

# SECURITY RISKS OF FLOOD DEFENCES



## TEAM

Prof.dr.ir. Pieter van Gelder	(Delft University of Technology)
Dr.ir. Wolter Pieters	(Delft University of Technology)
Jos de Lange	(Delft University of Technology)
Tobias Melin MSc	(Delft University of Technology)
Saba Chockalingam MSc	(Delft University of Technology)
Dr.ir. Andre Teixeira	(Delft University of Technology)
Prof.dr. Edwin Bakker	(Leiden University)
Pieter Kuhlmann MSc	(Leiden University)

Water infrastructures have been attractive targets for terrorists and history for over 2,500 years. After the 9/11, terrorist organizations, notably Al Qaida, have shown strong interest in water defence structures, water supply and SCADA systems in large hydraulic structures.

The main goals of this study were to model the destructive power of physical modus operandi (ranging from a shovel, a backpack to, for instance, a lorry to cyber-attacks), to determine gaps in flood security, and to investigate preventive measures (such as cameras, sensors, barriers, walls and check points).

The study produces a matrix with at one axis the type of structure (levee, seawall, bosom quay, dune, lock, dam, weir) and at the other axis the modus operandi. The cells in the matrix show some indicative weight of incentives leading to the (partial) disruption of a particular type of flood barrier.

## FOLLOW-UP

The results will be presented to the Ministry of Water Management and the NCTV (Nationaal Coördinator Terrorismedebestrijding en Veiligheid) to seek opportunities to further develop the research. Funder: Rijkswaterstaat (Mrs. Hellen Havinga & Mr. Martijn Flinterman)

## CONTACT

Pieter van Gelder

✉ [P.H.A.J.M.vanGelder@tudelft.nl](mailto:P.H.A.J.M.vanGelder@tudelft.nl)

🌐 [www.safety-and-security.nl](http://www.safety-and-security.nl)