

**COLLÈGE DE FRANCE**  
1530  
*Teaching research for the making*

**The Dutch Delta Committee 2.0 strategy on how to cope with climate change in the 21<sup>st</sup> century: transferable concepts?**

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"Een volk dat leeft, bouwt aan zijn toekomst"

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1

**The Dutch Delta in NW Europe and the Mekong Delta in Vietnam**

The Netherlands is shaped by the alluvial deposits of Rhine, Meuse, Scheldt and Eems rivers. Approximately the size of the Mekong Delta, which is shaped by the alluvial deposits of the Mekong (and Sai Gon and Dong Nai) river(s). Similar population size - 17 million.

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**Similar vulnerability issues: flooding, drought, freshwater management, groundwater and subsidence, salinization**

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**Comparable geography, demography and vulnerability issues, but also marked differences**

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**Delta Committee Report in 2008**

Transferable concepts and recommendations:

- Risk approach
- Scenario thinking: plausible high-end scenarios RSLR and river discharge
- General recommendations: Multifunctional Building with Nature and the Delta Dike
- Regional recommendations

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5

**Risk approach: combination of probability and consequence**

The principle of economic optimization

I – investments in safety measures  
R – risk (economic damage)  
K – total cost  
X – optimal safety

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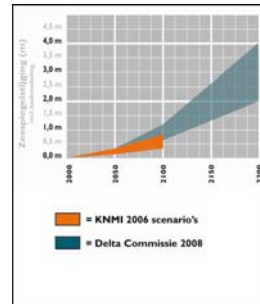
6

## Scenario thinking SLR and river discharges

- Plausible high-end scenarios necessary to judge the sustainability of our dike-ring concept
- High-end and low-end scenarios necessary for robust design

## Relative SLR

Testing for a feasible future

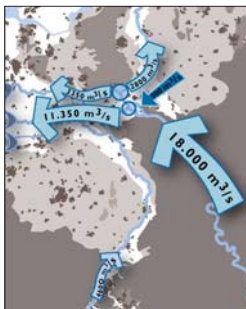


High-end scenarios:

- Round 2050: 40 cm/century
- Round 2100: 65 to 130 cm/century
- Round 2200: 2 to 4 m/century

NB: a bit confusing cause KNMI are best estimates

## River discharge



Summer:  
from 1700 m<sup>3</sup>/s now to 700 m<sup>3</sup>/s in 2100

Winter:  
from 16.000 m<sup>3</sup>/s now to 18.000 m<sup>3</sup>/s in 2100

Hoping the Germans do not change their flooding strategy ☺

## General recommendations: "Multifunctional Building with Nature" and the "Delta dike"



## Regional recommendations



- North Sea coast
- Wadden region
- SW Delta
- River regions
- Rijnmond
- IJssel Lake area

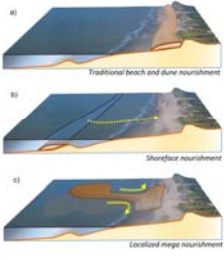
### North Sea coast



- Building with nature through nourishment
- Beaches follow SLR naturally
- Great potential for coastal extension!

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### Sand Engine on the coast



- Traditional nourishments since 1970's
- Shoreface nourishments since 1990's
- Now experimenting with the Sand Engine!

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15-03-2011      18-04-2011  
17-05-2011      14-06-2011

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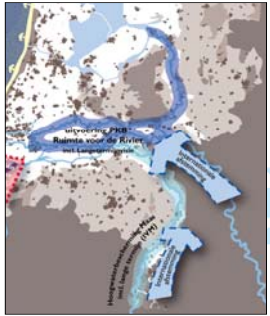
Spring 2013 at HW and LW



Instead of nourishing every 3 to 5 years, a once in a 20 year mega nourishment: publicly more acceptable, environmentally more friendly, economically attractive

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### Rivers



- Complete execution of program 'Room for the river'
- Idem Maas
- Acquire strategic grounds

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### Space for the IJssel



Additional discharge space

Creating additional discharge space along the IJssel Branch between Zwolle and Kampen

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