Web GIS based integrated flood assessment model

Extraordinary rainfall intensities during the last few years in India and other countries resulted in urban flooding incidents with both increased frequency and magnitude. In flood affected cities, this could lead to immense loss of life. property and livelihoods of its inhabitants. Coastal urban cities are vulnerable to flooding under combined influence of heavy rainfall and high tides. Hence, there is a need for development of urban flood inundation models which would enable an effective management of floods. There are several flood models that can inform on the levels of possible flood in a region and thus assist in designing safer constructions. However these models are complicated, costly and require considerable data.

In this study, a web GIS (geographic information system) based integrated flood assessment model (IFAM) has been developed. The work integrates a flood assessment model with web based GIS system to create a tool that is easy to use and access. The model is presently geared for urban cities in coastal cities like Mumbai. The model has been tested for its application for IITB-IFAM tool for flood assessment number of urban watersheds in Navi Mumbai. The model can be used for giving information on possible levels and patterns of flood at any location with different rainfall patterns. This is useful for disaster management during flooding and planning construction activities in the cities.

The IFAM has to be supplied with static data of the specific place and dynamic data such as rainfall, tidal level, etc. IFAM is really easy to use. Indeed, once the data sets have been populated, even a non-expert user can develop flood patterns for different rainfalls and see results over a browser. As earlier mentioned, if rainfall forecast is available, this tool can even predict flood. The web GIS based IFAM uses a distributed model instead of a lumped model. The distributed model allows variations with respect to space and time. The work has been sponsored by Department of Science and Technology, Government of India.



IITB-IFAM tool for flood assessment

