# Fintechs Leading India's Start-up Ecosystem

**For Prelims:** Fintech industry, Internet, **Crypto-currencies**, **Micro, Small and Medium Enterprises (MSME)**, Jan Dhan Yojna, **Direct Benefits Transfer**, IndiaStack, Unified Payments Interface, Central Bank Digital Currency (CBDC), **Reserve Bank of India**, Digital Rupee, Digital lending.

**For Mains:** Significance of Fintech in Indian Context, Growth of FinTech Being Driven by Government Initiatives, Issues Associated with the Fintech Industry.

**Source: TH**

## Why in News?

**Fintech Companies** continue to be an attractive option for entrepreneurs in the **Start-Up** ecosystem.

- As per the data from **Tracxn** (a company that provides market intelligence data for private companies), fintechs have received over 15% of the total **equity** funding into start-ups in FY24 so far.

## What are Fintechs?

- **About:**
  - Fintech,  a combination of the terms **"financial"** and **"technology,"** refers to businesses that **use technology to enhance or automate financial services** and processes.
- **Types:**
  - **Digital Payments:** These offer digital payment solutions, such as mobile wallets, online payment gateways, and **peer-to-peer (P2P) payments**. Ex-Phonepe, Paytm etc.
  - **Alternative Lending:** They are also known as **marketplace lending** or **Peer-2-Peer** (**P2P lending)**, occurring on online platforms that connect borrowers overlooked by traditional lenders with investors looking for high-yield investments. Ex: Lending Club, Prosper, PayPal Working Capital, GoFundMe etc.
  - **Insurance:** These offer digital insurance solutions, such as health insurance, life insurance, and car insurance. Ex-Digit Insurance, Policybazaar etc.
  - **InvestmentTech:** These offer digital investment solutions, such as stock trading, mutual funds, and **cryptocurrency** trading. Ex-Zerodha, Groww etc.
  - **Others types include** Crop loan risk management (Eg:  Satsure), online fraud detection (e.g. Tutelar), debt management (Debt Nirvana) and Banking-as-a-Service Platform (e.g., FidPay)

## What is the State of Fintech Industry in India?

- **FinTech Ecosystem:** India remains a global leader in fintech, 3rd highest globally after the US and UK, having a combined valuation of over USD 155 billion.
  - Nearly a third of the **soonicorn universe** (soon to be unicorns) comprises fintechs.
  - As per **Startup India**, an initiative by the Ministry of Commerce and Industry, the market size of India's fintech industry is expected to reach USD 150 billion by 2025.

- **High Adoption Rate:** As per the **Economic Survey 2022-23**, fintech companies in India witnessed an **87%** adoption rate across varied user bases as opposed to the global average rate of 64%.
- **Driving Digital Payments:** Fintech companies in India account for 70% of digital payment transactions, marking a two fold rise in their share during FY22 compared to FY19.
- **Financial Inclusion**: More than 10 million people and small businesses gained access to savings accounts, insurance, investment options, and credit facilities through mobile-based services and digital platforms.
- **Democratising Lending Process**: Peer-to-peer lending platforms are democratising lending, providing individuals and small businesses with access to funds without the need for traditional financial institutions.
- **Rise in Public Investment:** Investment platforms and robo-advisors are making investments in stocks, mutual funds, and other financial instruments more accessible.

## What are the Government Initiatives Driving the Growth of FinTech?

- **Digital Identity Infrastructure (JAM Trinity):**
  - **Jan Dhan Yojana (PMJDY):** This world's largest financial inclusion program has provided bank accounts to over 450 million people creating a massive base for FinTech companies to offer new financial products and services like remittances, credit, insurance, and pensions directly through these accounts.
  - **Aadhaar:** According to a **World Bank** study, Aadhaar has facilitated bank account opening for over 570 million previously unbanked adults in India.
    - **Aadhaar Enabled Payment System (AePS)** has allowed Aadhaar card holders to conduct financial transactions using their Aadhaar number and biometric authentication (fingerprint or iris scan).
  - **Unified Payments Interface: UPI** transaction volume has surged by 49% year-on-year.
    - More banks are embracing UPI, with the number of integrated banks increasing from 414 in April 2023 to 581 in April 2024. This wider availability is fueling the overall growth in UPI transactions.
- **Regulatory Support and Innovation:**
  - In 2017, the RBI granted recognition to **Peer-to-Peer (P2P) lending** platforms as **Non-Banking Financial Companies (NBFCs)** providing legitimacy and facilitated growth within the P2P lending segment, **expanding credit access** for individuals and small businesses.
- **Regulatory Sandbox (RS) and Fintech Repository:**
  - RS is an infrastructure that helps Fintech players to **live test their products or solutions, before getting the necessary regulatory approvals** for a mass launch, saving start-ups time and cost. The RBI established a **Regulatory Sandbox in 2017**.
  - Additionally, the **Fintech Repository** launched in 2021 serves as a centralised information hub for fintech companies, promoting transparency and streamlining regulatory compliance.
- **Self-Regulatory Organisations (SRO) Framework:**
  - To promote responsible growth, and recognizing the need for industry-led self-regulation, the **RBI** introduced a framework for **Self-Regulatory Organizations (SROs)** in the FinTech sector in **2023.**
  - These SROs act like **guardians** within the industry, **establishing and enforcing a code of conduct, grievance redressal mechanisms, and consumer protection standards.**

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## What are Potential Growth Areas for the Fintech Sector in India?

- **SME Lending:** **Small and medium enterprises (SMEs)** often face challenges accessing traditional credit channels.
    - Fintech solutions leveraging alternative data sources and AI-powered credit scoring can streamline lending processes and make credit more accessible for SMEs.
- **Supply Chain Financing:** Traditional supply chain financing methods are often cumbersome and lack transparency.
    - **Blockchain**-based fintech solutions can streamline payments, improve traceability, and enhance working capital management for businesses within the supply chain.
- **Agritech:** Solutions for crop loan risk management, micro-insurance for farmers, and digital marketplaces for agricultural products can provide much-needed support and empower rural communities.
- **Regulatory Landscape and Long-Term Stability:** The RBI's framework for managing **"user harm"** within the fintech sector, while potentially creating a cautious investment climate in the short term, is a positive development in the long run.
    - **Clear and well-defined regulations will enhance consumer protection and build trust in the ecosystem, attracting long-term investors and fostering sustainable growth.**

## Steering Committee Recommendations Related to Fintech

- **About:**
    - The **Steering Committee, chaired by Subhash Chandra Garg**, on Fintech Related Issues submitted its report to the Finance Minister in **2019**.

    - The Committee was constituted with the objective of making Fintech related regulations more flexible and enhancing entrepreneurship.
- **Key Observations regarding Fintechs:**
    - Banking entities have an advantage in accessing crucial payment infrastructure like Aadhaar-enabled payment systems. This hinders a **level playing field for non-banking Fintech companies.**
    - The **lack of a regulatory sandbox**, a controlled environment for testing innovative products, stifles experimentation and slows growth.
    - The rise of Fintech introduces **new data privacy and security risks.** Existing regulations and the **Data Protection Act** might need adjustments to foster a secure and growth-oriented environment.
- **Recommendations:**
    - **Expanding Fintech Services:** Encourage the use of Fintech for bolstering cybersecurity, fraud control, and money laundering prevention. Explore virtual banking and dematerialisation of financial instruments (converting physical certificates to electronic form).
    - **Policy Actions for Promotion:**
        - Government and public sector institutions should leverage **AI for back-end automation.**
        - Collaborate with MSMEs to **implement blockchain solutions** in trade finance.
    - **Financial Inclusion:**
        - Develop a **credit registry** for farmers using **AI/ML** based credit scoring to enable easier loan access.
        - Utilise Fintech for managing claims and premium payments in agricultural crop insurance schemes.
        - Create a common digital platform for small savings products, micro-pension schemes, and government pensions, facilitating digital subscriptions.
    - **Collaboration and Coordination:**
        - Form an **advisory council** on Fintech with industry experts for each financial sector regulator.
        - Establish an **inter-regulatory technical group** for better coordination between regulatory bodies.
        - Set up an **inter-ministerial group** to explore potential applications of Fintech-enabling technologies.
        - **Collaborate with other countries to share knowledge** on Fintech risks and benefits.
    - **Data Protection:** Establish a **task force** within the Ministry of Finance to address data protection challenges specific to the financial sector.

***Drishti Mains Question:***

Discuss the growing prominence of fintechs in the Indian startup ecosystem, highlighting the key drivers and the regulatory challenges faced by the sector.

## UPSC Civil Services Examination Previous Year Question (PYQ)

### *Prelims*

**Q. With reference to "Blockchain Technology", consider the following statements: (2020)**

1. It is a public ledger that everyone can inspect, but which no single user controls.
2. The structure and design of the blockchain is such that all the data in it are about cryptocurrency only.
3. Applications that depend on basic features of blockchain can be developed without anybody's permission.

**Which of the statements given above is/are correct?**

**(a)** 1 only
**(b)** 1 and 2 only
**(c)** 2 only
**(d)** 1 and 3 only

**Ans: (d)**

**Q. With reference to India, consider the following: (2010)**

1. Nationalisation of Banks
2. Formation of Regional Rural Banks
3. Adoption of village by Bank Branches

**Which of the above can be considered as steps taken to achieve the "financial inclusion" in India?**

**(a)** 1 and 2 only
**(b)** 2 and 3 only
**(c)** 3 only
**(d)** 1, 2 and 3

**Ans: (d)**

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## Greater Spotted Eagles

Source: DTE

A recent report revealed that the ongoing war between Russia and Ukraine has forced greater spotted eagles, a large raptor species, to change their **migratory paths.**

- IUCN Status: Vulnerable
- **Geographical Distribution**: Mostly vanished from western and central Europe, with a limited breeding population in Polesia, Belarus.
- India's Wildlife Protection Act, **1972**: Schedule I (**Other eagle species)**

Read More...

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## PM Kisan Nidhi

Source: TH

Recently, the Union Government released the seventeenth instalment of the PM Kisan Nidhi in the first decision of the newly sworn-in government.

- Under the **PM Kisan Nidhi scheme**, the centre transfers an amount of Rs 6,000 per year, in **three equal instalments**, directly into the bank accounts of **all landholding farmers** irrespective of the size of their land holdings.
- Launched in February 2019, it is a Central Sector Scheme with 100% funding from the Government of India.
- It is being implemented by the Ministry of Agriculture and Farmers Welfare, however the entire responsibility of identification of beneficiary farmer families rests with the State / UT Governments.

Read more: PM-Kisan Scheme

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## Volkhov River

**Source: TH**

Recently, four medical students from Maharashtra studying at a university in **Russia** drowned in the **river**

**Volkhov** near **St. Petersburg.**

- The Volkhov River is in **northwestern Russia.**
- It flows from **Lake Ilmen,** passes through **Novgorod**, and goes north-northeast into **Lake Ladoga** through a flat, swampy area.
- In the town of Volkhov, the **first hydroelectric station** in the **Soviet Union** was built in 1926.
- The Volkhov, in early times part of the important **Baltic Sea-Black Sea trade route**, is navigable only by small craft.
- As per the data released by the Ministry of External Affairs (MEA) in 2022, there were nearly **16, 500 Indian students in Russia.**

**Read more: India-Russia**

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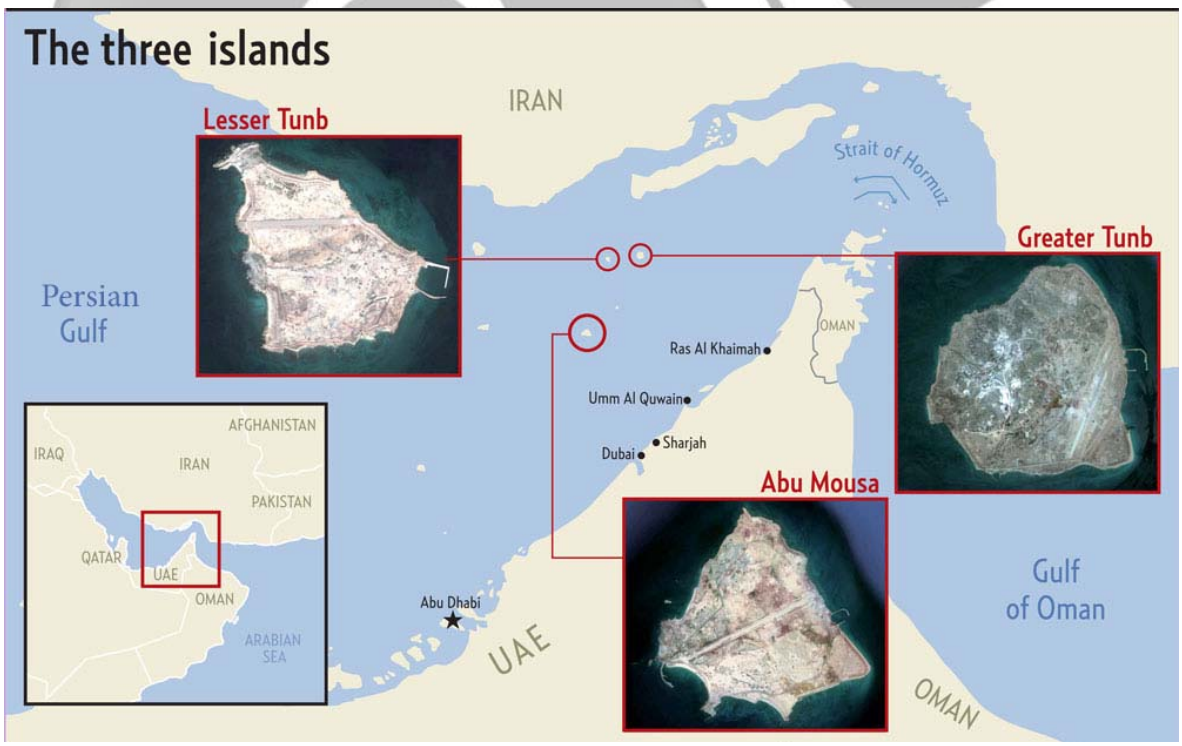
## The Greater Tunb, The Lesser Tunb, and Abu Musa Island

Source: ET

Recently, **Iran** called in China's ambassador to lodge a protest over a joint statement made by **China** and the **United Arab Emirates (UAE)** regarding the sovereignty of the Abu Musa, Greater Tunb, and Lesser Tunb islands.

- These are small disputed islands between **Iran and UAE**, located at the entrance of the **Strait of Hormuz** in the **Persian Gulf.**
- Iran claims that the islands were historically part of Persian territories until they were occupied by the British in the **early 20th century.**
- After British forces withdrew in **1971,** Iran took control of the three islands, considering them an integral part of its territory.
- According to the UAE, the **islands belonged to the emirate of Ras al-Khaimah** until Iran allegedly seized them by force just days before the formation of the **Emirati Federation in 1971** before UAE's independence from Britain.



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# Atomic Clock

Source: TH

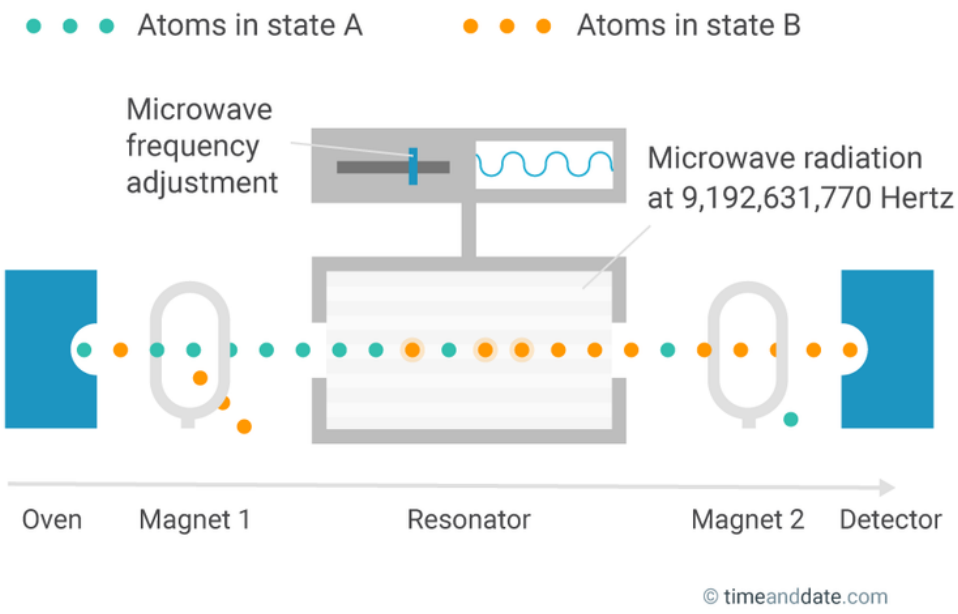
## Why in News?

In a recent study published in the scientific journal **Nature**, a new type of portable **Optical** atomic clock was introduced for use on ships.

- This new **iodine clock** is **not as precise** as an optical atomic clock used in a laboratory but it is **more portable and durable.** It gains or loses a second every 9.1 million years.

## What are Atomic Clocks?

- **About:**
  - It is an advanced timekeeping device that utilises the **natural vibrations of atoms** to measure time with **exceptional accuracy.**
  - It was developed by Louise Essen in 1955. Presently, **India has operational atomic clocks located in Ahmedabad and Faridabad**.
- **Key Features:**
  - Atomic clocks are **far more precise** than conventional clocks because atomic oscillations have a much **higher frequency** and are much **more stable.**
  - **Atomic clocks** are very accurate, with traditional atomic clocks **losing or gaining one second over 300 million years**, while **optical atomic clocks** can maintain this **precision for 300 billion years.**
  - A **caesium atomic clock** loses or gains a second every 1.4 million years.
- **Working:**
  - **Caesium (Cs) atomic clocks** operate by causing **Cs atoms to transition to a higher energy level,** which is linked to the **frequency of microwave radiation** and the measurement of time in seconds.
  - In this process, Cs atoms are placed in a cavity, and **microwave radiation** with a specific frequency is directed towards them. When the frequency of the radiation **matches** the **energy transition** of the Cs atoms, it creates a **resonance phenomenon**. The Cs atoms absorb this radiation and move to a higher energy state. This transition occurs precisely when the **frequency** of the radiation is **9,192,631,770 Hz.**
    - This means that when a Cs-133 atom undergoes 9,192,631,770 oscillations between its energy levels, one second has elapsed.
  - The **precision** of atomic clocks is achieved through a system that detects any deviations in the resonance frequency and makes adjustments to the microwave radiation to maintain resonance.




- **Optical Atomic Clock:**
  - They are even **more accurate** than Atomic Clocks.
  - These clocks use **lasers** to stimulate atomic transitions, producing **highly coherent light** where all emitted light waves have the same frequency and stable wavelengths.
  - It is different from Atomic Clock due to:
    - **Higher Operating Frequency**: Optical atomic clocks operate at higher frequencies, allowing them to **complete more oscillation**s in a given time frame compared to traditional atomic clocks.
      - This enables them to **measure smaller increments of time more accurately** due to the increased number of cycles counted within that time period.
    - **Narrower linewidth:** These have much **narrower linewidths** (range of frequencies) over which the atomic transition occurs. A narrower linewidth makes it easier to precisely tune the frequency of the optical light that triggers the resonance, leading to higher accuracy and more precise time measurements.
  - The element **strontium (Sr) is commonly used in optical atomic clocks** due to its narrow linewidths and stable optical transitions.

## What are the Applications of Optical Atomic Clocks?

- **Self-Reliance and National Security: India's reliance on foreign atomic clocks,** especially those from the US, poses a **risk to critical infrastructure like** NavIC **(Indian GPS)** in times of conflict.
  - Creating domestic atomic clocks will provide independent timekeeping, enhancing national security.
- **Enhanced Accuracy and Reliability:** Atomic clocks offer unmatched precision compared to conventional methods. By deploying them across the nation, India can **synchronise all digital devices** with Indian Standard Time (IST), ensuring a unified and highly accurate time reference.
- Time synchronisation through optical atomic clocks will benefit various sectors:
  - **Telecommunications:** Precise timing **minimises errors** and facilitates seamless data transfer in communication networks.
  - **Financial Systems:** Accurate timestamps for financial transactions **safeguard against fraud, especially in high-frequency trading.**
  - **Cybersecurity:** Atomic clocks play a crucial role in India's digital economy by ensuring the **accuracy of timestamps for transactions**, which helps prevent fraud, maintain data integrity, and enhance cybersecurity measures.
  - **Critical Infrastructure and Power Grids:** Atomic clocks play a vital role in **synchronising critical infrastructure, including power grids,** transportation systems,

and emergency services.

## UPSC Civil Services Examination, Previous Year Question (PYQ)

***Prelims:***

**Q.1 Which one of the following countries has its own Satellite Navigation System? (2023)**

**a.** Australia
**b.** Canada
**c.** Israel
**d**. Japan

**Ans: d**

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# UNESCO's State of Ocean Report 2024

**For Prelims:** **UNESCO** State of Ocean Report 2024, **oceanographic research**, **global warming, acidification, deoxygenation**, **greenhouse gas emissions**, **El Nino Southern Oscillation (ENSO)**, **microscopic plankton**, **Marine heatwaves**

**For Mains:** Key findings of UNESCO's State of Ocean Report, Impacts of the Global Warming on the Indian Ocean

**Source: DTE**

## Why in News?

Recently, the **UNESCO** State of Ocean Report 2024 highlighted the need for enhanced **oceanographic research** and **data collection** to address escalating ocean crises, including **warming, acidification, deoxygenation** **and rising sea levels.**

## What are the Key Findings of the State of Ocean Report 2024?

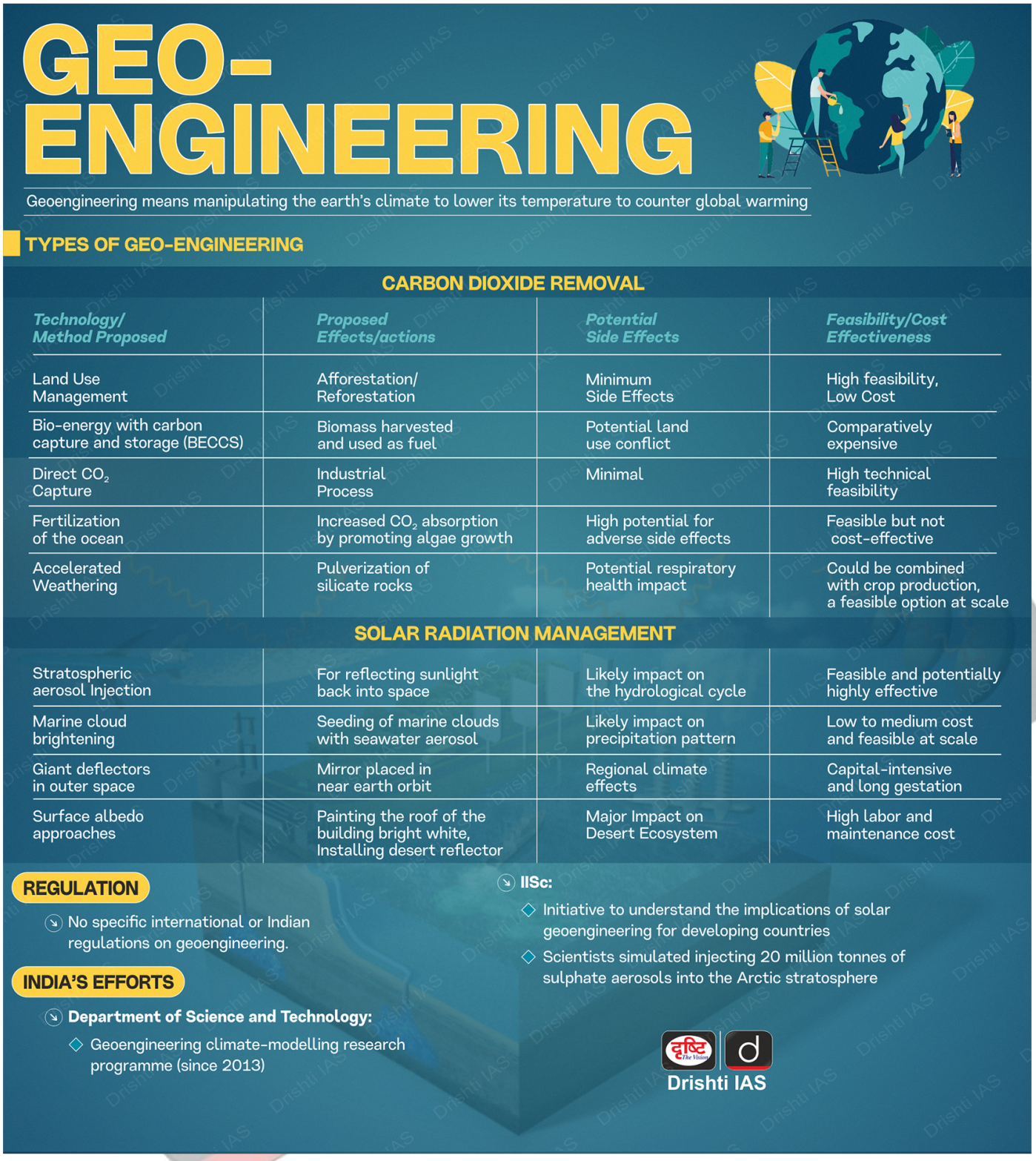
- **Inadequate Data and Research: The report identifies a critical gap in data and research on accelerating** ocean warming**.**
  - There is an urgent need for regular data to monitor ocean warming and its impacts, supporting the challenge for healthy and resilient oceans.
- **Ocean Warming: The upper 2,000 meters of oceans warmed at a rate of about 0.32 Watt/m² from 1960 to 2023, which has accelerated to 0.66 Watt/m² in the past two decades.**
  - This warming trend is expected to continue, causing **irreversible changes** over the centennial to millennial timescale.
- **Earth Energy Imbalance (EEI): Increased** greenhouse gas emissions **from human activities has resulted in the increased uptake of the EEI by oceans.**
  - **EEI is the balance between incoming energy** from the Sun **and outgoing energy from the Earth.**
  - About **90 % of the EEI** is being **absorbed by oceans**, resulting in a cumulative increase in **ocean heat content (OHC)** in the **upper 2,000 m** of the water column.

        - OHC is the **total amount of heat stored** by oceans.
    - This warming may **prevent ocean layer mixing**, potentially reducing oxygenated deep waters and leading to **deoxygenation.**
        - Deoxygenation can have **long-term negative impacts** on the health of **coastal and large marine ecosystems** and **coastal communities**.
- **Ocean Acidification: There has been a mean global increase in** ocean acidification **in all ocean basins and seas.**
    - The open ocean has been experiencing a **continuous decline in pH** (increase in acidic levels), with an average global surface ocean pH decline of 0.017-0.027 pH units per decade since the late 1980s.
        - Coastal waters can turn acidic due to **natural processes**, such as freshwater influx, biological activity, temperature change and climate patterns like **El Nino Southern Oscillation (ENSO)**.
        - Human activities like **nutrient input from agricultural and industrial activities also influence** the chemistry of coastal areas.
    - However, **limited long-term observations**, particularly in coastal areas, hinder a complete understanding of this phenomenon.
- **Continuation of Sea Level Rise: The global mean sea level from 1993 to 2023 increased at a rate of about 3.4 mm/yr.**
    - The world will have to improve the space-based and in situ observing systems for monitoring sea level rise at global, regional, and coastal scales.
- Marine Carbon Dioxide Removal (mCDR): The report acknowledges the growing interest in mCDR technologies aimed at capturing and storing atmospheric carbon dioxide**.**
    - **Examples** like **altering the chemical composition of seawater** so that oceans absorb more carbon dioxide from the atmosphere or **adding nutrients such as iron** to encourage the growth of **microscopic plankton** that can sink to the seafloor and be stored for centuries or longer.
    - There has been an increased interest in **mCDR technologies** with the growing number of start-ups developing mCDR techniques, alongside **funding** by the United States and the **European Union for mCDR research** announced in 2023.
    - There has been some challenges like the **limited use of mCDR** and how they will interact with the **ocean carbon cycle**, possibly causing **unintended consequences** such as threat to marine life in the long term.

## What are the Impacts of the Global Warming on the Indian Ocean?

- **Cyclones and Marine Heatwaves: The Indian Ocean is warming faster than other oceans, with the potential for irreversible changes like cyclones and heatwaves.**
    - The **Indian Ocean** plays a significant role in the **formation of monsoons and pre-monsoon cyclones** that bring rain and pose threats to South Asia, East Africa, and West Asia.
    - The North Indian Ocean doesn't generate as many cyclones as the Pacific or **Atlantic Ocean**, but their **numbers and rapid intensification** have been growing making them the deadliest storms by mortality.
        - For example, the 2019 **Cyclone Fani** in Odisha, India, caused widespread destruction with its **high winds** and **storm surge**.
    - **Marine heatwaves** are becoming more **frequent and intense**, causing **coral bleaching** and harming **marine life**.
        - For instance, a **2010 marine heatwave in the Indian Ocean** caused widespread **coral bleaching in the Lakshadweep Islands**.
- **Altered Ocean Circulation and Marine Life: Warming can weaken upwelling, a process that brings cooler, nutrient-rich waters to the surface. This can harm fish populations that depend on these nutrients.**
    - For example, a decline in upwelling in the **Arabian Sea** can negatively impact the **sardine fishery**.

    - As the ocean absorbs more carbon dioxide, it becomes more **acidic**, harming **organisms with calcium carbonate shells and skeletons**, such as coral reefs and shellfish.
        - The **Great Barrier Reef in Australia** is already experiencing significant damage due to **ocean acidification**, and similar threats are faced by coral reefs in the Indian Ocean.
    - Warmer water holds less oxygen. **Increased stratification** due to warming can prevent deep ocean mixing, leading to **oxygen depletion in deeper layers**. This can create **dead zones** where marine life cannot survive.
- **Human Populations at Risk: Disrupted fisheries, cyclones, and** droughts **all threaten food security for millions of people who depend on the Indian Ocean for their livelihood.**
    - Rising sea levels due to **global warming** threaten coastal communities with inundation and erosion. Low-lying areas in India, such as Mumbai and Kolkata, are particularly vulnerable.
    - **Tourism and recreation industries** that rely on healthy coral reefs and beaches will be negatively impacted by bleaching and coastal degradation.




## What are the Steps Taken by India to Mitigate the Effects of Oceanic Heatwaves?

- **Monitoring and Research:**
  - Indian National Centre for Ocean Information Services (INCOIS)
- **Cyclone Preparedness:**
  - National Disaster Management Authority (NDMA)

    - IMD Cyclone Warnings
- **Additional Measures:**
    - National Missions on Climate Change
    - Coalition for Disaster Resilient Infrastructure
    - Renewable Energy Target
    - National Hydrogen Mission

## Way Forward

- Developing and utilising **real-time weather forecasts** and cyclone warnings to coastal communities.
    - For example, India should aim to enhance the capabilities of the Indian National Centre for Ocean Information Services (INCOIS) for more accurate and timely predictions.
- Several geo-engineering techniques like **stratopheric aerosol injection, marine cloud brightening** etc can be utilised on a large scale to tackle the issue of oceanic warming.
- Promotion of **sustainable coastal development** practices building seawalls and leevees that minimise damage to infrastructure and communities during extreme weather events.
    - For example, the **Odisha government's initiative to plant casuarina trees** along the coast proved effective in **mitigating the impact of Cyclone Fani.**
- Conducting **public awareness campaigns** and **regular evacuation drills** to educate coastal communities about cyclone risks and evacuation procedures.
- Establishing **marine protected areas** to conserve coral reefs and other fragile ecosystems.
- Collaboration of **international efforts to address climate change** and limit global warming will ultimately benefit the Indian Ocean.

## Conclusion

Overall, the UNESCO report highlights critical knowledge gaps and the need for improved data collection to understand and address the multiple threats facing oceans across the globe. It also explores potential solutions like mCDR and coastal habitat restoration, emphasising the need for further research to address associated uncertainties.

***Drishti Mains Question:***

Q. Discuss the status of ocean warming due to climate change and its impacts on the Indian Ocean. Also,suggest the measures need to be taken to mitigate the effects of oceanic warming?

## UPSC Civil Services Examination, Previous Year Questions (PYQs)

### *Prelims*

**Q.1 Which of the following statements is/are correct about the deposits of 'methane hydrate'? (2019)**

1. Global warming might trigger the release of methane gas from these deposits.
2. Large deposits of 'methane hydrate' are found in Arctic Tundra and under the sea floor.
3. Methane in atmosphere oxidizes to carbon dioxide after a decade or two.

**Select the correct answer using the code given below.**

**(a)** 1 and 2 only

**(b)** 2 and 3 only

**(c)** 1 and 3 only

**(d)** 1, 2 and 3

**Ans: (d)**

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## ***Mains***

**Q1.** Assess the impact of global warming on the coral life system with examples. **(2017)**

**Q2.** 'Climate change' is a global problem. How India will be affected by climate change? How Himalayan and coastal states of India will be affected by climate change? **(2017)**

**Q3.** Discuss global warming and mention its effects on the global climate. Explain the control measures to bring down the level of greenhouse gases which cause global warming, in the light of the Kyoto Protocol, 1997. **(2022)**

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