

**GOVERNMENT OF INDIA
EARTH SCIENCES
LOK SABHA**

STARRED QUESTION NO:154
ANSWERED ON:01.12.2011
POLYMETALLIC NODULES PROGRAMME
Halder Shri Sucharu Ranjan

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the country is pursuing any Polymetallic Nodules Programme;
- (b) if so, the details thereof including the financial allocation made for the purpose:
- (c) whether the Government proposes to explore and extract polymetallic nodules of various metals in the Indian Ocean and if so, the details thereof;
- (d) whether China has taken a lead in this field in a big way; and
- (e) if so, the manner in which India proposes to develop its efforts and resources further for better results in the future?

Answer

MINISTER OF SCIENCE & TECHNOLOGY AND MINISTER OF EARTH SCIENCES (SHRI VILASRAO DESHMUKH)

(a) – (e) A statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE LOK SABHA IN REPLY TO (a) to (e) OF STARRED QUESTION No. 154 REGARDING "POLYMETALLIC NODULES PROGRAMME" TO BE ANSWERED ON THURSDAY, DECEMBER 1, 2011

(a) Yes, Madam. India is pursuing Polymetallic Nodules Programme

(b) India's Polymetallic Nodules programme is oriented towards exploration and development of technologies for eventual extraction of nodules from the Central Indian Ocean Basin (CIOB) allocated to India. It has 4 components viz. Survey & Exploration, Environmental Impact Assessment, Technology Development (Mining), and Technology Development (Metallurgy). An Allocation of Rs 319 crores have been made during the XI Plan.

(c) Various activities have been carried out for exploration and development of technologies for eventual extraction of nodules. Surveys have been carried out in Central Indian Ocean Basin (CIOB), and an area of about 7860 square km has been initially identified for the First Generation Mine Site. Environmental studies for mining of deep-sea polymetallic nodules were carried out to evaluate the possible impacts of mining on deep-sea environment. As a part of phasewise development of mining system upto a water depth of 6 km, National Institute of Ocean Technology (NIOT), an autonomous Institute under the Ministry has designed, developed and demonstrated a prototype shallow bed mining system capable of working upto a depth of 500 m. A Remotely Operable Submersible (ROSUB 6000), capable of operating at 6000 m water depth was also developed and tested successfully at a depth of 5289 m. A remotely operable in-situ soil testing equipment was also developed for obtaining detailed geotechnical properties of the mining area at Central Indian Ocean Basin (CIOB) and tested successfully at 5462 m water depth. A demonstration pilot plant with a capacity to process 500 kg nodules per day was commissioned on semi-continuous basis successfully for extracting copper, nickel and cobalt at Hindustan Zinc Limited, Udaipur.

(d) China Ocean Mineral Resources Research and Development Association (COMRA), China has been engaged in carrying out the activities pertaining to exploration of Polymetallic Nodules in the Pacific Ocean. The details of its activities are not known.

(e) Ministry of Earth Sciences is already implementing a project to develop a pilot scale deep sea mining system for operating at upto 6000 m water depth in a phasewise manner.