

**GOVERNMENT OF INDIA  
MINISTRY OF EARTH SCIENCES  
LOK SABHA  
UNSTARRED QUESTION NO. 679  
TO BE ANSWERED ON WEDNESDAY, 1<sup>ST</sup> DECEMBER, 2021**

**CYCLONE WARNING CENTRES**

679. SHRI D.M. KATHIR ANAND:  
DR. T. SUMATHY (a) THAMIZHACHI THANGAPANDIAN:

Will the Minister of EARTH SCIENCES be pleased to state:

- (a) whether the Government has set up Cyclone Warning Centres in the coastal States of the country and, if so, the details thereof, State-wise and the States likely to be benefitted by these Centres;
- (b) the amount allocated and spent during the last five years in this regard;
- (c) the details of schemes and projects of the Ministry implemented or being implemented in the State of Tamil Nadu;
- (d) whether the Government has evaluated the performances of various schemes under implementation by the Ministry, if so, the details thereof and action being taken thereon; and
- (e) the details of total funds allocated to such schemes and programmes?

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

- (a) All the 9 coastal states (viz., Gujarat, Maharashtra, Goa, Karnataka, Kerala, Tamil Nadu, Andhra Pradesh, Odisha and West Bengal) and the Union Territories along the coasts ( viz., Dadara & Nagar Haveli, Daman, Diu, Mahe, Yanam, Puducherry) and the Island Territories (Lakshadweep & Andaman and Nicobar Islands) have well developed Cyclone early warning systems in place. There are 7 Cyclone warning Centers covering the east & west coasts located at Chennai, Mumbai and Kolkata and four Cyclone Warning Centres (CWCs) at Thiruvananthapuram, Visakhapatnam, Ahmedabad and Bhubaneswar and the Cyclone Warning Division centrally located in IMD Head Quarters at New Delhi.

The responsibility for operational storm warning work for the respective area rests with the ACWCs and CWCs. Area of responsibility of ACWCs and CWCs is shown in the Table below.

<b>Centre</b>	<b>Coastal area*</b>	<b>Maritime State/UT</b>
ACWC Kolkata	State: West Bengal UT: Andaman & Nicobar Islands	State: West Bengal UT: Andaman & Nicobar Islands

ACWC Chennai	State: Tamil Nadu UT: Puducherry	State: Tamil Nadu UT: Puducherry
ACWC Mumbai	State: Maharashtra & Goa	State: Maharashtra & Goa
CWC Thiruvananthapuram	State: Kerala & Karnataka UT: Lakshadweep	State: Kerala & Karnataka UT: Lakshadweep, Mahe
CWC Ahmedabad	State: Gujarat UT: Dadra-Nagar Haveli-Daman-Diu	State: Gujarat UT: Dadra-Nagar Haveli-Daman-Diu
CWC Visakhapatnam	State: Andhra Pradesh	State: Andhra Pradesh, Yanam
CWC Bhubaneshwar	State: Odisha	State: Odisha

*\*Coastal strip of responsibility extends upto 75 km from the coast line.*

- (b) Various programs are being implemented in IMD under the umbrella scheme “**Atmosphere & Climate Research-Modelling Observing Systems & Services (ACROSS)**” of the MoES. Year-wise allocation and cumulative expenditure for all the 4 sub-schemes of IMD under ACROSS namely, Atmospheric Observation Network (AON), Upgradation of Forecast System (UFS), Weather & Climate Services (WCS) and Commissioning of Polarimetric Doppler Weather Radars (PDWR) during last five years are mentioned below:

(Rs. in Crores)

Year	Budget Estimates	Revised Estimates	Actual Expenditure
2016-17	241.60	166.41	144.08
2017-18	188.75	149.15	134.09
2018-19	186.46	185.89	175.94
2019-20	207.17	224.73	206.04
2020-21	249.22	155.20	150.33

- (c) The sub-schemes under ACROSS are aimed at augmenting the observational network, improving the forecasting system and enhancement of Weather & Climate Services. These activities are meant for the entire country including Tamil Nadu. Details of these sub-schemes are as follows:

#### **Atmospheric Observations Network (AON)**

Main activities of the program undertaken during 2017-21:

- Sustenance and Augmentation of observational networks comprising of Doppler Weather Radars (DWRs), Automatic Rain Gauges (ARGs), Automatic Weather Stations (AWSs), Upper Air, Surface and Environmental Observatories etc. Improve upon the spatial and temporal density of Radar observational network, particularly over the regions with large data gaps in the country.

- To improve and upgrade weather and climate services over north-eastern region by establishing additional state of art surface and upper air observatories for real time observations.
- Sustenance & Establishment of Multi processing, computing and communication facilities for Satellite Meteorological Applications.

### **Upgradation of Forecast System (UFS)**

Main activities of the program undertaken during 2017-21:

- Upgradation and sustenance of Communication Systems for Data and Product transmission.
- Development of an advanced Operational Forecast System, Delivery System for Forecast and other services.
- Conduct of special campaign for improving Cyclone, Thunderstorm and Fog forecasting through Aircraft reconnaissance and provision of additional observations.
- Integrated Himalayan Meteorological Programme for Western & Central Himalayas.
- Capacity Building, Outreach, Planning and sustenance of specific process related observing systems over India.

### **Weather & Climate Services (WCS)**

Main activities of the program undertaken during 2017-21:

- Setting up of District Agro-Met Units (DAMUs) at all the districts complementarily with existing AMFUs in the country for extension of Agromet Advisory Services (AAS). Till date 200 DAMUs have been established which includes 115 aspirational districts also.
- Major upgradation of Meteorological facilities at all airports through commissioning of State-of-art Integrated Aviation Weather Observing Systems (AWOS), HAWOS, Microwave Radiometers, Doppler LIDARs, Wind Profilers etc to support Aeronautical MET Services.
- Establishment of a state-of-the-art Climate Data Centre with integrated advanced Climate Data Services portal for rendering national and regional climate services.
- To upgrade the training infrastructure and facilities to enhance the capacity of the training establishment.

### **Commissioning of Polarimetric Doppler Weather Radars (PDWR)**

The scheme “Commissioning of Polarimetric Doppler Weather Radars (DWRs)” is aimed at augmenting the DWR network over the country to facilitate plugging the existing gaps in the meteorological observational network of radars for most parts of the country, through installation of eleven C-Band dual polarized DWRs.

- (d) All 4 sub-schemes of IMD namely, AON, UFS, WCS and PDWR along with other sub-schemes under ACROSS were evaluated by an Independent Review Committee (IRC) taking the domain experts from various national Institutes/ Departments. The committee appreciated the work being done under the ACROSS scheme in terms of expansion of observation network, running high resolution models in all temporal and spatial scales, carrying out campaign studies for understanding the physical processes responsible for severe weather, generating weather and climate products for various applications, and developing effective communication strategies for timely delivery of services.

The IRC recommended continuation of all sub-schemes under ACROSS from the 14<sup>th</sup> Finance commission (2017-20) to the 15<sup>th</sup> Finance Commission, which has been approved recently.

- (e) Details of allocation under ACROSS-IMD during FY 2016-17 to 2020-21 are mentioned at part (b).

Cumulative Budgetary Estimates (B.E.) for all four sub-schemes of IMD during the FY 2021-22 are as follows:

<b>FY 2021-22</b>	<b>B.E. (Rs. In Crore)</b>
Revenue	136.40
Capital	119.00
<b>Total (Revenue + Capital)</b>	<b>255.40</b>

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