

Digital Rupee – A Central Bank Digital Currency (CBDC)

❖ Context

- Recently, the Reserve Bank of India (RBI) has announced the launch of India's much-awaited **Central Bank Digital Currency (CBDC)**, a sort of official cryptocurrency, **for retail users** from December 1, 2022.

Key Highlights

- It will be the **first phase** of the pilot project.
- It will cover locations and banks in a closed user group (CUG) comprising participating customers and merchants.
- It will **initially cover the four cities** of Mumbai, New Delhi, Bengaluru, and Bhubaneswar, where customers and merchants will be able to use the digital rupee (e₹-R), or e-rupee.
- **Four banks** will be involved in the controlled launch of the digital currency in these four cities:
 - State Bank of India, ICICI Bank, Yes Bank, and IDFC First Bank.

About CBDC

- CBDC is the **legal tender issued by a central bank in a digital form**.
- It will be **issued in the same denominations** as paper currency and coins, and will be distributed through intermediaries, i.e., banks.
- Users will be able to transact with **e₹-R** through a digital wallet offered by the participating banks and stored on mobile phones and devices, according to the RBI.
- Transactions can be both **person to person (P2P)** and **person to merchant (P2M)**.
- Payments to merchants can be made using **QR codes** displayed at merchant locations.

A Key Difference Between Cryptocurrencies Like Bitcoin and Digital Rupee

- Bitcoin operates in a decentralised environment, where all the **data is stored in a wide network of computers**.
- In Digital Rupee, the **controlling position lies with the Reserve Bank of India (RBI)** which will set up its own network with other banking entities.

Types of Digital Rupee

- RBI has demarcated the **digital rupee into two broad categories**
 - General purpose (retail) and Wholesale.
- On November 1, 2022, the RBI launched the digital rupee for the wholesale segment to settle secondary market transactions in government securities.

Features of CBDC

- **High-security instrument:** CBDC is a high-security digital instrument; like paper banknotes, it is a means of payment, a unit of account, and a store of value.
- **Uniquely identifiable:** And like paper currency, each unit is uniquely identifiable to prevent counterfeiting.
- **Liability of central bank:** It is a liability of the central bank just as physical currency is.
- **Transferability:** It's a digital bearer instrument that can be stored, transferred, and transmitted by all kinds of digital payment systems and services.
- Digital Rupee will be **powered by blockchain technology** which makes currency management cheaper, allowing the Government to print fewer notes in the future.

Volcano Eruptions

❖ Context

- Recently, **Mauna Loa**, the world's largest active volcano, **erupted after 38 years**, spewing ash and debris, and covering the night sky of Hawaii's Big Island in an incandescent red hue.

Mechanism of Volcano Eruptions

- The deeper one goes under the surface of the Earth towards its core, the hotter it gets.
- The **geothermal gradient**, the amount that the Earth's temperature increases with depth, indicates heat flowing from its warm interior to its surface.
- At a certain depth, the heat is such that it melts rocks and creates what geologists call '**magma**'.
- **Magma is lighter than solid rock** and hence it rises, collecting in magma chambers.

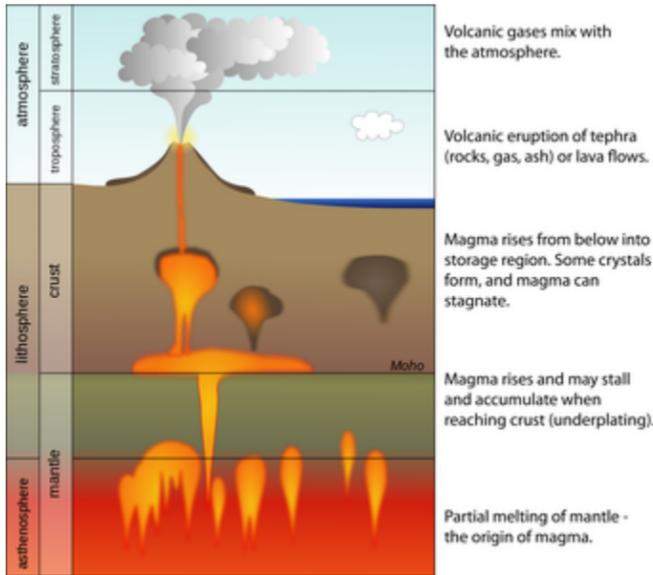
• Explosive Volcanic Eruption

- **Runny magma makes for less explosive volcanic eruptions** that typically are less dangerous.
- Since the magma is runny, gases are able to escape, leading to a steady but relatively gentle flow of lava out of the mouth of the volcano.





- Chambers which have the potential to cause volcanic eruptions are found at a relatively shallow depth, between six to ten km under the surface.
- As magma builds up in these chambers, it forces its way up through cracks and fissures in Earth's crust.
- This is what we call a volcanic eruption.
- The magma that surfaces on the Earth's crust is referred to as lava.



- If **magma is thick and sticky**, it makes it harder for gases to escape on a consistent basis.
- This leads to a build-up of pressure until a breaking point is reached.
- At this time, the gases escape violently, all at once, causing an explosion.
- **Measuring Explosivity of a Volcano**
 - The Volcanic Explosivity Index (VEI) is a scale used to measure the explosivity of a volcano.
 - It has a range of 1 to 8 with a higher VEI indicating more explosivity.
- **Some Important Volcanoes**
 - Krakatoa, Indonesia
 - Mount Vesuvius, Italy
 - Mount Fuji, Japan
 - Eyjafjallajökull, Iceland
 - Kīlauea, Hawaii
 - Mount St Helens, USA

India's First Private Space Vehicle Launchpad

❖ Context

- Recently, Chennai headquartered **space-tech start-up Agnikul**, has set up India's first-ever launchpad that will be operated by a private player, at Sriharikota.

Key Highlights

- Now India can travel to space from one more space platform.
- The facility, which was designed by **Agnikul** and executed in support of ISRO and **IN-SPACE** (Indian National Space Promotion and Authorization Center) **has two sections to it-**
 - The Agnikul launchpad (ALP).
 - The Agnikul mission control center (AMCC).
- All critical systems connecting these two sections, which are 4 km away from each other, are redundant to ensure 100% operationality during the countdown.
- The launchpad is specifically built keeping in mind the necessity to support liquid stage controlled launches.
- It also **addressed the need for ISRO's range operations** team to monitor key flight safety parameters during launches.
- It has the ability to, as necessary, share data and other critical information with ISRO's Mission Control Center.
- Agnikul's first launch, which will be a controlled and guided mission, a vertical launch, using its patented engine will happen from this launchpad.
- The mission will be a technology demonstrator that will mirror Agnikul's orbital launch but at a reduced scale.

Agnibaan

- Agnibaan is Agnikul's highly customizable, two-stage launch vehicle.
- It is capable of taking up to 100 kg payload to orbits around 700 km high (low Earth orbits) and enables plug-and-play configuration.

Agnilet

- Agnilet is the **world's first single-piece 3-D printed** engine fully designed and manufactured in India.
- It was successfully test-fired in early 2021, making Agnikul the first company in the country to test its engines at ISRO.
- Agnibaan and Agnilet will be used in the Agnikul's first launch.

IN-SPACE

- IN-SPACE was **conceived in June 2020** following the Central government's decision to open up the space sector.
- It enables the participation of Indian private sector in the gamut of space activities.
- It **acts as a single-window, independent, nodal agency** which functions as an autonomous agency in Department of Space.



News in Between the Lines

Wet Leasing



❖ Context

➤ Recently, In efforts to boost international air traffic, the **civil aviation ministry has allowed** Indian airlines to take wide-body planes on wet lease for up to one year.

❖ Key Highlights

- Wet leasing means renting the plane along with operating crew and engineers, while dry leasing refers to taking only the aircraft on rent.
- The technical term for **wet leasing is ACMI which stands for aircraft, crew, maintenance and insurance.**
- These are the aspects of the operation that the wet lease airline takes care of.
- The **airline client will still be responsible for paying for direct operating costs** such as catering and fuel as well as fees such as airport fees, ground handling charges and navigation fees.
- Operations of an aircraft on wet lease is not encouraged by the Directorate General of Civil Aviation (DGCA) as the crew is often not approved by Indian authorities.
- Also, wet leasing is generally a short-term arrangement, as it is more expensive than a dry lease.

Mpox



❖ Context

➤ Recently, The World Health Organisation (WHO) announced that it would start using the term “mpox” for monkeypox.

❖ Key Highlights

- The change of name has been provoked by the racist connotations that “monkeypox” sometimes carries.
- Both names will be used simultaneously for one year while “monkeypox” is phased out.

❖ About Mpox

➤ Virus

- The monkeypox virus is an **orthopoxvirus**.
- It is a genus of viruses that also includes the variola virus, which causes smallpox.
- **Monkeypox causes symptoms similar to smallpox**, although they are less severe.

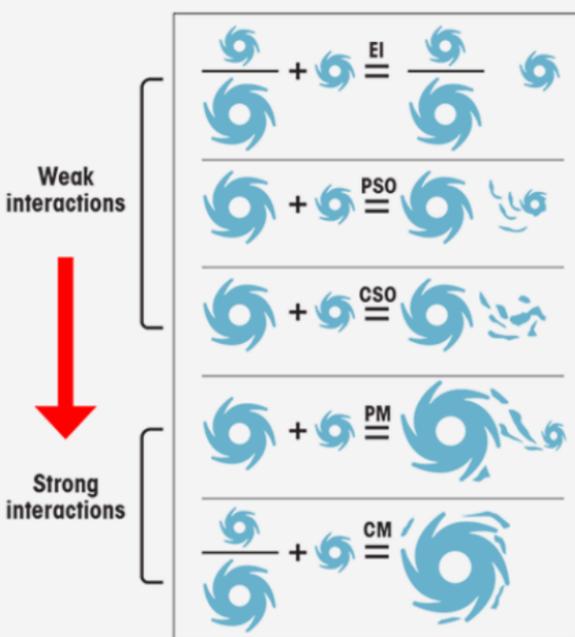
➤ Transmission

- Monkeypox is a **Zoonotic disease**, that is, a disease that is **transmitted from infected animals to humans**.
- Cases occur close to tropical rainforests inhabited by animals that carry the virus.
- **Human-to-human transmission is limited.**

➤ Symptoms and Treatment

- Monkeypox **begins with a fever, headache, muscle aches, back ache, and exhaustion.**
- The **incubation period for monkeypox is usually 7-14 days** but can range from 5-21 days.
- The **patient develops a rash that begins on the face and spreads to other parts of the body.**



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| <p style="text-align: center;">Vizhinjam Port</p>  | <ul style="list-style-type: none"> ■ There is no safe, proven treatment for monkeypox yet. <p>❖ Context</p> <ul style="list-style-type: none"> ➤ Fisherfolk have been protesting against the Vizhinjam Port project for the past four months, alleging that its construction is causing massive sea erosion, taking away their livelihood and dwellings. <p>❖ Key Highlights</p> <ul style="list-style-type: none"> ➤ It is being built under a Public Private Partnership (PPP) model with Adani Ports Private Limited at Vizhinjam near Thiruvananthapuram. ➤ The cost of the project is Rs 7,525 crore. ➤ The foundation stone was laid in December 2015. ➤ It has since missed its completion deadline. ➤ The port is to have 30 berths, and will be able to handle giant “megamax” container ships. ➤ This modern port is located close to major international shipping routes, and it will boost India’s economy. ➤ The port is expected to compete with Colombo, Singapore, and Dubai for a share of trans-shipment traffic. ➤ The port’s advantages are <ul style="list-style-type: none"> ■ Availability of a 20m contour within one nautical mile from the coast; ■ minimal littoral drift along the coast, hardly any maintenance dredging required ■ links to national/regional road, rail network; and proximity to international shipping routes. |
| <p style="text-align: center;">Fujiwhara Effect</p> <p>Elastic Interaction (EI): Interaction of vortices (storms) of same or different sizes, resulting in changes only in the direction of motion. This is the most commonly seen interaction</p> <p>Partial Straining-Out (PSO): Interaction of vortices of unequal sizes. Part of the smaller vortex lost to the atmosphere.</p> <p>Complete Straining-Out (CSO): Interaction of vortices of unequal sizes. The smaller vortex completely lost to the atmosphere</p> <p>Partial Merger (PM): Interaction of vortices of unequal sizes Part of the smaller vortex merged to the bigger vortex</p> <p>Complete Merger (CM): Interaction of vortices of same or different sizes, resulting in complete merger of both the storms</p>  | <p>❖ Context</p> <ul style="list-style-type: none"> ➤ Recently, super typhoon Hinnamnor, the strongest tropical cyclone of the year, was hurtling towards Taiwan from the western Pacific Ocean. ➤ Another tropical storm called Gardo was moving towards Hinnamnor from its southeast. ➤ As the two approached each other, they started a dance around the central line between them, showcasing a textbook example of what is known as the Fujiwhara Effect. <p>❖ Fujiwhara Effect</p> <ul style="list-style-type: none"> ➤ Fujiwhara effect was identified by Sakuhei Fujiwhara, a Japanese meteorologist whose first paper recognising the Fujiwhara cases was published in 1921. ➤ The Fujiwhara Effect is any interaction between tropical storms formed around the same time in the same ocean region- <ul style="list-style-type: none"> ■ With their centres or eyes at a distance of less than 1,400 km. ■ With intensity that could vary between a depression (wind speed under 63 km per hour) and a super typhoon (wind speed over 209 km per hour). ➤ The interaction could lead to changes in the track and intensity of either or both storm systems. ➤ In rare cases, the two systems could merge, especially when they are of similar size and intensity, to form a bigger storm. ➤ There are five different ways in which Fujiwhara Effect can take place (See the Figure) |
| | <p>❖ Context</p> |



Jeypore Ground Gecko



➤ A reptile **endemic to India**, the Jeypore Ground Gecko (*Cyrtodactylus jeyporensis*), has been **included in Appendix II** of the **Convention on International Trade in Endangered Species (CITES)**.

❖ Key highlights

➤ The species is rare and was first described by British officer and amateur naturalist Colonel Richard Henry Beddome in 1878.

➤ **Distribution**

- The wild reptile species is found in the Eastern Ghats and is known to be present in four locations including southern Odisha and northern Andhra Pradesh.

➤ **Habitat**

- The species resides below rock boulders in high forested hills at an altitude of 1,100-1,400 metres.

➤ **Threat**

- Habitat loss and degradation, forest fires, tourism, quarrying and mining activity.
- The reptile is popular among breeders in and outside India.
- The international pet trade market makes it increasingly vulnerable for its survival.

➤ **Conservation Status**

- IUCN Red List- Endangered

Samanvay 2022



❖ Context

➤ Indian Air Force is conducting the **Annual Joint Humanitarian Assistance and Disaster Relief (HADR) Exercise "Samanvay 2022"** from 28th to 30th November 2022 at Air Force Station in Agra.

❖ Key highlights

➤ **Aim**

- To **provide a unique platform for the exchange of domain knowledge, experience and best practices** with the participating Association of Southeast Asian Nations (**ASEAN**) member countries.
- To assess the efficacy of institutional Disaster Management structures and contingency measures.
- Various representatives of the ASEAN countries are supposed to participate in the exercise.

➤ **Significance**

- The exercise will **promote a synergistic approach by involving various institutions like**
 - Armed Forces, National Disaster Management Authority (NDMA),
 - National Disaster Response Force (NDRF).
 - Defence Research and Development Organisation (DRDO).
 - Border Roads Organisation (BRO).
 - India Meteorological Department (IMD) and the Civil Administration.
- This multi-agency engagement is expected to contribute to the evolution of institutional frameworks for **effective communication, interoperability, cooperation and their application for successful conduct of HADR.**

