

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
STARRED QUESTION NO.*128
TO BE ANSWERED ON THURSDAY 7th May, 2015**

SATELLITE BASED WEATHER FORECASTING FOR FISHERMEN

***128 SHRI PANKAJ BORA:**

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether Government proposes satellite based application for advanced and accurate weather forecasting for the benefit of the fishermen of the country, if so, the details thereof; and**
- (b) What are the details of the planning of Government towards development of the fishing technology therefor?**

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

(a) to (b): A Statement is laid on the Table of the House.

STATEMENT LAID ON THE TABLE OF THE RAJYA SABHA IN REPLY TO PARTS (a) TO (b) TO THE STARRED QUESTION NO. *128 REGARDING "SATELLITE BASED WEATHER FORECASTING FOR FISHERMEN" TO BE ANSWERED ON THURSDAY, MAY 07, 2015.

(a) Yes, Sir. For the benefit of fisherman community, a satellite based application for the fishermen community of the country, called "Potential Fishing Zone (PFZ) Advisories", is being generated and provided on using the satellite data and Geographic Information System (GIS) tools since 1999 useful for location of fish grounds/aggregation. In addition, the Ocean State Forecast (OSF) (wave height and direction, wind speed and direction, ocean currents, sea surface temperature, depth of mixed layer and thermo cline, sea level at major and minor ports, etc.) is also being provided to fisherman on local weather conditions.

The PFZ advisories are generated using Sea Surface Temperature (SST) and Chlorophyll content in the sea water from NOAA and Indian (Oceansat) satellites, respectively, which would primarily provide information on the potential fishing grounds (locations of fish aggregation). Thus the PFZ information help in reduction of search time for fish resulting savings in the fuel cost. These advisories are provided on a daily basis to all coastal states, except during the periods of fishing ban imposed by the Government or on the days found to be unsafe for fishing due to the high waves in the ocean. These PFZ advisories consist of maps and PFZ information in text. The PFZ Maps consists of information on the location of Potential Fishing Zone, Surface Currents, Bathymetry, Major fishing villages, Coastline, Indian EEZ, etc. The text information consists of information on bearing angle (w.r.t. True North), direction and distance from the nearest fish landing centre or nearby light house, water depth at the location of PFZ, latitude and longitude.

The OSF is generated using a suite of numerical ocean models. At present the forecast are provided, five days in advance. In addition, High Wave Alert bulletins are also disseminated to fisherman community and to the coastal population when high waves are expected at the coasts due to cyclones or depressions in the Arabian Sea or the Bay of Bengal or anywhere else in the Indian Ocean. Both the PFZ and OSF forecasts are provided by Earth System Science Organisation(ESSO)- Indian National Centre for Ocean Information Services (INCOIS), Hyderabad, which are contributing to the fishers for safe and profitable fishing. Besides, INCOIS-IMD bulletins to provide complete set of ocean state forecasts and warnings on the height and extent of storm surges to coastal population and fishermen. The forecasts are constantly evaluated against the observations in real-time.

Both PFZ and OSF advisories are provided in English, Hindi and in the local language of the coastal population i.e. Gujarati, Marathi, Kannada, Malayalam, Tamil, Telugu, Oriya and Bengali. A wide range of advanced communication technology are employed for dissemination of the information, including Electronic Display Boards installed at 100 fishing harbours/fish landing centers / fishing hamlets/fishermen cooperative

societies, through telephones, Fax, Local Cable TV Networks, Doordarshan, All India Radio (Thiruvananthapuram and Karwar), Community Radio's, FM Radio Stations (like Radio Benziger in Kollam, Radio Monsoon in Thiruvananthapuram, Kalpakkam Community Radio, Radio Ala in Kakinada), Local News Papers, SMS, INCOIS web site, email, Interactive Voice Response System (IVRS), mobile applications viz. Fisher Friend Mobile Application (FFMA), mKRISHI, In-house developed android application, Village information Centres, etc.

The feedback received from the fishermen suggests that they depend on Ocean State Forecast for planning their daily fishing activities, where as PFZ helps saving the fuel and reduce search time.

(b) Towards development of fishing technology, two reputed institutes under Indian Council of Agricultural Research (ICAR), viz., Centre Marine Fishery Research Institute (CMFRI) and Central Institute of Fishery Technology (Kochi) have been working for over decades. In order to augment fish production the ESSO-NIOT has developed technology for Open cage culture and Fish Aggregating Devices (FAD). The open sea cage culture technology is found to be an ideal alternate livelihood option for the coastal fishers, generate a considerable employment opportunity in the country and pave way to achieve the fish food production targets of the nation. Besides, providing support to the island fisherman ESSO-CMLRE has developed Ornamental Fish Culture. A hatchery unit was established at Agatti, Lakshadweep. The marine ornamental fish culture is an ideal alternate livelihood option for the coastal fishers to generate a considerable employment opportunity in the island and pave way to achieve the marine ornamental fish production targets of the nation. The efforts are also on to identify other suitable species whose culture can be taken up.
