



CIVIL ENGINEERING *be part of building a better future*

Professor Bas Jonkman, Delft University of Technology, the Netherlands

**Wednesday, March 23, 4-6 PM,
Welcome tea & coffee at 3:30 PM**

Seminar room 1, Monash Conference Centre, Level 7, 30 Collins Street

Attendance is free of charge

SEMINAR: ADVANCES IN FLOOD RISK MANAGEMENT IN THE NETHERLANDS

Professor Bas Jonkman

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Prof. S.N. (Bas) Jonkman holds the Chair of Integral Hydraulic Engineering the Faculty of Civil Engineering at Delft University of Technology (TU Delft) in the Netherlands. His research interests include flood risk management, and the design of hydraulic infrastructures, such as flood defences and storm surge barriers.

Many parts of the world are at risk from riverine or coastal flooding. In the first part of the presentation, lessons from major international floods are summarized. Examples of events that were investigated include the flooding of New Orleans (2005), and river floods in Thailand (2011) and Germany (2013).

An adequate management of flood risks is of specific importance to the Netherlands. Nearly 30% of the Netherlands' landmass lies below sea level and 60% of the country is at risk from coastal and river floods. This presentation highlights recent developments in the flood risk management policy in the Netherlands as

well as some of the underlying methodological developments. The safety standards for flood defences in the country have been revised recently on the basis of a nationwide risk assessment and consideration of both economic risk and risk to life. The type of safety standard will change from the design water level approach – associated with a certain return period – to a required failure probability for a flood defence system. The presentation will outline the methodologies (as well as results) of the nationwide risk assessments, in which hydraulic flow models, probabilistic models for dike failure and models for consequence assessment (life loss and evacuation) are combined.

The implications for the Dutch flood management policy are discussed and local engineering and project challenges are highlighted. Especially for the river Rhine higher safety standards are proposed, and a combination of room for rivers and dike reinforcements is likely required. Recent developments in the Dutch flood risk management programs are highlighted, including national programs like Room for Rivers, the Sand Engine, Multifunctional Flood Defences, and plans for adapting barriers to sea level rise.

The final part of the lecture will focus on some selected research topics, such as probabilistic flood forecasting, and the utilization of remote sensing in flood management.