



Deltacommissaris



The Delta Programme

Keeping the Netherlands
Climate Proof



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Team Water scarcity



The Netherlands: a delta of Rhine, Meuse, Scheldt and Eems

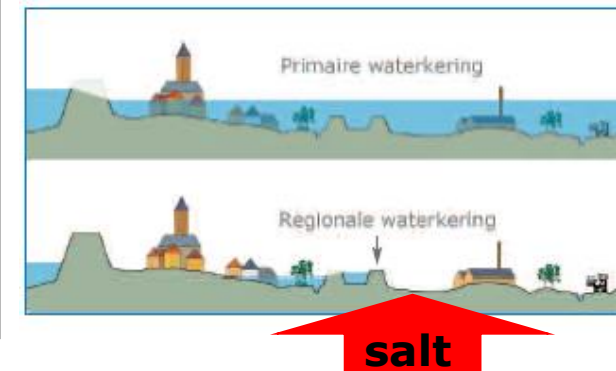
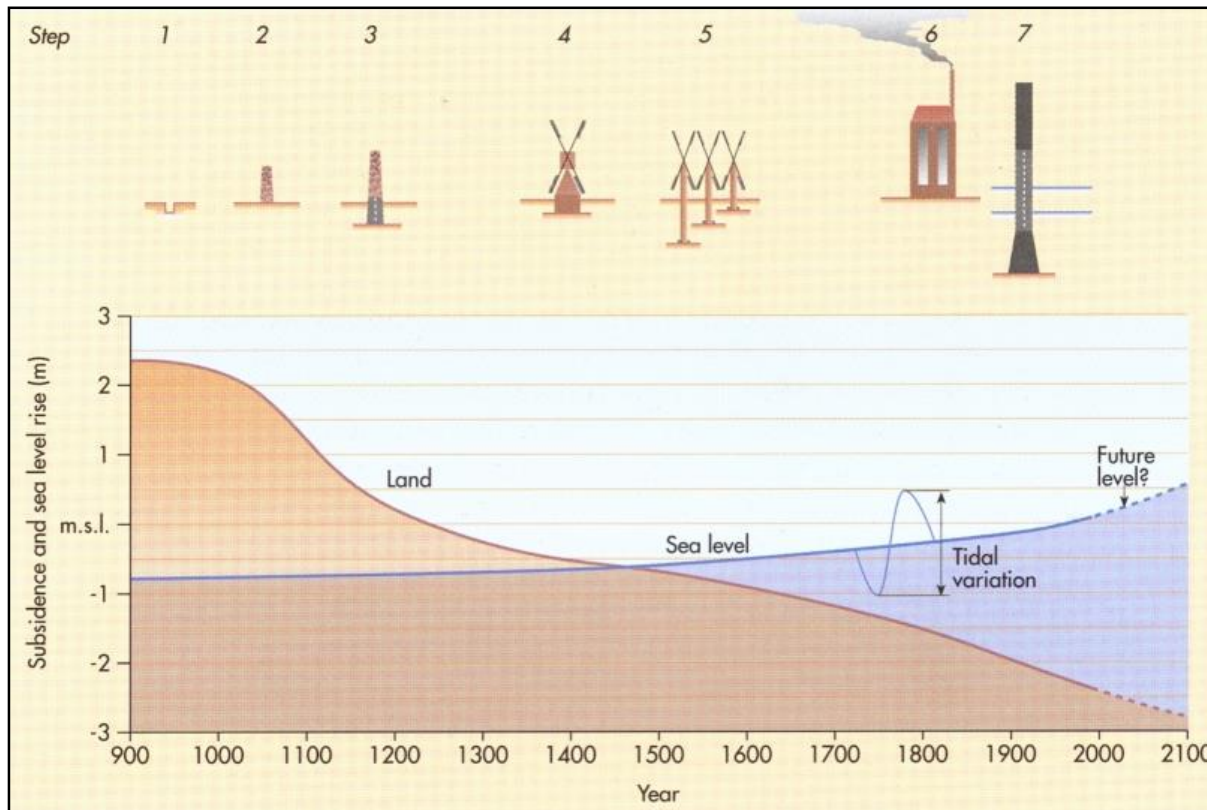
<https://english.deltacommissaris.nl/documents/videos/2014/10/13/animation-delta-decisions-dp2015>

<https://english.deltacommissaris.nl/documents/videos/2017/02/14/delta-programme-working-across-the-netherlands>

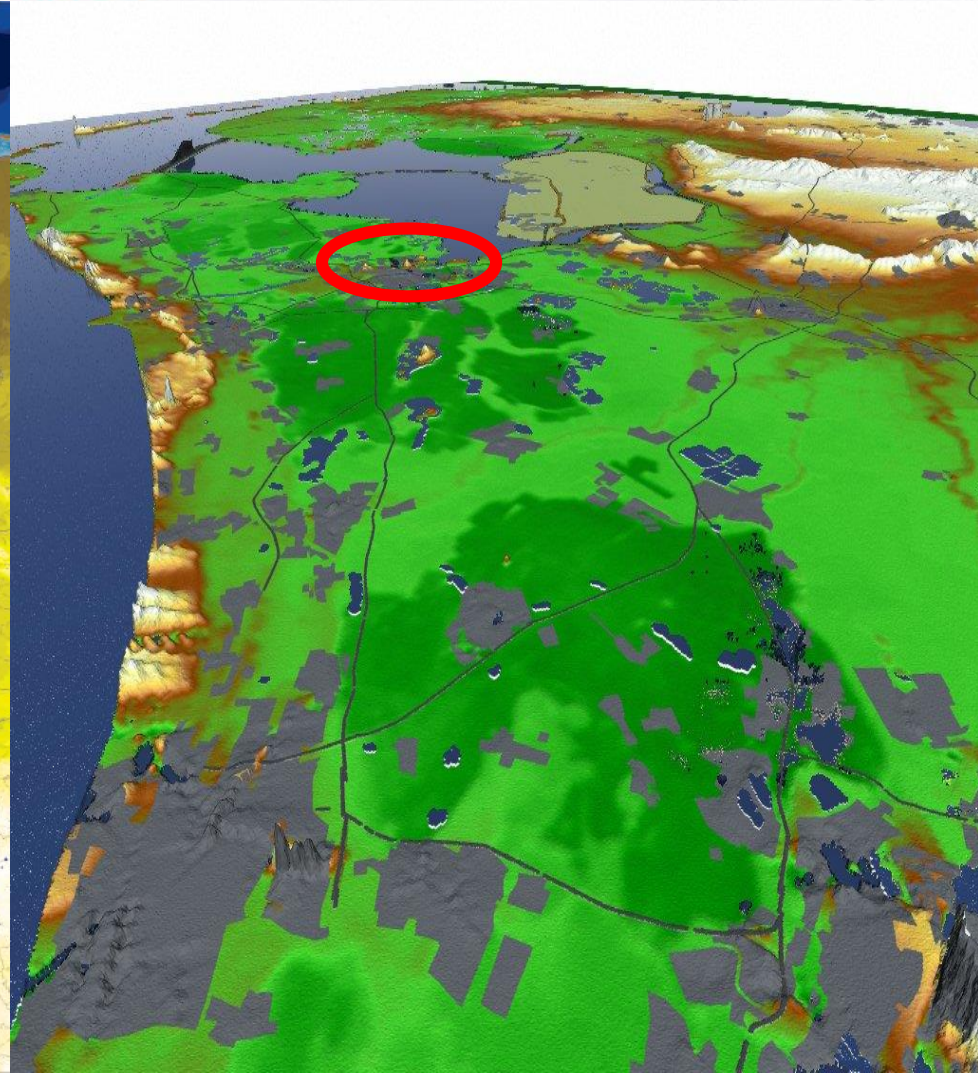
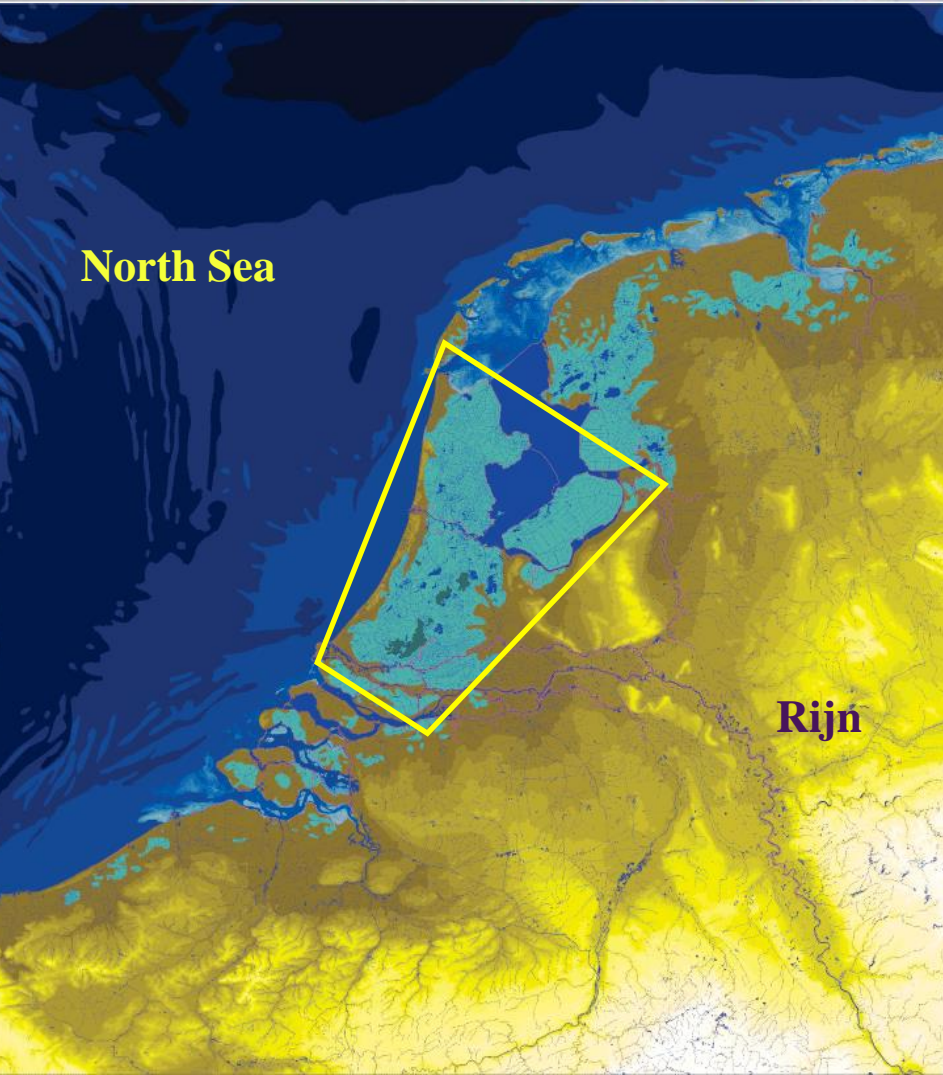




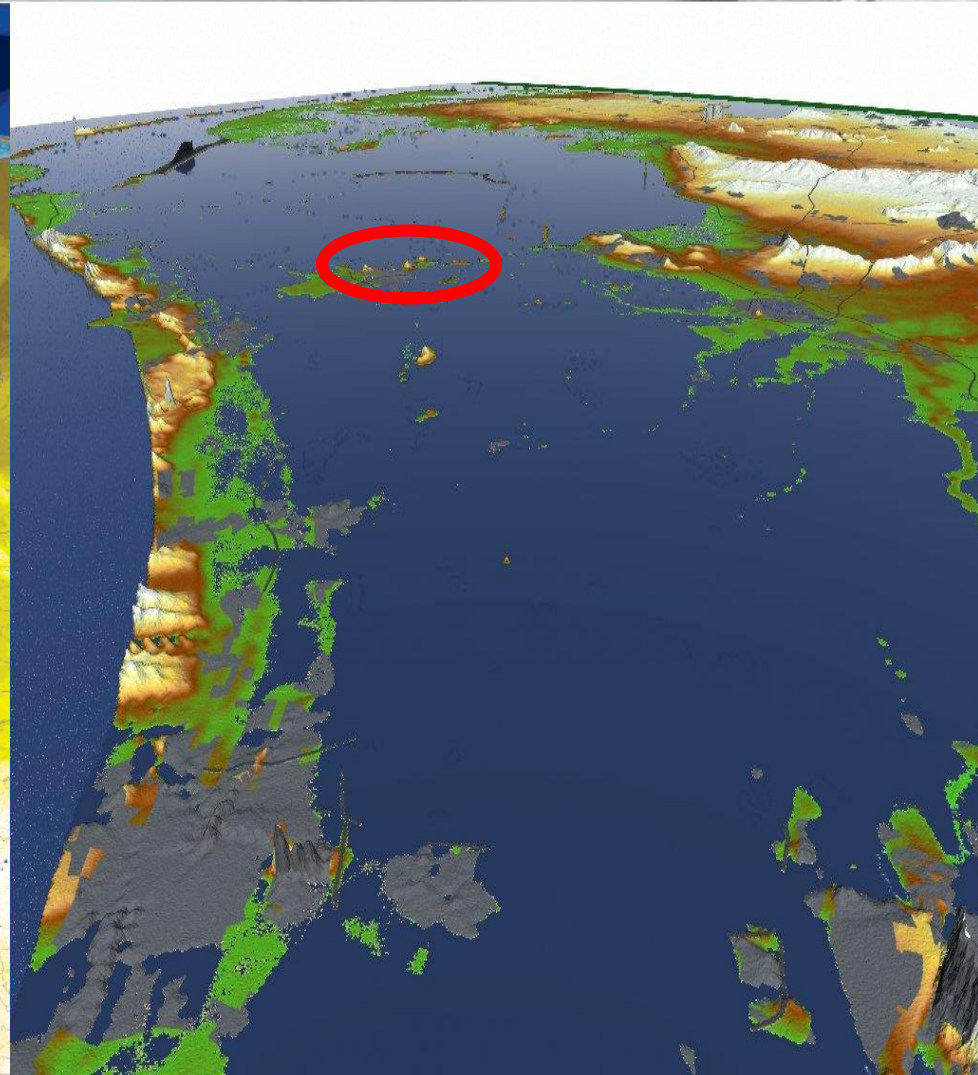
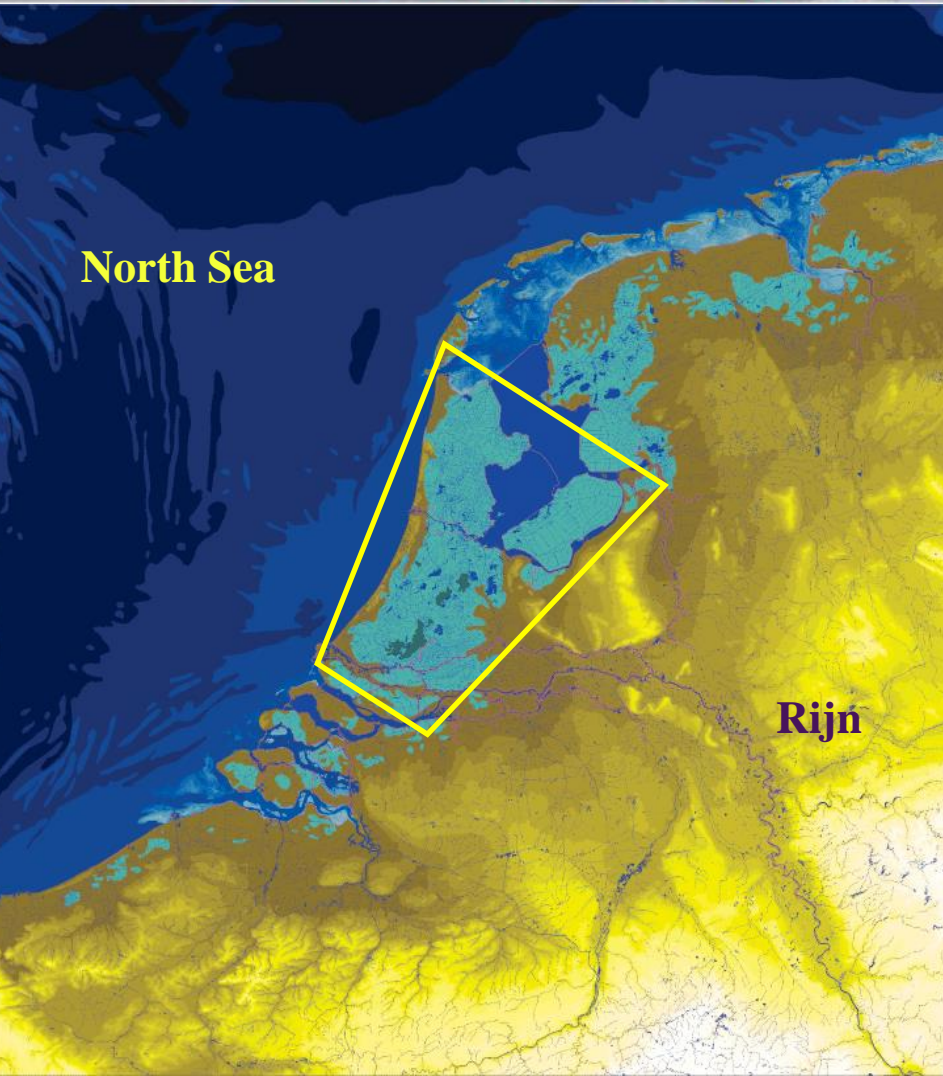
Challenges water system: man induced



Vulnerably to Flooding



If we do nothing.....





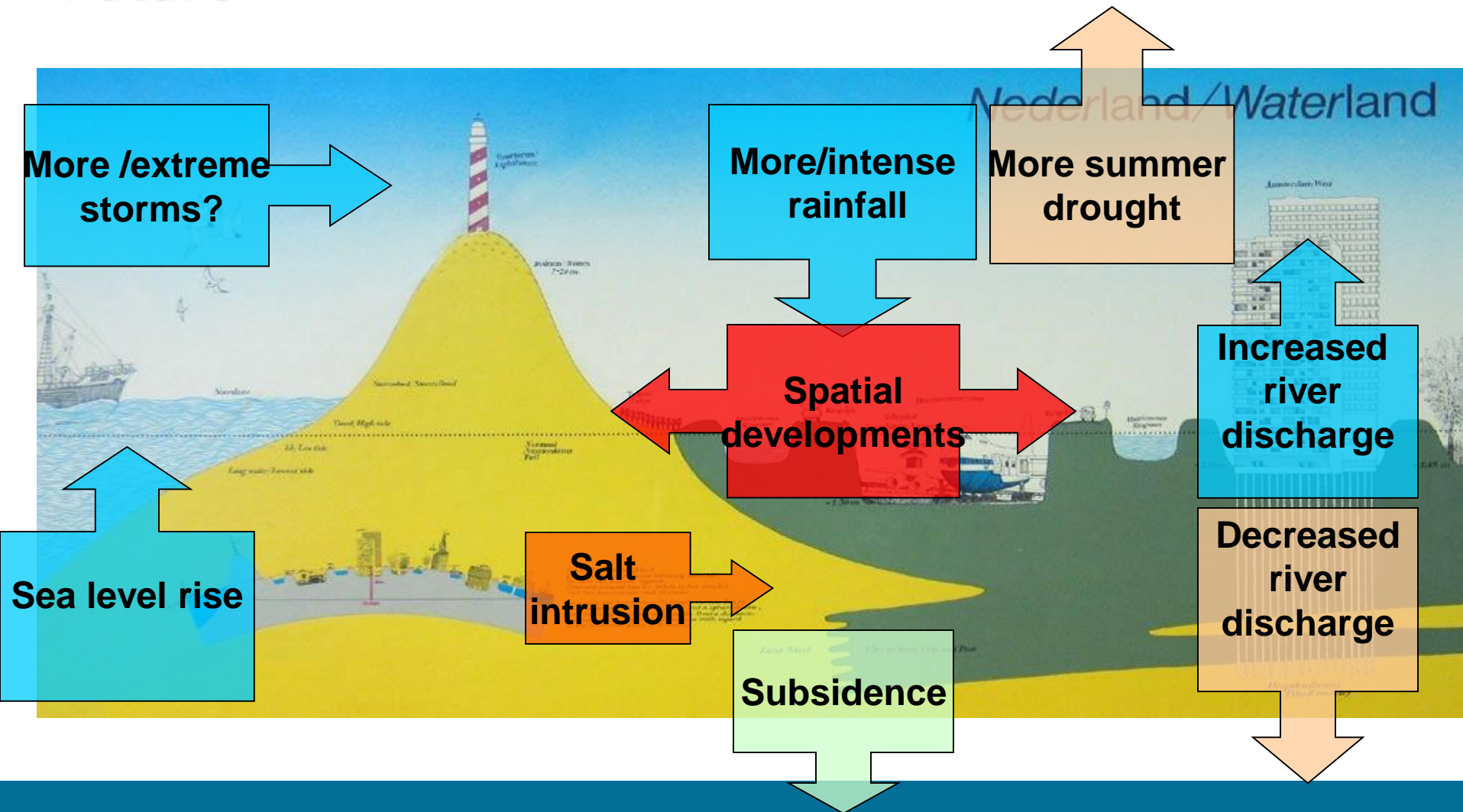
Past: reactive response

- 1916 **floods** (North)
 - Structural solutions: dam (Afsluitdijk)
- 1953 **flood disaster** (South-West)
 - Structural solutions with dams and barriers (Delta Works)
- 1993/1995 **critical water levels** (rivers)
 - Dykes and spatial solutions



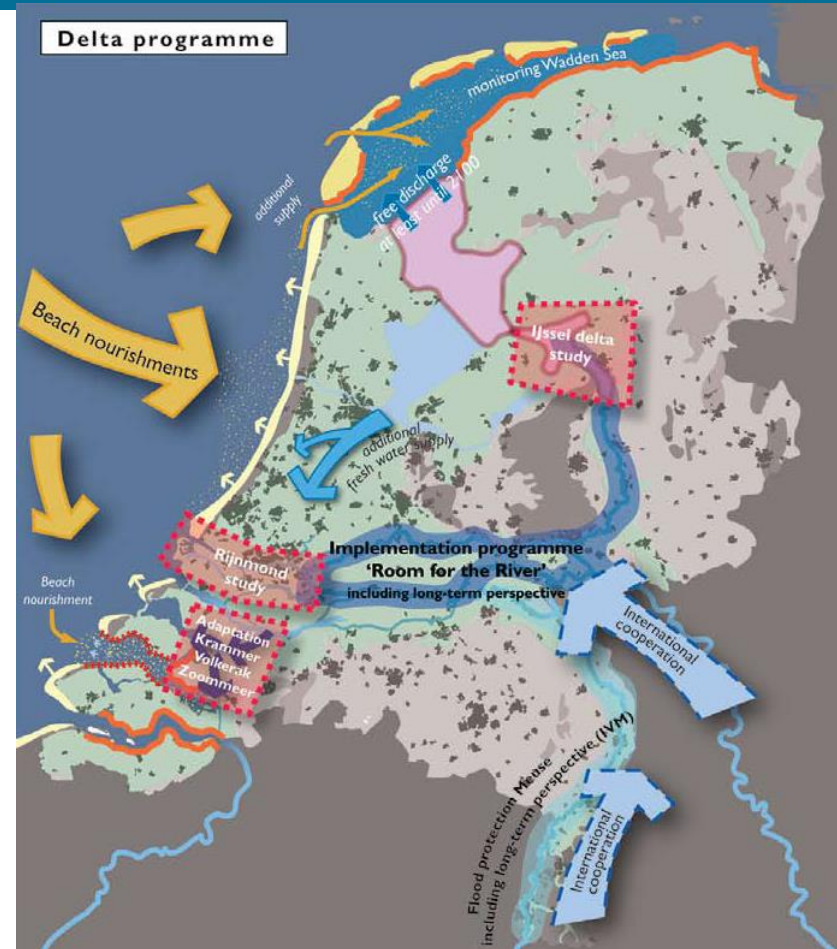


Future





Delta Commission, 2008:



"The threat is not acute, but measures to improve flood risk management and fresh water supply should be prepared urgently!"



Institutional arrangements: 2010



Working on the delta

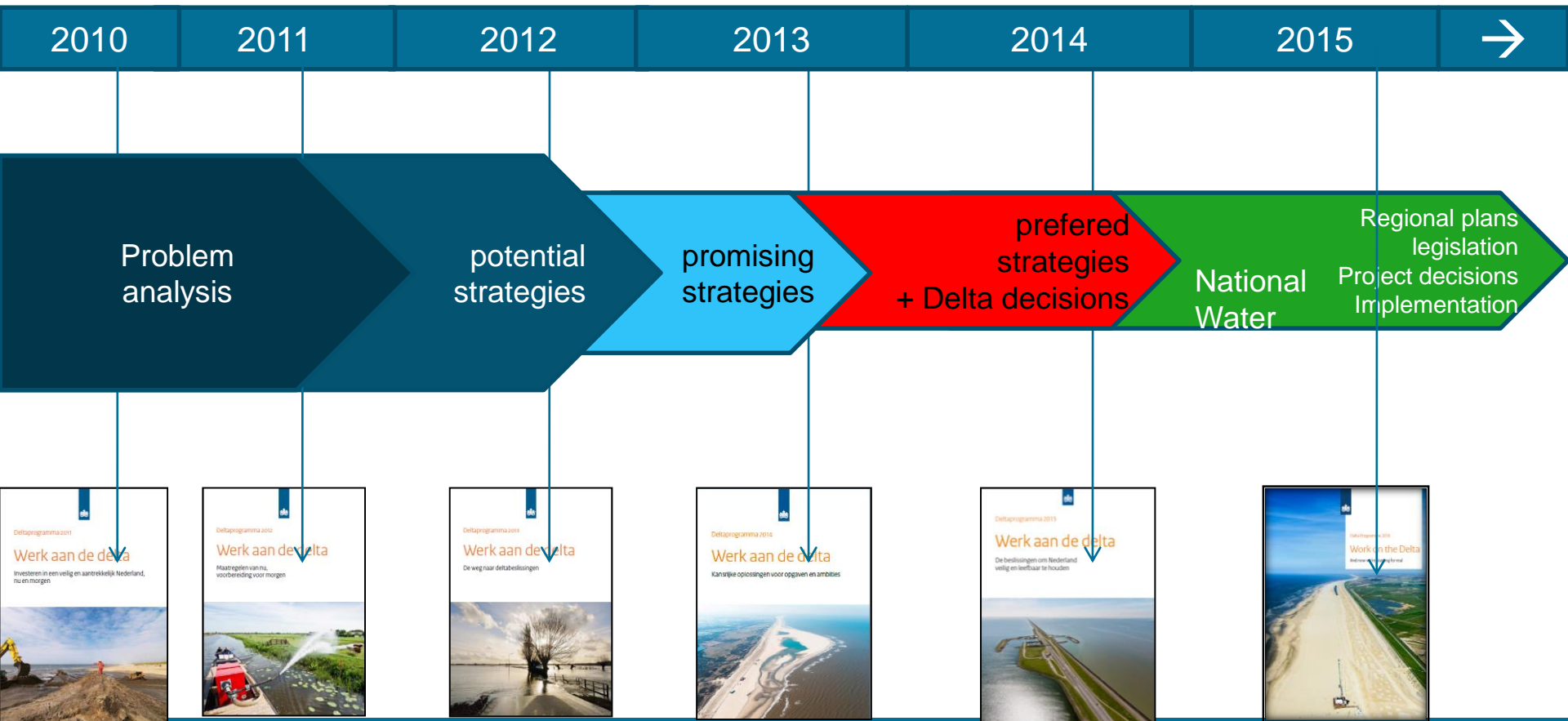
Promising solutions for tasking and ambitions



- Delta Act
- Delta Program: measures & €
every year to Parliament
- Delta Commissioner: progress,
uniformity, consistency
- Delta Fund (1 bln euro/yr)



Preparation of the Delta Programme strategies





Delta Programme

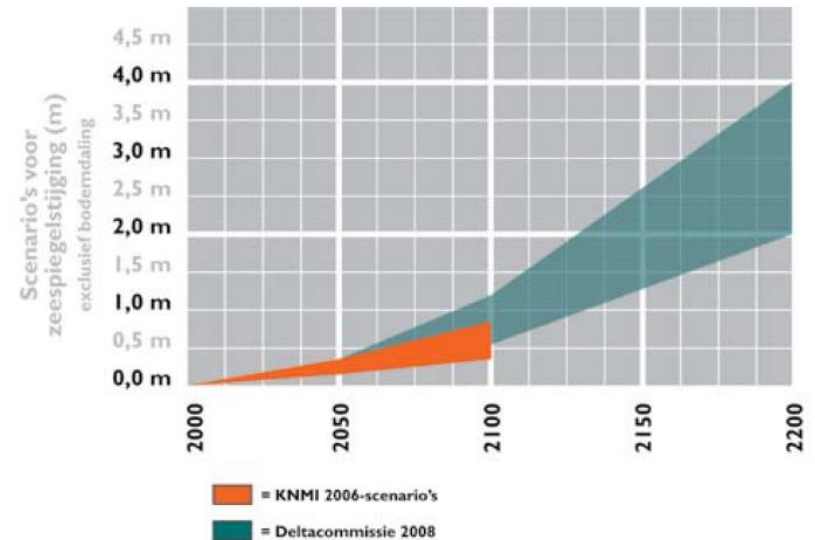
- **Flood prevention**
- **Fresh water strategy**
- **Climate adaptation** in spatial design



Regions work together on the Delta Programme

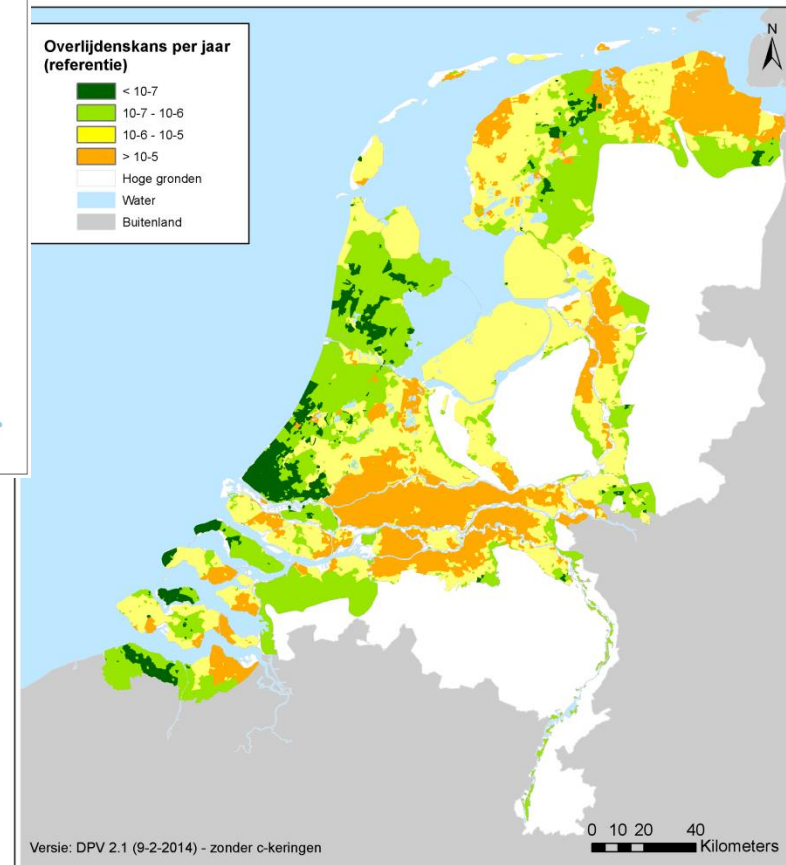
Challenges

Flood protection (after 1953 flood disaster)



Challenges Flood protection

- Delta decision (2014)
- Individual casualty risk approach





New safety policy: Multilayer safety approach

- Prevention (1)
*Limit the probability of a flood disaster
(dikes, dunes and barriers)*





Layer 1: prevention



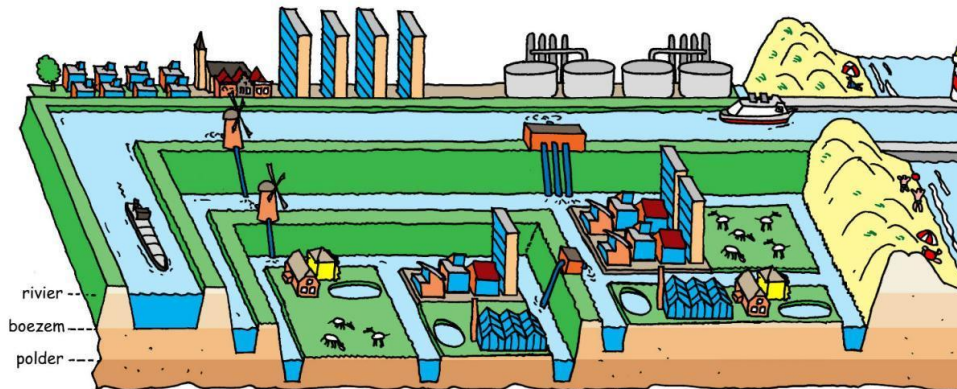
Build/maintain flood defences:

- Beach nourishments
- Sea walls and dams
- (Storm surge) barriers
- River dikes
- More room for the river



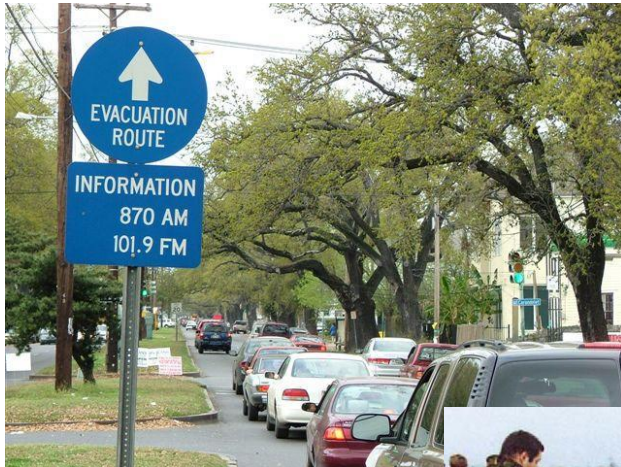


Layer 2: limiting effects of flooding





Layer 3: crisis management



Emergency plans
Evacuation plans
Exercises

Challenge: sufficient water



Legenda

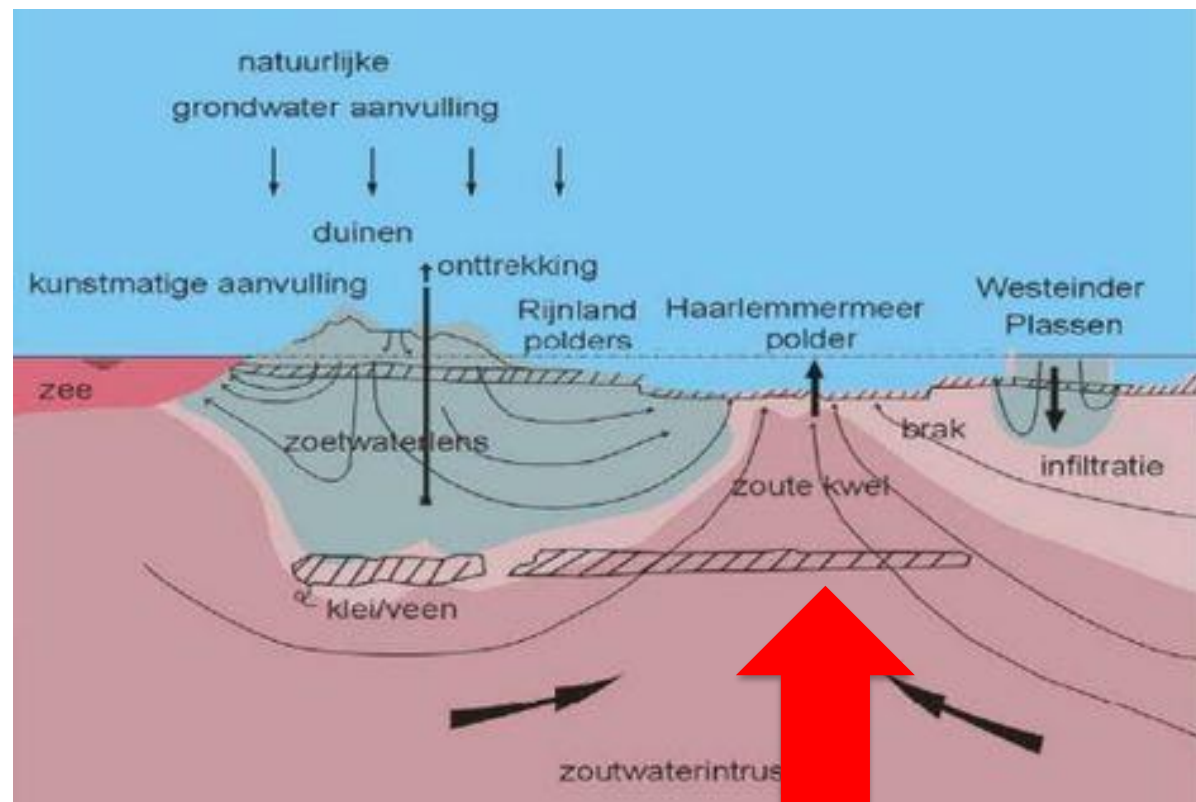
- Waterschapsgrenzen
- Provinciegrenzen
- Klink/zetting veenbodems
- KRW en Natura 2000
- Globale ligging groene ruggengraat
- Globale ligging greenports
- Overige wateren



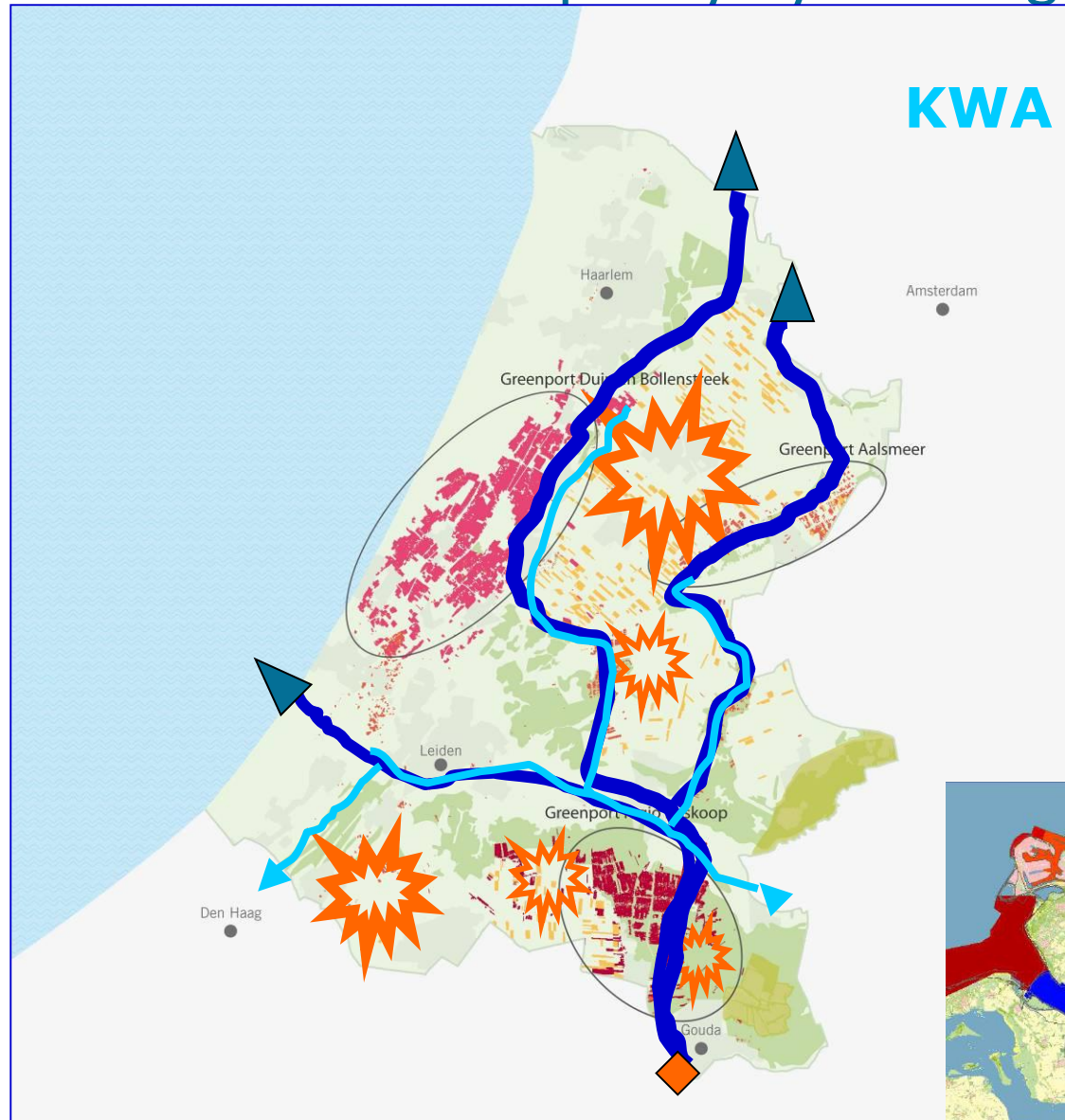
e functies



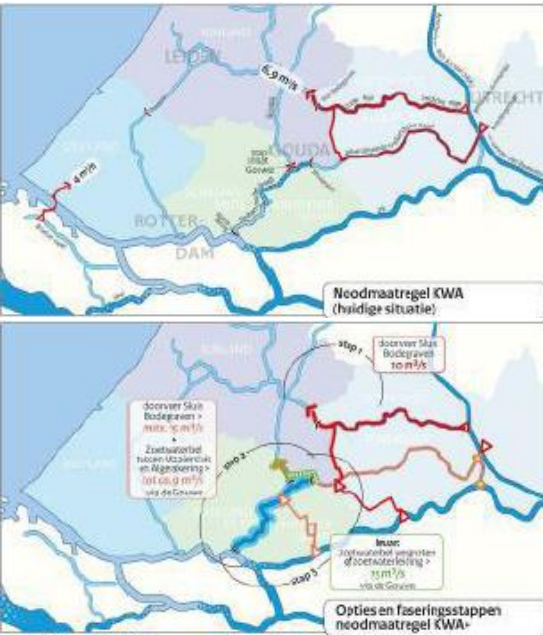
Brackish water from the underground



Maintain water quality by flushing

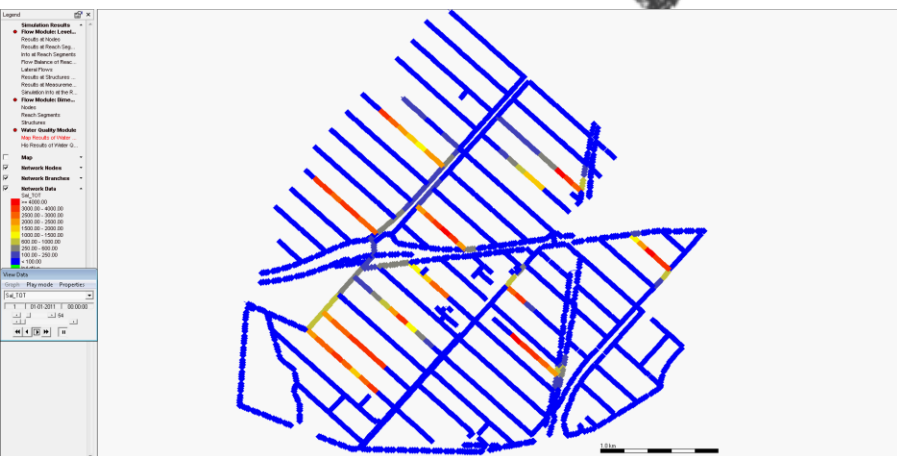


Shared responsibility



Hoofdwater-
systeem

Gebruikers/
Functies



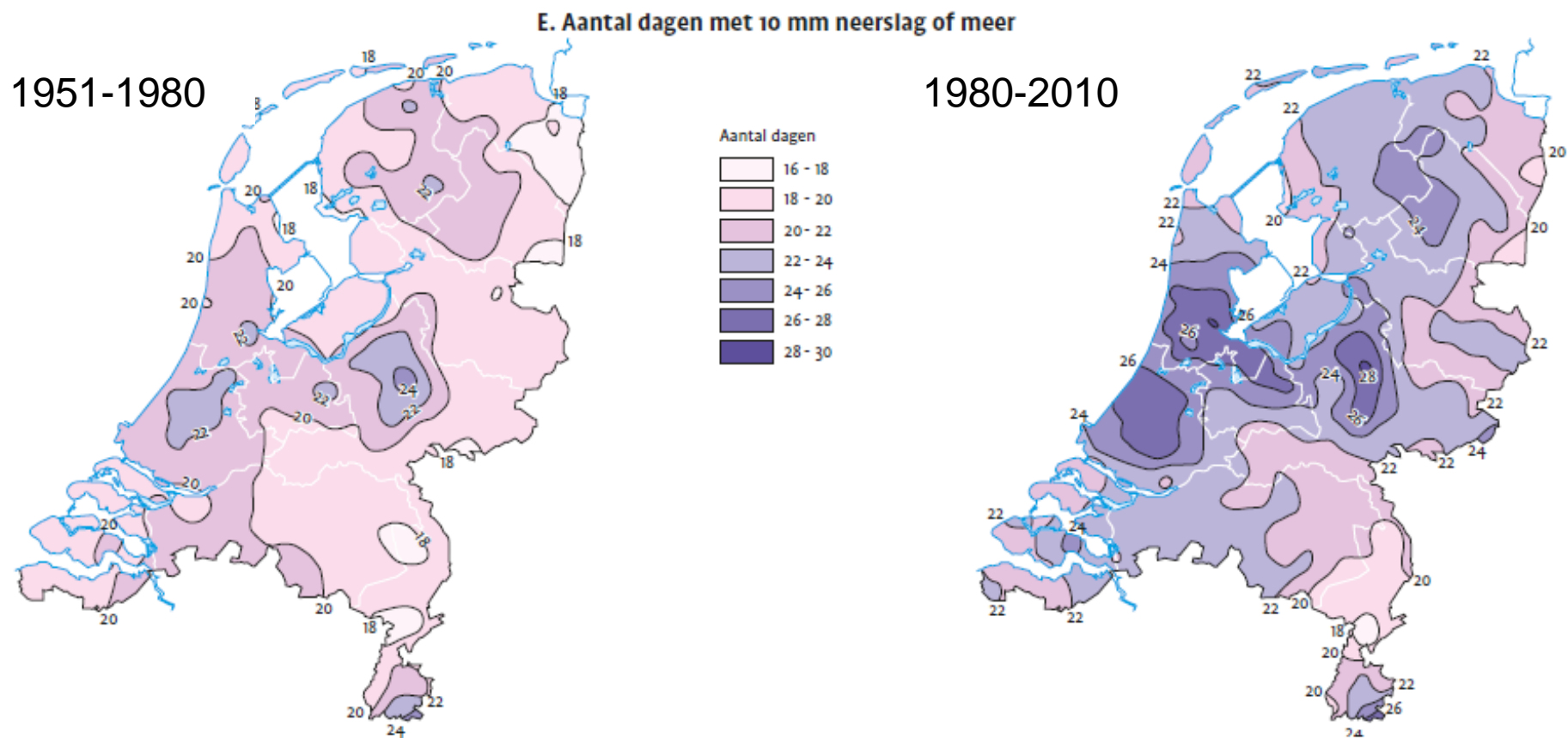


Climate adaptation: deluge



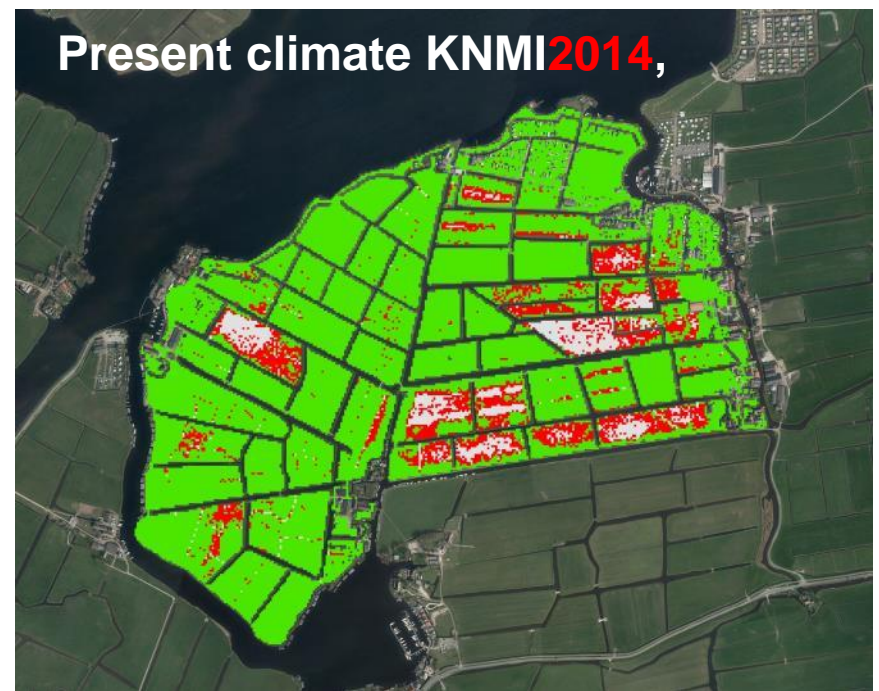
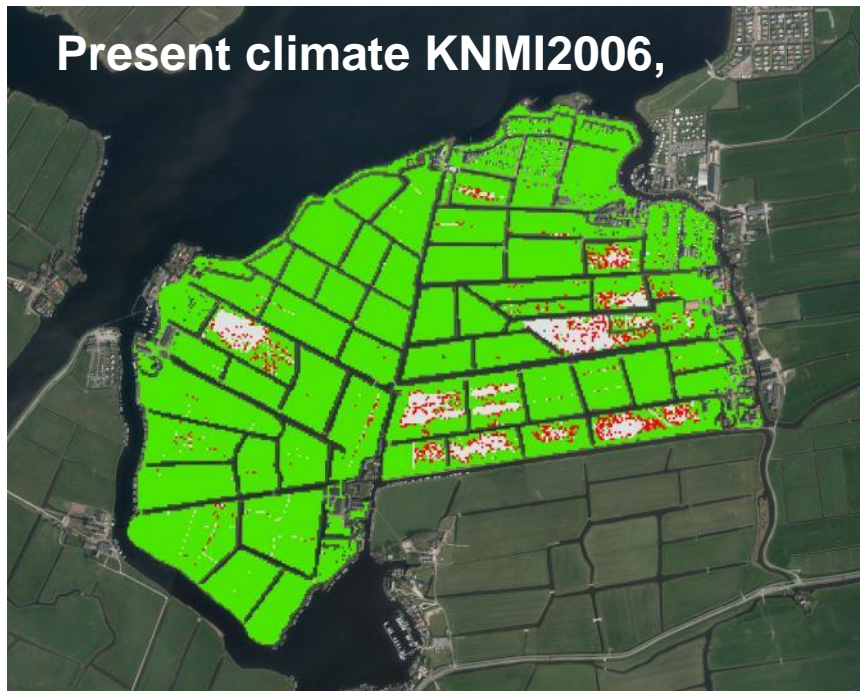


Days with rain showers >10 mm





Deluge: growing challenge





Urban deluge ?



Storage in public and private area

