

## **IFLOWS-Mumbai - Integrated Flood Warning System**

### **Why in news?**

Maharashtra's CM and Union Minister for Health and Family Welfare, Science and Technology recently launched an Integrated Flood Warning System called 'IFLOWS-Mumbai'.

### **What is 'IFLOWS-Mumbai'?**

- IFLOWS is a joint initiative between the Ministry of Earth Sciences (MoES) and Brihanmumbai Municipal Corporation (BMC).
- It is a monitoring and flood warning system.
- It will be able to relay alerts of possible flood-prone areas anywhere between 6 to 72 hours in advance.
- The system can provide all information regarding possible flood-prone areas including -
  - i. the height the floodwater could attain
  - ii. location-wise problem areas across all 24 wards
  - iii. calculation on the vulnerability and risk of elements exposed to flood
- The early warning forecast would include alerts on -
  - i. rainfall information
  - ii. tide levels
  - iii. storm surge for low-lying areas anticipated to be affected
- The system is designed to generate flood warnings for specific geographical areas of the city.
- All this information will then be routed to authorities.
- It thereby will minimize the damage from cyclones and heavy rain events in Mumbai by evacuating people to safe areas.

### **How does it work?**

- The primary source for the system's flood assessments is the amount of rainfall.
- However, Mumbai being a coastal city, the system also factors in tidal waves and storm tides.
- In the last 2 years, researchers have been conducting studies to provide real-time weather information.
- This is being done by measuring -

- i. the city's rainfall, how much water drained out
  - ii. topography, land use, infrastructure development
  - iii. population
  - iv. lakes, creeks
  - v. data on river bathymetry of all rivers namely Mithi, Dahisar, Oshiwara, Poisar and Ulhas
- The system incorporates -
    - i. weather models from the National Centre for Medium Range Weather Forecasting (NCMRWF), India Meteorological Department (IMD)
    - ii. field data from the rain gauge network of 165 stations set up by Indian Institute of Tropical Meteorology (IITM), BMC and IMD
  - The system has provisions to capture the urban drainage within the city and predict the areas of flooding.
  - It comprises of various modules namely Data Assimilation, Flood, Inundation, Vulnerability, Risk, Dissemination and Decision Support System.



### What is the need?

- Mumbai, the financial capital of India, has been experiencing floods with increased periodicity.
- The flood during 26 July 2005, when the city received a rainfall of 94 cm, a 100-year high in a span of 24 hours had paralyzed the city completely.
- The flood on 29 August 2017 had brought the city to a standstill.
- In 2019, there were post-monsoon and unseasonal rainfall as late as October and two tropical cyclones in the Arabian Sea.
- These have left a trail of destruction in Mumbai.
- Urban flooding is common in the city from June to September, resulting in

the crippling of traffic, railways and airlines.

- As preparedness for floods before they occur, the IFLOWS-Mumbai system will help in warning the citizens.
- Mumbai is only the second city in the country after Chennai to get this system.
- Similar systems are being developed for Bengaluru and Kolkata.

**Source: Indian Express**

