GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
STARRED QUESTION NO. *168
TO BE ANSWERED ON WEDNESDAY, MARCH 09, 2016

POLYMETALLIC NODULES

***168. SHRIMATI POONAM MAHAJAN:**

Will the Minister of EARTH SCIENCES be pleased to state:

(a) the salient features of polymetallic nodules and the strategic benefits accrued to the country from commercial exploitation of these nodules;
(b) whether necessary technology has been developed by the Government to process polymetallic nodules at the seabed of the Central Indian Ocean Basin;
(c) if so, the details thereof; and
(d) whether the Government plans to undertake commercial exploitation of polymetallic nodules in the Central Indian Ocean Basin and if so, the details thereof?

ANSWER
MINISTER FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES
(Dr. HARSH VARDHAN)

(a) to (d): A statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO PARTS (a) to (d) OF THE LOK SABHA STARRED QUESTION NO. *168 REGARDING POLYMETALLIC NODULES FOR ANSWER ON 9th MARCH, 2016.

(a) **Polymetallic nodules are deep sea rock concretions with sizes between 2 to 6 cm lying on the deep seabed. They primarily contain manganese, iron, copper, nickel, cobalt etc. Polymetallic nodules are not commercially exploited yet. International Seabed Authority (ISA) had allotted Government of India an Area in Central Indian Ocean Basin (CIOB) outside the national jurisdiction in international waters for exploration of Polymetallic Nodules. India's Polymetallic Nodules programme is at a stage of developing relevant technologies for harvesting polymetallic nodules lying at 4000m to 5000m water depth. Initial estimated potential resource of polymetallic nodules in the site retained by India having an area of 75,000 sq km in Central Indian Ocean Basin is about 380 Million Metric Tonne (MMT) with 0.55 MMT of Cobalt, 4.7 MMT of Nickel, 4.29 MMT of Copper and 92.59 MMT of Manganese.**

(b) **Yes, Madam. We have developed the technology for extraction of metals from the nodules.**

(c) **A demonstration pilot plant with a capacity to process 500 kg nodules per day was set up at Hindustan Zinc Limited, Udiapur and various campaigns were carried out to test metallurgical process routes to extract metals such as copper, nickel and cobalt from polymetallic nodules.**

(d) **No, Madam. At present, India has the contract with ISA for exploration only. ISA is in the process of preparing the guidelines for the exploitation of polymetallic nodules. At this stage, our efforts are focused on developing technologies for harvesting the seabed nodules towards extraction of metals and environmental impact assessment of mining from such water depth.**

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