

Namma Bengaluru: Resources being pooled to predict rain and tackle floods

TH [thehindu.com/news/cities/bangalore/namma-bengaluru-resources-being-pooled-to-predict-rain-and-tackle-floods/article29183951.ece](https://www.thehindu.com/news/cities/bangalore/namma-bengaluru-resources-being-pooled-to-predict-rain-and-tackle-floods/article29183951.ece)

August 20, 2019



Jayasimha K.R.

IISc., Karnataka State Natural Disaster Monitoring Centre and other organisations will analyse data from ongoing projects to get accurate information

August 20, 2019 09:43 pm | Updated 11:11 pm IST



The KSNDMC has installed sensors at 20 highly vulnerable points in the city.

An ambitious multi-agency project involving research institutes and government agencies pooling in their resources to provide location-specific flood forecasting within the city to help mitigate floods is under way.

The Interdisciplinary Centre for Water Research (ICWaR) of the Indian Institute of Science (IISc.), Bengaluru, Karnataka State Natural Disaster Monitoring Centre (KSNDMC) and other organisations will draw and analyse data from several sources to get accurate information on spatial distribution of rainfall and weather parameters in neighbourhoods across the city. They will analyse data from the government's cloud seeding programme 'Varshadhare'; an initiative of KSNDMC and IISc. that uses LiDAR technology to provide micro-level terrain information; telemetric rain gauges and weather sensors installed by KSNDMC and sensors in stormwater drains.

Information from all these resources is expected to improve the accuracy of forecasting floods and help agencies like the BBMP build an effective management model. For instance, it has been found over the last few years that southwest Bengaluru receives a higher intensity of rainfall.

"If you analyse existing rainfall data from the past decade, there is an increase in the intensity of rainfall in the city as a result of rapid, unplanned urbanisation and land changes. Hence, there is an urgent need to upgrade the drainage infrastructure to protect the city from the risk of floods," said P.P. Mujumdar of Interdisciplinary Centre for Water Research (ICWaR), IISc.

This is part of the project 'Urban Flood Model for Bangalore City', which is being funded by the Department of Science and Technology.

Use of radar

One of the key resources for the project is the nowcast data collected by KSNDMC from the radar in Bengaluru, one of three that have been installed in Karnataka under the cloud seeding programme 'Varshadhare'. Since KSNDMC is one of the nodal agencies working on the project, it is using relevant data from the radar for urban flood forecasting and management.

"It will help us not only in forecasting, but also nowcasting the data," said Shubha Avinash scientist officer at KSNDMC.

Lidar technology

To improve the accuracy of the forecast and management of urban floods, a huge database of terrain data using LiDAR technology will be created along with a high density sensor network for flow data. All this will help in predicting the rise in water levels in different locations and times.

Ms. Avinash added that the data they get from LiDAR technology will provide micro-level terrain information for hydrologic applications. "On the other hand, through radar, we are getting information pertaining to meteorology," she added.

The urban flood model that is being developed will also be capable of simulating the movement of stormwater in the existing drainage system using high-resolution terrain data.

Other resources

With more than 100 Telemetric Rain Gauges (TRG) in the city, and 10 weather sensors providing information on temperature, relative humidity, wind speed and direction, researchers have been successful in getting real-time data on the amount and density of rain.

To get real-time data on water levels in stormwater drains (SWDs), the KSNDMC has installed sensors at 20 highly vulnerable points in the city. Twenty more sensors will be installed shortly.

"The data being transmitted to the civic body is colour coded. This is the first level of alerts on rainfall and level of water in the drains," said G. S. Srinivasa Reddy, Director, KSNDMC.

From the sensors in SWDs, researches will develop models that will not only show what is happening in real time but also predict what could happen in eight or 24 hours.