GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
**RAJYA SABHA**
**UNSTARRED QUESTION NO. 516**
ANSWERED ON 04/12/2025

# DEEP-SEA EXPLORATION CONTRACTS

**516. SHRI MILIND MURLI DEORA:**

Will the Minister of **EARTH SCIENCES** be pleased to state:

(a) whether India has recently secured two exploration contracts with the International Seabed Authority (ISA) for polymetallic sulphides and polymetallic nodules in the Indian Ocean;
(b) the details of mineral resources likely to be available under these contracts and their significance for India's renewable energy and green technology sectors;
(c) the steps taken to balance mineral exploration with the protection of marine ecology and biodiversity in the Central and Southwest Indian Ocean Ridges; and
(d) whether a long-term strategy has been prepared to strengthen India's role in deep-sea mining and ensuring reliable supply chains for critical minerals?

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

(a) India has signed one new contract with the International Seabed Authority (ISA) on 15th September, 2025 for exploration of polymetallic sulphides (PMS) in the Carlsberg Ridge area of the Indian Ocean. Besides, India has two ongoing exploration contracts with the ISA, one for polymetallic nodules (PMN) at the Central Indian Ocean Basin and another for polymetallic sulphides at Central and South West Indian Ridge in Indian Ocean, which were signed in 2002 and 2016, respectively.

(b) Polymetallic nodules present in the seafloor contain metals like nickel, copper, cobalt and manganese. Polymetallic sulphides contains precious metals like copper, zinc, lead, iron, silver, gold and platinum etc. These metals are important for renewable energy technologies, including electric vehicles, power grids, and solar systems.

(c) Seabed resource estimation and environmental studies at mineral exploration sites is an integral component of the contract with the International Seabed Authority. For this, geological, geophysical, oceanographic and biological data are collected from the allocated contract area of the Indian Ocean. Comprehensive environmental baseline studies, including biodiversity assessments are undertaken to better understand deep-sea ecosystems.

(d) Ministry of Earth Sciences liaise with the ISA for maintaining three seabed mineral exploration contracts in the Indian Ocean and provide continued cooperation in the activities of the ISA including finalisation of the deep-sea mining regulation. In parallel, technologies for mining of seabed minerals are developed to be ready to participate in deep-sea mining and critical mineral supply chains.

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