

The Cost of Water - Building in the Netherlands

92nd CEEC General Assembly

2 - 4 October 2025



Conseil Européen des Economistes de la Construction
The European Council of Construction Economists

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NEDERLANDSE VERENIGING
BOUWKOSTEN



Delft Agenda (revised)

- 09:00 Opening by president CEEC, György Spanyol (HU)
 Welcome by president NVBK, John Koks (NL)
 Introduction to Water Management, Erik Schulte (NL)
 Backgrounds in Water Safety and Financing, Quirijn Lodder (NL)
- 10:50 – 11:15 coffee break
 Towards a Holistic Integrated Strategy, Huub Lavooij (NL)
- 12:05 – 13:00 Lunch
- 13:00 – 14:30 Maeslantkering tour
- 14:40 – 15:30 **Delta programme**, Stephan van der Biezen (NL)
- 15:30 – 15:45 bus to port for a boat tour



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Living with Water: The Dutch Experience

E Schulte MSc

October 3rd, 2025

Maximum flood level in your location of 1.0 meters



What does that mean for me?



No water



No toilet facilities



No electricity



No internet



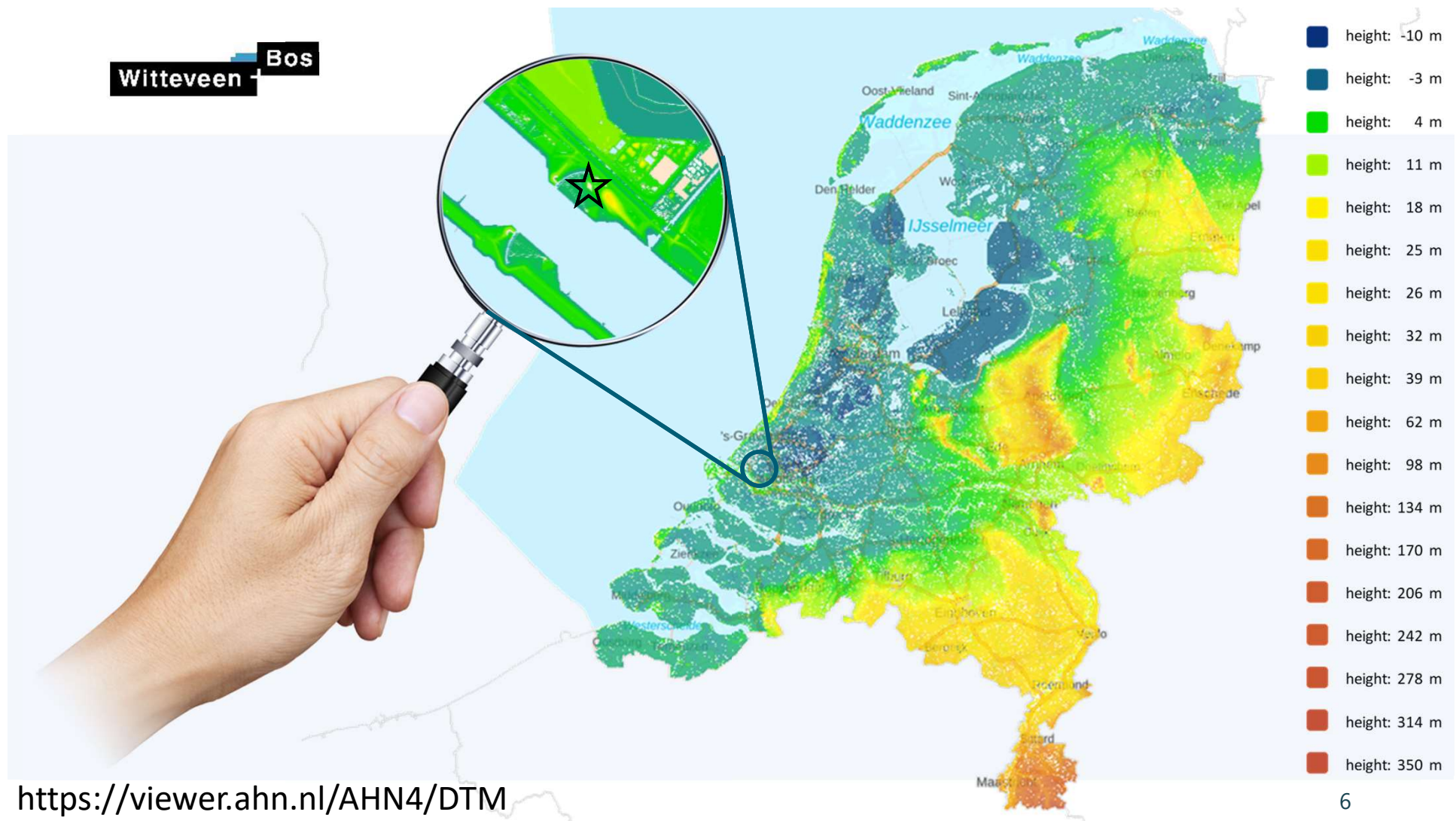
No gas

How should I respond to this? Follow the 4 steps to prepare for flooding.

→ Start preparations

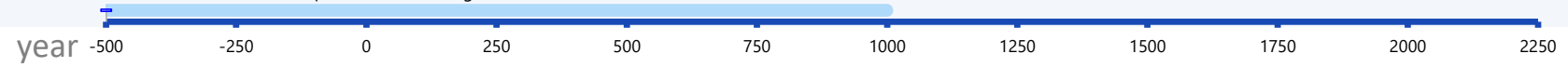
overstroomik.nl (will I flood)

Witteveen + Bos



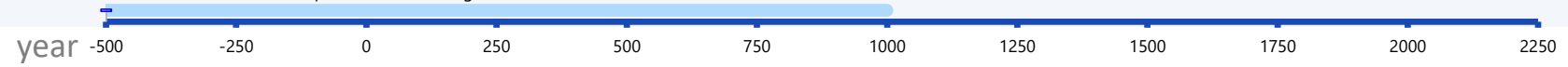


Terps (artificial dwelling mounds) (≈500 BC)



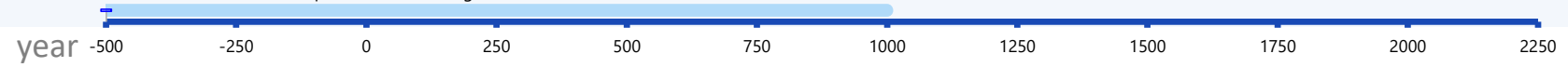


Terps (artificial dwelling mounds) (≈ 500 BC)





Terps (artificial dwelling mounds) (≈500 BC)





First dikes constructed to protect lowlands

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250









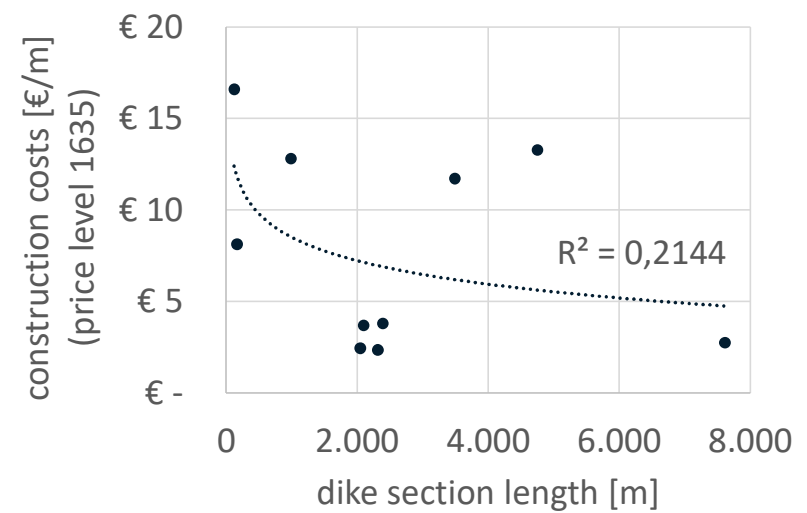
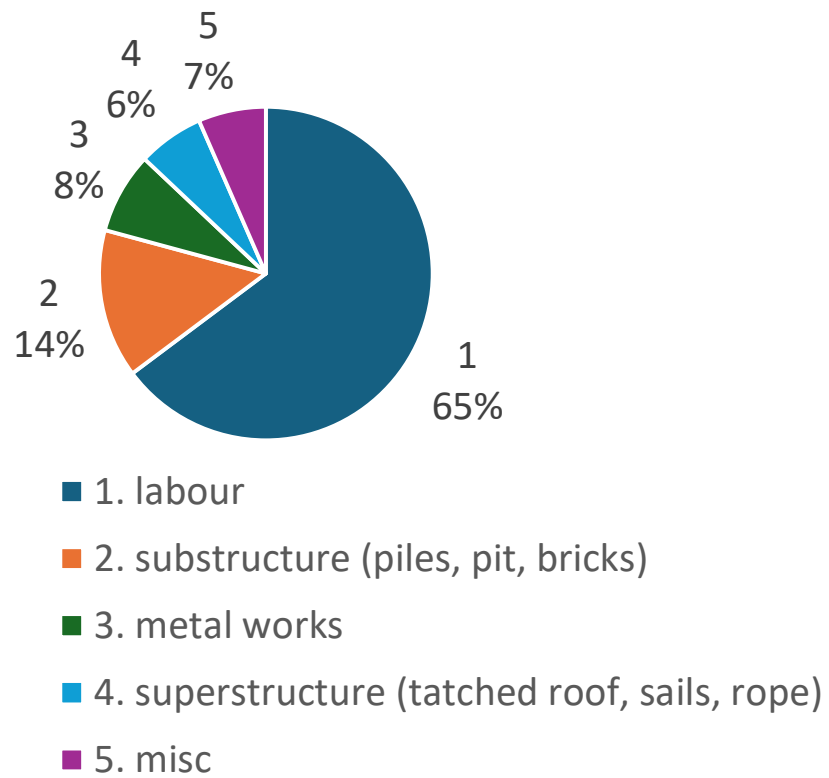
First dikes constructed to protect lowlands

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250



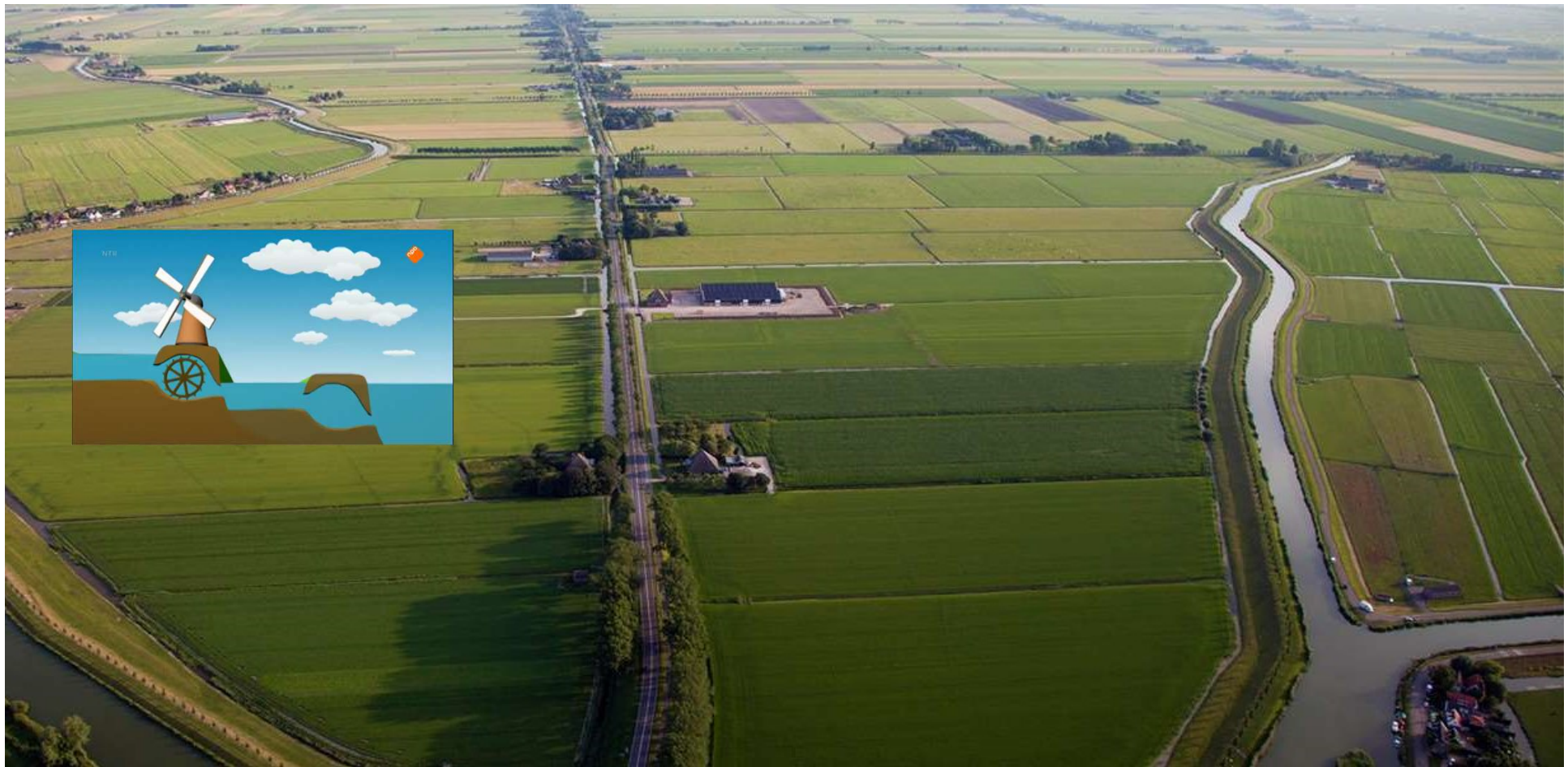
year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250

Windmill € 2.600 / pcs



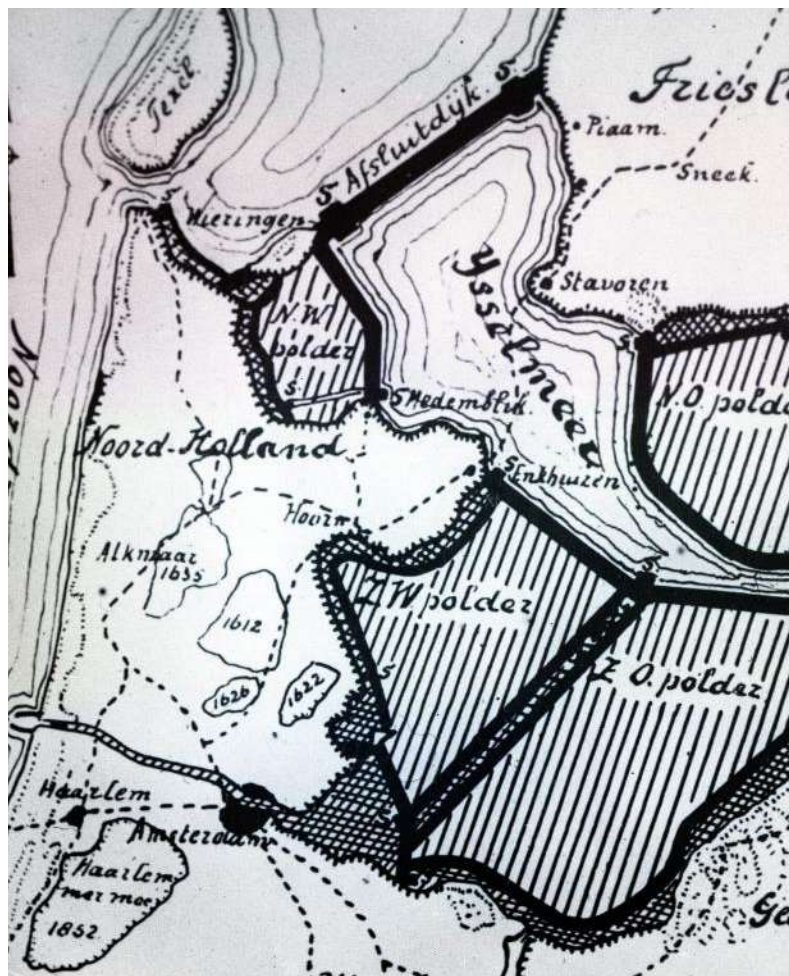
Large-scale land reclamation

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250



Large-scale land reclamation

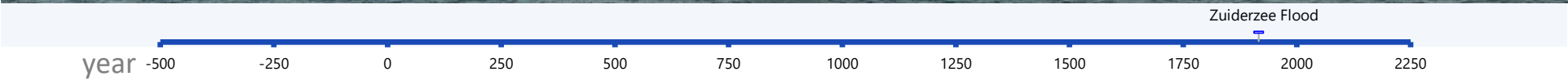
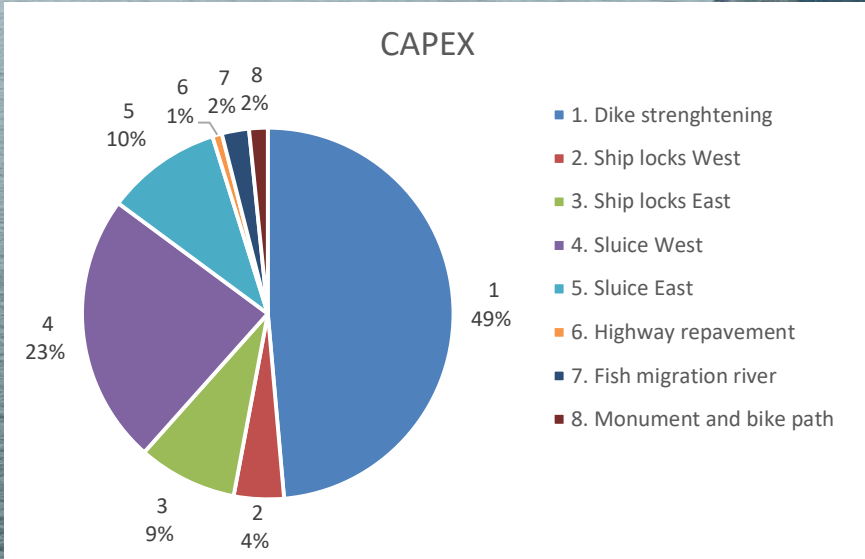
year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250



Zuiderzee Flood

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250





Land reclamations

- Modern times (1918-present)
- Steam engines (1830-1918)
- Improved windmills (1550-1830)
- Large reclamations (prior to 1550)



Flevoland polders

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250



North Sea Flood (start of Delta Works)

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250



Delta Works construction

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250



High river floods

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250

ROOM FOR THE RIVER | DUTCH WATER PROGRAMME ROOM FOR THE RIVER



Towards a future-proof river zone

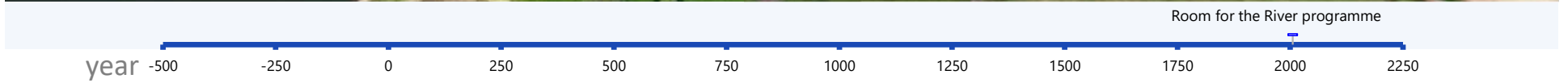
Integrated River Management Programme

Start of the Programme Room for the River 2.0



Room for the River programme

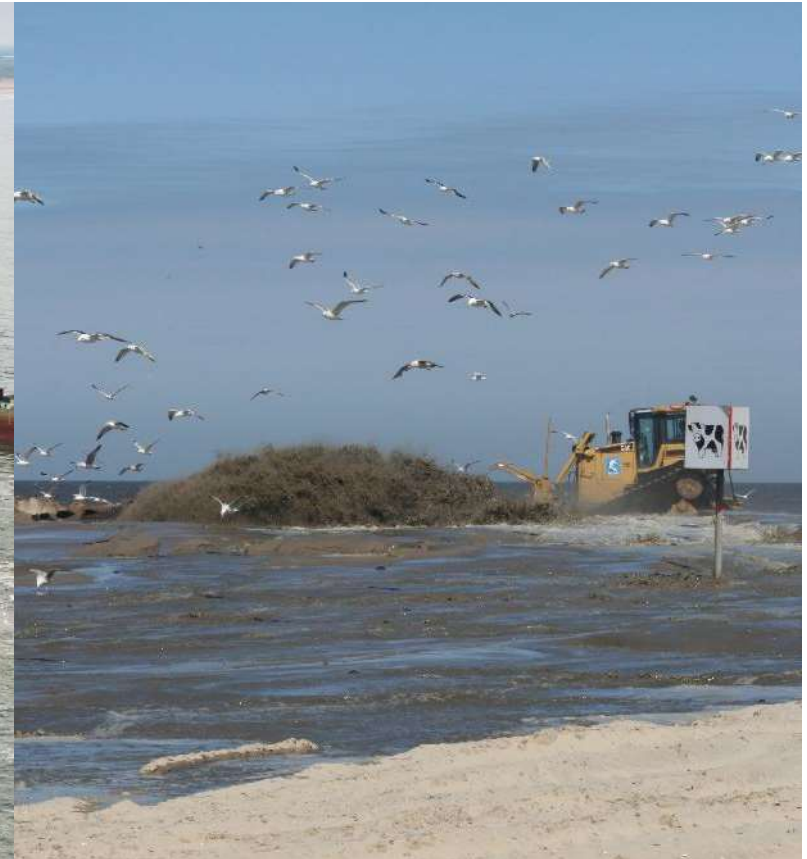
year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250





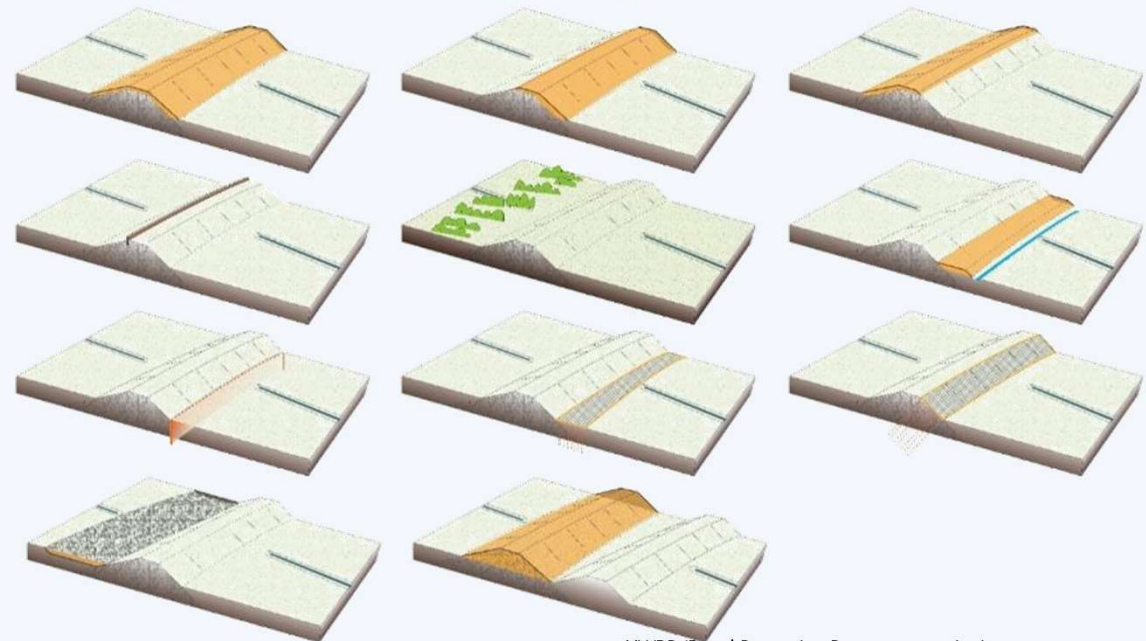
Room for the River programme

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250



HWBP = Flood Protection Programme (ongoing)

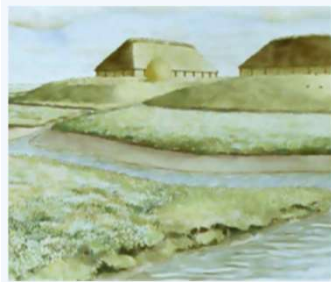
- 1 height overtopping
- 2 wave overtopping
- 3 piping
- 4 macro instability inner slope
- 5 erosion outer slope
- 6 macro instability outer slope
- 7 micro instability (kwel)



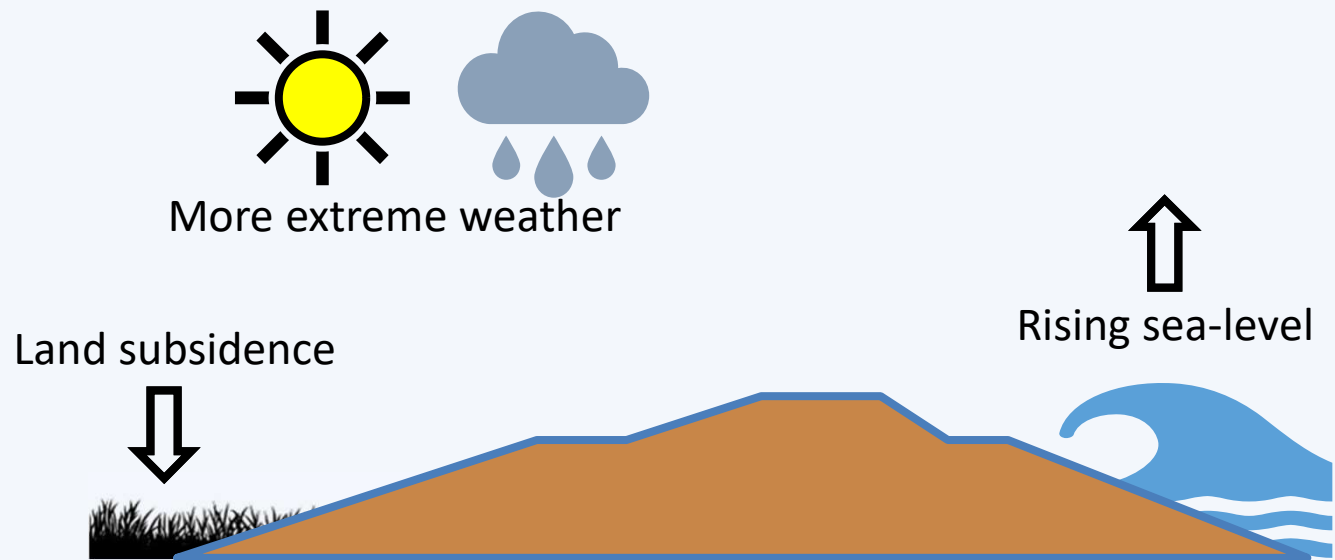
HWBP (Flood Protection Program, ongoing)

year -500 -250 0 250 500 750 1000 1250 1500 1750 2000 2250

Witteveen + Bos



Future





www.witteveenbos.com

References

Dikes (interactive map)	https://rce.webgis.nl/nl/map/leven-met-water
Ground level heights (map)	https://viewer.ahn.nl/AHN4/DTM
Afsluitdijk (closure dam)	https://www.rijkswaterstaat.nl/water/projectenoverzicht/afsluitdijk https://theafsluitdijk.com/
Cultural heritage map	https://rce.webgis.nl/nl/map/leven-met-water
NVBK	https://www.nvbk.nl/kennisbank/ (e.g. publications and magazine)
HWBP	https://www.hwbp.nl/
Delta programme 2026	https://english.deltaprogramma.nl/
Subsurface information	https://www.dinoloket.nl/en