MSc-graduation project

# Back-analysis of levee failures

In the Netherlands we strive for relatively high flood protection standards. As a consequence, hardly any dike or levee failures have occurred in the last decades. Yet. actual failures can provide very useful information about failure mechanisms and the quality of our assessment models. Recently, also prototype (1:1 scale) testing has been done (IJkdijk, Bergambacht) which can provide the same sort of information.

The objectives of a MSc-graduation project in this area are

1. to back-analyse levee failures (field and prototype)
2. to provide a plausible (quantitatively underpinned) explanation of the failure mechanism that led to failure
3. to validate assessment models gain insight into the model error/uncertainty

Examples of aspects to be investigated are 2D- versus 3D failure models, constitutive (soil) models, geohydrology and pore pressures or the heterogeneity of the subsoil.

This project will be carried out in collaboration with the Geo-engineering section and, depending on the case, at the institution where the data originate. Potential case studies are the IJkdijk, the Bergambacht experiment or recent dike failures in Germany or Japan (2012). Further suggestions by potential candidates are welcome.

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