

An aerial photograph of a coastal region. A wide, muddy river flows from the top left towards the center. To the right of the river, a green infrastructure project is visible, featuring a series of green dikes and a large, modern building with a glass facade. In the foreground, there are several wind turbines and a large, flat, light-colored field. The sky is overcast and grey.

**EEMS<sup>20</sup>  
DOLLARD<sup>50</sup>**

**Program Eems-Dollard 2050  
Kring of Coastal Engineers  
September 22th 2019**

**Jaap Siemons**



## E&E in brief

EEMS20  
DOLLARD50

- Philosophy: investing in nature creates space for economic development
- 20 Parties
  - Governments, NGO's and companies
- Eems-estuary (seaside) en Eemsdelta (landside)
- Platform, to seek solutions, to boost innovations and to accelerate operations
- Agreement with intentions E&E 31-10-2012

***'Fundament = the will to cooperate!'***



## E&E Method



Success factors:

- ‘Developing’ in stead of ‘allowing’
- Dialog up front, openness and transparency
- Stimulating new relationships companies, NGO’s and governments
- Governmental regulation = safety net in stead of steering instrument



# Results

- Development industrial areas around two harbours (incl. Google)
- Development of large wind on land concentration areas (850 MW)
- Acceptance of an strategic oil reserve VOPAK (incl. deepening fairway in Eems-Dollard estuary)
- Ecological measures borders (soggy) and sweet-salt transitions
- Birds Radarinstallations and investments in birds isles
- Ecological + in acquisitions
- **Program Eems-Dollard 2050**

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# Motivation

## **Eems-Dollard: ...unique nature area**

- only remaining estuary in the Waddensea, the Netherlands
- Rare nature types
- UNESCO world heritage: Waddensea

## **... ecological bottleneck**

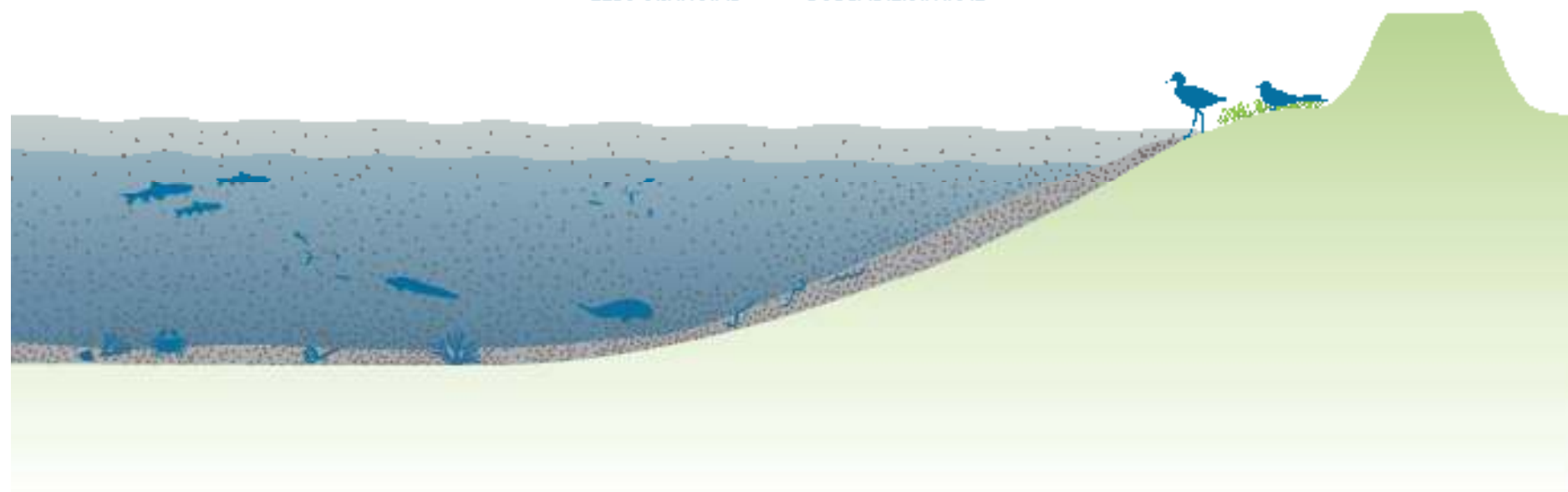
- loss of land-water transition zones (fresh- & salt)
- increase of turbidity
- decrease of primary production

## **... large task with environmental opportunities**

- energy transition, industrial greening and port development
- improve quality of life
- climate adaptation and water safety



HUIDIGE SITUATIE



# Aims of the program

## Assumptions in MIRT-research report

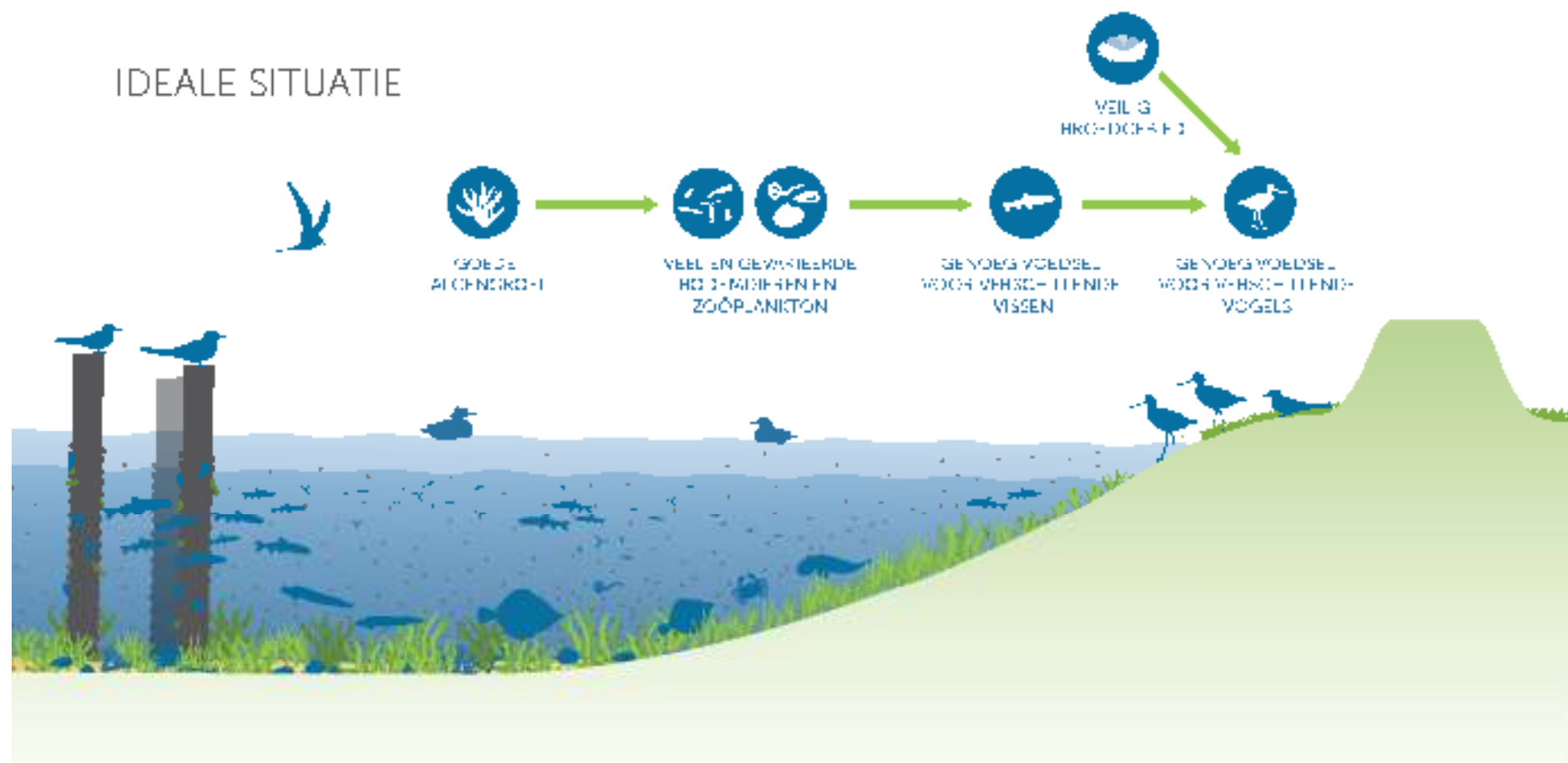
- Need for solution based approach
- Implementation of the multiannual adaptive program

## Program Eems-Dollard 2050

- Cooperation between nation and region to improve water quality
- Programming measures
- Implementing insights and innovations
- Realising ecological target for ED2050
- Corporation with Germany



IDEALE SITUATIE





# Upscalable pilots



# Fourteen projects



# Eight Owners (3 big Supporters)



Rijkswaterstaat

Waterschap NOORDERZIJLVEST



provincie  
groningen



Het Groninger  
Landschap



Ministerie van Landbouw,  
Natuur en Voedselkwaliteit



Ministerie van Infrastructuur  
en Waterstaat



waddenfonds

**HWBP**  
voor sterke dijken

# Hydro-morphological improvement (1/2)

## Aims

- Insights in hydro-morphological processes
- Explore measures to reduce slick concentration to improve ecology
- Knowledge development for adjust ecological target



## Approach

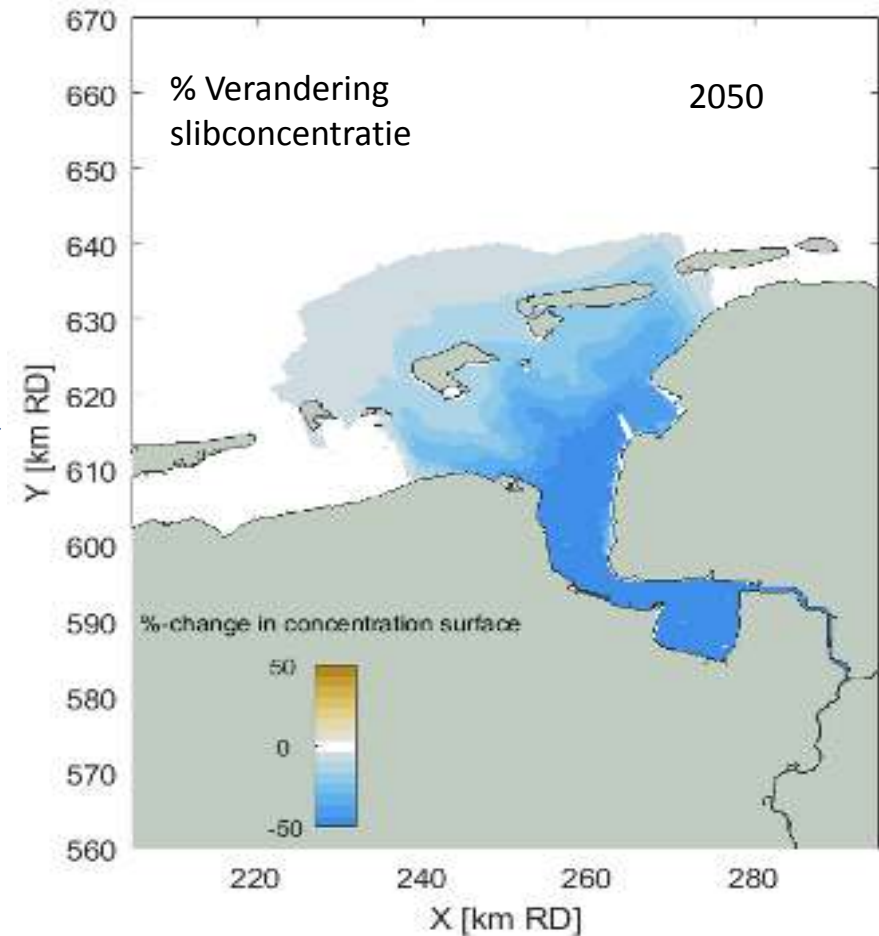
- Application-oriented modelling of water- and sediment
- Insight in long term development of the estuary
- Effect evaluation of the measures (short- and long term)



# Hydro-morphological improvement (2/2)

## Measures

- Subtract silt 
- Deposit silt in Waddensea
- Increase sand plate area through the deposit of sand
- Advance sedimentation 
- Addit terrestrial intertidal area
- Emphasis and extension of river characteristics



# Vital coast (1/2)

## Aims

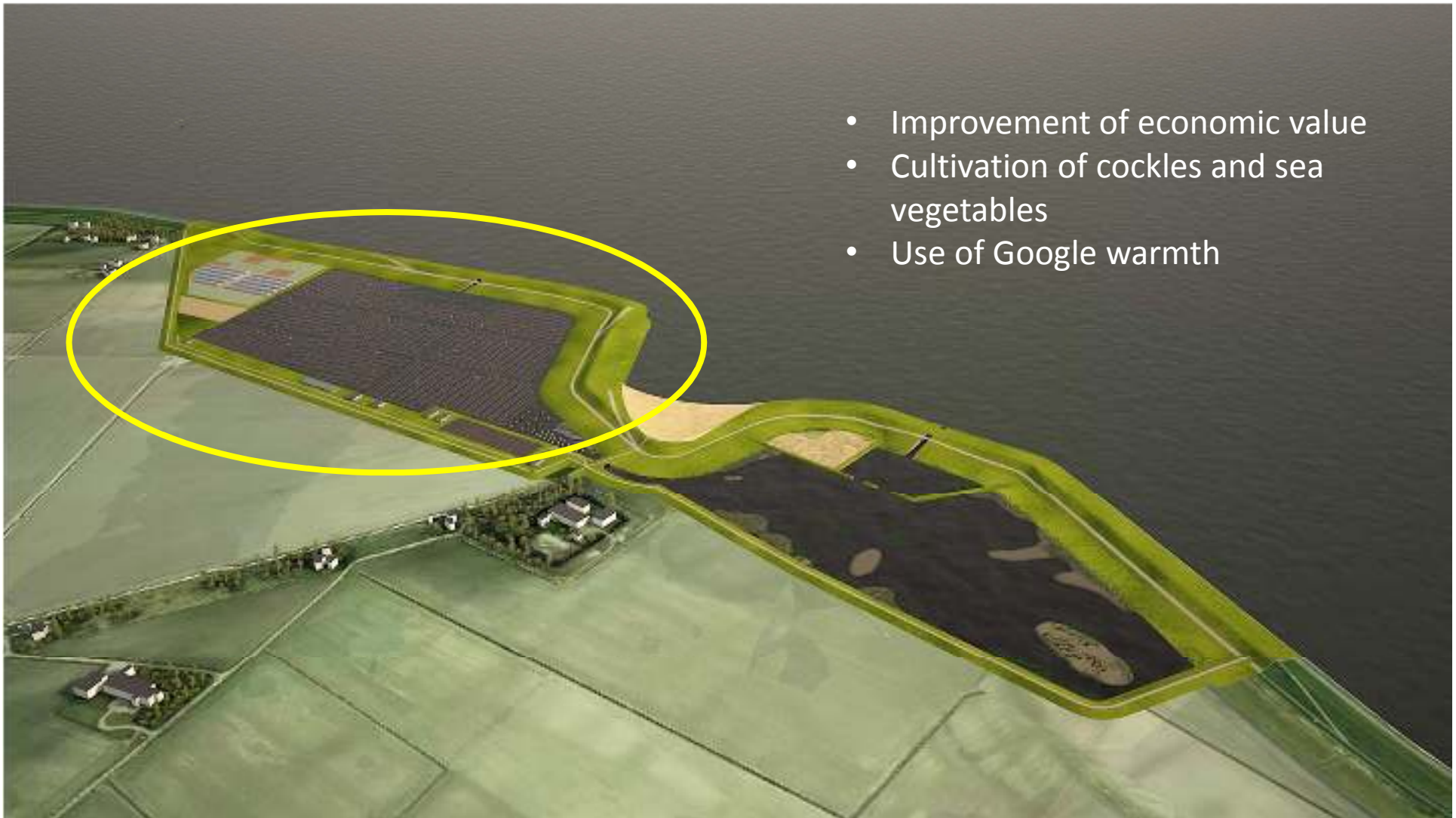
- Restore estuary transition zones (fresh-salt, water-land, breeding area and flee-grounds for birds)
- Create capture capacity for slick

## Approach

- Opportunities to connect economy, water safety and environmental experience/quality
- Water safety innovation as main driver
- Explore opportunities for upscaling concepts

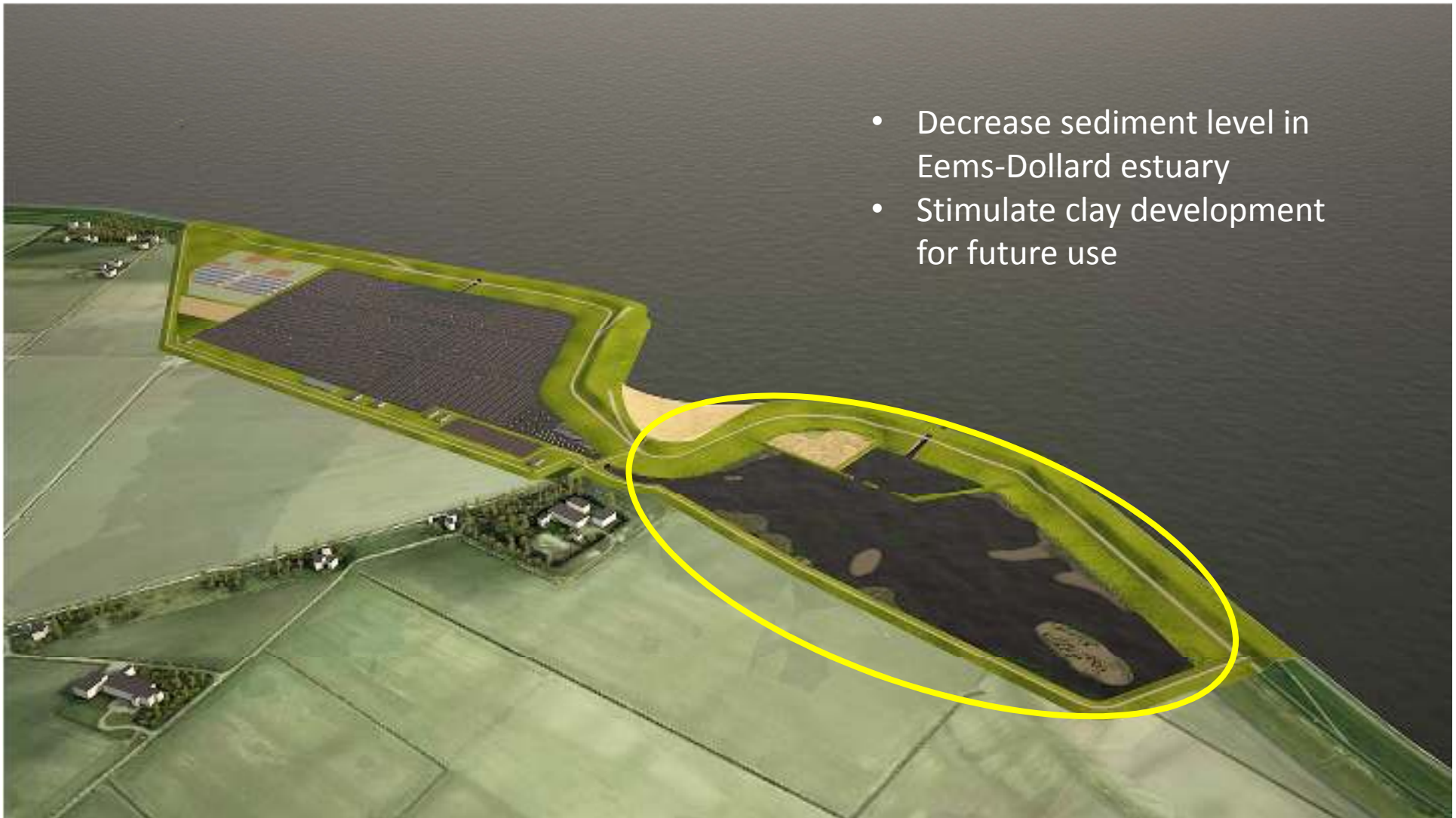


# Innovative agriculture



- Improvement of economic value
- Cultivation of cockles and sea vegetables
- Use of Google warmth

# Building with nature



- Decrease sediment level in Eems-Dollard estuary
- Stimulate clay development for future use



# Vital coast (2/2)

## Projects in first phase

- *Birds Isle Stern*
- *Twin Dike*
- *Rich Dike*
- *Marconi*
- *Great en Little Polder Termunten*
- *Polder Breebaart*
- *Broad green Dike*
- *Mosselbed Paap*



EEMS20  
DOLLARD50

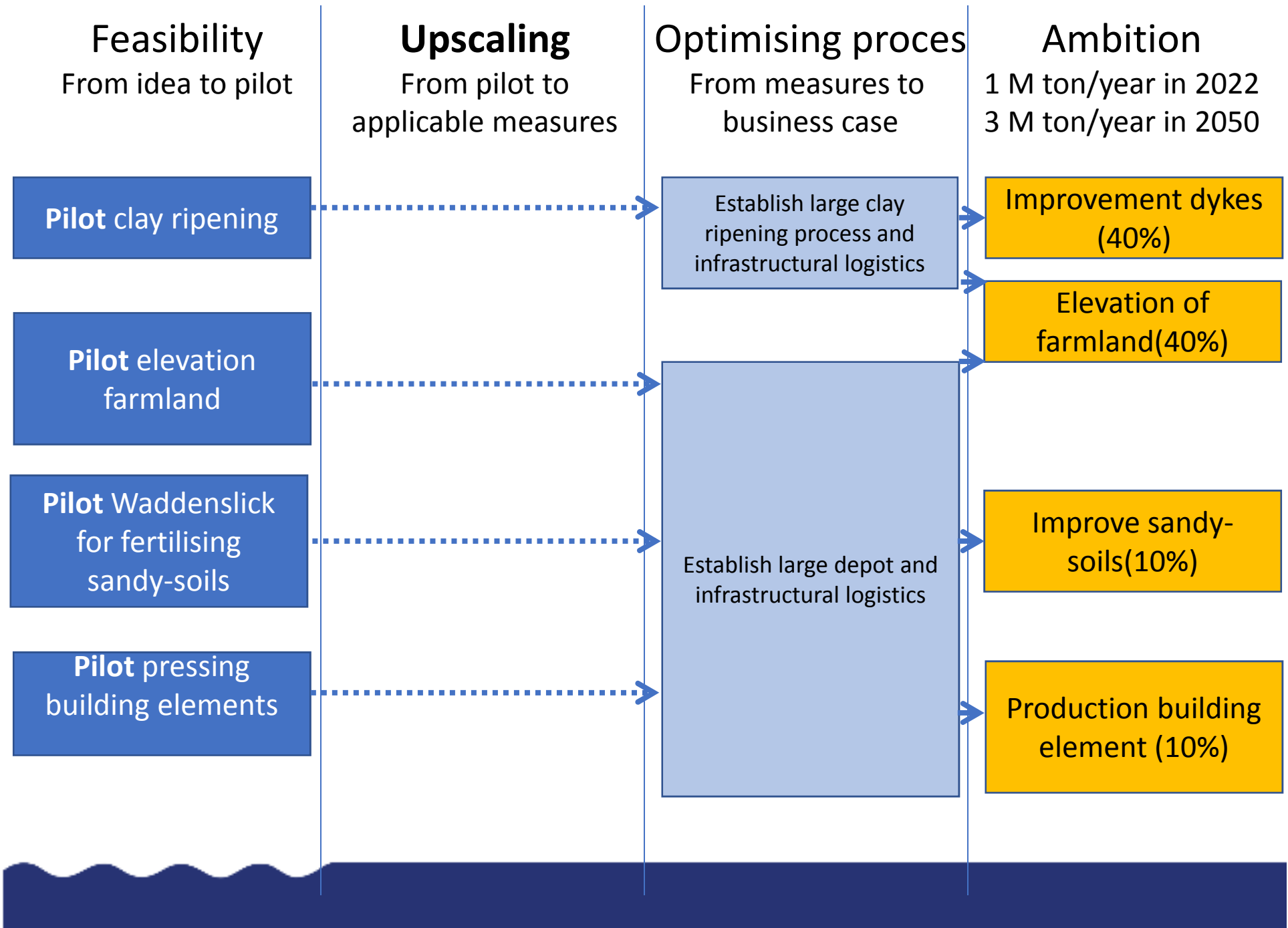


# Utilise slick (1/2)

## Aims

- Identification and exploration of business cases to utilise slick
- Facilitate upscaling with the ambition to utilise annual 1 million ton of slick (starting in 2022)





# Cooperation with Germany (1/1)

## Aim

- Improve boardcrossing cooperation on all levels with as basis the common content

## Approach

- Workgroups for cooperation (monitoring, communication, counsel)
- Workgroup SubG (knowledge exchange utilise slick, effects on nature and the measure utilise slick)

