Prelim Bits 16-09-2022 | UPSC Daily Current Affairs

Green Fins Hub

The UN Environmental Programme (UNEP), along with the Reef-World Foundation, launched the Green Fins Hub.

- The Green Fins Hub is the first-ever global marine tourism industry platform for **diving and snorkelling operators** worldwide.
- It was developed by The Reef-World Foundation in partnership with the United Nations Environment Programme (UNEP).
- This **industry-backed** platform would give a 'major boost' to sustainable marine tourism.
- **Purpose** - The platform will help diving and snorkelling operators to make simple, cost-efficient changes to their daily practices by utilising tried and tested solutions.
- It would also help them keep track of their annual improvements and communicate with their communities and customers.
- **Membership** - The Green Fins Hub hosts two types of membership
    1. Digital membership,
    2. Green Fins Certified Members.
- **Digital membership** that will be available to dive, snorkel and liveaboard operations globally.
- Throughout every year of membership, operators will receive environmental scores based on a detailed online self-evaluation and progress made on their action plans.
- **Green Fins Certified Members** will continue to be assessed annually and trained in person at their operation.
- The assessment process will continue to be based on set criteria using a scoring system (0-330 point system, with a low score implying low impact of a business on coral reefs).
- There will be a minimum threshold (>200 of a maximum environmental impact score) for becoming a Green Fins Certified Member.
- A ranking of bronze, silver or gold certified members will be given according to performance.
- **Other features** - The Green Fins Community Forum will be for operators around the world to
    1. Raise industry needs,
    2. Discuss environmental issues and
    3. Share lessons and ideas with like-minded industry leaders, non-profits and governments.
- The Green Fins Solutions Library will give access to over 100 proven environmental solutions to common daily operational challenges.
- The Action Plan Tracker will enable members to receive an annual sustainability action

plan with set goals.

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Atomic Clocks

- Previous generation of clocks that consisted of a quartz crystal oscillator would be late by a nanosecond after an hour of efficient performance.
- Atomic clocks combine a quartz crystal oscillator with an ensemble of atoms (usually cesium or calcium or rubidium) to achieve greater stability, and keep time with extreme accuracy.
- They contain an element like **cesium or calcium** and a source of **microwave electromagnetic radiation**.
- **Working** - The nucleus of an atom is surrounded by a cloud of electrons, which occupy discrete energy levels or states.
- When excited by a microwave, the electron can absorb some of the incident radiation and get excited to a higher state.
- For this to happen, the incident microwave radiation has to match the characteristic frequency of the cesium or calcium atom.
- By tuning the microwave source and observing at what frequency the transition takes place, the exact value of the characteristic frequency is calculated.

Frequency refers to the number of waves that cross a particular point in time in one unit of time.

- By counting the number of waves (i.e., frequency), the time can be measured accurately.
- **Present Models** - NASA's Deep Space Atomic Clock misses a second once in 10 million years.
- The official definition of a second today is given by the frequency needed to make electrons transition between two levels in a cesium atom.
- However, the state of the art is a strontium clock that loses 3.5 beats only once in 10 quintillion beats (a quintillion in one followed by 19 zeros).

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Shallow-water Mining

A new study by the University of Helsinki points out shallow-water mining is not a 'silver bullet' to resolve growing global need for metals.

- In 'shallow-water mining', metals such as gold, cobalt and copper are mined from depths of 200 m below the sea.
- In 'deep-sea mining', valuable minerals are mined from ocean depths greater than 200 m.
- Deep-sea mining has not been implemented yet due to concerns over the environmental impacts of mining activities.
- Generally, shallow-water mining is considered a relatively low-risk and low-cost option to satisfy the demand for metals and minerals.
- But, a new study has highlighted that the shallow-water mining also could trigger local extinctions of marine species.
- This is because extracting minerals from the shallow-water ocean floor requires dredging large amounts of sediment.
- Removing this sediment, which takes thousands of years to accumulate, means removing the organisms that call it home.

Shallow-water Mining Projects

- Namibia has been mining diamonds off its coast in depths of upto 130 m.
- Indonesia has been extracting placer deposits - sediments containing gold, silver, tin, and platinum.
- Mexico is considering mining marine phosphorites, phosphate-rich nodules used in fertiliser and industrial chemicals, in water depths of 50-100 m.
- Sweden is considering mining the shallow waters (60-150 m) of the Bothnian Sea for polymetallic nodules, mineral deposits containing nickel, cobalt, copper, titanium and rare earth elements.
- However, New Zealand dropped the project due to environmental concerns.

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Power Finance Corporation to be a DFI

The Union Ministry of Power has sought the status of Development Financial Institution (DFI) for the Power Finance Corporation (PFC) and Rural Electrification Corporation (subsidiary of PFC).

- The Power Ministry has sought the DFI status for PFC from the Reserve Bank of India (RBI) under the National Bank for Financing Infrastructure and Development

(NaBFID) Act, 2021.

- The DFI status helps a financial institution (FI) access foreign funding, grants and loans easily and in higher quantum, as compared to a public financial institution (PFI), which PFC already is.
- The objective behind this move is to **enable PFC to steer global climate funding and net zero investment** in the country.
- If the proposal is taken to its logical conclusion, PFC would be the first DFI for climate and energy transition in India.
- **Related Links** - Revamped Distribution Sector Scheme, India's 1st Euro Green Bond

NaBFID Act on DFIs

- NaBFID Act 2021 seeks to establish DFIs for providing long-term finance for such segments of the economy where the risks involved are beyond acceptable limits of commercial banks and other ordinary FIs.
- Unlike banks, DFIs do not accept deposits from people.
- They source funds from the market, government, as well as multilateral institutions, and are often supported through government guarantees, according to the Act.
- **Related Links** - National Bank for Financing Infrastructure and Development

Power Finance Corporation

- New Delhi-based Power Finance Corporation (PFC) is a financial institution under the **Union Ministry of Power**.
- Incorporated in 1986, the PFC is a leading **Non-Banking Financial Corporation** in the Country.
- **Vision** - To be the leading institutional partner for the power and allied infrastructure sectors in India and overseas across the value chain.
- In 2021, the PFC was conferred the title of a Schedule-A Maharatna CPSE.
- In 2010, it was classified as an **Infrastructure Finance Company** by the Reserve Bank of India.

Maharatna CPSEs

1. Bharat Heavy Electricals Limited
2. Bharat Petroleum Corporation Limited
3. Coal India Limited
4. GAIL (India) Limited
5. Hindustan Petroleum Corporation Limited
6. Indian Oil Corporation Limited
7. NTPC Limited
8. Oil & Natural Gas Corporation Limited
9. Power Grid Corporation of India Limited
10. Steel Authority of India Limited

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Ghost Islands of the Arctic

A 'Ghost Island' Qeqertaq Avannarleq in the Arctic discovered in 2021 has been found to be a "dirty iceberg."

- **'Qeqertaq Avannarleq'** - Greenlandic for "the northern most island" was small and gravelly island.
- It was previously thought to be the northernmost piece of land in the world. However, this island disappeared recently.
- Just north of Cape Morris Jesup, several other small islands had been discovered over the decades, and then they disappeared.
- **Reason** - A team of Swiss and Danish surveyors, who investigated the "ghost islands" phenomenon, found that these elusive islands are actually large icebergs grounded at the sea bottom.
- These icebergs likely came from a nearby glacier, where other newly calved icebergs, covered with gravel from landslides, were ready to float off.

Expeditions

- **Hearst Expedition** - In 1931, American newspaper magnate William Randolph Hearst started an expedition to the North Pole using the Graf Zeppelin, then the world's largest airship.
- The Graf Zeppelin fly to the North Pole for a meeting with a submarine that would travel under the ice.
- This ran into practical difficulties and Hearst abandoned the plan.
- **Polarfahrt Expedition -** The expedition was known as the Polarfahrt ("polar voyage" in German.)
- The zeppelin carried a team of German, Soviet and U.S. scientists and explorers on a 5-day trip to the high latitude regions of the North Pole.
- It took them north over the Barents Sea as far as 82 degrees north latitude, and then eastward before returning southwestward.
- The Polarfahrt confirmed the presence of Franz Josef Land, an archipelago of nearly 200 islands in the Barents Sea.

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