Cryptocurrency

For Prelims: Cryptocurrency, Blockchain Technology, Central Bank Digital Currency (CBDC).

For Mains: Impact of cryptocurrency on Indian economy.

What is Cryptocurrency?

- A **cryptocurrency** is a **digital or virtual currency** that uses **cryptography for security.**
- It is a **decentralized currency**, meaning it is not controlled by any **government or institution.**
- Some examples of cryptocurrencies include **Bitcoin**, **Ethereum**, and **Litecoin.**

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How Does Cryptocurrency Work?

- Transactions with **cryptocurrency** are recorded on a **public digital ledger** called **blockchain.**
    - This ledger is maintained by a network of computers around the world, and **each new transaction is verified and added to the blockchain** by these computers.
    - This **decentralization** and **use of cryptography** make it **difficult for anyone to manipulate the currency** or the transactions recorded on the blockchain.
- To use **cryptocurrency**, individuals or businesses must first acquire a **digital wallet,** which is a **software program** that stores the **user's public and private keys.**
    - These keys are used to **send and receive cryptocurrency,** and they are also used to verify transactions on the blockchain.
- Users can acquire cryptocurrency through a process called **"mining"** which involves **using**

computer power to solve complex mathematical equations, which validate and **record transactions on the blockchain,** in return for a certain amount of **cryptocurrency.**

What is Blockchain Technology?

- **Blockchain technology** is a **decentralized, digital ledger** that **records transactions** across a network of computers.
- Each block in the chain contains a number of transactions, and every time a new transaction occurs on the blockchain, a record of that transaction is added to every participant's ledger.
    - The decentralized nature of technology ensures that **no single entity can alter or delete previous transactions,** providing a **high degree of security and transparency.**
- Blockchain is the **foundation of cryptocurrencies** such as **Bitcoin,** but it has many **potentials uses beyond digital currencies.**

What are Some Examples of Cryptocurrencies?	
Bitcoin (BTC):	- It is the first and most well-known **cryptocurrency**, created in **2009.** - **Bitcoin** was invented by an unknown person or group of people using the name **Sato** **open-source software in 2009.** It is considered the **first decentralized cryptocu** - **Bitcoin has no single administrator**, and the currency can be sent electronically f the **peer-to-peer bitcoin network** without the need for intermediaries. - Transactions are verified by network nodes through **cryptography** and recorded in a **blockchain.**
Ethereum (ETH):	- **Ethereum (ETH)** is a **decentralized, opensource blockchain platform** that enab and **decentralized applications (dApps).** - It uses its own **cryptocurrency, E**ther, as a means of **payment for transaction fe** network. - It also has a **built-in programming language** that enables developers to create an applications on the **Ethereum network.**
Litecoin (LTC):	- **Litecoin (LTC)** is a **peer-to-peer cryptocurrency** and **open-source software** pro - It is inspired by and **nearly identical to Bitcoin (BTC) but with faster transactio** hashing algorithm. - It is designed to process small transactions faster and more efficiently than **Bitcoin.**
Ripple (XRP):	- **Ripple (XRP)** is a **digital asset** and **cryptocurrency** that is designed to facilitate fa money transfers. - It is built on the **Ripple Protocol,** a decentralized **open-source protocol** for facilita - Ripple can be used to transfer any currency, including **USD, EUR**, and **Bitcoin**, and i currency exchanges.
Bitcoin Cash (BCH):	- **Bitcoin Cash (BCH)** is a **cryptocurrency** that was created as a result of a hard fork - It has a larger block size limit **(8MB)** compared to **Bitcoin (1MB)**, allowing for faster - It is considered by some to be a **"purer" version of Bitcoin**, as it adheres more clos a **peer-to-peer** electronic cash system.

What is the Legal Status of Cryptocurrency?

- **In India:**
    - The **legal status of cryptocurrency** in India is currently in a **state of flux.**
    - The **Reserve Bank of India (RBI)** has issued several warnings against the use of **cryptocurrencies,** stating that they pose risks to investors and are **not legal tender.**
    - **In 2018** the **Supreme Court struck down** a circular of **Reserve Bank of India,** which **bans financial institutions** from dealing in **digital or cryptocurrencies.**
    - In **2022**, the **Government of India** mentioned in the **Union budget 2022-23** that-the transfer of any **virtual currency/cryptocurrency** asset will be subject to **30% tax deduction.**
        - **The Govt** has also set up a panel to explore the **potential use of blockchain technology** and the possibility of issuing a **Central Bank Digital Currency**

(CBDC).

- **Elsewhere:**
  - At present, **El Salvador** and the **Central African Republic (CAR)** are the **only two countries** in the world where **Bitcoin** functions as a **legal currency.**
  - However, many countries have taken steps to **recognize and regulate** the use of certain **cryptocurrencies**, such as **Bitcoin.**
    - Some countries, such as **Japan** and **South Korea**, have issued regulations for **cryptocurrency exchanges.**
    - Nations like **Germany** and **Switzerland,** have recognized **Bitcoin** as a **"legal means of payment."**
  - Other countries, such as **China** and **Russia,** have taken a more cautious approach and have **imposed restrictions** on the use of **cryptocurrencies.**

What is India's Central Bank Digital Currency?

- The **Central Bank Digital Currency (CBDC)** pilot launched by the **RBI** in the retail segment has components based on **blockchain technology.**
- **CBDCs** are a digital form of **paper currency** and unlike **cryptocurrencies** that operate in a regulatory vacuum, these are **legal tenders** issued and backed by a **central bank.**
- It is the same as a **fiat currency** and is exchangeable **one-to-one** with the **fiat currency.**
- **Digital currency** refers to the digital version of the Indian rupee, which is also known as the **digital rupee or e-rupee.**

What are the Challenges?

- **Volatility:** Cryptocurrency prices are highly volatile, which makes it difficult for businesses to accept it as a form of payment.
- **Regulation:** There is a lack of clear regulation around cryptocurrency, which makes it difficult for businesses and individuals to know how to legally use it.
- **Security:** Cryptocurrency exchanges and wallets are susceptible to hacking attacks, which can result in the loss of funds.
- **Adoption:** Despite its growing popularity, cryptocurrency still has low adoption rates, which makes it difficult for individuals to use it as a form of payment in everyday life.
- **Scalability:** The scalability of cryptocurrencies is limited, which makes it difficult for the technology to handle a large number of transactions.
- **Energy consumption:** The process of verifying transactions in a cryptocurrency network, known as mining, is energy-intensive, and contributes to climate change.

Way Forward

- Clarity on the **legal status of cryptocurrencies** is important for their widespread adoption and use. When governments provide a **clear framework for cryptocurrency,** it creates a more **stable environment for businesses** and **individuals** to invest in and use them. This can also encourage innovation and growth in the industry.
  - The examples of countries like **El Salvador** and the **Central African Republic** recognizing **cryptocurrencies** as **legal tender** show that it is possible for governments to embrace this new technology and create a favorable environment for it to thrive.
- The **RBI** has started a **blockchain-based Central Bank Digital Currency (CBDC)** pilot program. The government should take this into consideration because **cryptocurrency** is based on **blockchain technology** as well.
- Launching **cryptocurrency** with a **strong regulatory framework** can ensure its proper use, **prevent fraud** and **illegal activities,** and increase consumer protection. On the other hand, a complete restriction of cryptocurrency may stifle innovation and limit its potential benefits to society.
- The **classification of cryptocurrencies** as either **goods** or **asset classes** is still **unclear** and subject to change in many countries, including **India.** Currently, **software** is considered a **good**

and can be taxed as such under **Indian law. Profits** and **earnings** from the **sale of cryptocurrencies** are considered **taxable income**, but only after the **legalization of cryptocurrencies.**

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