



## Dike monitoring of the future: dry feet and major cost reductions

Between 2007 and 2010 Stichting IJkdijk conducted groundbreaking experiments in dike monitoring with the aid of sensor technology. The project got worldwide exposure. The time has now come for the next stage of the IJkdijk development programme. In August and September experiments will be performed to establish whether the various sensor systems can predict the failure of a dike and provide vital support for dike maintenance and management.

### Huge savings

The objective for the years to come is to continue to develop dike monitoring systems. The IJkdijk development programme runs until the end of 2014. Once the IJkdijk programme has been completed, private sensor technology companies should be in a position to deliver completely validated systems to water management authorities all over the world. These systems help us not only to keep our feet dry, but will also yield huge savings: more accurate designs – based on validated facts – make a difference of hundreds of millions, if not billions of euros.

### Development programme elements

The programme for the continued development of the IJkdijk monitoring systems until 2014 comprises four elements:

1. New experiments to establish whether the various sensor systems can predict the failure of a dike and provide vital support for dike maintenance and management: validation tests.
2. Extension of equipping existing dikes with sensor systems to measure the actual (live) strength of these dikes and avoid incurring unnecessary costs: *LiveDijken* ('live dikes'). When it is necessary to strengthen a dike the sensor data can be used to produce an optimum reinforcement plan.
3. Upscaling *LiveDijken* in size – *LiveDijk XL*
4. Development of a system for collecting all data from the IJkdijk and *LiveDijk* experiments: the Dike Data Service Centre. This system makes it possible to predict and compare the strength of dikes based on the collection and processing of all the data.

### Validation test

New tests are due to be conducted at purpose-built full-scale dikes at the IJkdijk location in Booneschans (province of Groningen, The Netherlands) in August and September. Construction began in May. This is the all-in-one sensor validation experiment in which various sensors are tested. The experiment focuses not on one specific failure mechanism as with the previous macro-stability and piping tests, but on various mechanisms. These tests address the predictive ability of full-service sensor systems: can the sensors predict the collapse of the dike? And how can the sensors contribute optimally to the management of dikes by water boards?

### Sponsoring

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