Geophysical Research Abstracts,
Vol. 10, EGU2008-A-07964, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-07964
EGU General Assembly 2008

Towards a different safety standard in the Netherlands? Uncertainty analysis in a flood-risk approach

J.W. Stijnen (1), B. Maaskant (1), W. Silva (2) and N. Slootjes (1)

(1) HKV Consultants, Lelystad, The Netherlands, (2) Rijkswaterstaat, Waterdienst, Lelystad, The Netherlands, (j.w.stijnen@hkv.nl / Fax: +31 320 253901 / Phone: +31 320 294239)

Flood-risk management is one of the major items in Dutch politics at present. The current practice (by law) regarding the safety of dike-ring areas against floods in the Netherlands is based on the exceedance frequencies of water levels. These safety standards are still based on developments dating from the 1960's. Since then, the Dutch economy has grown considerably, as have the technological capabilities. One of the key-questions the Dutch policy makers have, is whether or not the present safety standards are still up-to-date? Is the type of safety standard (exceedance frequencies) used in the Netherlands still the right one, and is the level of protection still adequate?

One of the alternatives for an exceedance-frequency based safety standard is a risk-based one. This means both flood probabilities based on different types of failure mechanisms as well as the consequences of flooding are assessed. These are then combined to provide estimates of the risk. A drawback of this approach is the complex nature of the computations. It is therefore necessary to make certain assumptions: in the input data, in the probabilistic model, in the flood simulations, but also in the damage assessment and overall risk assessment. But what is the sensitivity of these assumptions and their (relative) importance to the overall results? Policymakers need to be aware of this before deciding to change their policy on flood protection.

In order to facilitate this discussion for policy makers, we have analyzed 5 different dike-ring areas throughout the Netherlands. Each dike-ring area is coupled to specific characteristics of a certain water system (river, lake, estuary or coast for example). What sets the analysis apart is that we consider the sensitivity of these assumptions

and investigate their (relative) importance to the overall results. This gives us insight in where we need to focus our efforts. We also look towards the years 2040 and 2100. An increase in the hydraulic loads due to climate change, but also changes in spatial developments, uncertainties and possible measures to decrease the flood risk are investigated for example.