



sketching and matching climate
change

Where science meets spatial design

Oswald Lagendijk, Deltares

Pieter Boone, Dienst Landelijk Gebied



1 oktober 2010



A plea for a powerful role
of research-by-design in
climate change adaptation
strategies.

Thesis



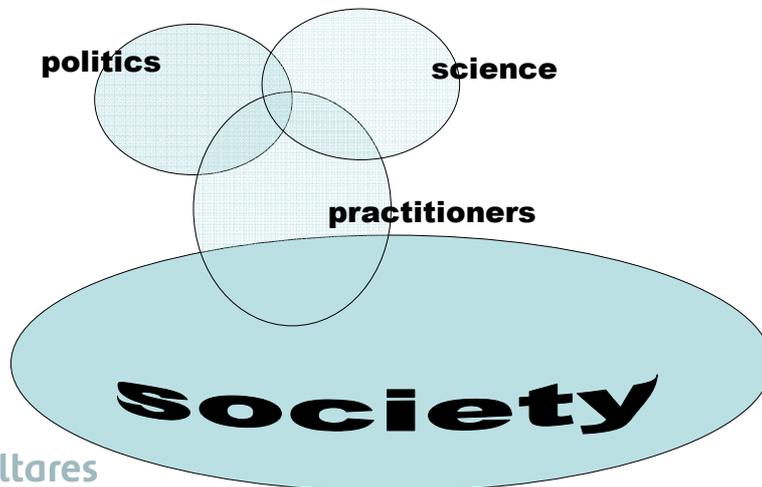
there is hardly a tradition in integrated spatial approach between science, policy and practitioners when applying climate adaptation solutions.

Thesis



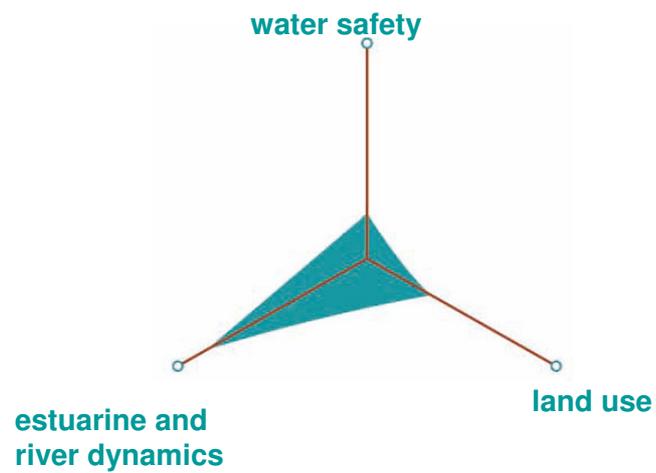
WHAT
should we do
WHERE
and
HOW?

Theoretical background



historical background: survival

> ca 1900



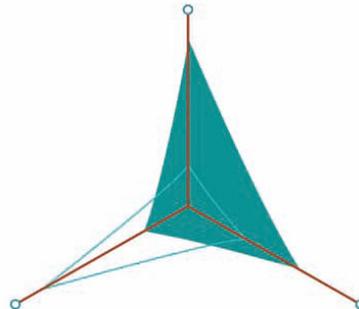
Tradition: ages of adapting to natural conditions



historical background: safety

ca. 1980's

water safety



estuarine and
river dynamics

land use

Deltares
Enabling Delta Life

after: Toekomstbeeld Zuidwestelijke Delta, Stuurgroep Zuidwestelijke Delta, 2009



dienst landelijk gebied
voor ontwikkeling en beheer

“since 1953 the anti-immigration-policy for seawater has been quite severe.....”

FOKKE & SUKKE
VINDEN NEDERLAND SOMS BEST DOORTASTEND

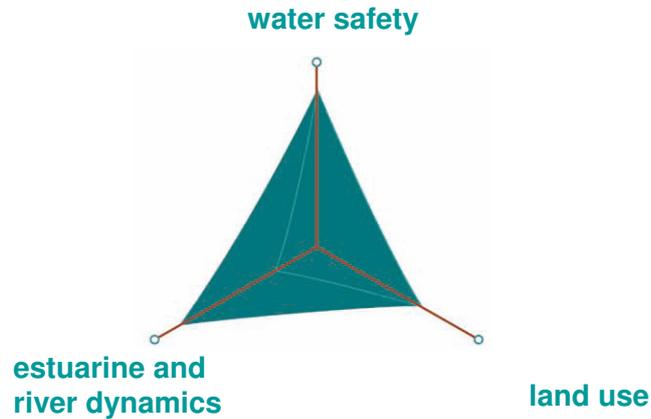


Tradition NL



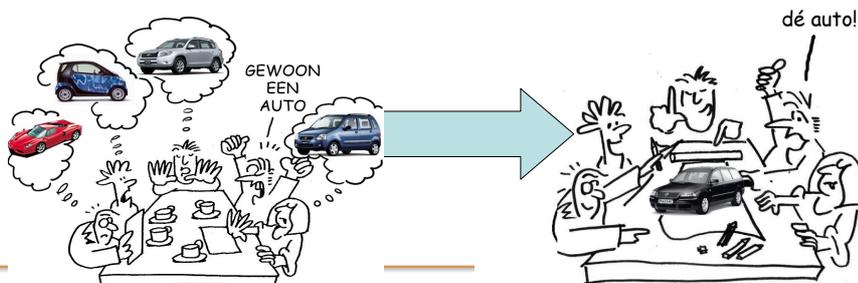
Sketching the future: balance

ca. 2030



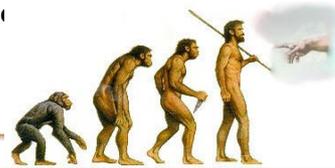
Research-by-design

A planning method in which interdisciplinary scientific knowledge is interactively processed from the very start of the planning process, and results in coherent and integrated solutions and is reflected in sketches, images, figures, metaphors and texts.



method basics, evolving in up-speed tempo

- Target is a spatial plan / design, fit for policy-making or implementation.
- Interdiscipline/integrated
- Joint fact finding and developing design tasks and research issues
- Imaging, sketching, drawing, calculating
- Space and time scale levels
- Connecting technical expertise to design power
- The method combines 'out of the box' thinking (creativity) and scientific knowledge (data, mod



case

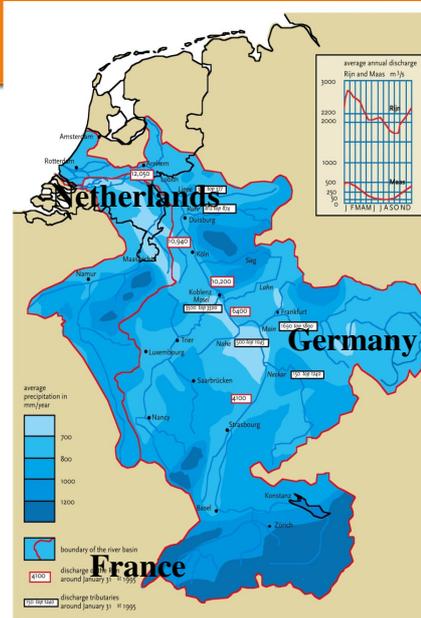
ruimte voor de rivier

Adapt to the Floods
Room for the river in the Netherlands



dienst landelijk gebied
voor ontwikkeling en beheer

Catchments of rivers Rhine and Meuse



Discharge at Lobith

Average: 2,200 m³/s

Top: 12,000 m³/s

Peak: 16,000 m³/s (1/1250 per year)

Switzerland
dienst landelijk gebied
voor ontwikkeling en beheer

Kaart 1 Topografie plangebied



Sketching a typology of measures



Dyke relocation or Depoldering



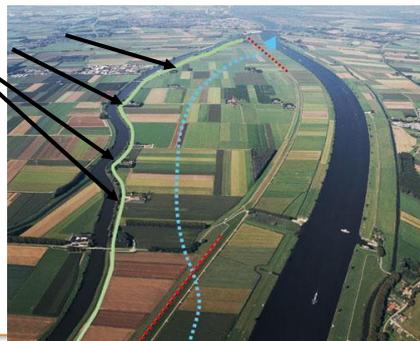
Removal of obstacles



Lowering of flood plains



Deepening of summer bed



Height reduction of groynes



Dyke improvement

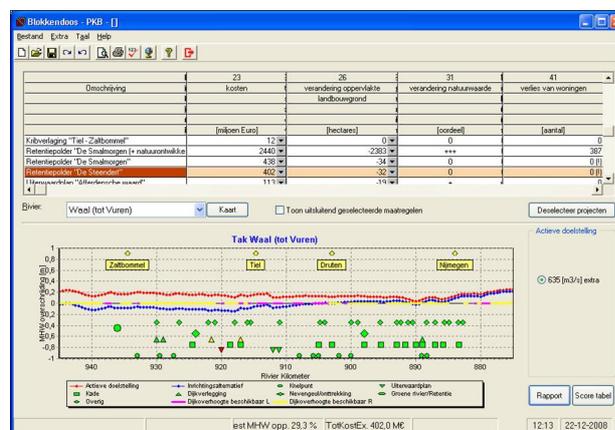


High-water channel



Modelling

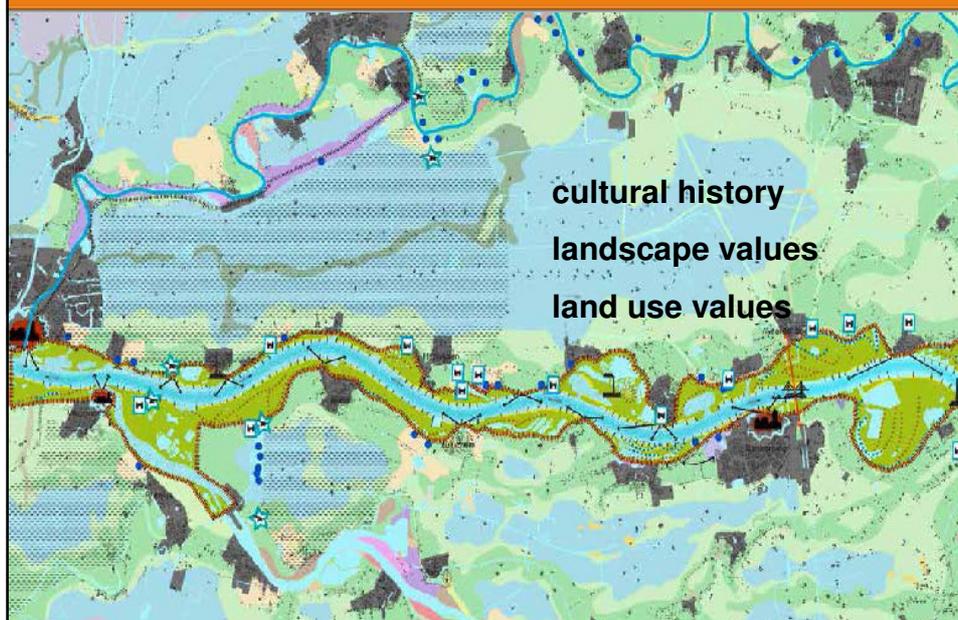
Matching the enlargement measures along the rivers,
creating a toolbox



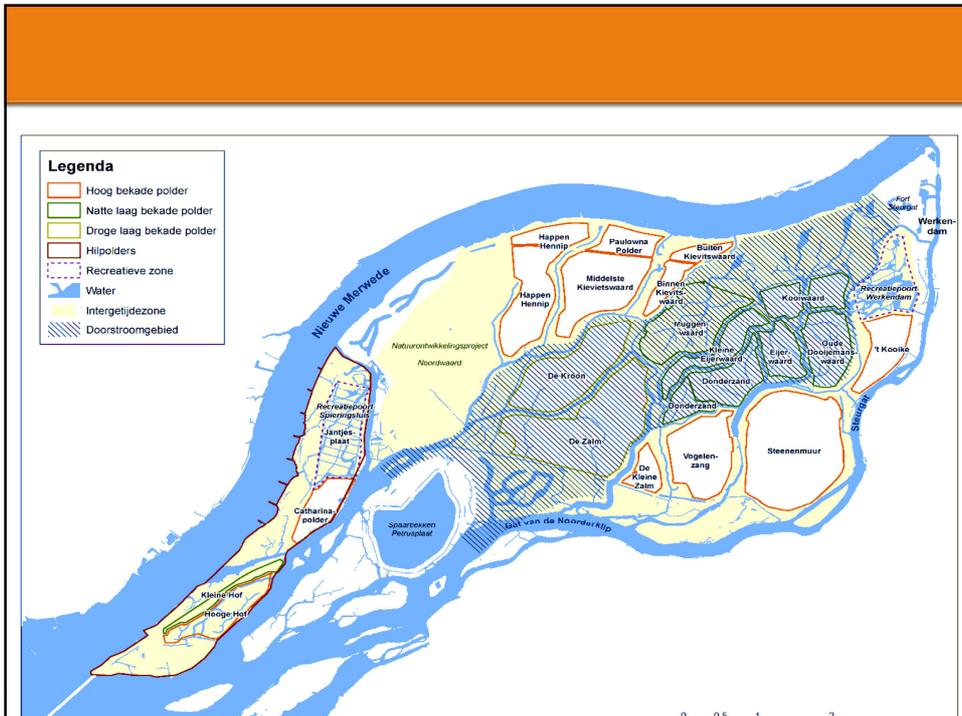
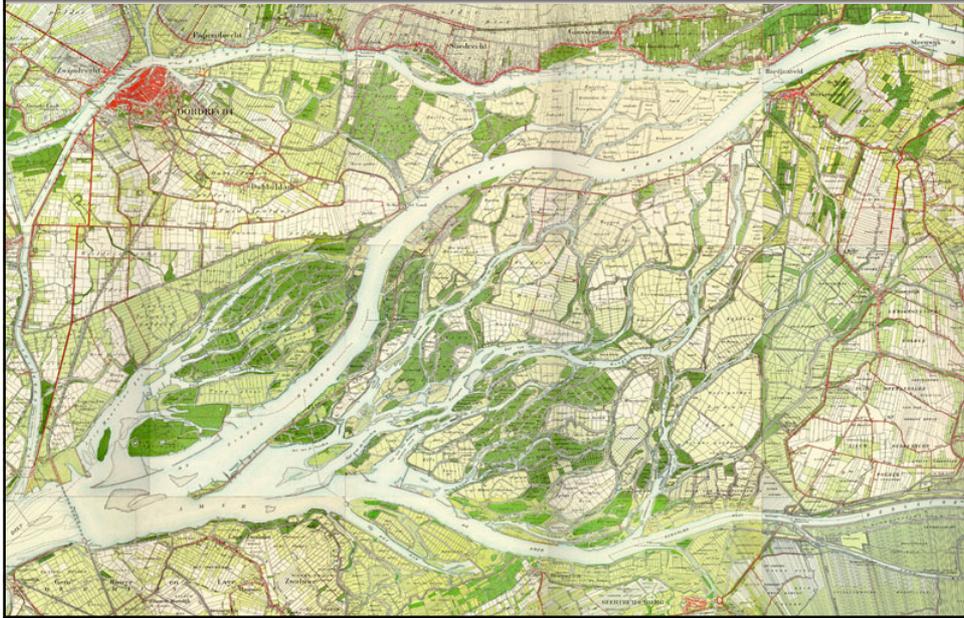
Selecting preferent measures



Spatial quality Assesement

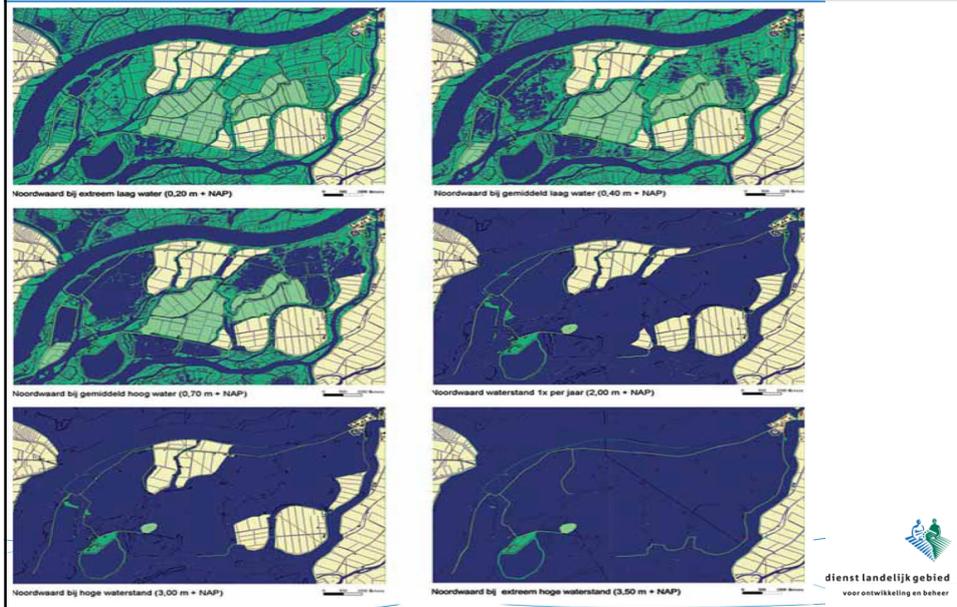


After the flood: a tidal area



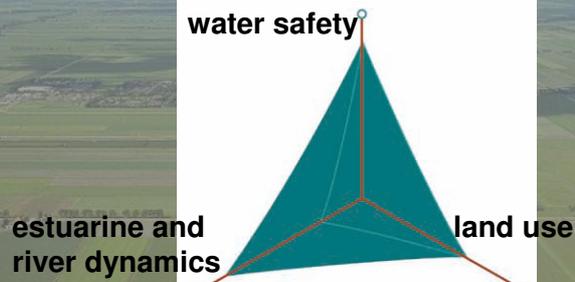


Balancing safety, land use and river dynamics



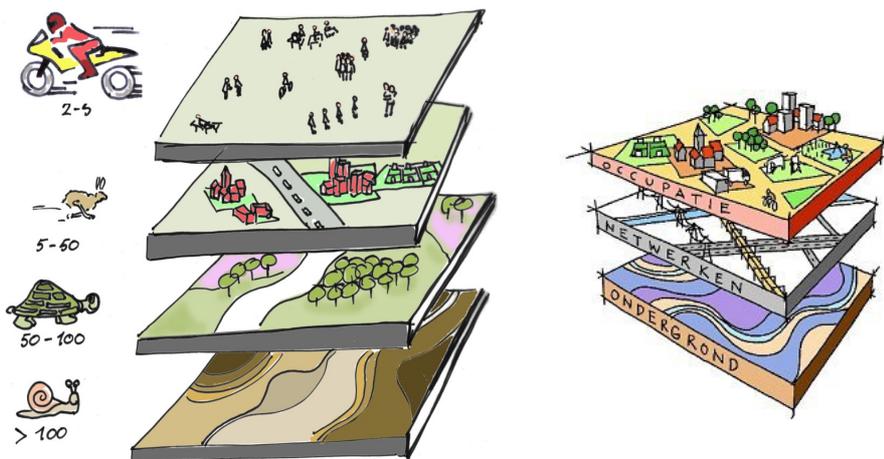
Sketching the future: balance

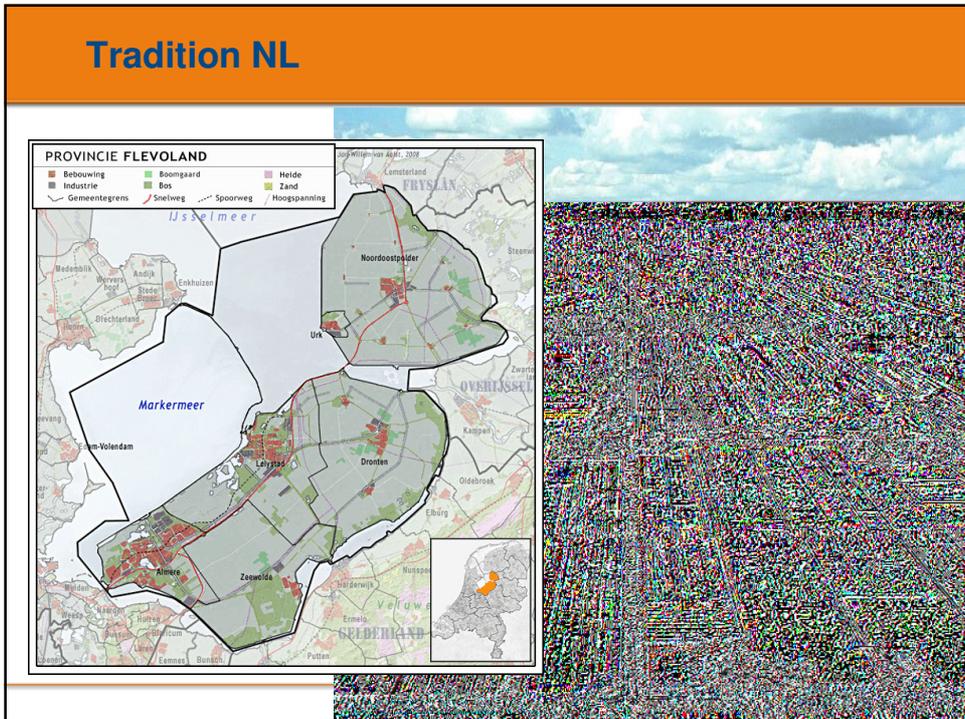
ca. 2030



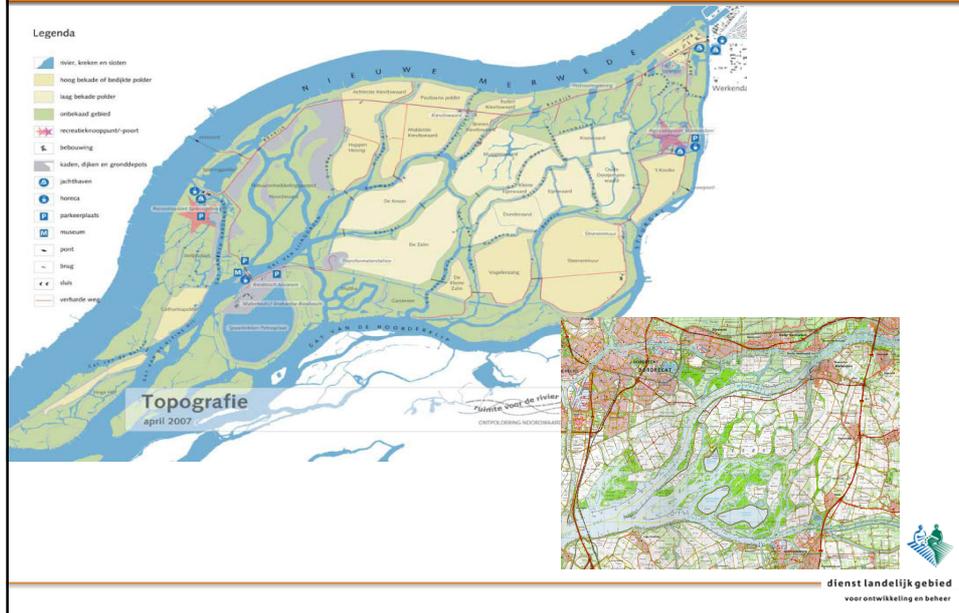
after: Toekomstbeeld Zuidwestelijke Delta, Stuurgroep Zuidwestelijke Delta, 2009

connect science and design in different time- and space layers

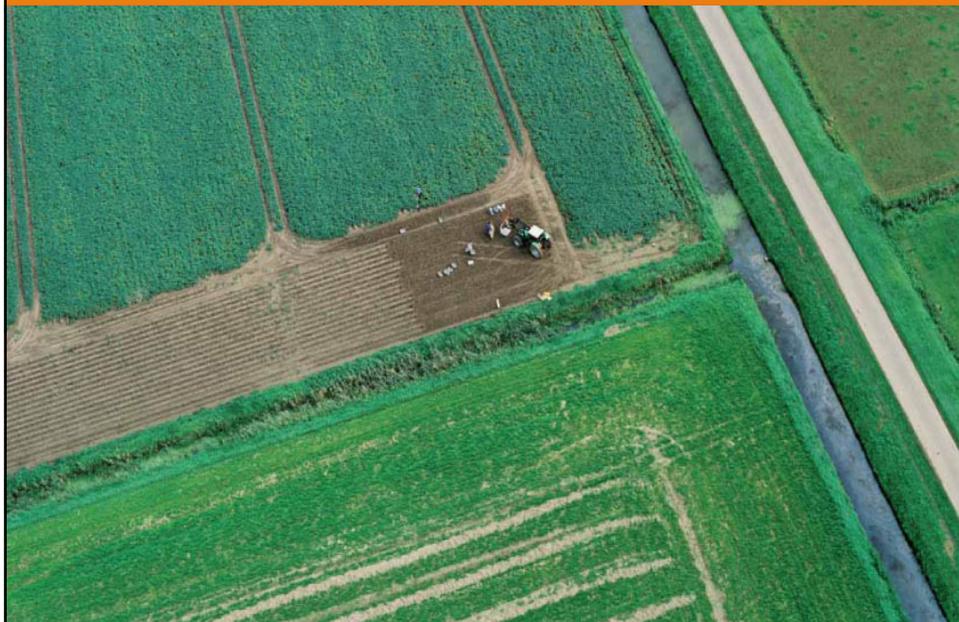




Depoldering Noordwaard



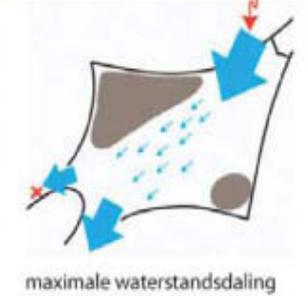
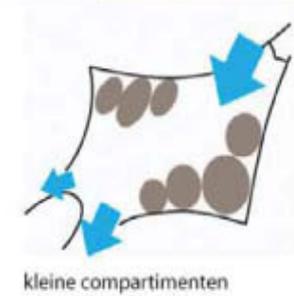
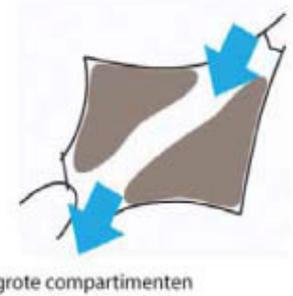
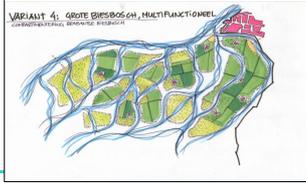
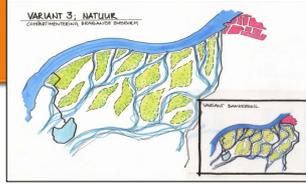
That made good agricultural land



Ontwerponderzoek (binnen programma)

Naar:

- Sectoren
- Ruimte voor water



Visiedocument / schetsontwerp

