



Veiligheidsregio
Noord-Holland Noord

London
14th November
2018

***Regional Agency Crisis Management (RACM -
Veiligheidsregio) North-Holland North***

***Crisis Management & Integrated Impact Analysis
Flooding & Extreme Rainfall***



Content

- What is a Veiligheidsregio?
- The Delta Program, the dutch approach to flood risks
- The National Program Water & Evacuation
- Our Interregional Coordination Plan Flooding, Extreme Rainfall & Evacuation
- The Integrated Impact Analysis (for Flooding)
- The next step: Action Perspectives & Evacuation Strategies
- Discussion and exchange of mutual knowledge & experience



What is a Veiligheidsregio?

- A *Regional* (Government) Agency for Emergency Response & Crisis Management
- 25 Veiligheidsregio's in the Netherlands
- Governance by a Regional Board consisting of the 17 mayors of the cities/municipalities in North-Holland North
- Executive Board consisting of two directors and a management team for daily governance and management.





Our Agency's region.



Our Network (small part)



Veiligheidsregio
Zaanstreek-Waterland



Rijkswaterstaat
Ministerie van Infrastructuur en Milieu



ProRail



Westfriesgasthuis



Ministerie van Defensie

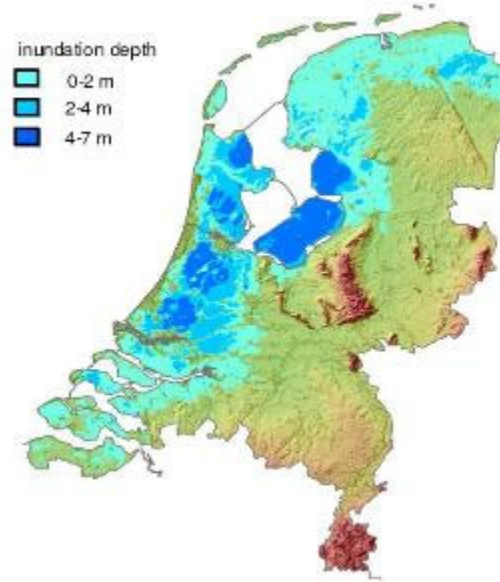


Koninklijke Marine



Floodprone area

Risks and uncertainties can't be denied



Small chance, *major impact, though!*



The Netherlands

- 60% flood prone area (invested capital ca. € 1800 billion)
- 9 million people live in submersible areas
- 70% GDP is produced in this area



The Delta Program

Living safely below sea level:
less obvious than you might think...!



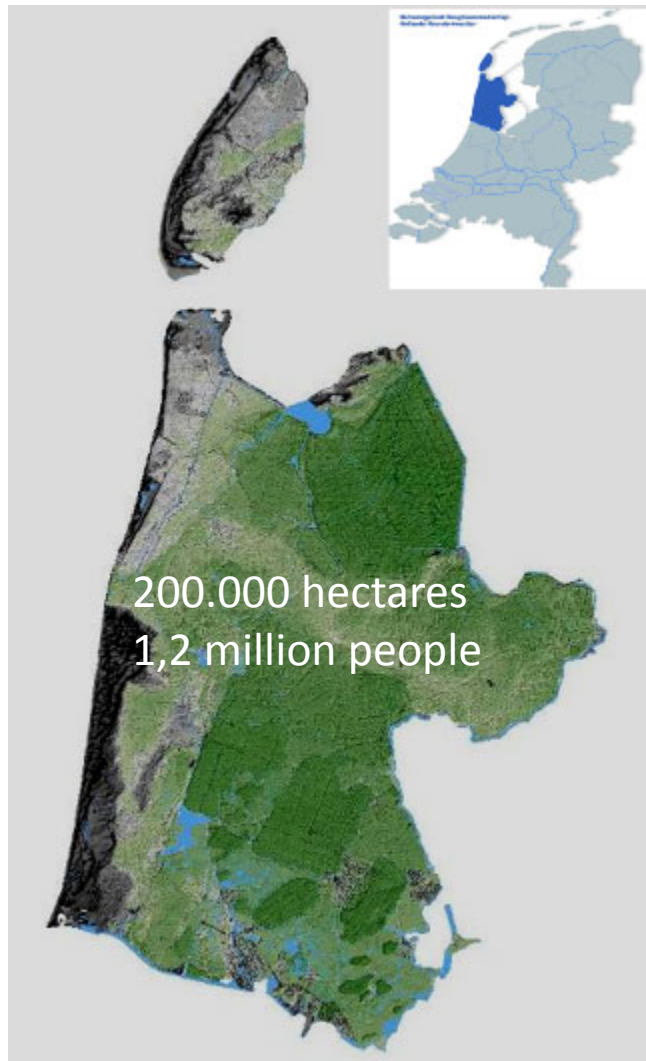
Partners in floodrisk management



Working together on floodrisk management on a daily basis

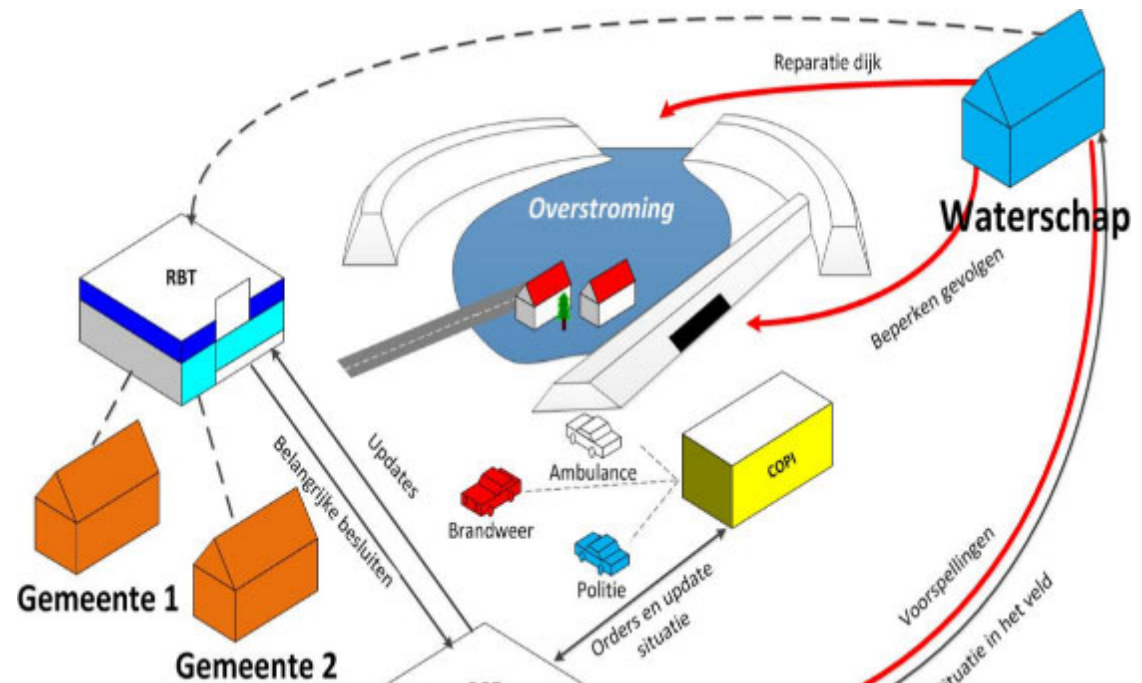


Flood fighting in the north western part of Holland



Goals:

- Minimalisation of casualties and economic damage
- Synchronisation of measures



Dutch water management



- OESO 2014 'Fit for the Future'
 - Dutch water management, one of the best in the world
 - Low costs ca. 1.2% GDP
 - Administrative order; advantageously tuned
 - *Awareness of flood risks is surprisingly low with the Dutch people...*
- Historical projects: Deltaworks and 'Afsluitdijk'
 - created after major floodings (1916, 1953)
- Deltaprogram
 - Aimed to look ahead (2050)
 - Goal: Protection of the Netherlands against climate change
 - Investment ca € 1,2 billion per annum until 2028



Climate change & threats

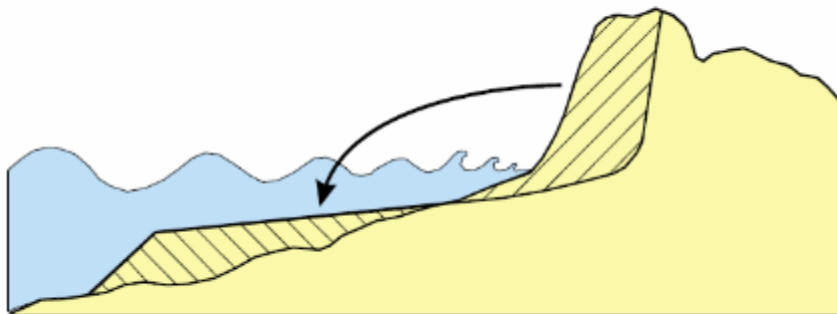
Extreme weather (Assen, 13 May 2018)



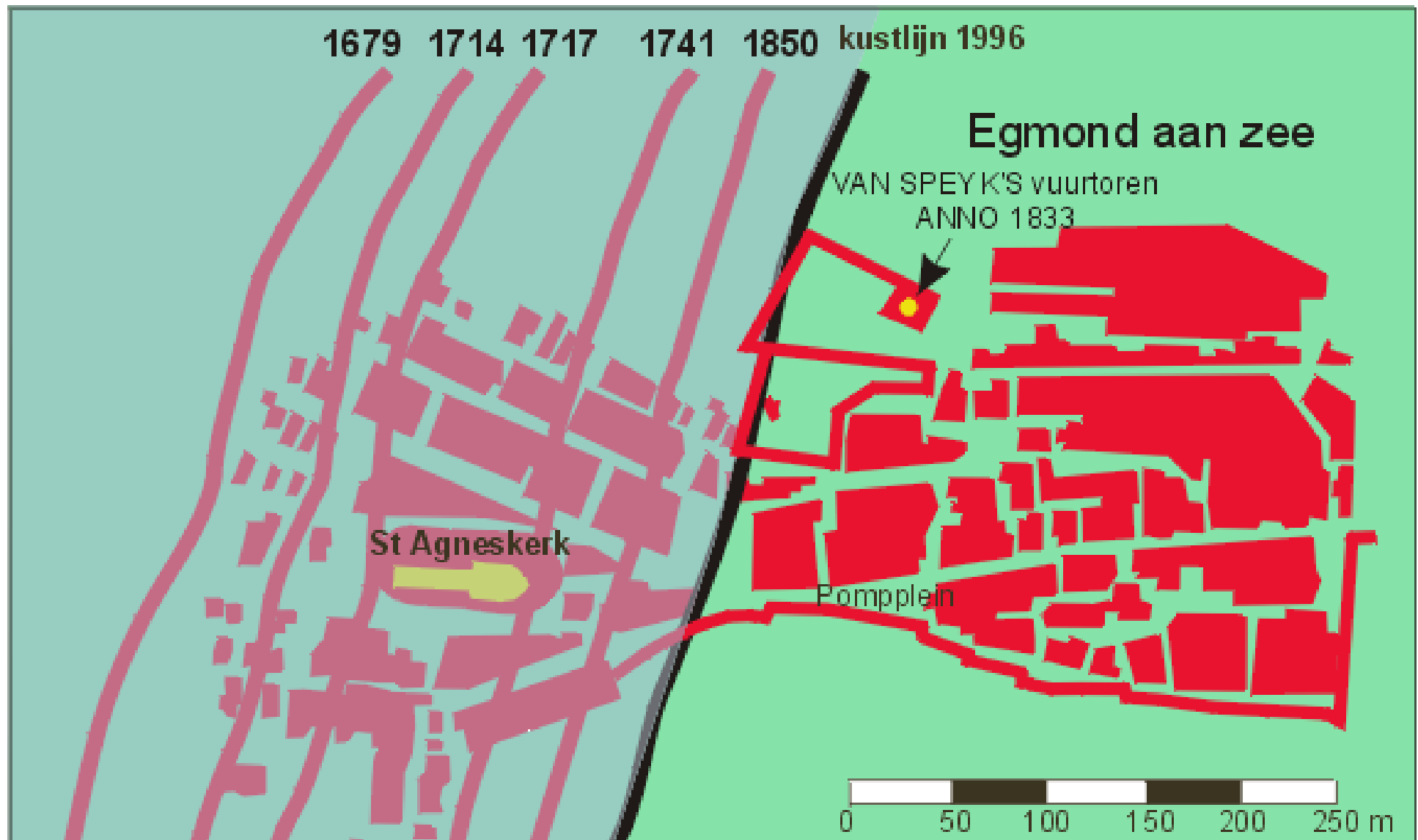
Storm surges



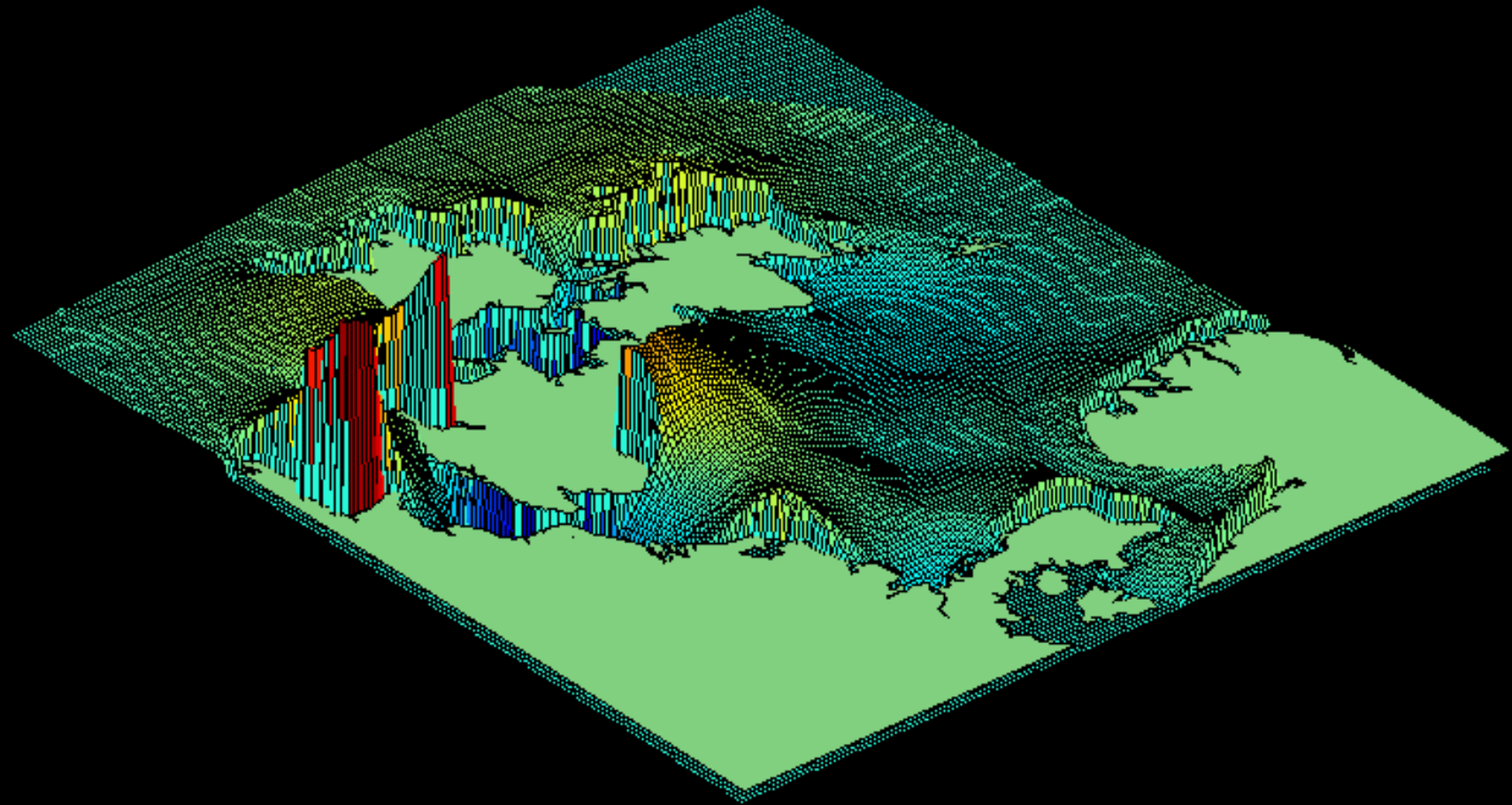
Duinen onder stormvloedcondities



Town swallowed by the sea

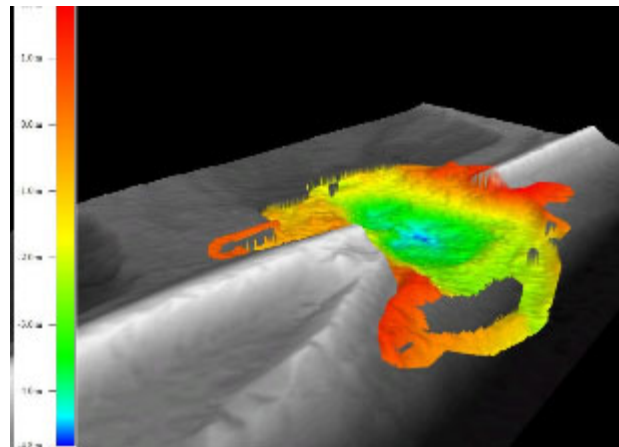


Storm Tide in the Dutch Continental Shelf Model



Saint Nicolas Storm 2013

5th December 2015



Teesside (UK)



High river discharges

21st Jan 1995: 250.000 evacuees (Betuwe, Netherlands)



Our answer: Multi Layered Safety Approach,



**Crisis & disaster management
(emergency response)**

Spatial planning (resilience)

Flood protection measures



Flood protection measures



Spatial planning



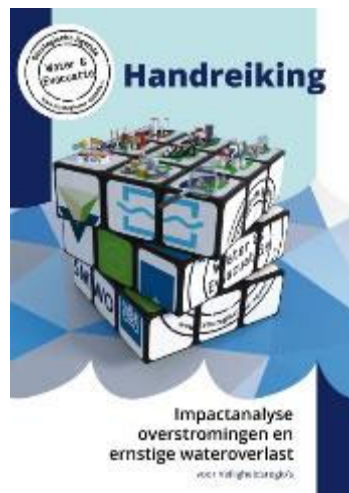
Crisis- & Disaster Management Integral Collaboration



National project & program Water & Evacuation



Handbooks & guidelines for all crisis partners, fully aimed at integral cooperation!



Scenario Den Helder: international consequences



**Gas compression station BBL –
pipeline to the UK**



Interregional Coordination Plan Flooding, Extreme Rainfall & Evacuation North of the Noordzeekanaal



Veiligheidsregio
Zaanstreek - Waterland

Provincie
Noord-Holland

Hoogheemraadschap
Hollands
Noorderkwartier

Veiligheidsregio
Amsterdam-Amstelland

Rijkswaterstaat
Ministerie van Infrastructuur en Milieu

GGD BRANDWEER
Veiligheidsregio Kennemerland

PWN

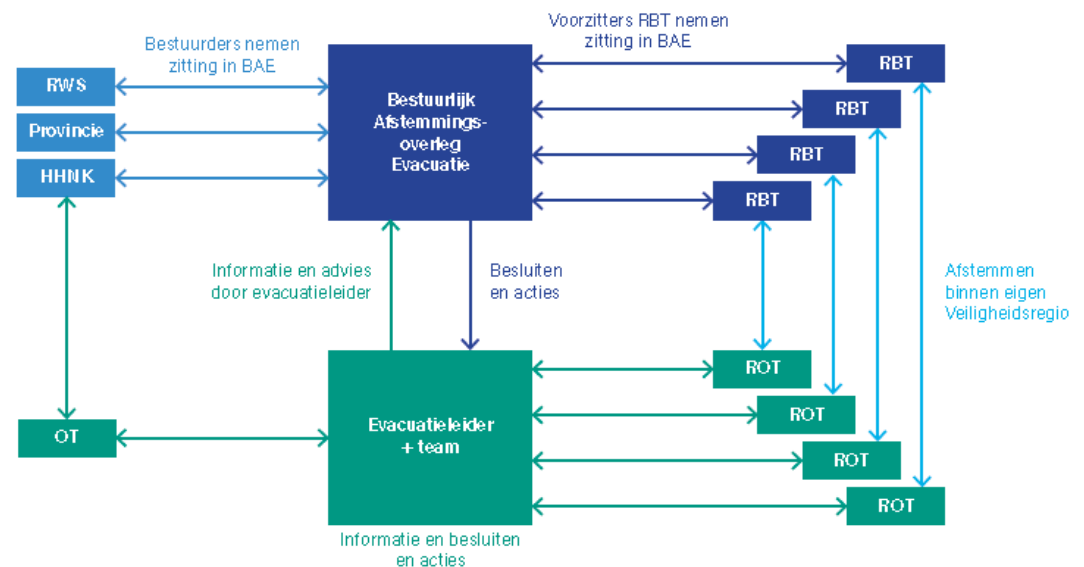
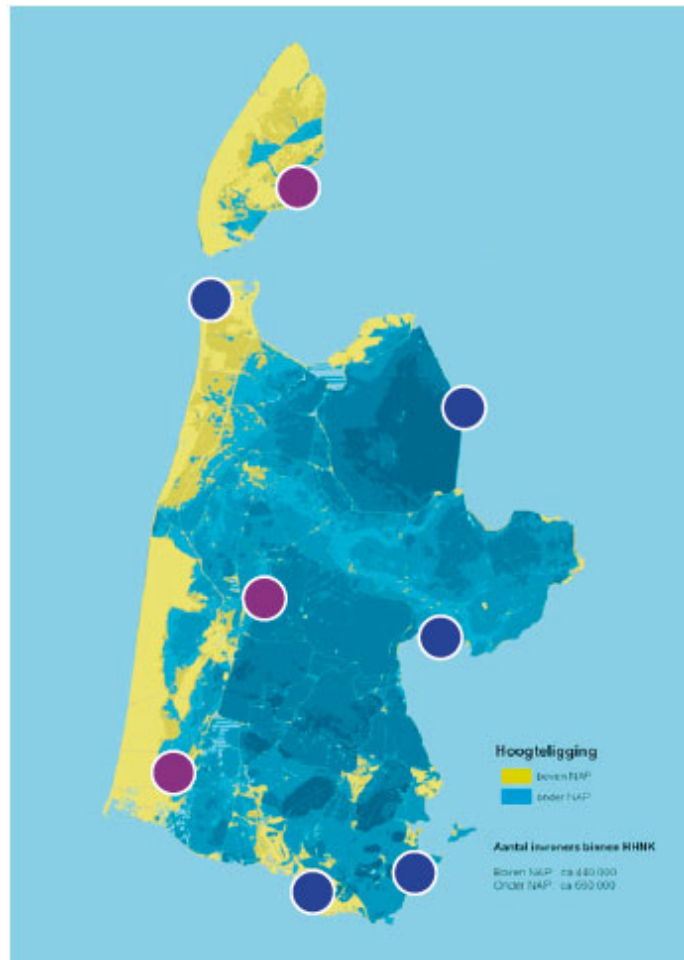
liander

Veiligheidsregio
Noord-Holland Noord
Samen hulpvaardig

POLITIE



Interregional Coordination & Governance in case of flooding: Evacuation and other measures



Integrated Impact Analysis Flooding & Extreme Rainfall

IWO



To visualize and pinpoint an impact in terms of cascade effects

How did we get there?

- Brainstorm and dilemma sessions with stakeholders (civic, industry, etc)
- Modelling by different charting techniques (GEO-specialists)
- www.3ddelta.nl



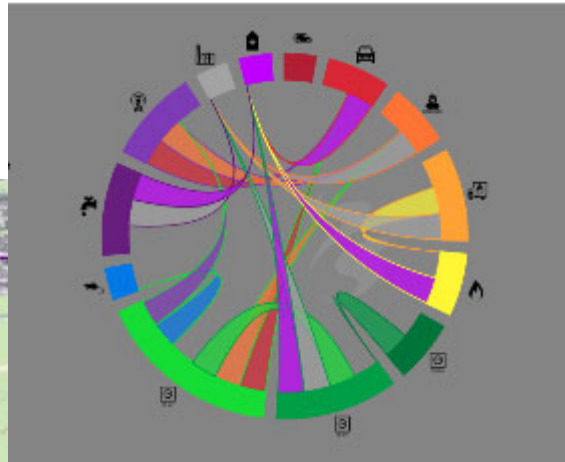
Who and what may get affected?



Cascade effects

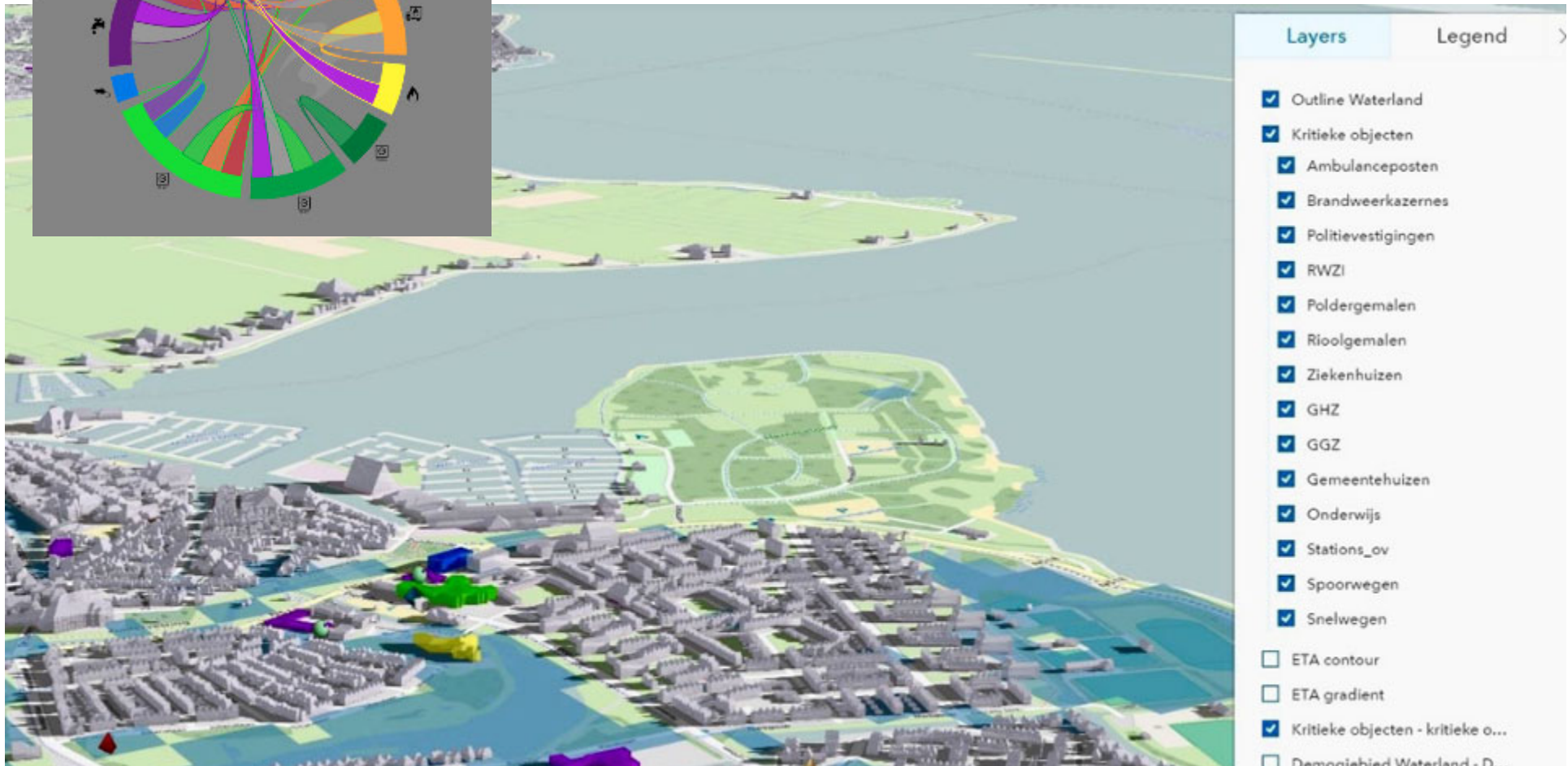


Information Roundabout

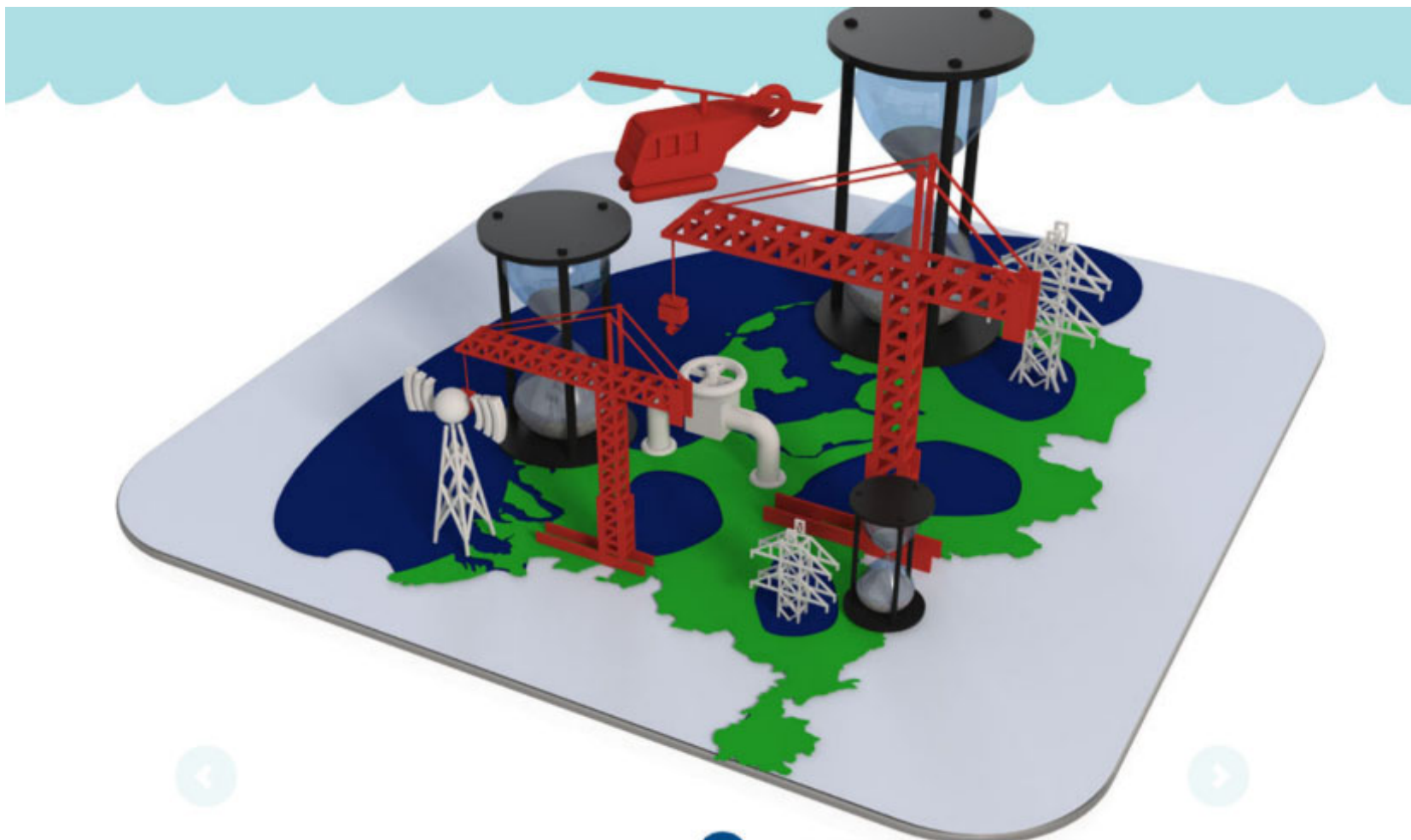


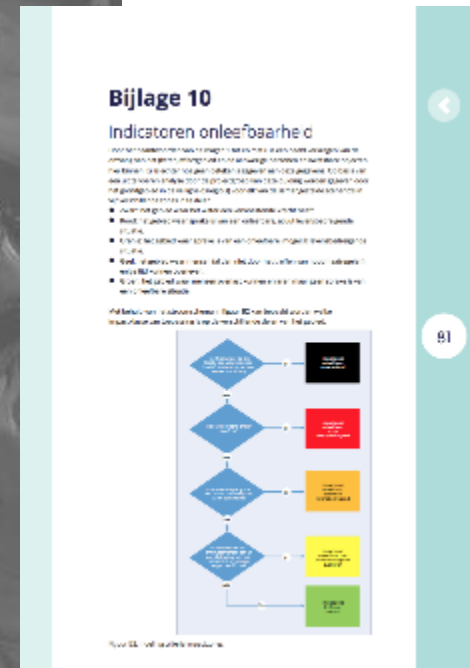
a. Understanding of correlation between vital assets

b. Determine cascade effects



Recovery and reconstruction





Next step: Action perspectives and evacuation strategies

Separate project: analysis of the road infrastructure

- ❖ Capacity of the infrastructure
- ❖ Behaviour of people
- ❖ Usability of the infrastructure



Let's exchange knowledge & experience!

- What is your position, responsibility, what authority do you have in a crisis situation?
- What are your ambitions as ADA in terms of crisis- and disaster management? And in water safety in the UK?
- How do you work together with the EA, the Emergency Services and regional/local government?
- Above all, how can we help each other? Even after Brexit...





Any questions?

Thank you for your attention!