
- Its sister organizations are the World Food Programme (WFP) and the International

Fund for Agricultural Development (IFAD).

World Food Programme

- It is the world's leading humanitarian organization, saving lives and changing lives. They deliver food aid in emergency situations and work with communities to improve nutrition.
- It was awarded the Nobel Peace Prize 2020 for its efforts in combating hunger
- It was established in 1961 by the Food and Agriculture Organization and United Nations General Assembly (UNGA). Its headquarters are in Rome, Italy.
- WFP is a non-profit organization that provides emergency assistance and rehabilitation as well as development aid.

Topic 40. HAMPI, KHAJURAHO ON LIST FOR G20 CULTURE TRACK

Important for subject: Art and Culture

As part of India's G20 Presidency, five meetings will be held at Khajuraho and Bhubaneswar on December 2022 and 2023. They will focus on the "culture track" at Khajuraho and Agra, Hampi Chariot and Bhubaneswar.

- The temple complex's chariot is a shrine to Garuda. However, the sculpture of Garuda is missing.
- The Hampi Chariot is one of three stone chariots that are most famous in India.
- Hampi's delicately carved chariot reflects the skill of temple architecture, which was under the patronage and guidance of Vijayanagararulers, who ruled from the 14th to 17th centuries CE.

Vijaynagar Empire

- Vijayanagara, or "city of victory", was the name of both an empire and a city.
- Harihara and Bukka from Sangama dynasties founded the empire in the 14th century (1336 AD).
- They named Hampi the capital. UNESCO declared Hampi a World Heritage Site in 1986.
- It ran from the northernmost tip of the peninsula to the southernmost tip of the river Krishna.

Four important dynasties ruled Vijayanagar Empire, and they are:

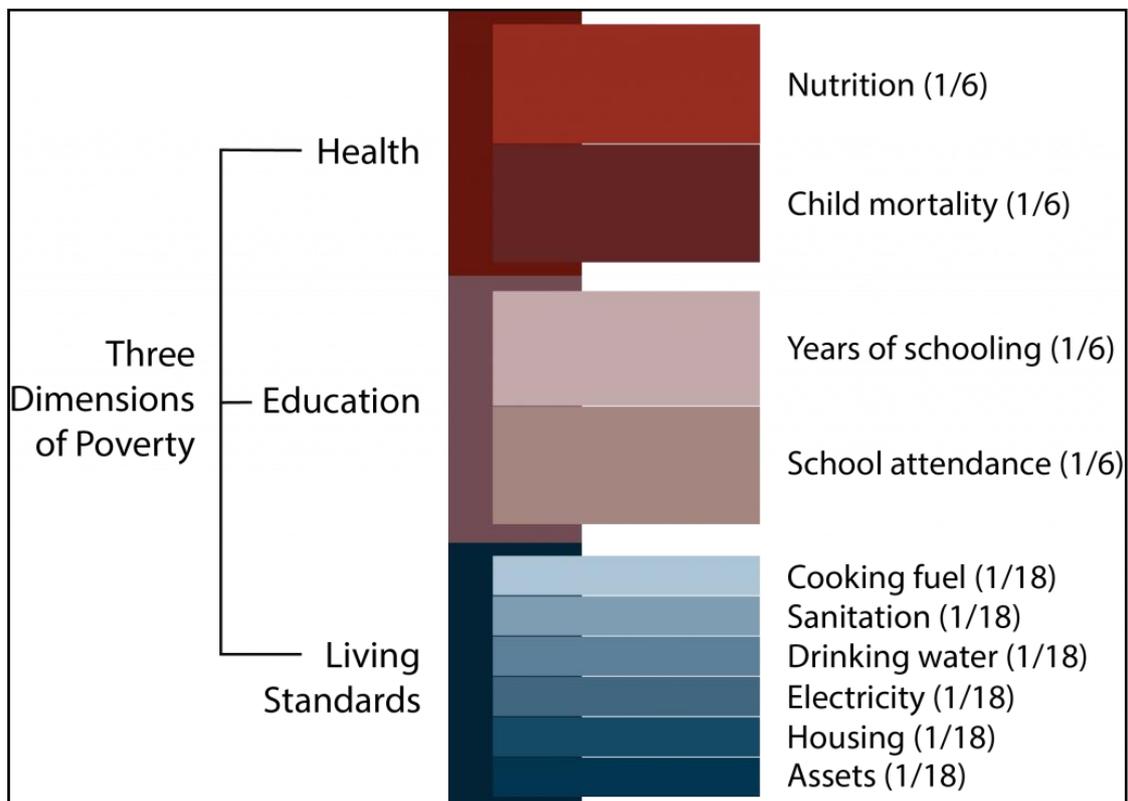
1. Sangama

2. Saluva
3. Tuluva
4. Aravidu

- The most prominent ruler of Vijayanagar was Krishnadevaraya (1509-1529), of the Tuluva Dynasty. His rule was marked by expansion and consolidation.
- His contributions include the construction of some beautiful temples and the addition of impressive gopurams at many important south Indian temples. He also established Nagalapuram, a suburb of Vijayanagar named after his mother.
- He wrote a Telugu work on statecraft, known as the Amuktamalyada.

Topic 41. MULTI DIMENSIONAL POVERTY INDEX

Important for subject: Governance



Global Multidimensional Poverty Index reports that India's poor population has declined by approximately 415 million in the past 15 years.

- The country has the highest proportion of children and poor people in the world.

Multi Dimensional Poverty Index

- The global MPI was launched in 2010 by the Oxford Poverty and Human

Development Initiative and the Human Development Report Office of United Nations Development Programme. Each year, it is updated to include new surveys and share new analyses.

- The global MPI considers people multidimensionally poor if they are deficient in at least one-third of the 10 indicators. (See figure).
- Each indicator is equally weighted within its dimensions. Health and education indicators are 1/6 each and standard of living indicators 1/18.
- It monitors whether a child, adult, or both are underweight.
- It considers, among other things, access to basic amenities like access to school, housing material and phone.
- The MPI measures the prevalence of multidimensional poor (proportion of multi dimensionally impoverished people) and the intensity (average weighted deprivations or deprivation score, 1, among multi dimensionally low people).
- It is sensitive to changes in either of these components. The MPI is a range from 0-1, and higher values indicate higher levels of multidimensional poverty.
- This report uses the methodology of UNDP and Oxford Poverty and Human Development Initiative.
- Since 2010, the United Nations Development Programme has used the Multidimensional Poverty Index in its flagship Human Development Report.
- It is the most used non-monetary poverty indicator in the Poverty Measurement world.
- Economists, policymakers and others define "absolute" as the absence of consumption spending below a threshold known as the "poverty limit".
- Official poverty is defined as the amount spent to purchase goods from a "poverty basket" (PLB).
- The number of people below the poverty line can be used to measure poverty (with the incidence of poor expressed as the headcount ratio).
- Six committees from the government have estimated that India has more than a million people who are living in poverty.
- 1962: The 1962 working group
- V N Dandekar & N Rath 1971
- Y K Alagh 1979; D T Lakdawala 1993

- Suresh Tendulkar in 2009
- C Rangarajan in 2014
- The government didn't take a call regarding the Rangarajan Committee report; poverty is therefore measured using the Tendulkar poverty level.
- According to this figure, 21.9% Indians live below the poverty line

Tendulkar committee:

- To address the shortcomings in the earlier methods, the Planning Commission created the committee.
- There have been changes in the consumption habits of the poor since then, but these were not included in poverty estimates.
- The adjustment of inflation prices was not easy, either spatially (across different regions) or temporally (across the time).
- It suggested four major changes.
- The shift from calorie-based poverty estimation to nutritional outcomes
- An uniform poverty line basket (PLB) for rural and urban India
- Change in the price adjustment process to address spatial and temporal problems with price adjustment. Incorporation private expenditures on education and health while estimating poverty.
- It calculated the consumption of the following foods: cereal, pulses and milk, edible oil and non-vegetarian products, vegetables, fresh fruits and dry fruits, sugar, salt and spices, other food and intoxicants.
- The Committee calculated new poverty lines in each state's urban and rural areas. dimensionally impoverished people) and the intensity (average weighted deprivations

PIONEER ACADEMY



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ANDHERI

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