GOVERNMENT OF INDIA
MINISTRY OF EARTH SCIENCES
RAJYA SABHA
UNSTARRED QUESTION No. 497
ANSWERED ON 21/07/2022

UPGRADATION OF FORECAST SYSTEM IN IMD

497. DR. C.M. RAMESH :

Will the Minister of EARTH SCIENCES be pleased to state:

(a) whether the Indian Meteorological Department (IMD) has upgraded their system on scientific lines to forecast weather sensitive activities and to warn the coastal States regarding cyclones, heavy rains, which cause destruction of life and property, the details thereof; and
(b) whether any committee has been constituted in the recent past to examine early warning system and cyclone prediction equipments used in some developed countries, if so, the details thereof and if not, the reasons therefor?

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

(a) Yes Sir. India Meteorological Department (IMD) in coordination with all concerned departments has demonstrated its capability to provide early warning for Cyclones with high precision. As a result, the vulnerable population gets evacuated from the damage prone area in a timely manner to safe shelters thereby reducing the human death toll to a bare minimum, in the recent years.

IMD continuously expands its infrastructure for meteorological observations, data exchange, monitoring & analysis, forecasting and warning services using latest technology. IMD uses a suite of quality observations from Satellites, Radars and conventional & automatic weather stations for monitoring of cyclones developing over North Indian Ocean. It includes INSAT 3D, 3DR and SCATSAT satellites, Doppler Weather Radars (DWRs) and High Wind Speed Records along the coast and coastal automated weather stations (AWS), automatic rain gauges (ARGs), meteorological buoys and ships.

IMD has one of the best forecasting systems for predicting tropical cyclones using high resolution advanced mathematical models (including global, regional and cyclone specific models) for predicting tropical cyclones crossing both west and east coast of India and associated adverse weather over India. Global Forecasting System (GFS) with a resolution of 12 km and Global Ensemble Forecasting System (GEFS) with a resolution of 12 km are being used operationally to provide forecast upto 7 days. Similarly, the Unified Model (UM) and Unified Model Ensemble Prediction System (UMEPS) both with resolution of 12 km have been used to provide forecast for cyclone & heavy rain in coastal areas, upto 7 days.

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 associated 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 well defined Standard Operating System for monitoring & forecasting the cyclones and issue of warning services.

The Cyclone Warning Division (CWD) at India Meteorological Department (IMD), New Delhi acts as a Regional Specialised Meteorological Centre for monitoring, predicting and issuing warning services on tropical cyclones developing over North Indian Ocean. It also carries out research and development work on track, intensity, landfall and adverse weather associated with cyclones (like heavy rainfall, gale wind and storm surge). IMD has three Area Cyclone Warning Centres at Chennai, Kolkata & Mumbai and four Cyclone Warning Centres at Ahmedabad, Bhubaneswar, Thiruvananthapuram and Visakhapatnam for carrying out operational warning activities at state level and to carry out related research & development activities. There is a Cyclone Warning Research Centre at IMD Chennai to carry out the research on tropical cyclones. There is also a Climate Research & Services Division at IMD Pune to carry out the research on meteorological and atmospheric sciences including tropical cyclones.

To meet the requirements of vulnerability assessment & resilience building, Government of India (GoI) has initiated the National Cyclone Risk Mitigation Project (NCRMP) with a view to address cyclone risks in the country. The overall objective of the Project is to undertake suitable structural and non-structural measures to mitigate the effects of cyclones in the coastal states and UTs of India. National Disaster Management Authority (NDMA) under the aegis of Ministry of Home Affairs (MHA) will implement the Project in coordination with participating State Governments and the National Institute for Disaster Management (NIDM).The Project has identified 13 cyclone prone States and Union Territories (UTs), with varying levels of vulnerability.

(b) Yes Sir. Apart from NCRMP mentioned above, the Government of India (GoI) also has set up various committees to develop processes & procedures for Hazard resilience development. For example, there is a Task Force functioning on ‘Cyclone Resilient Robust Electricity Transmission and Distribution infrastructure in the Coastal areas’ to come out with practical solutions for Cyclone Resilient Robust Electricity Transmission and Distribution (T&D) infrastructure in the Coastal areas of the country. Along with the designated members, there are several co-opted technical experts from the States located over the east & west coast of the Country, which are affected by the cyclones, namely Maharashtra, Gujarat and Kerala, and from Calcutta Electric Supply Corporation (CESC), Tata Power, KEC International Ltd., Kalpataru Power Transmission Limited (KPTL). India Meteorological Department (IMD) is also part of this committee.

The Bureau of Indian Standards (BIS) is also working towards the design aspects of cyclone resilient infra-structures as well as cyclone shelters over the coastal regions.

Similarly, the recently launched Coalition for Disaster Resilient Infrastructure (CDRI) is planning to strengthen the linkages between 'Early-warning decision support and coastal Infrastructure systems for India'. It was launched by Hon Prime Minister at the Climate Action Summit in New York in September 2019. At present, CDRI has 24 countries and 7 international organizations as members.

NDMA formed a committee for upgradation of guidelines for Cyclone management. Similarly IMD updates its SOP for cyclone & heavy rainfall warning through the committees formed within IMD.

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