GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
STARRED QUESTION No- *205
ANSWERED ON – 18/12/2025

EXPLORATION OF POLYMETALLIC NODULES

205. SHRI SUJEET KUMAR:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether India has undertaken exploration activities in 75,000 sq. km area allotted by the International Seabed Authority in the Central Indian Ocean Basin for Polymetallic Nodules mining and if so, the progress made, so far;
(b) the details of minerals identified in the said area and the estimated resource potential thereof; and
(c) whether Government proposes to develop indigenous deep-sea mining technology under the Deep Ocean Mission and if so, the status of development of deep-sea mining system and underwater vehicles?

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

(a) to (c): A Statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE RAJYA SABHA IN REPLY (a) to (c) TO STARRED QUESTION NO. *205 REGARDING "EXPLORATION OF POLYMETALLIC NODULES" TO BE ANSWERED ON THURSDAY, DECEMBER 18, 2025

(a) Yes Sir. India has taken exploration activities in the 75,000 sq. km area allocated by International Seabed Authority in the in the Central Indian Ocean Basin. The area has been uniformly sampled for nodules at an interval of 12.5 km to estimate the abundance and grade of nodules. Besides, baseline data generation for marine environmental characteristics, development of mining technology and development of metallurgical process are also undertaken.

(b) The total nodules present in the allotted area of 75,000 sq. km have been estimated to be 366 million metric tons (MMT) on dry weight basis, which on average contains 0.14% Cobalt, 1.14% Nickel, 1.09% Copper, and 25.2% Manganese.

(c) Yes Sir. Under Deep Ocean Mission, the National Institute of Ocean Technology (NIOT), an autonomous institute under the Ministry of Earth Sciences has designed a deep-sea mining system aiming at sustainable harvesting polymetallic nodules from depths of up to 5500 m. The mobility and system-powering trials of NIOT's deep-sea mining machine were conducted at 5270 m depth in 2021 at the Central Indian Ocean. NIOT has also designed the underwater vehicles namely, MATSYA 6000, which is a Deep-Sea Human Submersible. First demonstration of the integrated system functionality of MATSYA with three human beings was successfully demonstrated, in the calm waters during February 2025.

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