

Ocean based tidal energy project

982. SHRI RIPUN BORA: Will the Minister of NEW AND RENEWABLE ENERGY be pleased to state:

(a) whether Government proposes to setup ocean based tidal energy project in the country;

(b) if so, whether it is a fact that Government has identified potential about 12,455 MW, production of tidal energy therefor;

(c) if so, the details thereof; and

(d) the status of tidal projects of Gujarat, Sunderbans of West Bengal and other States of the country therein?

THE MINISTER OF STATE OF THE MINISTRY OF NEW AND RENEWABLE ENERGY (SHRI RAJ KUMAR SINGH): (a) to (c) As per a study conducted by the Indian Institute of Technology, Chennai in association with CRISIL Risk and Infrastructure Solutions Limited in December 2014, the tidal power potential is estimated at around 12,455 MW. The potential areas are in the Gulf of Khambat, Gulf of Kutch & southern regions in Gujarat, Palk Bay-Mannar Channel in Tamil Nadu, and Hoogly river, South Haldia & Sunderbans in West Bengal.

There is no proposal at present for harness tidal power due to the high capital cost ranging from Rs. 15 crore to Rs. 60 crore per MW.

(d) The State Governments of Gujarat and West Bengal have cancelled the tidal energy projects proposed in the respective States due to high capital cost of the projects. No other State has proposed tidal energy projects.

O-SMART scheme

983. SHRI K.J. ALPHONS: Will the Minister of EARTH SCIENCES be pleased to state:

(a) the objectives of O-SMART scheme;

(b) the projects taken up for improving Tsunami services; and

(c) whether Government has accurate Tsunami prediction models now?

THE MINISTER OF EARTH SCIENCES (DR. HARSH VARDHAN): (a) The objectives of O-SMART (Ocean Services, Modelling, Applications, Resources and Technology) scheme of Ministry of Earth Sciences (MoES), Govt. of India are (1) To generate and regularly update information on Marine Living Resources and their relationship with the physical environment in the Indian Exclusive Economic Zone (EEZ), (2) To periodically monitor levels of sea water pollutants for health assessment of coastal waters of India, to develop shoreline change maps for assessment of coastal erosion due to natural and anthropogenic activities, (3) To develop a wide range of state-of-the art ocean observation systems for acquisition of real-time data from the seas around India, (4) To generate and disseminate a suite of user-oriented ocean information, advisories, warnings, data and data products for the benefit of society, (5) To develop high resolution models for ocean forecast and reanalysis system, (6) To develop algorithms for validation of satellite data for coastal research and to monitor changes in the coastal research, (7) Acquisition of 2 Coastal Research Vessels (CRVs) as replacement of 2 old CRVs for coastal pollution monitoring, testing of various underwater components and technology demonstration, (8) To develop technologies to tap the marine' bio resources, (9) To develop technologies generating freshwater and energy from ocean, (10) To develop underwater vehicles and technologies, (11). Establishment of Ballast water treatment facility, (12) To support operation and maintenance of 5 Research vessels for ocean survey/monitoring/technology demonstration programmes, (13) Establishment of state of the art sea front facility to cater to the testing and sea trial activities of ocean technology, (14) To carryout exploration of Polymetallic Nodules (MPN) from water depth of 5500 m in site of 75000 sq.km allotted to India by United Nations in Central Indian Ocean Basin, to carryout investigations of gas hydrates, (15) Exploration of polymetallic sulphides near Rodrigues Triple junction in 10000 sq. km of area allotted to India in International waters by International Seabed Authority/UN and, (16) Submission of India's claim over continental shelf extending beyond the Exclusive Economic Zone supported by scientific data, and Topographic survey of EEZ of India.

(b) The Indian Tsunami Early Warning Centre (ITEWC) was established at Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, an autonomous body under Ministry of Earth Sciences which continues to provide timely tsunami advisories to stake holders and has functioned flawlessly since its establishment in October 2007. The ITEWC is also providing tsunami services to 25 Indian Ocean Countries as part of the Intergovernmental Oceanographic Commission (IOC) of UNESCO

framework. INCOIS has introduced several innovative concepts in tsunami modeling, mapping of coastal inundation, Decision Support System, SOPs to meet the emerging challenges and provide accurate and timely tsunami early warnings. INCOIS has established a Global Navigation Satellite System (GNSS) & Strong Motion Accelerometers in Andaman and Nicobar Islands for quick and reliable estimation of source parameters for near source earthquakes. In addition, INGOTS has carried out Multi-hazard Vulnerability Mapping (MHVM) along the mainland of Indian coastland MHVM atlas has been prepared. The ITEWC, INCOIS regularly conducts workshops, training sessions and tsunami mock exercises to create awareness and preparedness about the tsunamis. In addition to workshops and trainings for disaster managers, ITEWC is also coordinating with coastal States/UTs to implement Tsunami Ready Programme, a concept introduced by UNESCO, at community level. Odisha has implemented the programme in two villages (Venkatraipur and Noliasahi) and based on the national board recommendation, IOC (UNESCO) recognized these villages as Tsunami ready communities.

(c) Yes Sir. We have better Tsunami prediction models at ITEWC and INCOIS is continuously working towards improving its accuracy.

Expenditure incurred in fighting COVID-19

984. SHRI MALLIKARJUN KHARGE: Will the Minister of FINANCE be pleased to state:

(a) the official figure for the total expenditure incurred by Government, so far, in fighting COVID-19;

(b) the figure for total capital expenditure incurred by Government, so far, in this financial year; and

(c) the amount of expenditure on procurement of masks and PPE Kits for health-care workers and other front-line workers?

THE MINISTER OF STATE IN THE MINISTRY OF FINANCE (SHRI ANURAG SINGH THAKUR): (a) Sir, the overall expenditure of the Government of India is Rs. 10,54,209 crore as on 31st July, 2020. The overall expenditure has not been booked distinctly in COVID and non COVID categories. A few expenditure items related to fighting COVID-19, among others, are listed as under:—