

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION NO. 1057  
TO BE ANSWERED ON WEDNESDAY, 26<sup>TH</sup> JULY, 2023**

**SAMUDRAYAN PROJECT**

†1057. **SHRI RAMESH CHANDER KAUSHIK:**

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Government has the data of the exploration conducted in deep sea since the introduction of Samudrayan Project;
- (b) if so, the details thereof;
- (c) the details of the budget allocated, disbursed and incurred thereon since the introduction of this Project;
- (d) whether the Government is aware of the findings of such explorations; and
- (e) if so, the details thereof?

**ANSWER  
THE MINISTRY OF EARTH SCIENCES  
(SHRI KIRAN RIJJU)**

- (a) Yes Sir.
- (b) Deep Ocean Mission has been launched w.e.f. 07.09.2021, as a Central Sector Scheme of Ministry of Earth Sciences with the approval of the Cabinet. Samudrayaan is a project under the Deep Ocean Mission. Under the Samudrayaan project of Deep Ocean Mission, MATSYA 6000 manned submersible design has been completed so far. Under the Mission, Deep water Autonomous Underwater Vehicle (AUV) namely Ocean Mineral Explorer (OMe 6000) has been deployed for exploration. Deep sea mineral exploration was performed using OMe 6000 AUV during December 2022 using research ship Sagar Nidhi at Polymetallic Manganese Nodule (PMN) site at a depth of 5271 m in the allocated area of International Seabed Authority at Central Indian Ocean Basin (CIOB). About 14 sq km area has been surveyed with all scientific payloads to generate high resolution seabed features to understand and validate the resource potential at exploration site. About 1 km x 0.5 km area has been mapped using high resolution cameras for quantitative polymetallic manganese nodule resource abundance, distribution and deep-sea biodiversity.
- (c) Deep Ocean Mission was approved by the Cabinet with the overall estimated cost of Rs.4077 Crores for two phases of the Mission period during 2021-2026. The allocated budget so far is Rs.1400 crore, out of which Rs.405.92 crores has already been disbursed and an expenditure of Rs.225.35 crores have been incurred.

- (d) Yes Sir.
- (e) The details about the findings of AUV exploration survey is as follows:
- (i) High resolution sea floor mapping was conducted at Central Indian Ocean up to a depth of 5271 m with all payloads during 15th and 16th December, 2022. The vehicle was operated in pre-defined 2km X 2km area with all scientific payloads and acquired data sets for more than 26 hours from 30 m altitude at 5271 m depth and successfully launched and recovered in the high seas safely.
  - (ii) For high resolution seabed photography, 1km x 0.5km was chosen and 130 photographic lines were completed at 4m spacing by operating the AUV for 30 hours at 5m altitude at 5271 m depth during 17<sup>th</sup> & 18<sup>th</sup> December, 2022. Datasets were acquired in collaboration with National Institute of Ocean Technology, Chennai, National Centre for Polar and Ocean Research, Goa, National Institute of Oceanography, Mumbai, CSIR, Delhi and Kongsberg, Norway.
  - (iii) Acquired high resolution details had brought out manganese nodule distributions and biodiversity at the PMN site.
  - (iv) Details obtained from AUV are useful to facilitate the resource estimation to target the regions of high abundance with flat surface and Environment Impact Assessment for the deployment of deep sea mining machine with collector device at PMN site in CIOB.

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