

Samudrayaan Mission

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Context

The minister of Earth Sciences has recently confirmed that the **Samudrayaan mission** is scheduled to explore the bed of the ocean by 2025 end.

India's Deep Ocean Mission (DOM)

- DOM is implemented by the Ministry Of Earth Sciences (MoES) and was accredited in 2021 at a cost of almost Rs 4,077 crore over a five-year duration in a phased manner.

Samudrayaan Mission

- As a part of DOM, India's flagship deep ocean venture, 'Samudrayaan', was initiated in 2021 by the Ministry of Earth Sciences.
- With 'Samudrayaan', India is embarking on a crewed expedition to reach a depth of 6,000 m to the ocean bed in the imperative Indian Ocean.
- This adventure will be performed by Matsya6000, a deep-ocean submersible.

Matsya6000

- The Matsya6000 is India's flagship deep-ocean human submersible that aims to reach the sea bed at a depth of 6,000 m.
- Accompanied by three team members, referred to as "**aquanauts**", the submersible includes a set of scientific tools and equipment designed to facilitate observations, sample collection, basic video and audio recording, and experimentation.
- The submersible will be equipped with a set of scientific sensors and tools, and feature

an operational persistence of 12 hours, that's expandable up to 96 hours in the occasion of an emergency.

- Constructed from a titanium alloy, the system is engineered to face pressures of up to 6,000 bar.
- It can circulate at a speed of about 5.5 km/hr using underwater thrusters.

Significance

- So far, nations which include the U.S., Russia, China, France and Japan have carried out successful deep-ocean crewed missions. India is poised to join the ranks of these nations by demonstrating information of and functionality for such missions.
- The '**New India 2030**' record outlines the blue economy as the sixth core objective for India's growth. The years 2021-2030 had been special through the United Nations as the '**Decade of Ocean Science**'.
- DOM is one in all nine missions under the **Prime Minister's Science, Technology, and Innovation Advisory Council (PMSTIAC)**.
- The venture is significant for the sustainable extraction of precious assets, such as polymetallic nodules and polymetallic sulfides.

Source: The Hindu

UPSC Mains Practice Question

Q.What are the major goals and components of the Samudrayan mission? How is it significant in enhancing India's capabilities and interests in deep ocean exploration? (250 words)