**GOVERNMENT OF INDIA**
**MINISTRY OF EARTH SCIENCES**
**LOK SABHA**
**UNSTARRED QUESTION No. 2815**
**TO BE ANSWERED ON WEDNESDAY, 6TH AUGUST, 2025**

## ADVANTAGES OF DEEP OCEAN MISSION

**2815. DR. K SUDHAKAR:**

Will the Minister of **Earth Sciences** be pleased to state:

(a) the details of strategic advantages that our country can obtain through deep ocean mission such as in exploring deep sea minerals;
(b) the details and current status of the mission including the latest findings of the mission;
(c) the details of scientific missions currently in place to understand the biodiversity in country's exclusive economic zone; and
(d) the details of research, development and scientific collaborations carried out with other countries in the exploration of critical minerals including those from the oceans?

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

(a) The Government of India launched the Deep Ocean Mission to be implemented by the Ministry of Earth Sciences. The Deep Ocean Mission encompasses six verticals, of which activities under verticals 1 and 4 aid the exploration of deep-sea polymetallic nodules (PMN) and polymetallic sulphides (PMS), respectively. PMN occur on abyssal plains of the sea floor and contain metals like nickel, copper, cobalt and manganese. PMS are deposits in the hydrothermal vent areas and contain precious metals like copper, zinc, lead, iron, silver, etc. As part of India’s contract with the International Seabed Authority, the country aims to conduct scientific survey and exploration activities within the 75,000 square km region in the Central Indian Ocean Basin for PMN and the 10,000 square km area in the Central Indian Ridge and Southwest Indian Ridge for PMS. Exploration of precious metals in PMN and PMS through deep ocean surveys strategically aligns with the country’s contract with the ISA and augments the country’s know-how of the collective metal deposits, in addition to its land resources.

(b) The latest findings include the development of technologies for manned submersible, demonstration of the collection of over 100 kg of Cobalt-rich deep-sea polymetallic nodules from a depth of 1173m in the Andaman Sea in 2024, identification of two active hydrothermal vent fields in the Central Indian Ocean, and development of vulnerability maps for coastal areas to due to climate change.

(c) Vertical 3 of the Deep Ocean Mission is aimed at technological innovations for exploration and conservation of deep-sea biodiversity. The Centre for Marine Living Resources and Ecology (Kochi), an attached office of the Ministry of Earth Sciences, has conducted six cruises surveying biodiversity across 19 seamounts in the Arabian Sea and Bay of Bengal. Several (~1300) deep-sea organisms have been collected, studied, and vouchered, including conducting in-depth genomic analysis for select organisms and the discovery of nearly 23 species that are new to science.

(d) India has signed a contract with the International Seabed Authority, as part of which the country aims to conduct scientific survey and exploration activities in allotted areas in the Central Indian Ocean Basin, the Central Indian Ridge and the Southwest Indian Ridge.

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