GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 919
TO BE ANSWERED ON WEDNESDAY, 4TH FEBRUARY, 2026

DEEP OCEAN MISSION

919. SHRI AVIMANYU SETHI:
SMT. KAMALJEET SEHRAWAT:
SMT. VIJAYLAKSHMI DEVI:
SHRI KOTA SRINIVASA POOJARY:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) the details of major milestones achieved under the Deep Ocean Mission since its launch;
(b) the current status of indigenous research vessels, ocean observation systems and coastal safety mechanisms such as the Tsunami Early Warning Centre;
(c) the steps taken to integrate deep-ocean research with resource security, biodiversity conservation and coastal resilience; and
(d) the future timelines and priorities for scaling up deep-ocean technologies and international scientific collaboration?

ANSWER
THE MINISTER OF STATE (INDEPENDENT CHARGE) FOR
MINISTRY OF SCIENCE AND TECHNOLOGY
AND EARTH SCIENCES
(DR. JITENDRA SINGH)

(a) The Deep Ocean Mission encompasses six verticals, which are 1) Development of Technologies for Deep-sea mining, Human Submersible and underwater robotics, 2) Development of Ocean Climate Change Advisory Services, 3) Technological Innovations for exploration and conservation of deep-sea biodiversity, 4) Deep-ocean survey and exploration, 5) Energy and fresh water from the ocean, and 6) Establishment of Advanced Marine Station for Ocean Biology. The significant milestones achieved under the Deep Ocean Mission (DOM) are as follows:

- The design and system engineering of India's flagship human submersible MATSY-6000, capable of reaching a depth of 6000 meters with three aquanauts, has been completed. Subsystems have been realized, and the wet tests were conducted at L&T Harbour in Katupalli, near Chennai, in January-February 2025. Scientists at the National Institute of Ocean Technology (NIOT), Chennai, entrusted with the development of MATSYA-6000, have gained pilot experience with the French submersible NAUTILE in August 2025.
- The prediction of 100-year return extreme sea level along the coasts of the Indian subcontinent has been completed and associated coastal vulnerability maps have been prepared. To strengthen ocean observation, the Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, has successfully completed 11 glider missions along predetermined transects in the Arabian Sea (67°E) and the Bay of Bengal (89°E), and deployed 60 directional Wave Spectra Barometric Drifters and 92 physical and biogeochemical Argo floats in the Indian Ocean.

- Nearly 1845 deep-sea microbes have been isolated from water and sediment samples of the Indian EEZ, and rare deep-sea microbes previously not reported from the Indian Ocean have been discovered. A total of 25 seamounts (biodiversity hotspots) have been surveyed by the Centre for Marine Living Resources and Ecology (CMLRE), Kochi, in the Lakshadweep and Andaman and Nicobar regions, documenting 195 deep-sea species (including 39 potential new taxa).
- Two active and two inactive hydrothermal vents have been identified on the Indian Ocean seafloor through AUV (Autonomous Underwater Vehicle) surveys by the National Centre for Polar and Ocean Research (NCPOR), Goa, indicating potential locations of sulphide minerals.
- A total of 141 collaborative research projects have been sanctioned under the Mission to ~69 national government and private institutions to complement the mission activities.

(b) The design of a new oceanographic research vessel has been completed, and the model tests and construction of blocks for the vessel by Garden Reach Shipbuilders & Engineers Ltd. (GRSE), Kolkata, under the Ministry of Defense, have been completed. A unique ocean observation comprising 11 glider missions, 60 directional Wave Spectra Barometric Drifters, and 92 physical and biogeochemical Argo floats has been deployed in the Indian Ocean as part of the Deep Ocean Mission. The Indian Tsunami Early Warning Centre (ITEWC) at INCOIS, Hyderabad, has been operational since October 2007 for real-time monitoring of tsunamigenic seismic and sea-level data, and for disseminating tsunami alerts and safety messages to all coastal states and UTs of India and to 26 Indian Ocean-RIM countries.

(c) The research under the Deep Ocean Mission is integrated for exploration and harnessing through ocean living and non-living resources (such as biodiversity, polymetallic nodules, and polymetallic sulphides) as part of the pilot project of India's Blue Economy vision. Projected predictions of sea level rise, extreme waves, cyclones, and storm surge have been integrated to prepare a coastal vulnerability map that will enhance resilience to ocean hazards.

(d) The technologies developed and to be developed under the mission are prioritized for the benefit of the country. Technologies are scaled up indigenously across all verticals, aligned with the vision of Atmanirbhar Bharat. To draw the international expertise, discussions were held with institutions in France and Germany (particularly CNRS, Roscoff Marine Station, IFREMER, Aix Marseille University, Mediterranean Institute of Oceanography, UBO, and Sorbonne University) to enhance cooperation and capacity building through knowledge and expertise sharing, including through scientific visits and exchange programs.

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