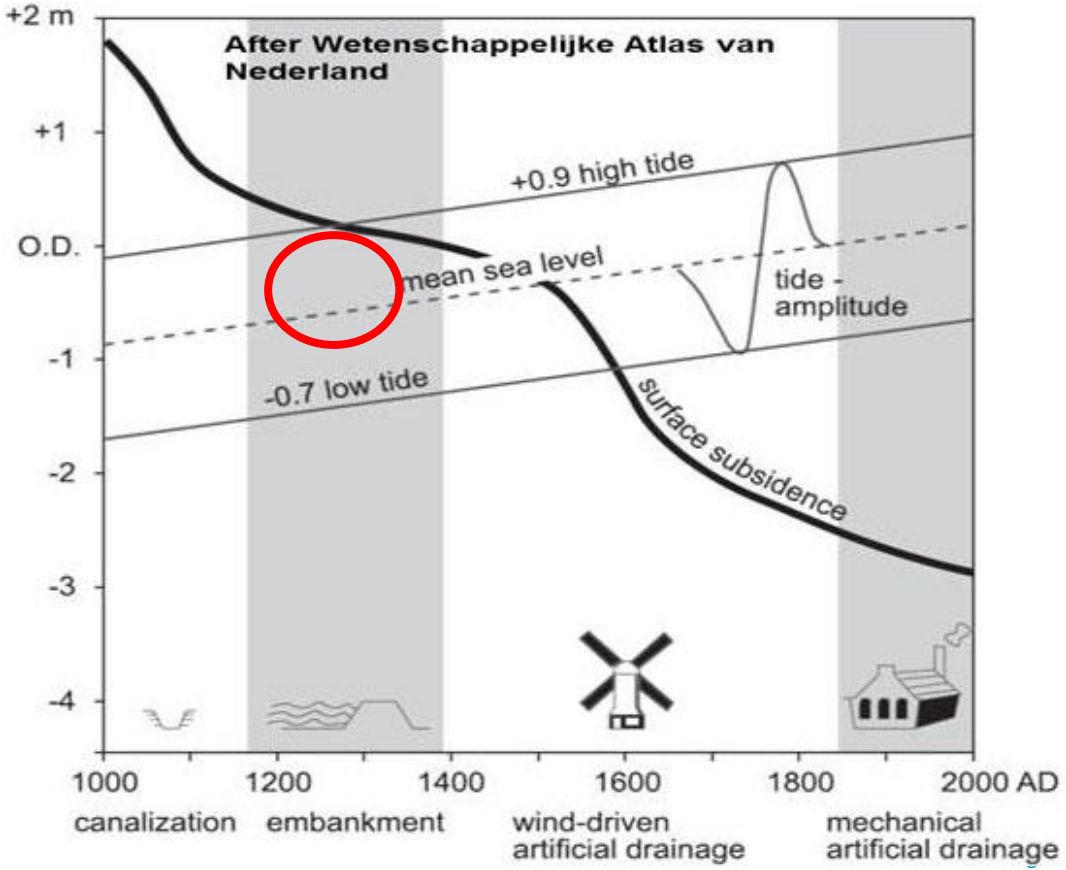
WETTERSKIP FRYSLÂN

DUTCH WATER AUTHORITIES

RAISING WATER LEVELS TO FIGHT PEATLAND SUBSIDENCE AND PEAT OXIDATION

LUZETTE KROON - PRESIDENT WATER AUTHORITY FRYSLÂN

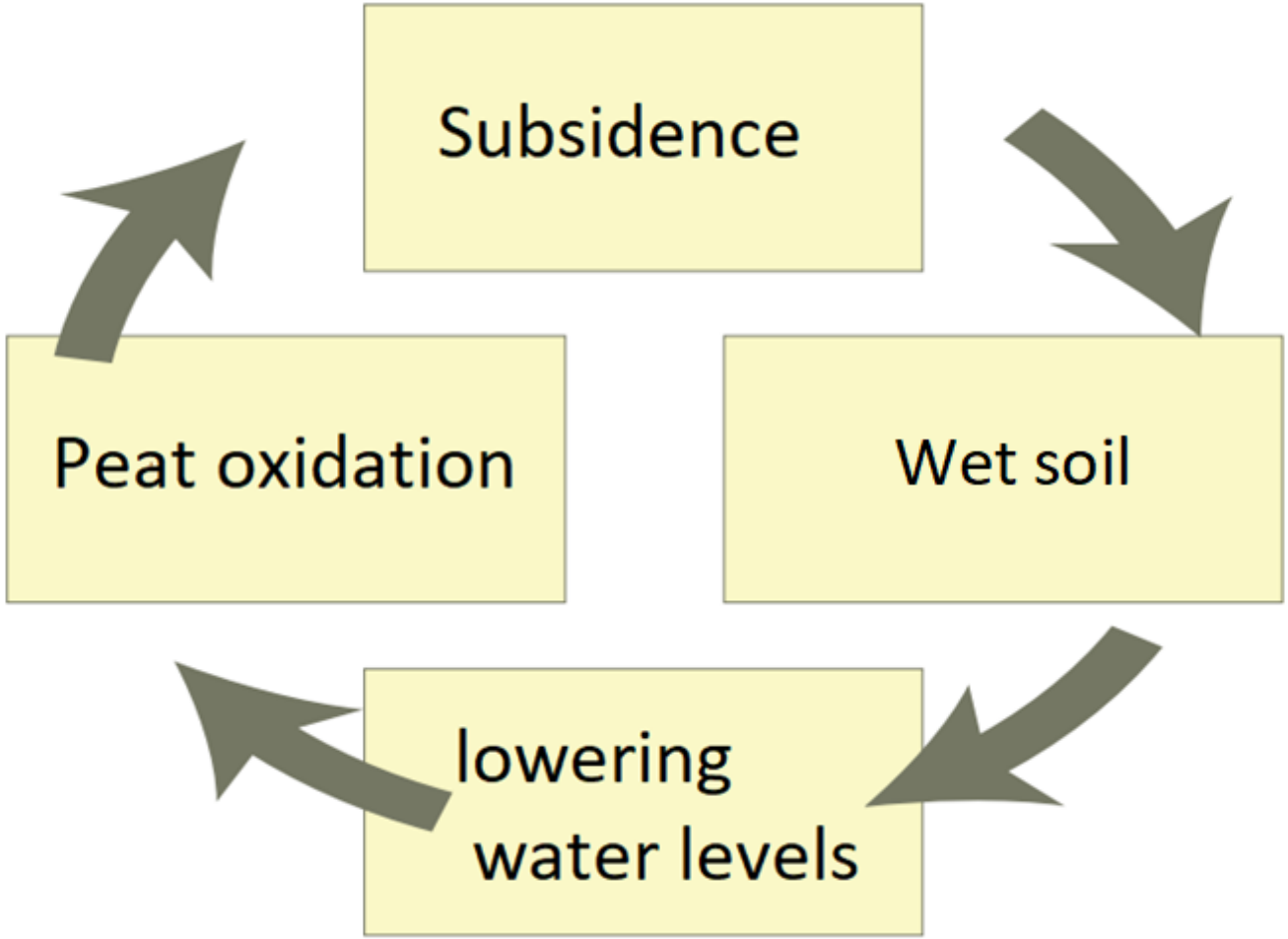
Land subsidence in the Netherlands



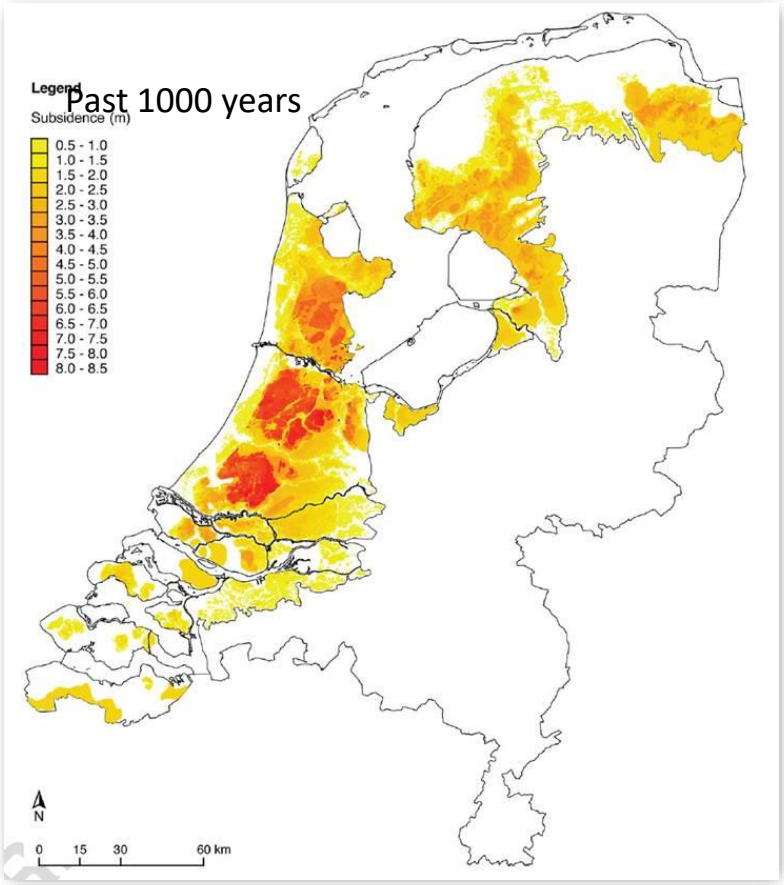
Bron: deijsselpoort.nl

Bron: onbekend

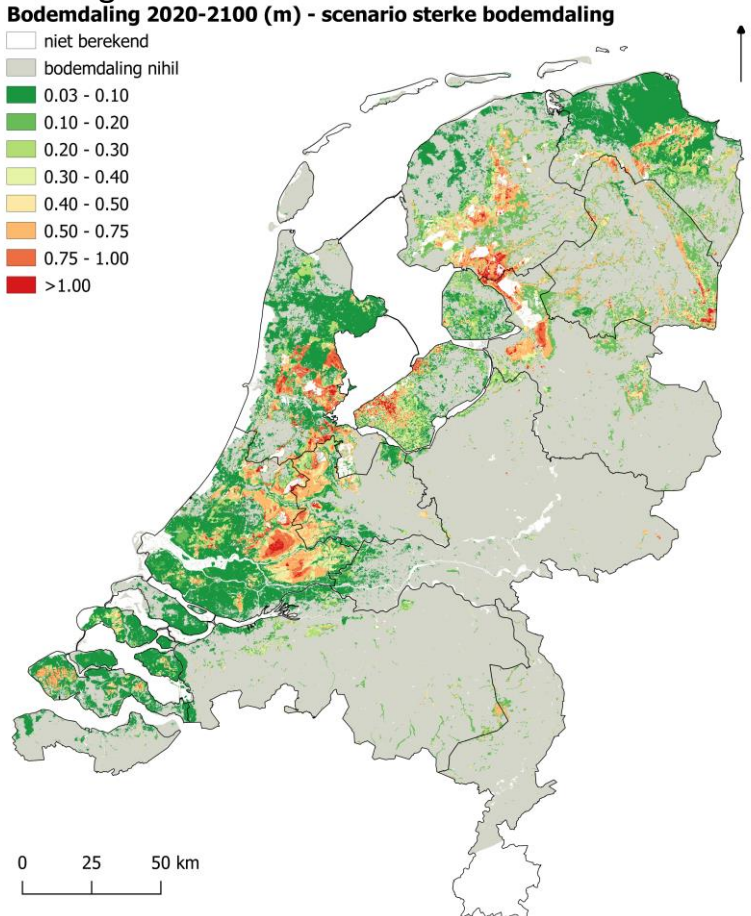
Sources: Deltares, Utrecht University


Subsidence
Wet soil
lowering
water levels
Peat oxidation

Human-induced land subsidence, past 1000 yrs and coming 80 yrs

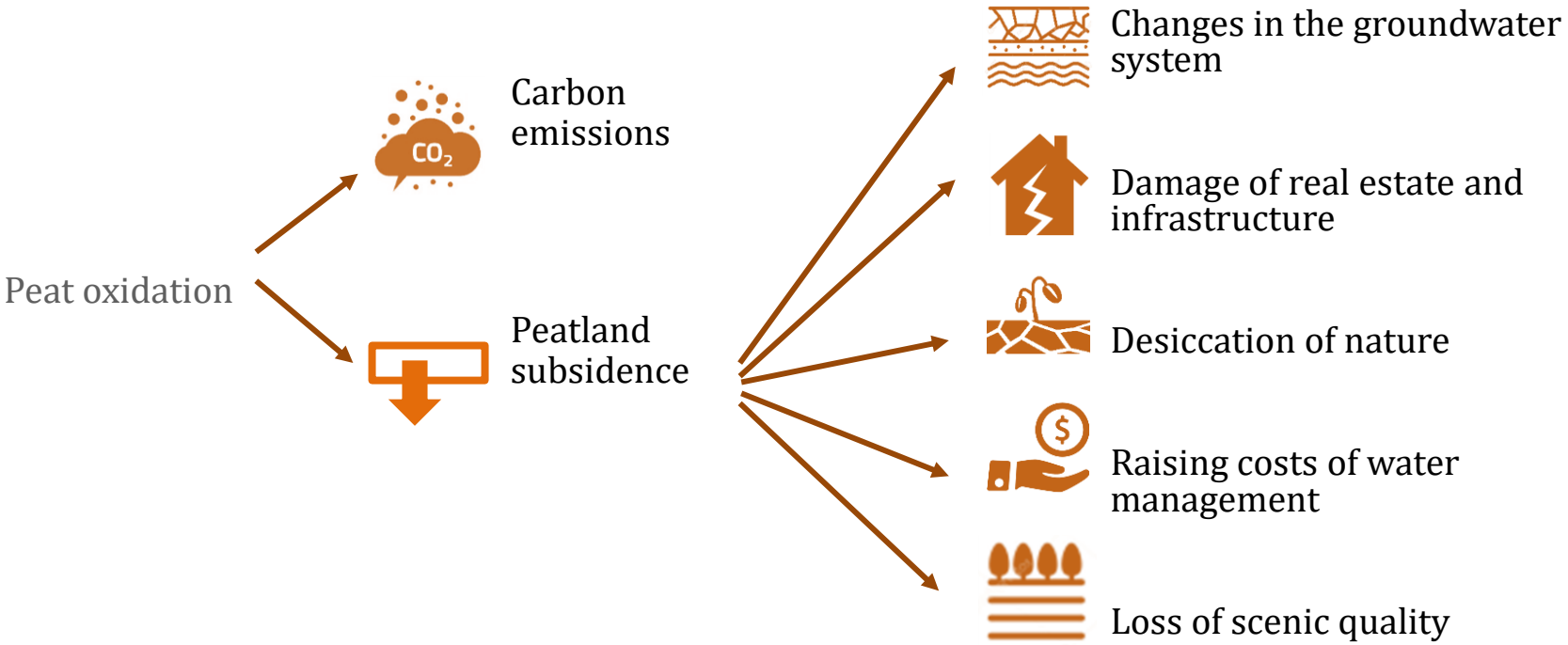


Coming decades



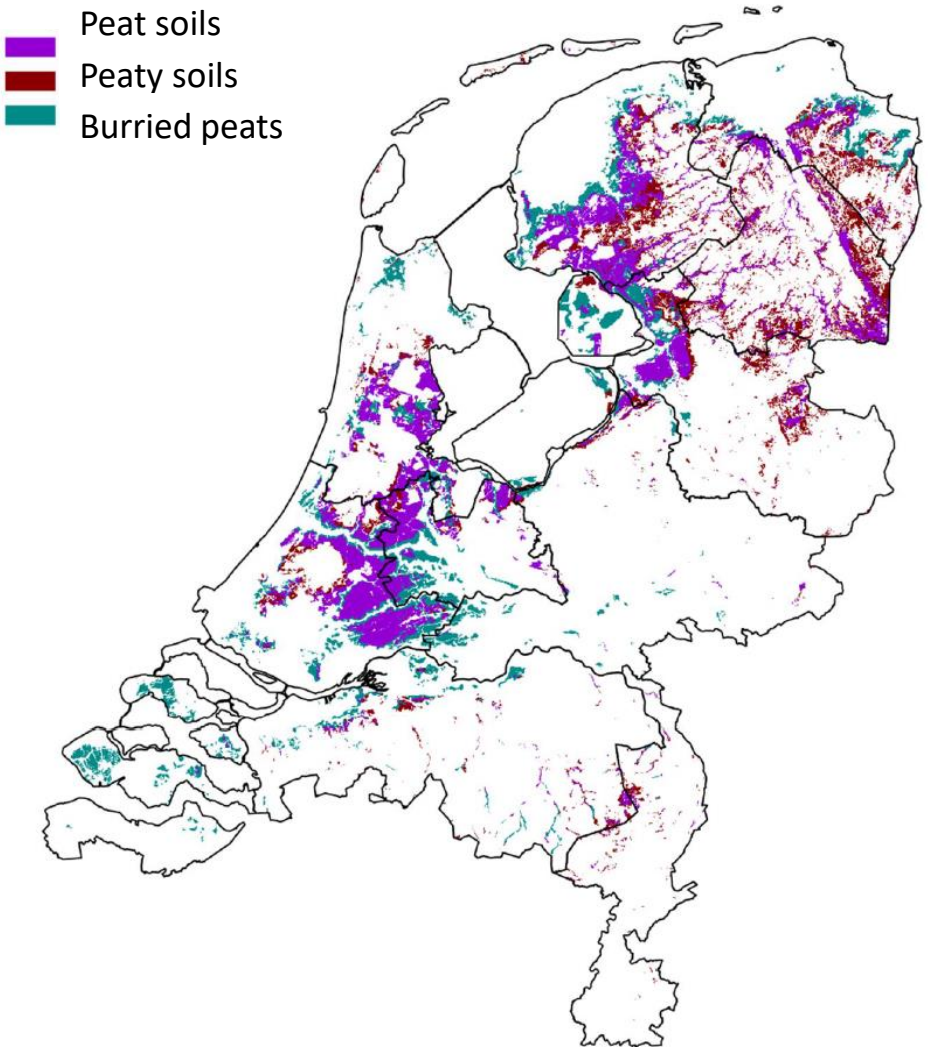
Sources: Deltares, Utrecht University

Challenges in our peatland area



The Dutch peatlands

- 9% of the Netherlands contains organic soils
- Land use is mostly grassland and dairy farming
- Peat is drained with ditches, with drainage depths of 0-100 cm below surface
- Currently ~5.6 Mton CO_2 yr^{-1} emission (Ruyssenaars et al., 2020)
- National climate law and climate agreement: WHAT= reduction of 1 Mton CO_{2eq} yr^{-1} in 2030
- HOW = Reagional Peat Strategies
- National Peatland Programme focusses on coastal plain peat, not on the stream valley areas.

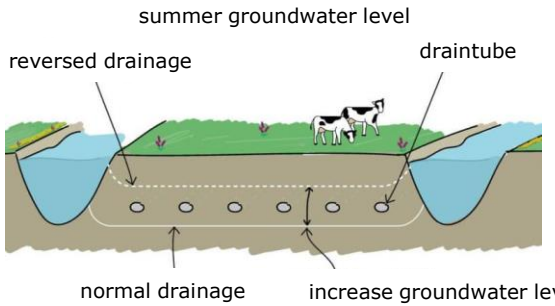


Sources: Deltares, Utrecht University

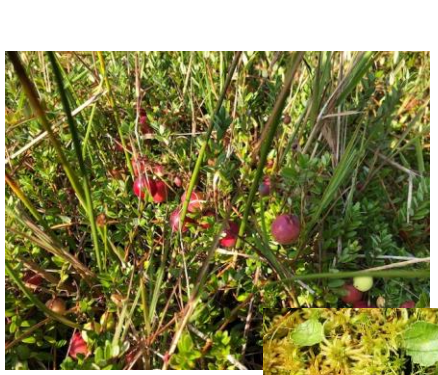
Research & Development:

- National Research program on measuring (reduction of) greenhouse gas emissions
- National Peatland innovation program

- **A: Dairy farming at higher (ground)water levels**
  - Reversed drainage systems/infiltration techniques
  - Soil structure improvements (Clay in peat)



- **B: development of wet cultivation systems**
  - Typha, Miscanthus, Cranberry and Spaghnum

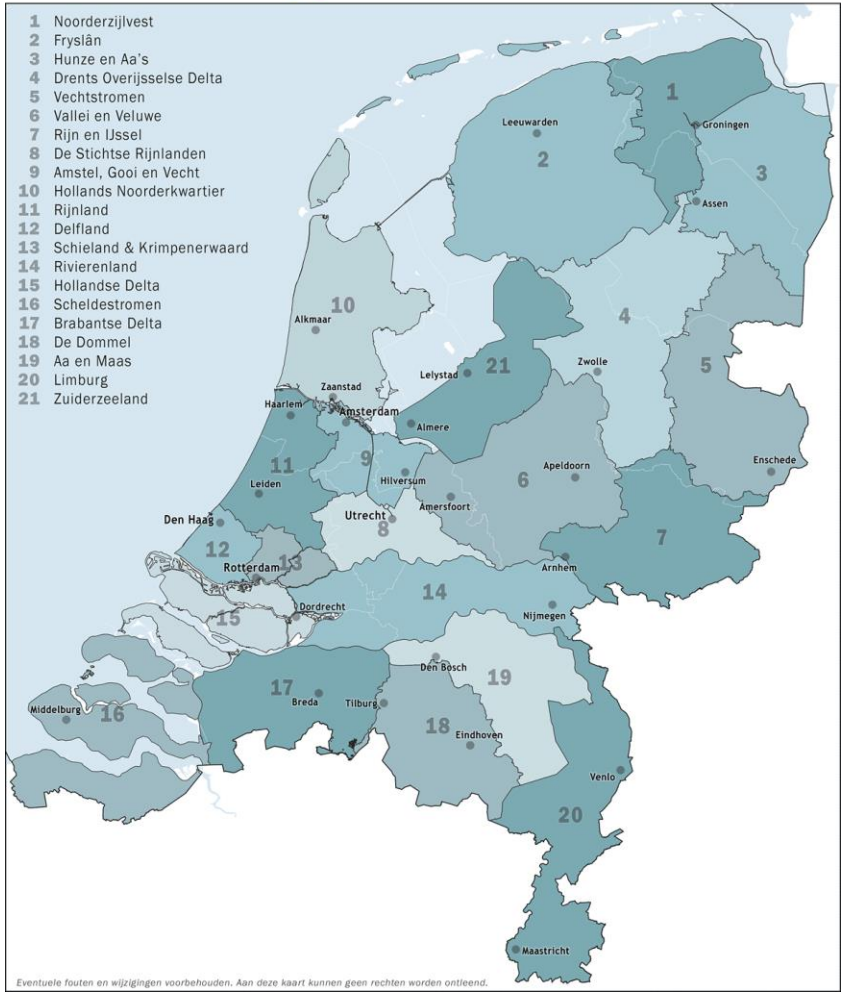


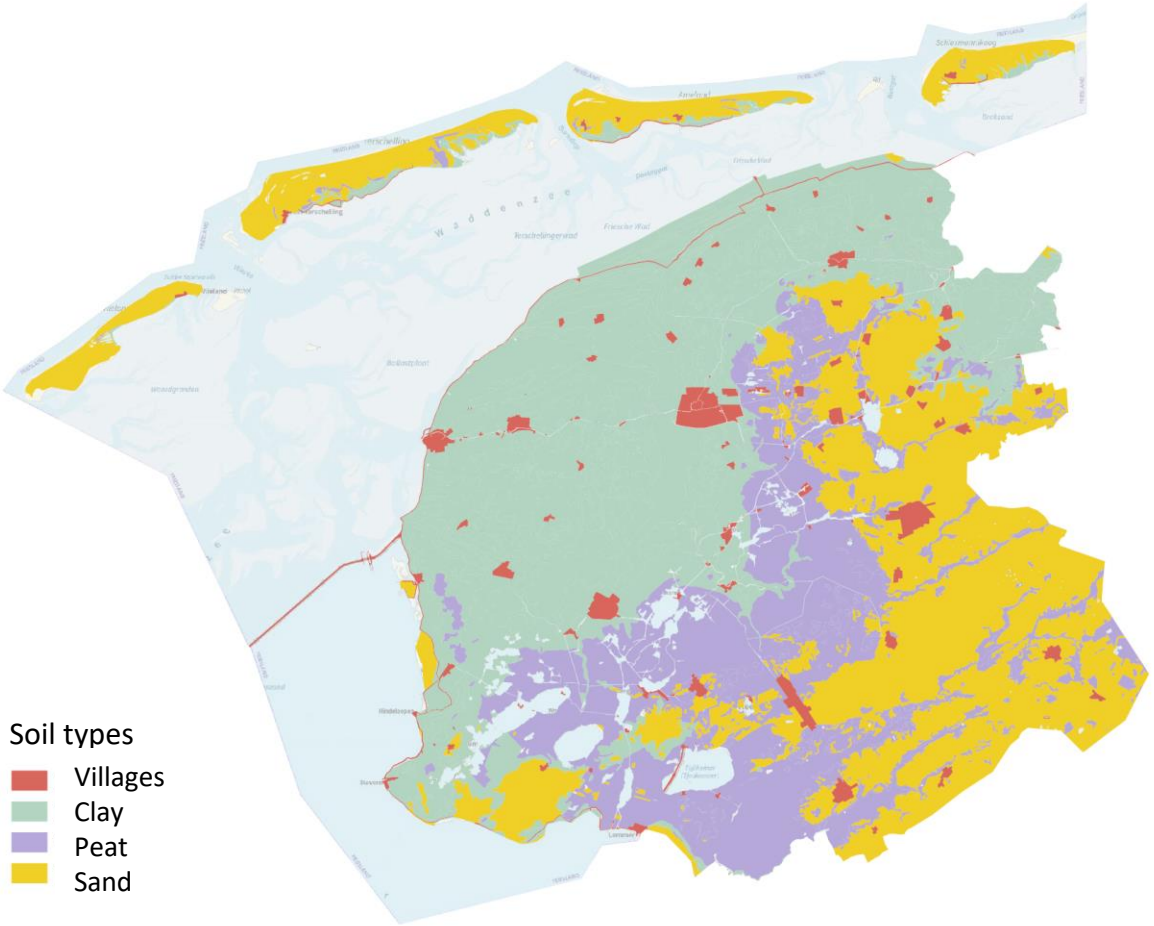
- **C: transition of agrictulure to natural wetlands**

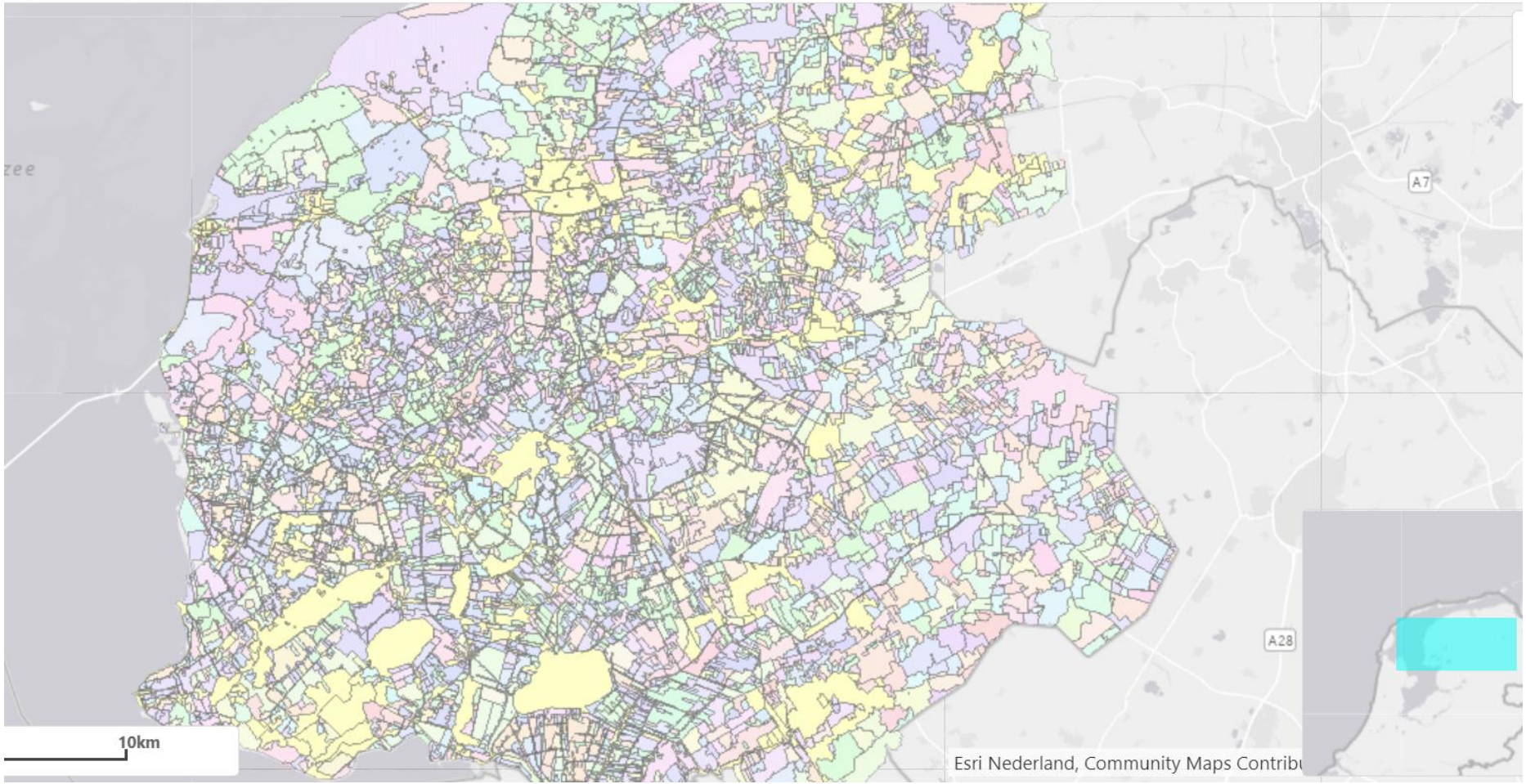
WATERBEHEER

21 Waterschappen

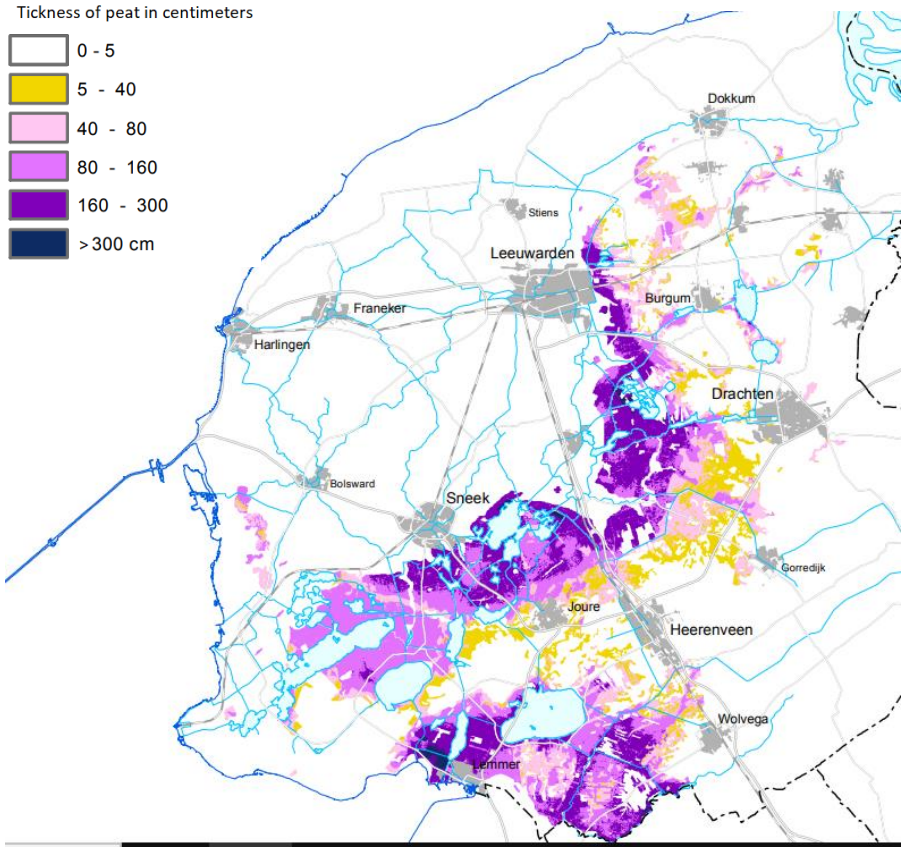
2019

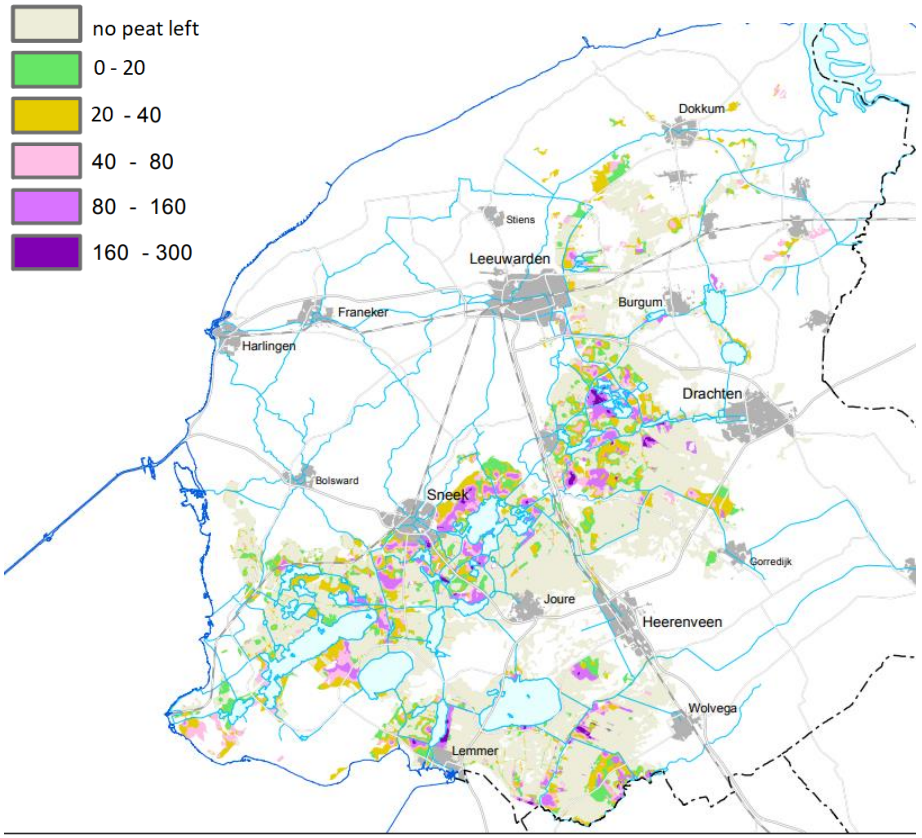



Soil types
Villages
Clay
Peat
Sand



- Watermanagment in the Netherlands is very well organised and structured.
- Fryslân: 8200 different water levels and almost 1000 pumping stations for the polders





- Thickness of peat now and in 2100 AD – doing nothing will make the peat disappear

REGIONAL PEAT STRATEGY

- Fryslân is first province presenting a Regional Peat Strategy
- History of deep ground water due to land consolidation

- Aim to reduce 0.4 Mton CO2 of the 1.0Mton nation-wide ambition
- Costs over €550mln, €67mln is present.
- Costs Including €150mln for transition of watersystem
- Starting point: Peat area will remain a agricultural area

- Bottom-up process
- Cooperation of province, water board, municipalities and NGO’s
  - Still over 200 responses in participation process

Implementation Regional Peat Strategy

- Implementation is a bottom-up process with an integrated approach
- Working togheter with representatives of argricultural and nature parties
- Doing research and pilots togheter with farmers
- Making plans in 6 sub-areas