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Flood early warning system: sensors and internet

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Abstract The UrbanFlood early warning system (EWS) is designed to monitor data from very large sensor networks in flood defences such as embankments, dikes, levees, and dams. The EWS, based on the internet, uses real-time sensor information and Artificial Intelligence (AI) to immediately calculate the probability of dike failure, the ensuing scenarios of dike breaching, predicted flood spreading and escape routes for people from the affected areas. Results are presented on interactive decision support systems that assist flood defence managers and public authorities during flood events. It can also be applied for policy development and for everyday dike condition assessment. The separate Virtual Dike module can be used for advanced research into failure mechanisms and dike stability. By consulting international stakeholders the designers ensured that the EWS is well aligned with user requirements.

Key words flood; early warning system; ICT; climate change; sensor networks