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Central Denmark Region

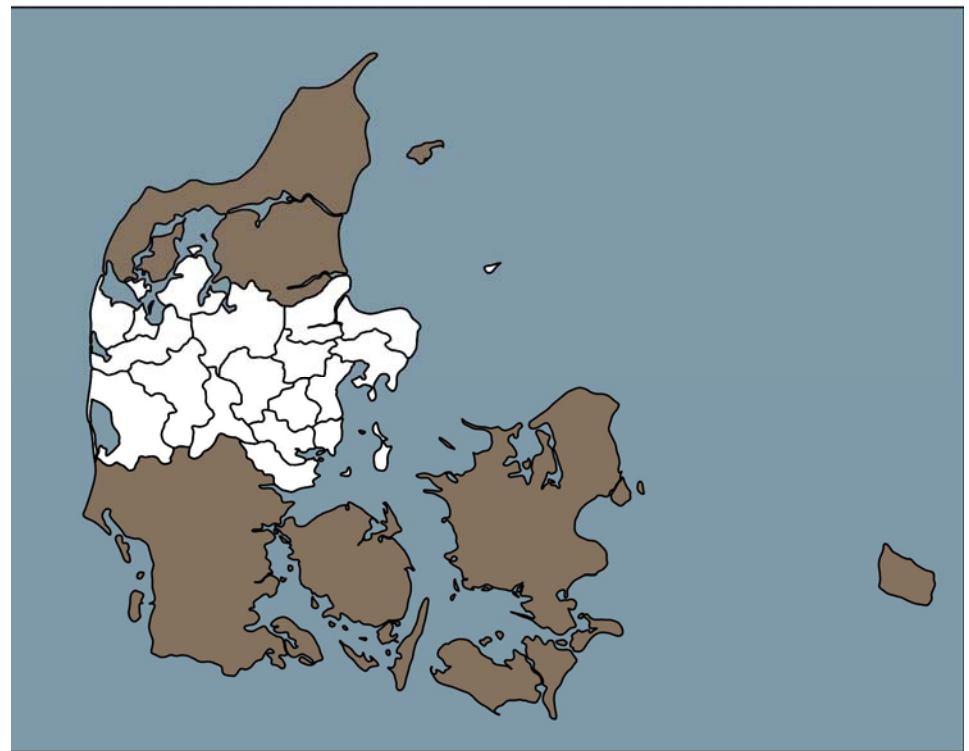
Implementing Groundwater Strategy

Visualizing and Communicating the Priorities through GIS

Halfdan Sckerl
Birgit Bisgaard

Central Denmark Region (CDR)

- 30 % of the country area
- 25 % of population
- 26.000 employees
- Main responsibility: Hospitals/health
- 50 in environmental department



Environmental department

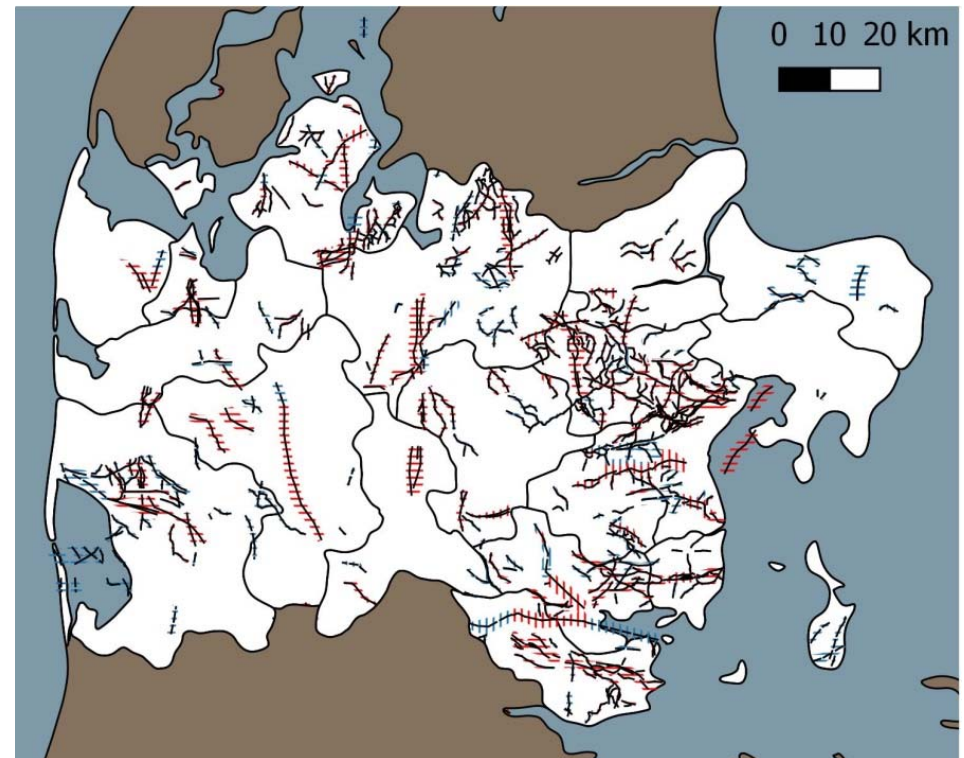
Three main tasks

- Climate adaptation
- Extraction of raw materials
- Contaminated sites



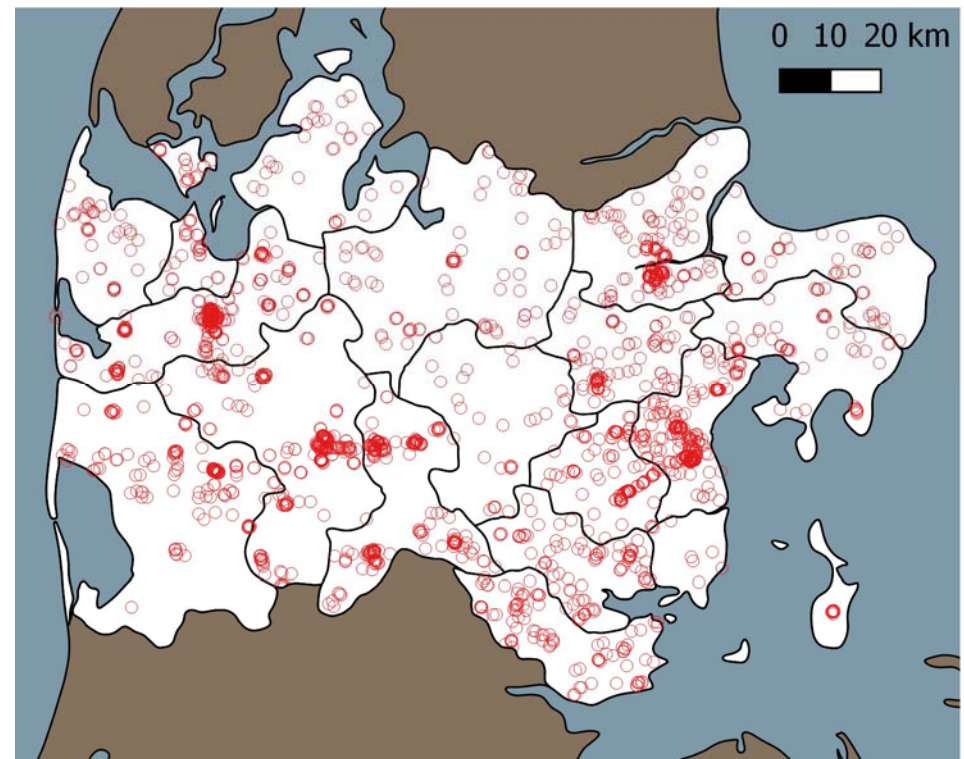
Drinking water in CDR

- Based on Clean groundwater
- Decentralized water supply
- Aquifers i various depths



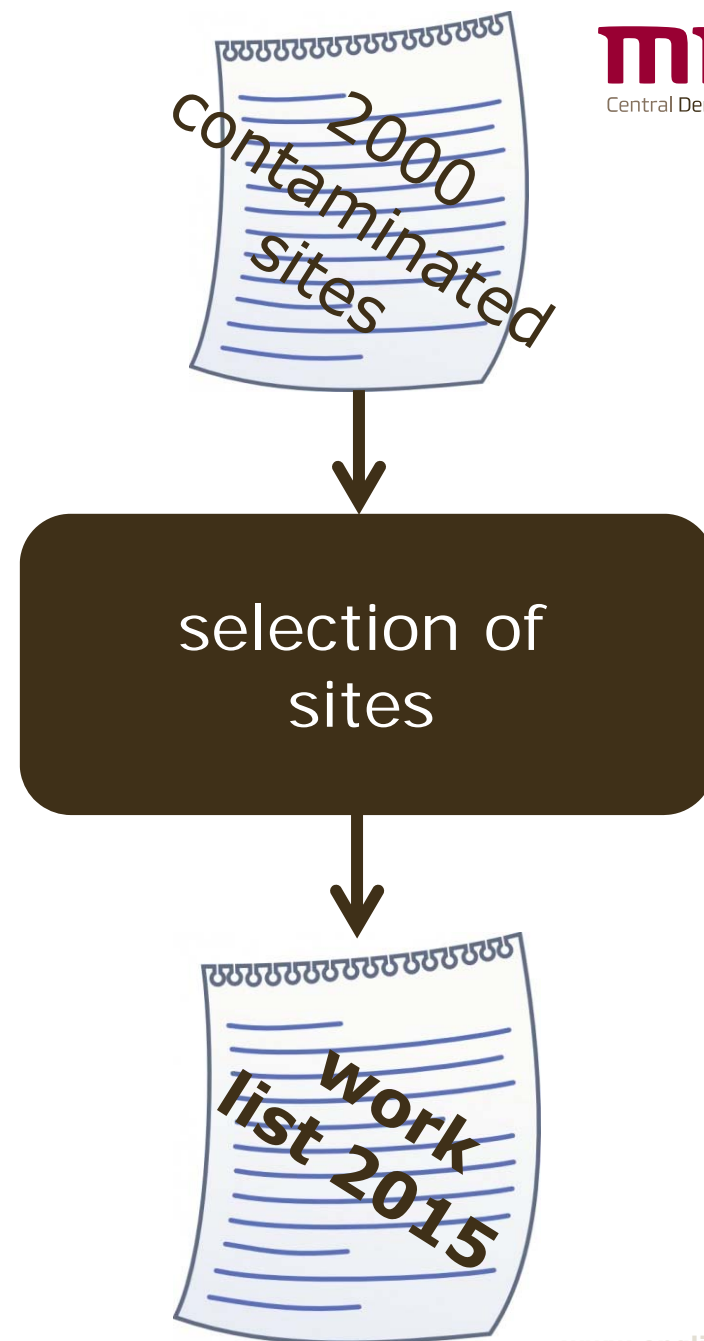
Contaminates sites

- CDR work area:
Registration,
investigation and
remediation
- 2000 sites pose a
potential threat to
groundwater
ressources



Before - situation

- selection of sites – black box
- difficult to explain selection criteria



Groundwater strategy

Developed in collaboration with the stakeholders

- 4 contaminant specific principles
- 6 principles with a geographic component



Groundwater strategy

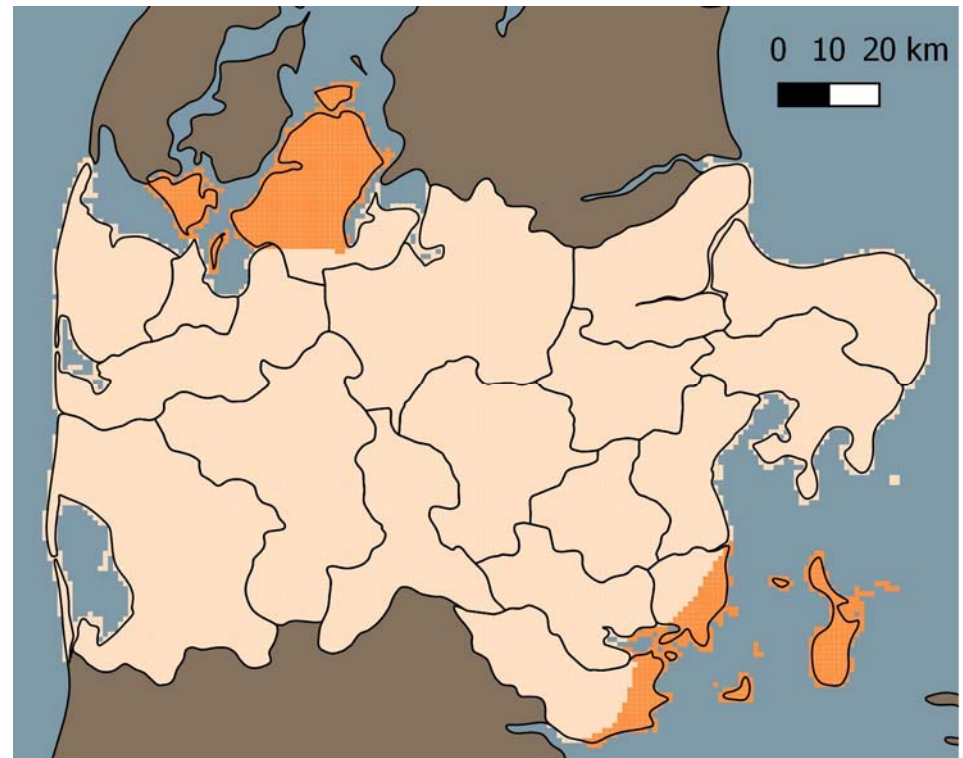
Geographic principles

- difficult to find new clean groundwater
- increasing need for drinking water
- vulnerable groundwater aquifers
- unfavourable conditions for decomposition
- few soil and groundwater contaminations
- local initiatives are done to protect the groundwater

difficult to find new clean groundwater

Principle weight 20%

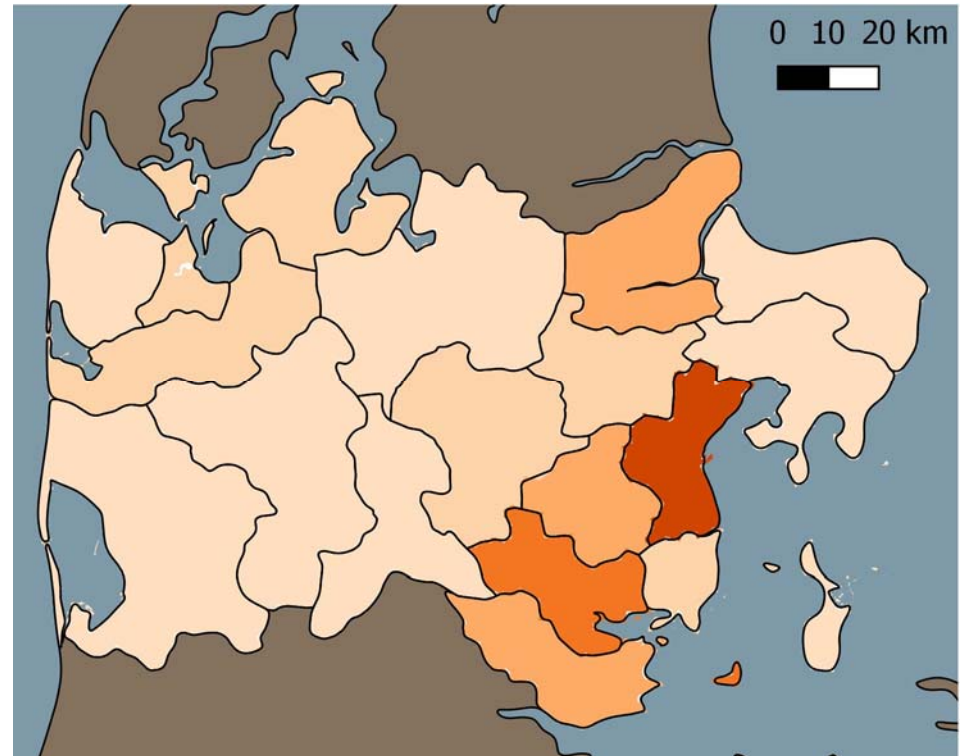
- areas where groundwater resources are scarce



increasing need for drinking water

Principle weight 20%

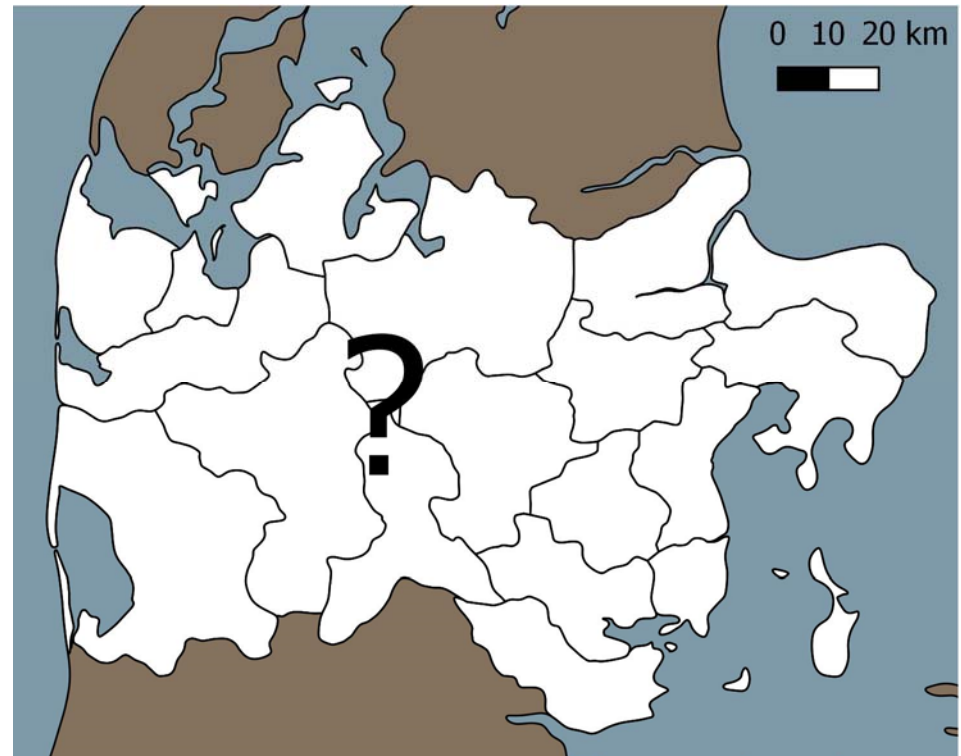
- developed in collaboration with local university
- demand in 2050



vulnerable groundwater aquifers

Principle weight 10%

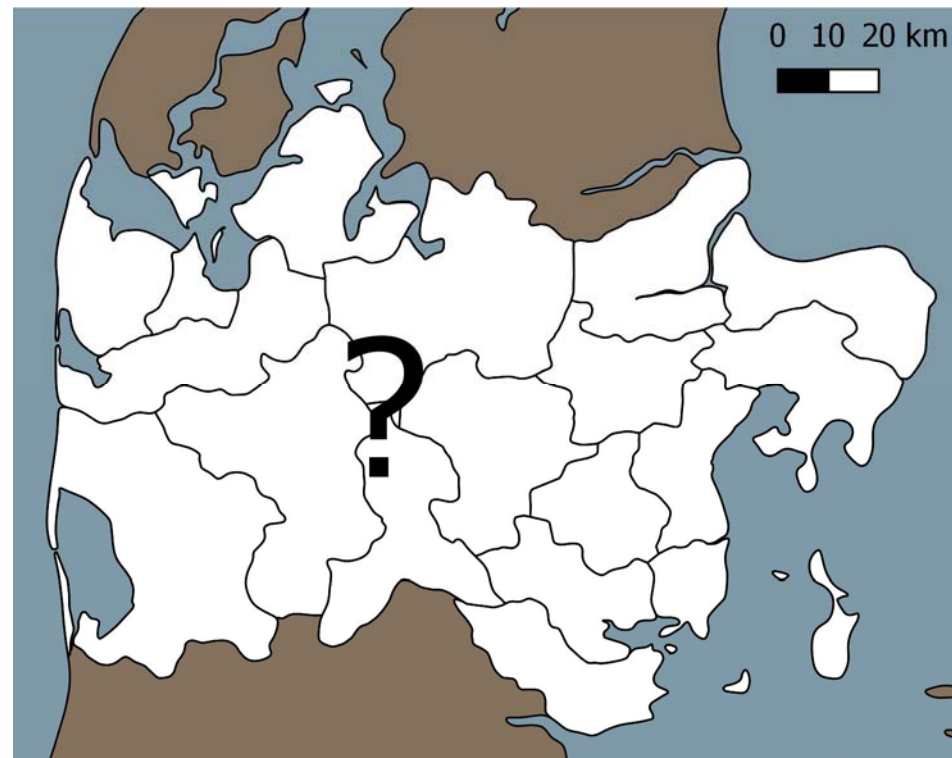
- not implemented in 2018
- maybe on the basis of the national groundwater mapping campaign?



unfavourable conditions for decomposition

Principle weight 10%

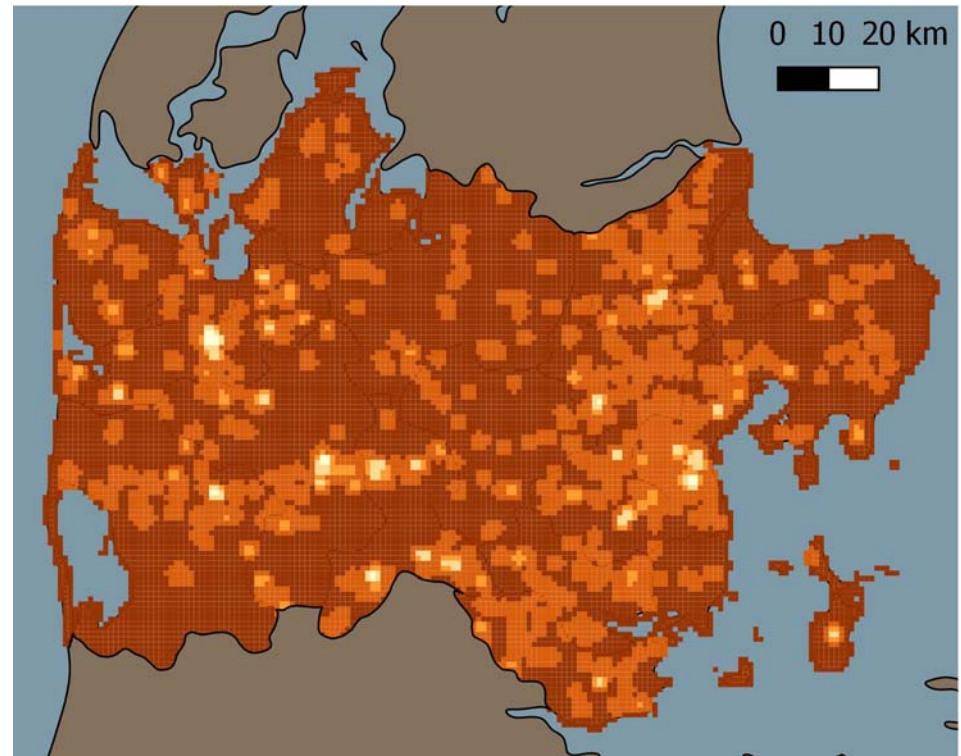
- not implemented in 2018
- awaits national initiative (fall 2018)



few soil and groundwater contaminations

Principle weight 20%

- interpolated 'heat map'
- rural areas with high priority



local initiatives are done to protect the groundwater

Principle weight 20%

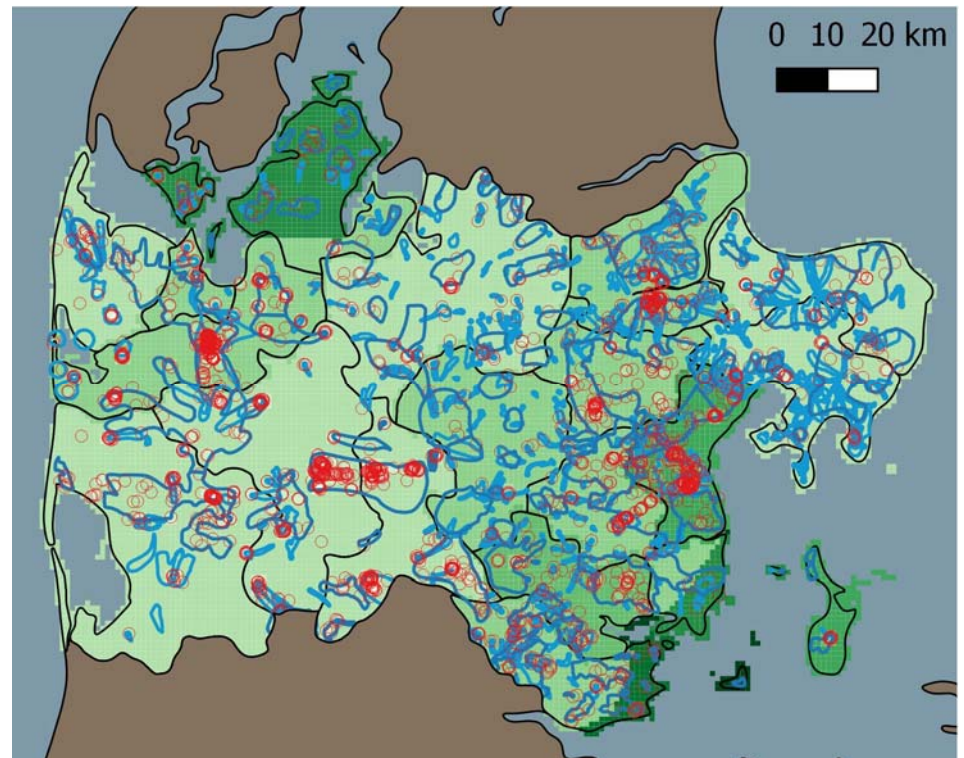
- Handeled in daily collaboration with stakeholders



combined map

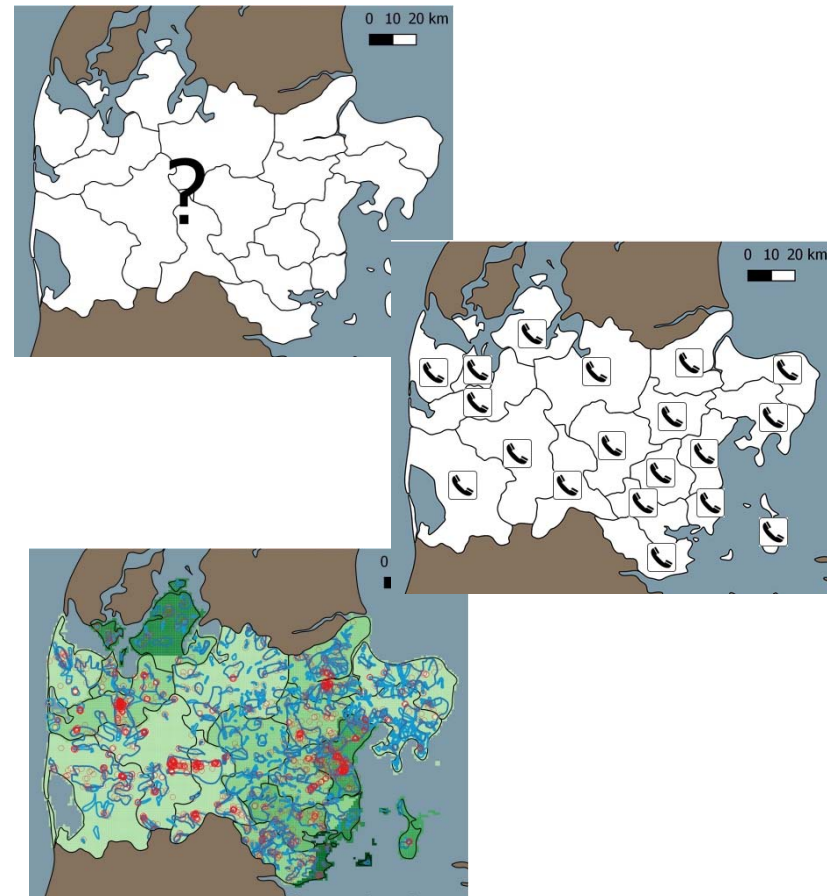
Combined principles 1,
2 and 5

- integrated score
applied to every
contaminated site



road ahead

- implement missing geographic principles
- find a better way to implement principle 6
- yearly updates of raster maps



lessons learned

- define your own starting point
- you don't need a Rolls Royce in order to get rolling
- include the stakeholders to obtain their accept and ownership



Thank you for your attention!