GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION NO. 1425
TO BE ANSWERED ON WEDNESDAY, 31ST JULY, 2024

PROMOTION OF BLUE ECONOMY

1425. SHRI ARUN BHARTI:

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether any development has been made in the field of Earth Sciences, especially in Atmospheric Observing Systems, Agrometeorological Advisory Service, etc. by the Government since 2014;
(b) whether the Government proposed to undertake deep ocean survey for deep sea mining and to promote blue economy and if so, the details thereof;
(c) the primary objectives of country's Deep Ocean Mission;
(d) the manner in which it aims to achieve the mission: and
(e) the key scientific or technological advancements expected from India's Deep Ocean Mission?

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

(a) Significant developments have been made to improve the monitoring and forecasting of severe weather events through augmenting the observational network in the country that includes the following since 2014:

- 39 Doppler Weather Radar (DWR) network in 2023 against 15 in 2014.
- 1208 Automatic Weather Stations (AWS) in 2023 against 675 in 2014.
- 1382 Automatic Rain Gauges (ARG) in 2023 against 1350 in 2014.
- 35 High Wind Speed Recorders in 2023 against 19 in 2014.
- 56 upper air observation systems in 2023 against 43 in 2014.
- 23 Manual Pilot Balloon (PB) stations upgraded to GPS-based stations, while there was no GPS-based PB station in 2014.
- 138 Runway Visual Ranges (RVR) in 2023 against 20 in the year 2014 at different airports across the country.
- 107 Digital Current Weather Systems (DCWIS) on frangible masts at airports across India in 2023 against 29 in 2014.
- 8 No. of Heliport Weather Observing Systems (HAWOS) have been installed at various heliports across the country in 2023, while there was no HAWOS in 2014.
- 5896 District-wise Rainfall Monitoring Scheme (DRMS) stations in 2023 against 3955 in 2014.

(b) Yes. The Ministry of Earth Sciences launched the Deep Ocean Mission in 2021 to explore deep-sea living & non-living resources to support the blue economy and for the sustainable harnessing of ocean resources. Objectives of the Mission are intended for a better understanding of the deep sea resources of the Indian Ocean, thereby aiding efforts to expand the blue economy. The activities of Deep Ocean Mission will help the components of the blue economy, such as fisheries, tourism and maritime transport, renewable energy, aquaculture, seabed resources exploration activities and marine biotechnology. An extensive survey and exploration work is being carried out in the Central Indian Ocean Basin for polymetallic nodules (PMN) rich in Nickel, Cobalt, Copper and Manganese, etc. and in Central and South West Indian ridges for Polymetallic sulphides (PMS) rich in Copper, Zinc, etc. India has signed contract with International Sea-bed Authority (ISA) for exploration of PMN at Central Indian Ocean Basin for an area of 75,000 sq, km and PMS in Central and South West Indian ridges for an area of 10,000 sq. Km.

(c) The Deep Ocean Mission is a multi-ministerial, multi-disciplinary programme with an emphasis on the development of deep-sea technology that includes the development of a Manned Submersible rated for 6000-metre water depth along with technologies for deep-sea mining, exploration of deep-sea mineral resources and marine biodiversity, development of ocean climate change advisory services, deep sea surveys and exploration, and capacity building in Marine Biology& deep sea technology with infrastructure development.

(d)and (e) The major scientific & technical milestones under Deep Ocean Mission i.e. a Manned Submersible to carry three humans to a depth of 6000 meters as part of the Samudrayaan mission shall be designed and demonstrated; Extensive surveys to identify new potential sites for deep-sea multi-mineral deposits at Central and South West Indian Ocean ridges; Demonstration of exploratory mining technology for harvesting deep sea mineral resources, Deep-sea exploration of marine biodiversity; Development of ocean climate change advisory services; Acquisition of multidisciplinary research vessels for deep-sea surveys and exploration, and setting up of an Advanced Research Centre for Ocean Biology are progressing well.

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