

INGEOKRING

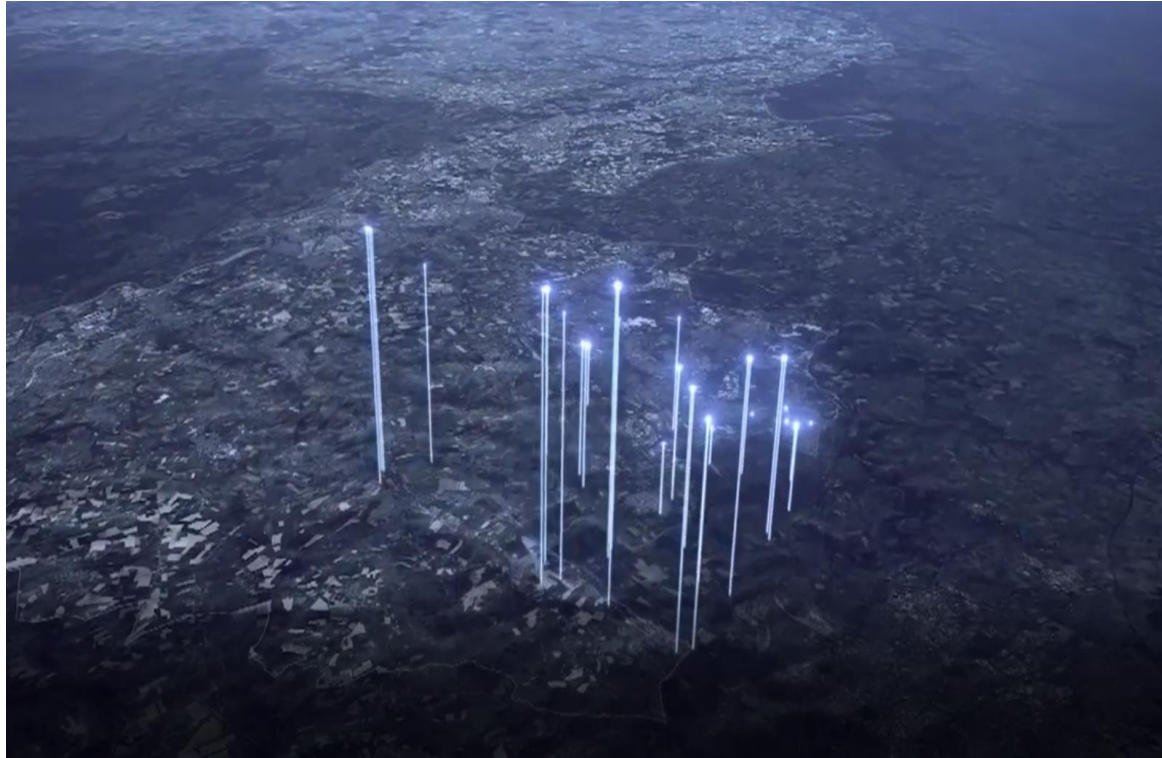
INFORMATIECENTRUM NAZORG STEENKOOLWINNING



kragten

CONTENTS

- ▶ Informatiecentrum
- ▶ Datamanagement
- ▶ Monitoring and action-protocol:
Groundwater Quality
- ▶ Monitoring Risk Warning System Groundmovement





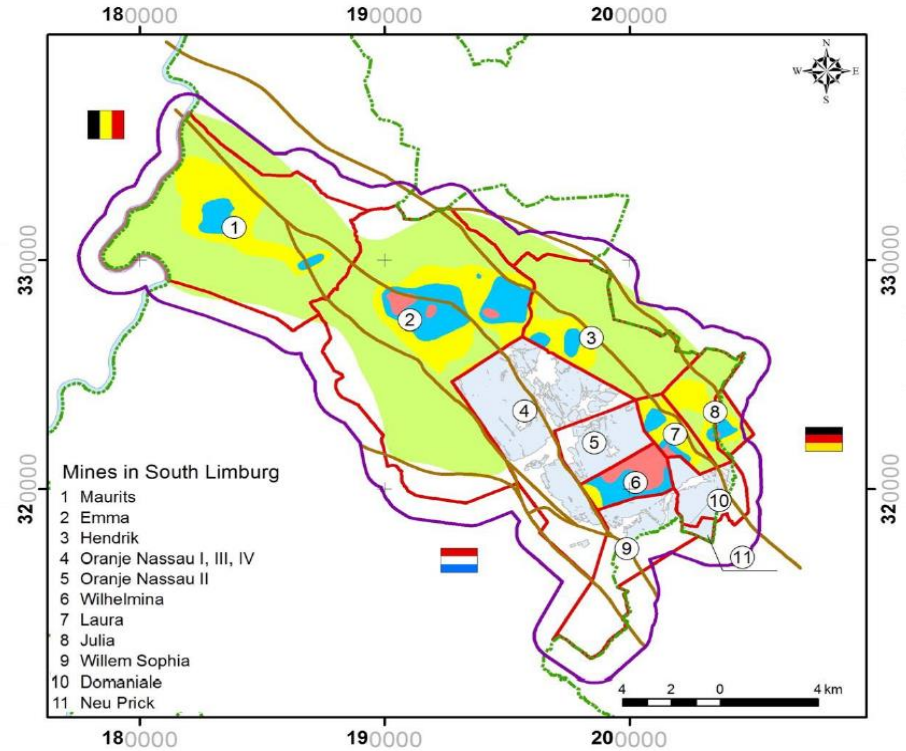
kragten



kragten

Subsidence 1900-1975

Subsidence (m)



Subsidence 1900-1975



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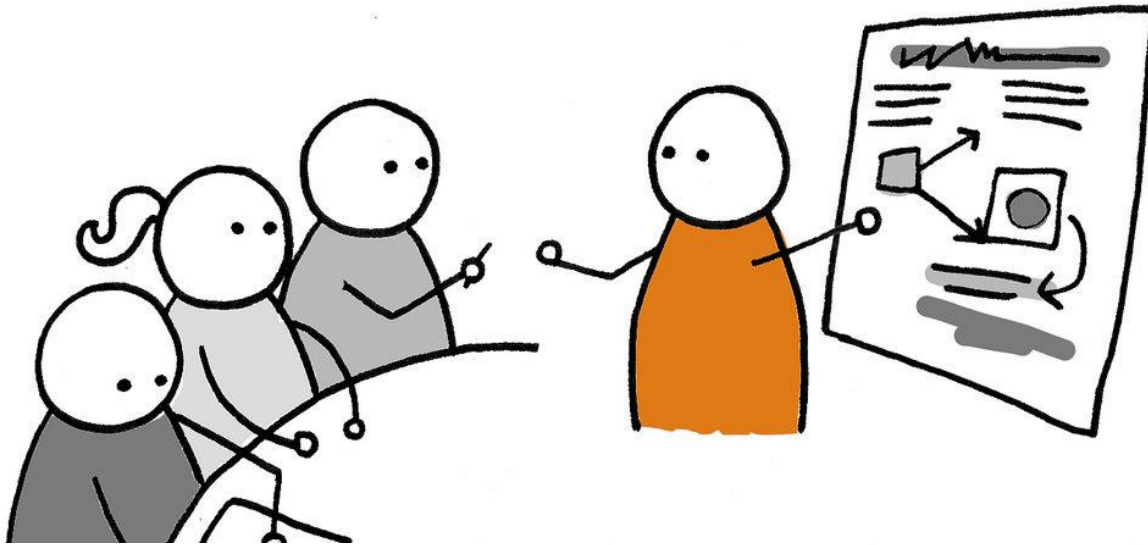
- ▶ Redevelopment of mine-sites
- ▶ No legal conessor of mine compagnies

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- ▶ Legal limitation time for all damage claims is expired
- ▶ When severe damage:
 - Calamiteitenfonds
 - TCCB
- ▶ Recommendations IHS and Coal Authority: Centre of expertise.

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- ▶ Support responsible authorities (province, municipalities) with riskmanagement
- ▶ Expertteam and 'Gegevenshuis'

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Monitoring and action-protocol

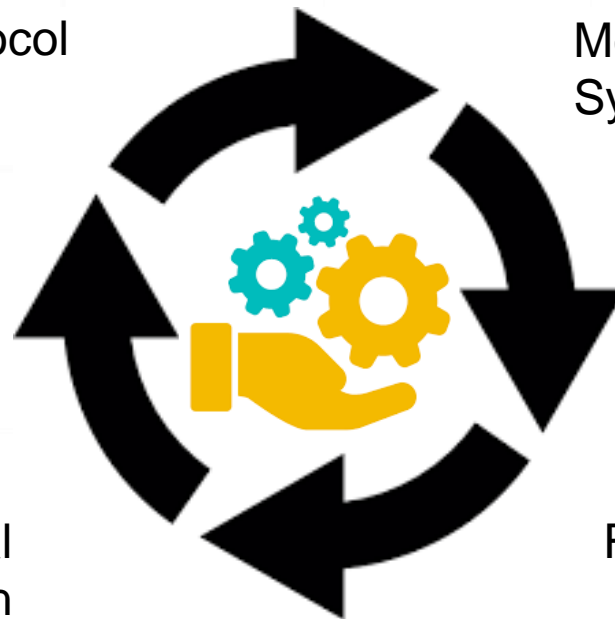
Monitoring Risk Warning System (MRSS)

Datamanagement

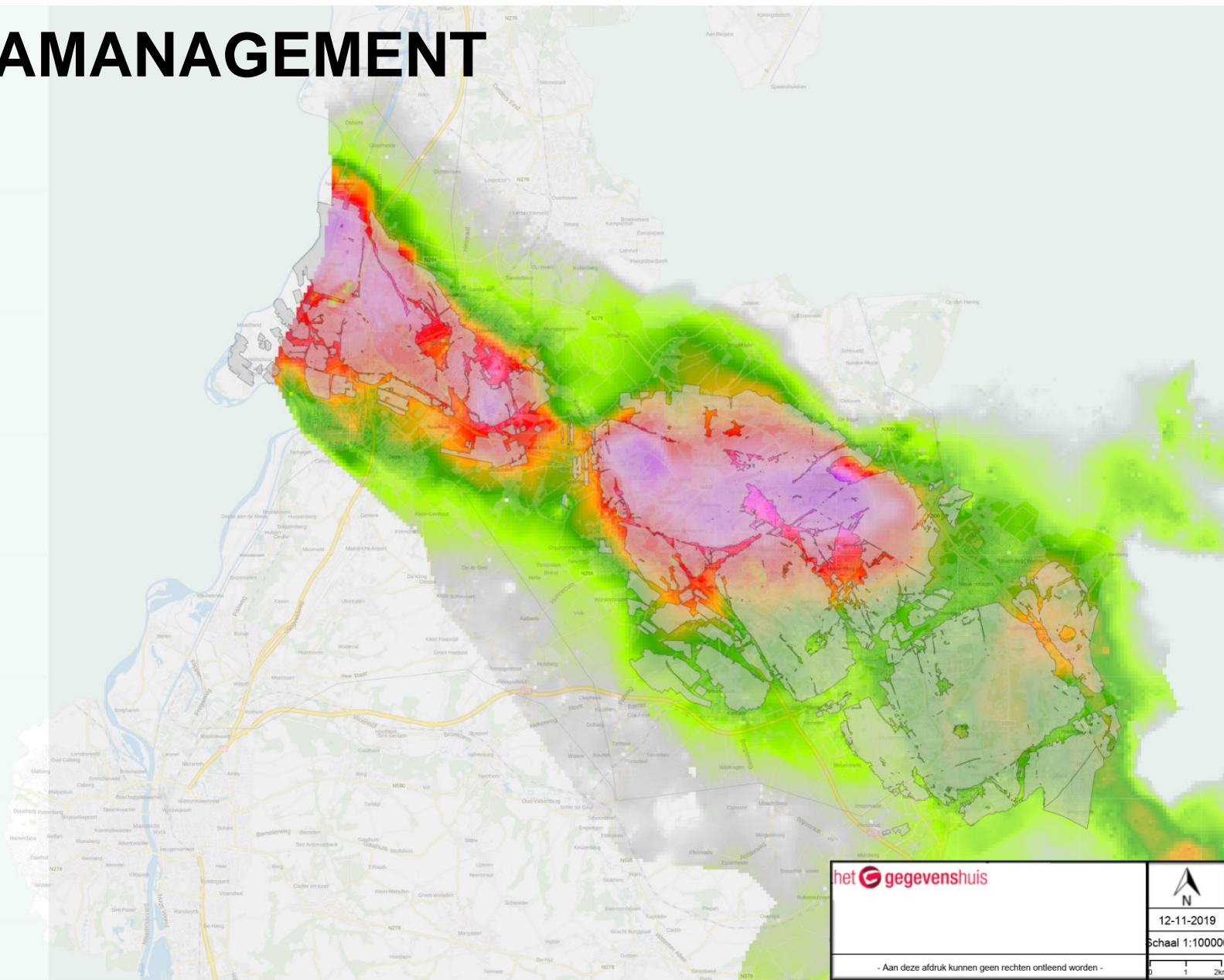
Support
Veiligheidsregio

Support local
authorities with
communication

Research



DATAMANAGEMENT

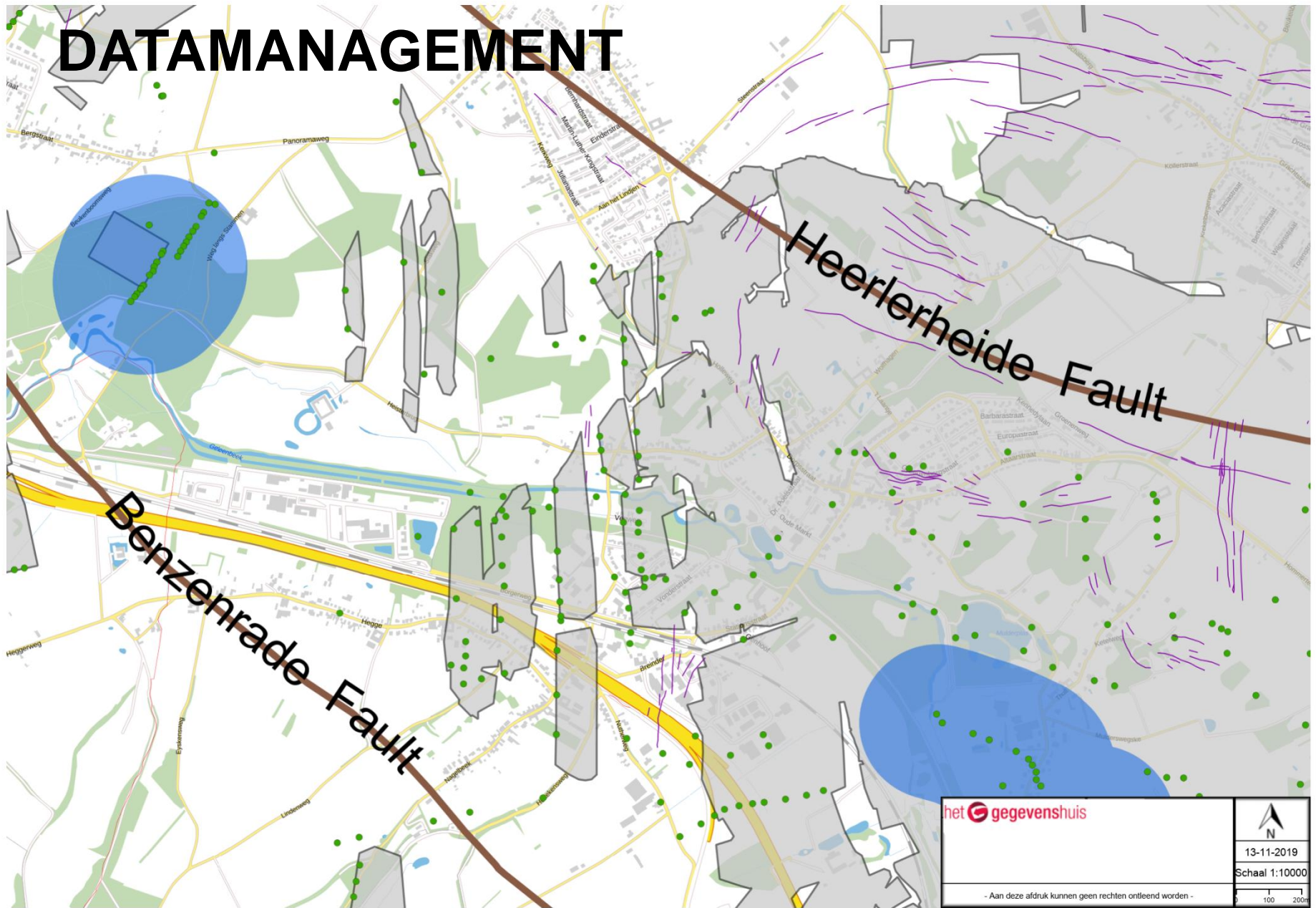


het gegevenshuis

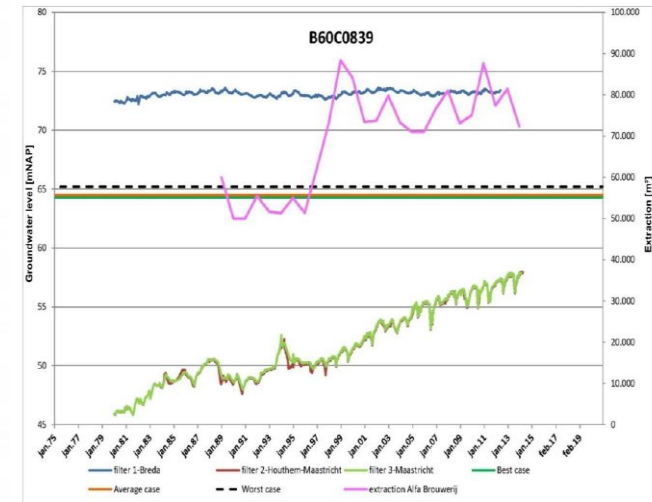
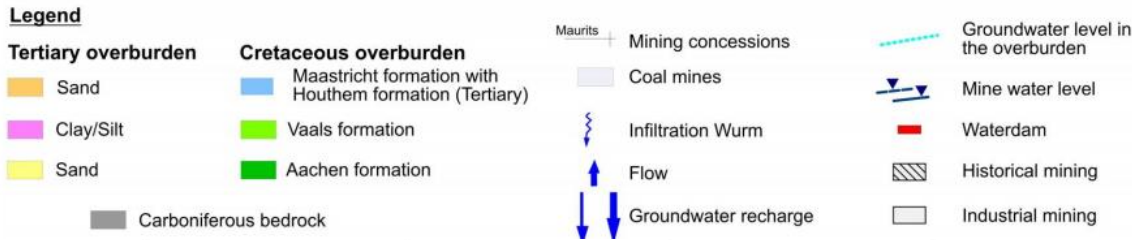
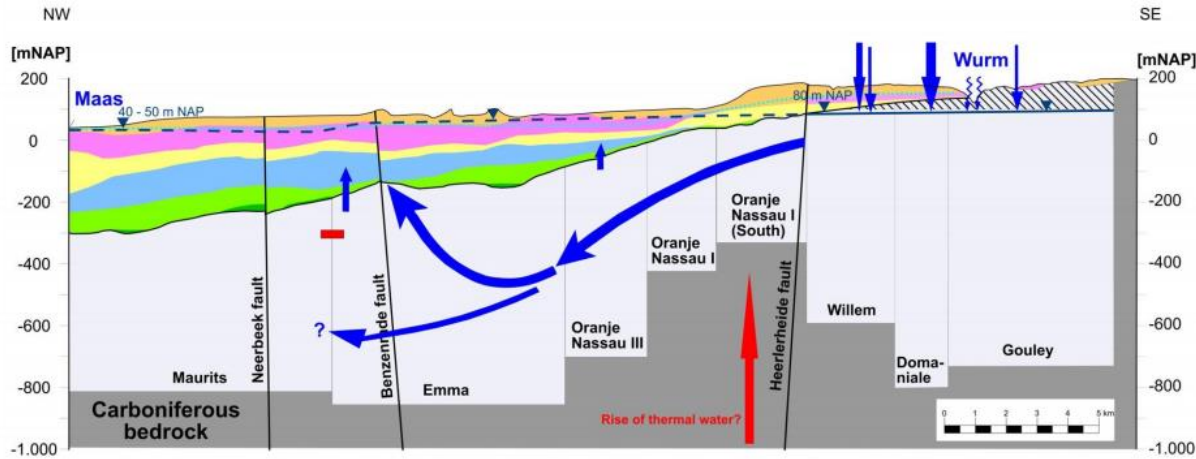
N
12-11-2019
Schaal 1:100000
0 1 2km

- Aan deze afdruk kunnen geen rechten ontleend worden -

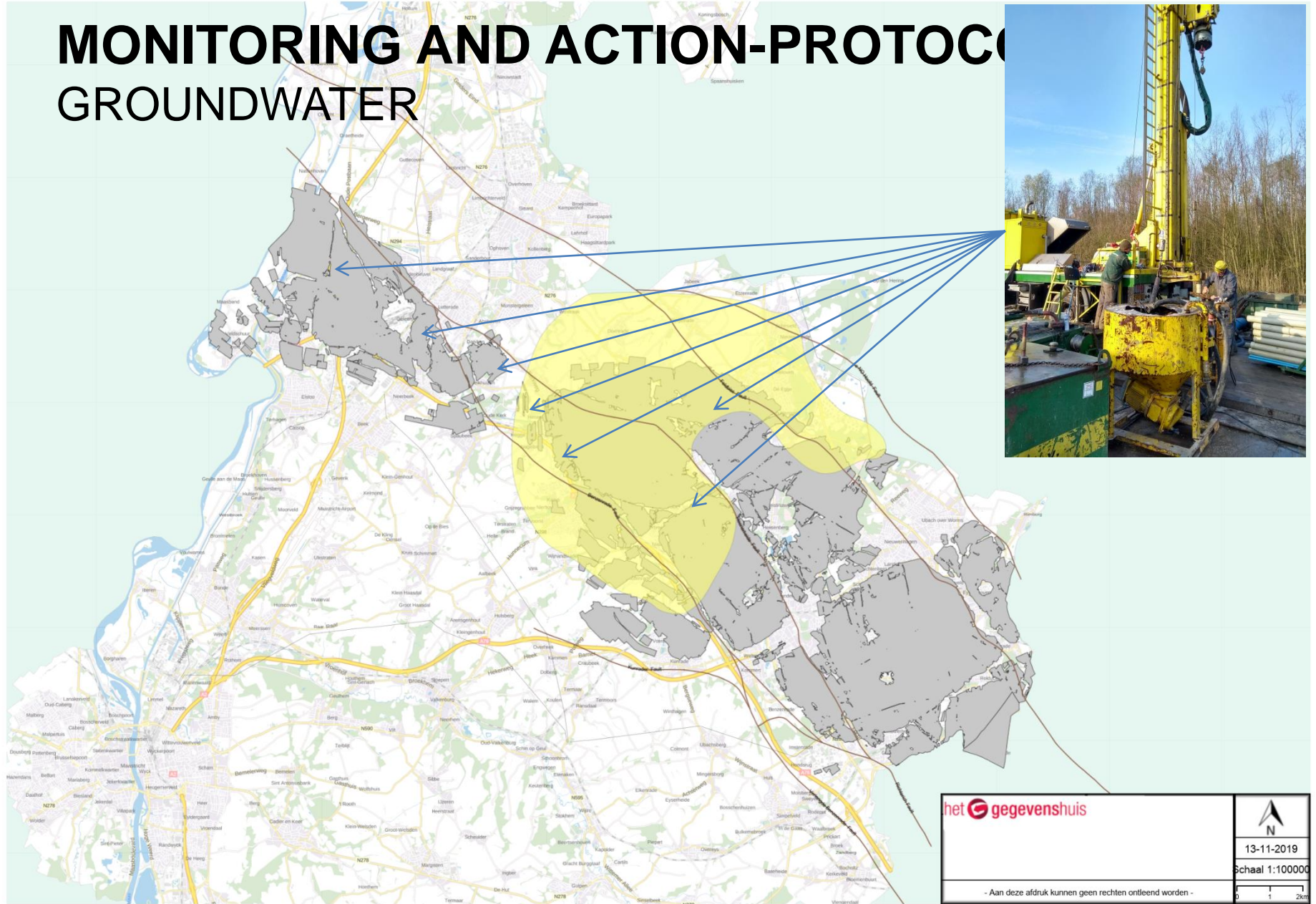
DATAMANAGEMENT



MONITORING AND ACTION-PROTOCOL GROUNDWATER



MONITORING AND ACTION-PROTOCOL GROUNDWATER



het gegevenshuis

13-11-2019

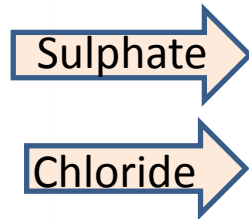
Schaal 1:100000

- Aan deze afdruk kunnen geen rechten ontleend worden -

0 1 2km

MONITORING AND ACTION-PROTOCOL GROUNDWATER

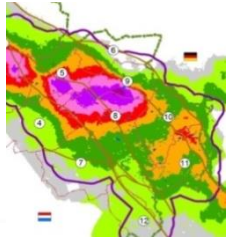
F3-CaHCO₃-watertype



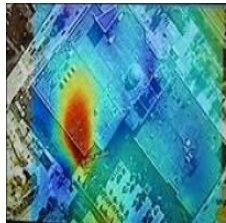
f3-CaMix, B3-CaCl, of maybe B3-NaCl



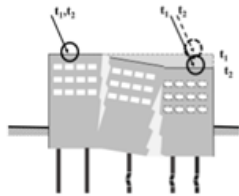
PILOT MRSS GROUNDMOVEMENT



▶ Regional



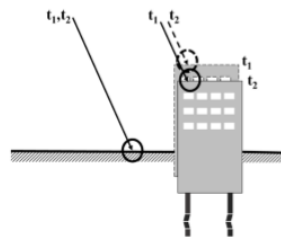
▶ Local



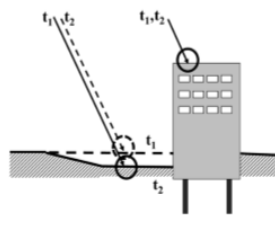
▶ Strain on infrastructure and buildings



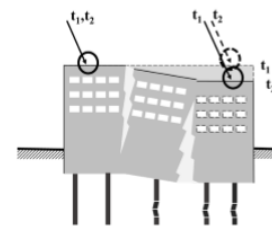
PILOT MRSS GRONDMOVEMENT



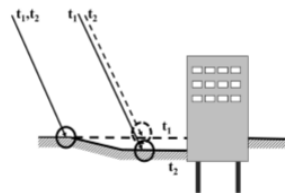
Autonomous structural motion



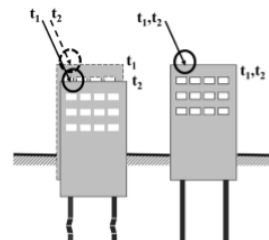
Shallow compaction



Intra-structural deformation



Local land subsidence



Inter-structural deformation

(Hanssen & Dheenatayalan, 2019)



SUMMARY

- ▶ In 2019 the informationcentre was established
- ▶ Main task is to help authorities with riskmanagement
- ▶ Develop protocols and warning systems
- ▶ In 2020 first evaluation of monitoring program

