# GOVERNMENT OF INDIA
# EARTH SCIENCES
# LOK SABHA

UNSTARRED QUESTION NO:251
ANSWERED ON:22.07.2015
Cyclones
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**Will the Minister of EARTH SCIENCES be pleased to state:**

(a) the efforts being made by the Government for anticipating oceanic cyclones;

(b) whether the Government has conducted any survey of cyclone prone areas;

(c) if so, the details thereof and the cyclone prone areas in the country, location and State-wise;

(d) the preventive steps being taken by the Government in those States; and

(e) the details of losses of life and property suffered due to cyclones during the last year?

## Answer

The MINISTER OF STATE FOR MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTRY OF EARTH SCIENCES (SHRI Y. S. CHOWDARY)

(a) Earth System Science Organization−India Meteorological Department (ESSO-IMD) operates 24X7 monitoring of satellite and Doppler Weather Radar (DWR) based weather monitoring over the potential cyclogenic zones of the Bay of Bengal and Arabian Sea for detecting the cyclogenesis. The commissioning of the high performance computing (HPC) system has provided opportunity to assimilate satellite radiance, Doppler Weather Radar (DWR), OCEANSAT (scatterometer, total precipitable water content) data etc. of global oceans in to the global (22Km grid scale)/meso-scale(9Km grid scale) forecast systems. The performance evaluation of the updated global/meso-scale forecast systems in continuation with adoption of improved local forecast systems for the past 5-7 years have demonstrated enhanced forecast skill by about 18% quantitatively as far as the track and landfall forecasts of the tropical cyclones are concerned.

As and when the cyclone systems move in to the 500Km surveillance range of DWRs, identification of strong wind zones and pockets of heavy rainfall within the core cyclone area is carried out and their rapid changes are monitored on continuous basis. ESSO-IMD currently operates 5-Doppler Weather Radars (DWR) at Chennai, Machilipatnam, Visakhapatnam, Kolkata, Sriharikota on the east coast, 679 Automatic Weather Stations (AWS) and 1292 Automatic Rain Gauges (ARG) covering all districts of India. With the commissioning of the state-of-the-art observing, monitoring/ early warning and data visualization/information processing and communication technologies, several manual operations have been fully automated.

(b) Yes Madam.

(c)&(d) ESSO-IMD has conducted a survey on cyclone prone area in the country. Ninety six districts including 72 districts touching the coast and 24 districts not touching the coast, but lying within 100 km from the coast have been classified based on their proneness in terms of frequency of total cyclones & severe cyclones crossing the district; strength of actual/estimated wind speed and wind strength affecting the district, probable maximum storm surge (PMSS) and daily probable maximum precipitation (PMP) over the district based on data of 1891-2010. Out of 96 districts, twelve are very highly prone, forty one are highly prone, thirty are moderately prone and remaining thirteen are less prone. Twelve very highly prone districts include south and north 24 Praganas, Medinipur and Kolkata of West Bengal, Balasore, Bhadrak, Kendrapara and Jagatsinghpur districts of Odisha, Nellore, Krishna and east Godavari districts of Andhra Pradesh and Yanam of Puducherry. Details of the districts are shown in Annexure I.

ESSO council serves as a Monitoring and Advisory Committee to evaluate progress of various programmes every six months and suggests remedial measures. ESSO-IMD participates in the pre-cyclone exercise twice a year in the month of April and September to take stock the observational systems and plan for the ensuing cyclone season.

Effective emergency response mechanisms are institutionalized in all coastal states /districts to execute all necessary action related response and safe relocation of likely affected communities from all most vulnerable villages in a highly structured /organized manner so as to ensure the minimal loss of life. In order to facilitate such actions, all coastal villages are connected with all weather approach roads for executing safe relief operations.

24X7 control room of Ministry of Home Affairs executes and guides the states governments as per the directions and decisions of the Crisis management Committee headed by the Cabinet Secretary.

(e) Only The Very Severe Cyclonic Storm 'HUDHUD' crossed Indian cost last year. HUDHUD affected North Andhra Pradesh and adjoining south Odisha. Details of the damages in Andhra Pradesh are given in Annexure-II.