

**GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
LOK SABHA
UNSTARRED QUESTION No. 606
TO BE ANSWERED ON WEDNESDAY, FEBRUARY 6, 2019**

CYCLONE PREDICTION

**606. SHRI S. P. MUDDAHANUME GOWDA:
SHRI RAJESHBHAI CHUDASAMA:**

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether in recent past, there was another cyclone other than Ockhi which originated from the vicinity of Sri Lanka and moved towards the coast or to north through sea;**
- (b) if so, the details thereof;**
- (c) whether India Meteorological Department (IMD) was able to predict cyclones, one or two days before it hit the coast, if so, the details thereof and if not, the reasons therefor; and**
- (d) the steps the Ministry has adopted to predict such cyclones early and warn all concerned?**

ANSWER

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

- (a) & (b) No Madam. There was no cyclone other than Ockhi which originated from the vicinity of Sri Lanka and moved towards coast or to north through sea.**
- (c) Yes, IMD is well equipped to predict the genesis, track, landfall point & time and intensity of cyclones accurately before hitting the coast.**
- (d) IMD continuously expands its infrastructure for meteorological observations, data exchange, monitoring & analysis, forecasting and warning services using contemporary technology. IMD uses a suite of quality observations from Satellites, Radars, conventional & automatic weather stations and buoys for monitoring of cyclones developing over the Bay of Bengal and Arabian Sea. IMD has one of the best forecasting systems for predicting tropical cyclones, using high resolution weather prediction models including global, regional and cyclone specific models.**

The ensemble forecast systems introduced in the recent past provide probabilistic guidance for track and intensity of cyclones and depressions. Regional models like Hurricane Weather Research Forecast (HWRF) have also been implemented to generate forecasts at very high resolution of 2km. IMD is also planning to make the ocean atmosphere coupled Hurricane Weather Research & Forecast model operational which has the potential to predict intensity more accurately.

IMD has a very effective Decision Support System for analysing various observations at a single platform and predicting track and intensity of cyclones as well as the adverse weather like heavy rain and wind. IMD also utilises storm surge and coastal inundation models and wave models output from Indian National Centre for Ocean Information Services (INCOIS), Hyderabad) for issuing storm surge warning. IMD has defined Standard Operating System for monitoring & forecasting the cyclones and issue of warning services.

During 2018, following initiatives were taken to further improve the warning services of tropical cyclones:

- (i) Introduction of extended range outlook for cyclogenesis for next two weeks**
- (ii) Increase in lead period of cyclogenesis forecast from 72 hrs to 120 hrs.**
- (iii) Introduction of quantitative track and intensity forecast from depression stage**
- (iv) Fishermen warning for entire Bay of Bengal and Arabian Sea instead of coastal areas only**
- (v) Extension of lead period of fishermen warnings from 24 hrs to 120 hrs**
- (vi) Conduct of fishermen workshops for all coastal areas**
- (vii) Issue of joint IMD-INCOIS fishermen warning bulletins**
- (viii) Establishment of cyclone warning centre at Tiruvananthapuram for issue of cyclones related warnings and bulletins for the states of Kerala, Karnataka and Lakshadweep Islands.**
