LIFE Platform meeting
FOCUS ON WATER RESILIENCE STRATEGY

LIFE Strategic Integrated Projects implementing River Basin Management Plans practices

Day 1.

Workshop

POLLUTION CONTROL

FROUKJE KUIJK

14-15 October 2025

Brussels

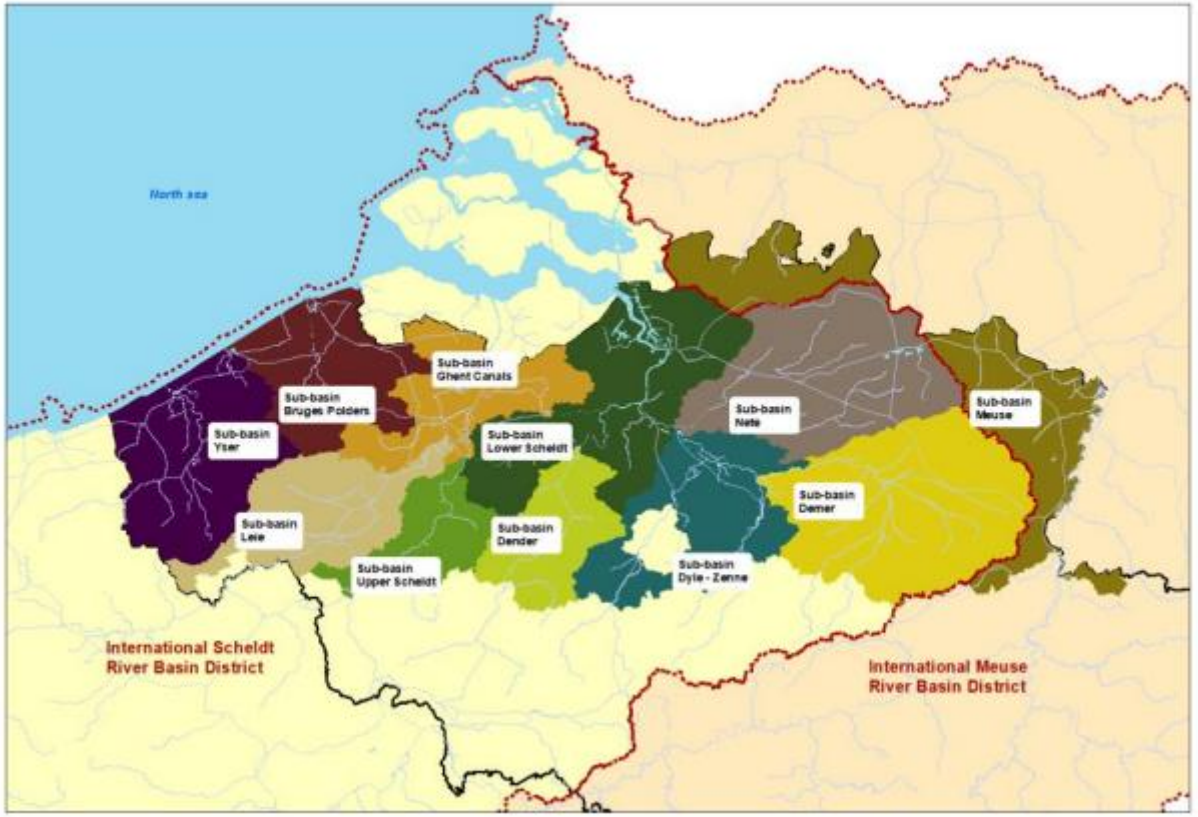
This meeting is organised by

Project title: LIFE Narmena

RBMP targeted: Scheldt

Beneficiary/ies: OVAM (Flemish Public Waste Agency), 6 other partners (private/public)

Total Budget: €4.520.488



Start and end dates: 01/07/2019 – 31/08/2025 + 2 years of prolongation

Presented by:

Froukje Kuijk
Project manager, soil remediation expert OVAM
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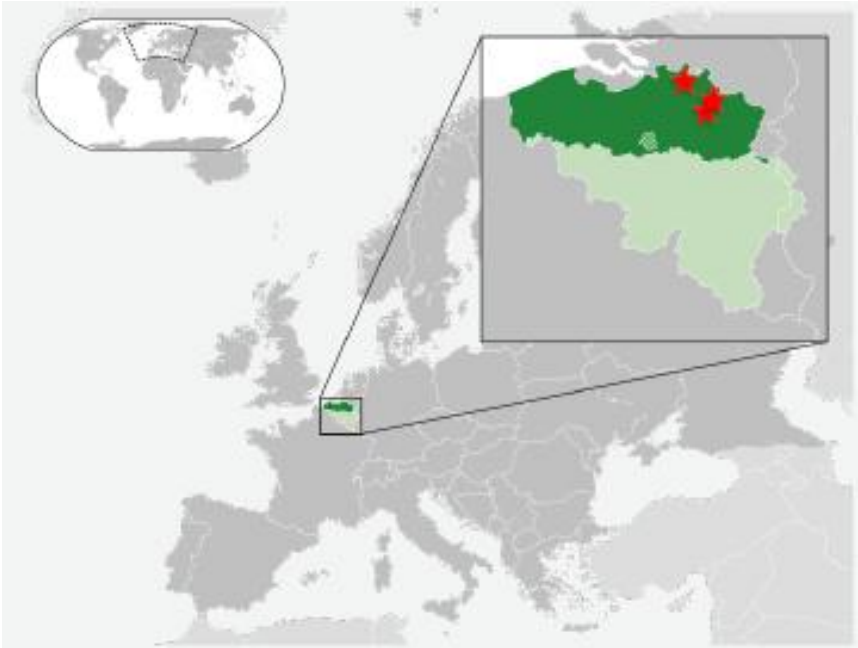

Grote Calie (Turnhout)

Winterbeek (Scherpenheuvel-Zichem)

Grote Laak (Geel-Laakdal)

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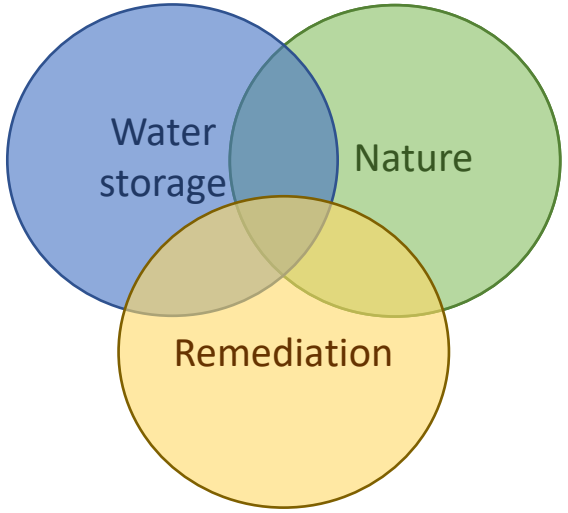

Main objective

NAture-based Remediation of MEtal pollutants in Nature Areas to increase water storage capacity

Nature-based: using 2 nature-based remediation techniques, in-situ remediation, natural processes

Remediation of Metal pollutants: (historical) metal contamination & nutrients in sediments, bank zones and floodplains of watercourses

- Reduction of bioavailable concentrations

Nature areas: demo sites are watercourses that flow through nature reserves (Natura2000)

To create water storage capacity: creation of natural flood control areas

Application Framework and integration in policy

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Main impacts/results

- Succesful implementation of **2 nature-based remediation techniques** at 3 sites
  - 2 types of constructed wetlands and bacteria assisted phytostabilisation
  - Reduction of bioavailable concentrations (Cd, As, Cr) at the 3 pilot sites
  - Water retention at the 3 pilot sites
- An **Application Framework** to be used for replication and integrated in policy
  - Guidelines for NBR techniques
  - Ecomodelling tool
  - Carbon footprint calculation model
  - Comparative cost analysis
  - Decision Support System
  - Code of Good Practice Phytoremediation
- **Communication**: Information and awareness raising, Capacity building

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FOCUS on River Basin Management Plans implementation: CHALLENGES & POTENTIAL SOLUTIONS

LIFE Narmena works towards

- A good ecological status of water bodies in Flanders, specifically: water quality & quantity, biodiversity
- No deterioration (deterioration is possible when conventional remediation is applied)
- Flood and drought risk management

The Flemish Public Waste Agency works towards

- A good ecological status, specifically water via sediment/soil quality
- For many water bodies in Flanders it is not possible to reach a good ecological status without improving the sediment quality

Pollution control/Remediation requires customization. It is not possible to apply NBR everywhere. But if it is possible, there are plenty of co-benefits for the river basin. The exercise should be made where to apply NBR in a RBMP.

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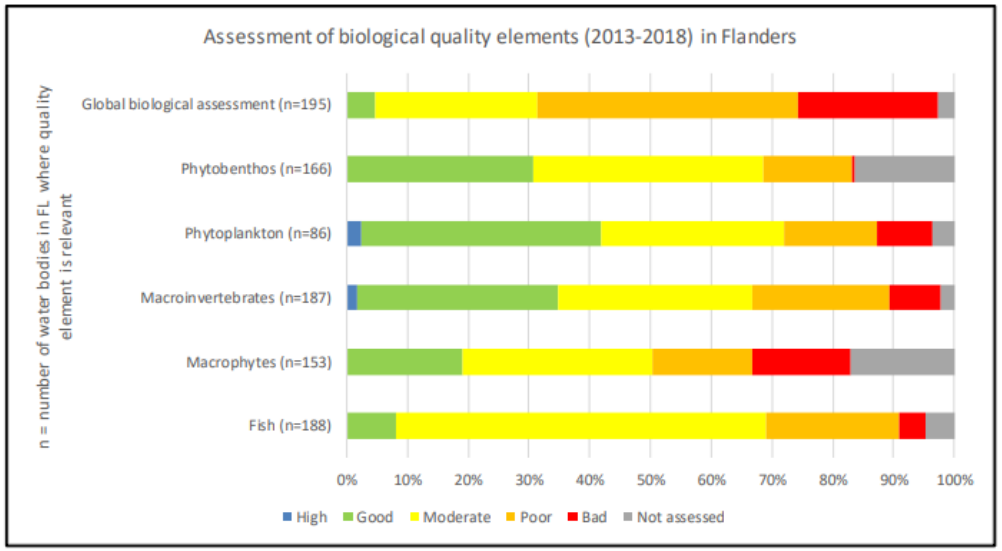
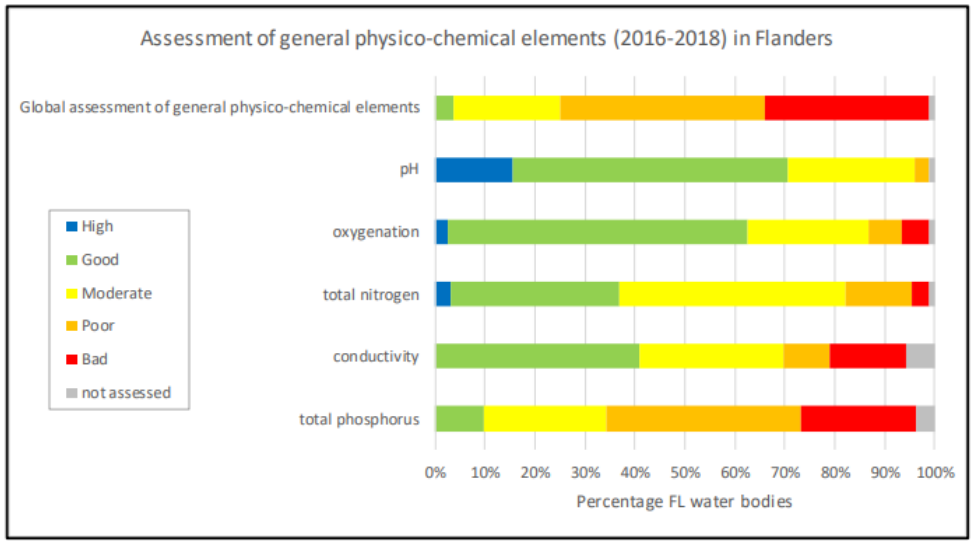
Ecological status – water bodies Flanders

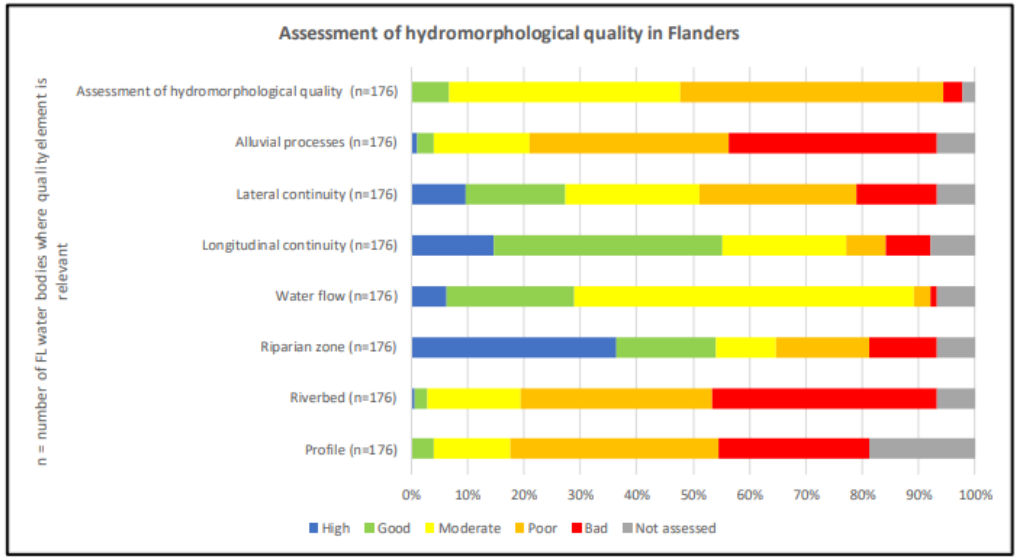
Flemish water bodies - assessment of biological quality elements and global biological assessment



Flemish water bodies - assessment of general physico-chemical elements and global assessment



Hydromorphological quality of the Flemish water bodies



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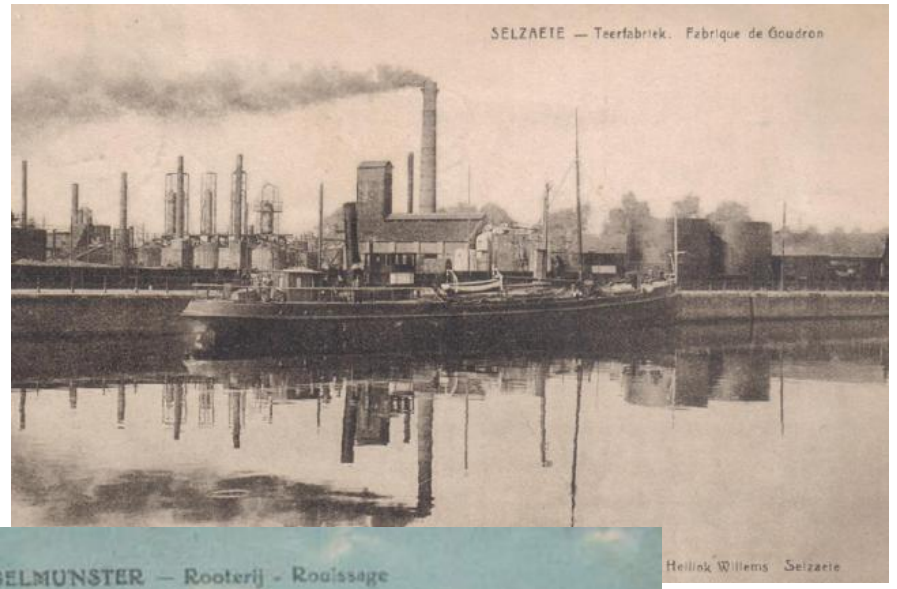
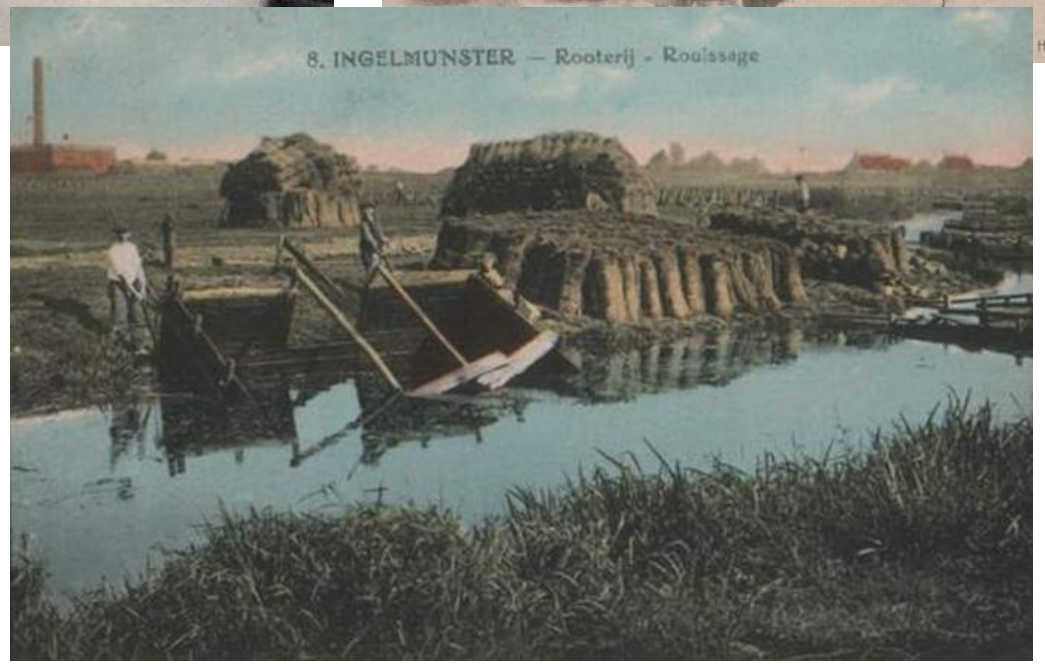
Root causes/ main pressures





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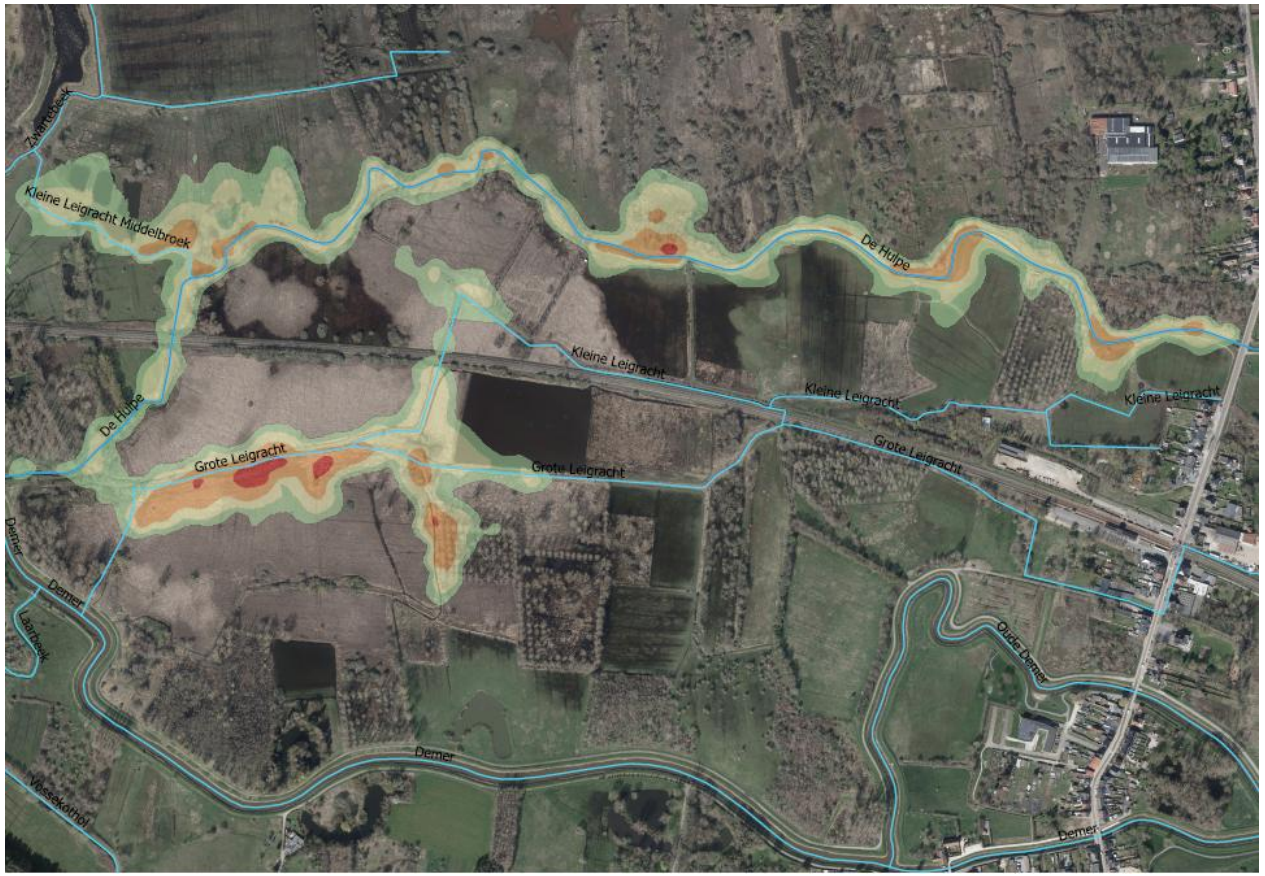
Case Winterbeek

Problem statement

- Historical pollution with metals and chlorides
- Demer river: extreme weather events, flooding of nearby urban area
- Nature area Kloosterbeemden requires a boost



Dosistempo
- <= 150
- 150 - 200
- 200 - 300
- 300 - 500
- > 500

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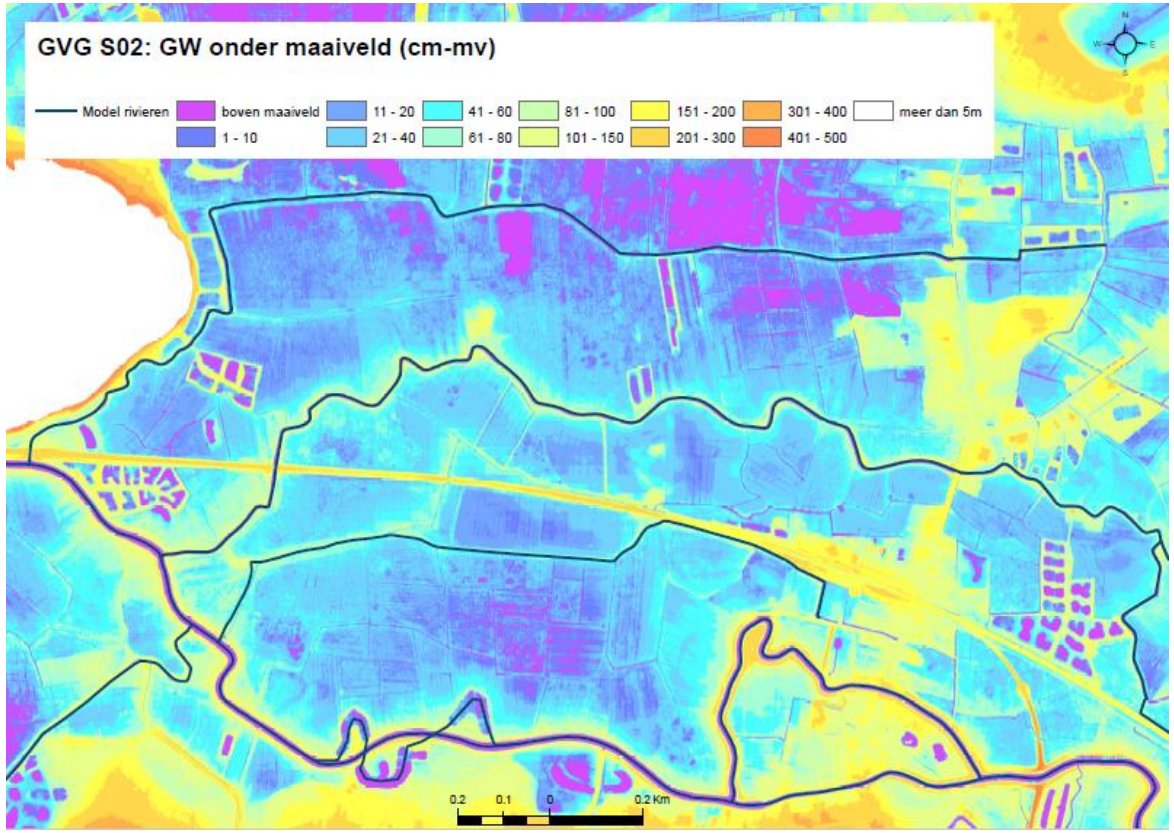
Case Winterbeek

Process to come to a solution

- Long process of stakeholder consultation
- Hydrodynamic modelling
- Characterization of the soil contamination & process of the soil remediation plan
- Other required permits



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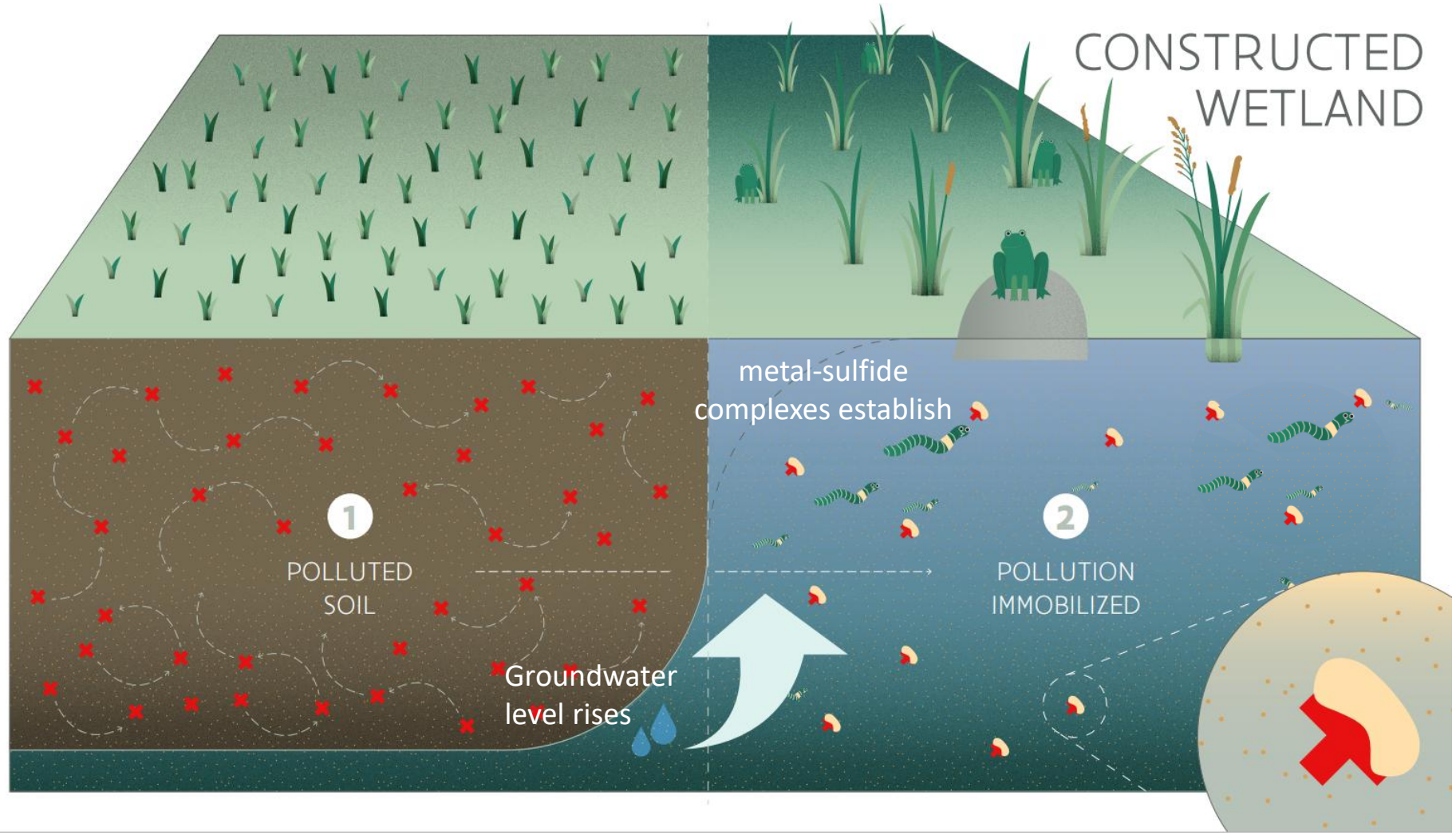
Case Winterbeek – Implementation of the solution



In this type of constructed wetland we immobilize the metal contamination by complexation of metals with sulfides once anaerobic conditions are established. Metal-sulfide complexes cannot be taken up by organisms or plants.

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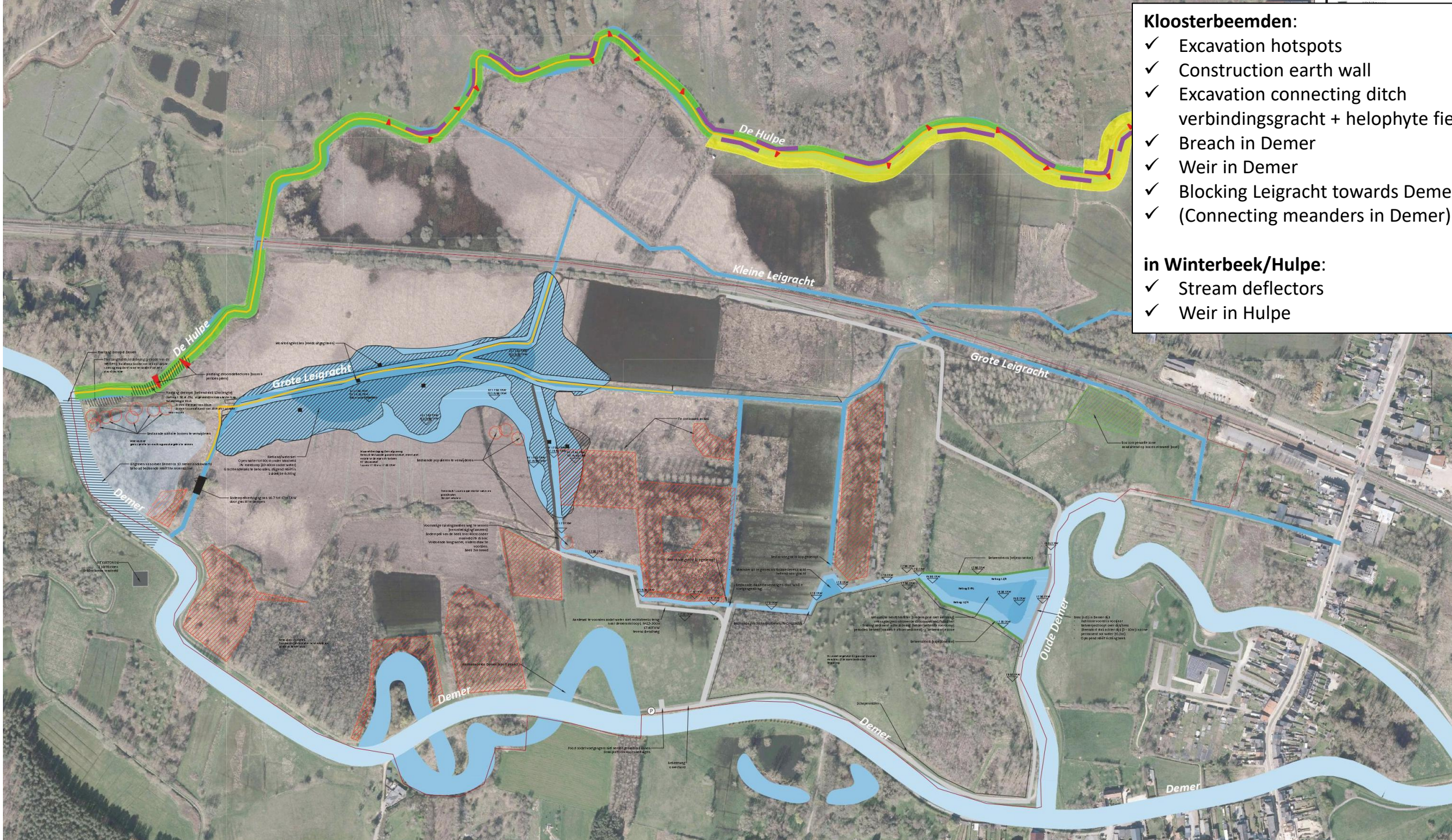

Kloosterbeemden:

- ✓ Excavation hotspots
- ✓ Construction earth wall
- ✓ Excavation connecting ditch verbindingsgracht + helophyte fie
- ✓ Breach in Demer
- ✓ Weir in Demer
- ✓ Blocking Leigracht towards Deme
- ✓ (Connecting meanders in Demer)

in Winterbeek/Hulpe:

- ✓ Stream deflectors
- ✓ Weir in Hulpe

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Case Winterbeek

March 2021

April 2024

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Case Winterbeek - monitoring

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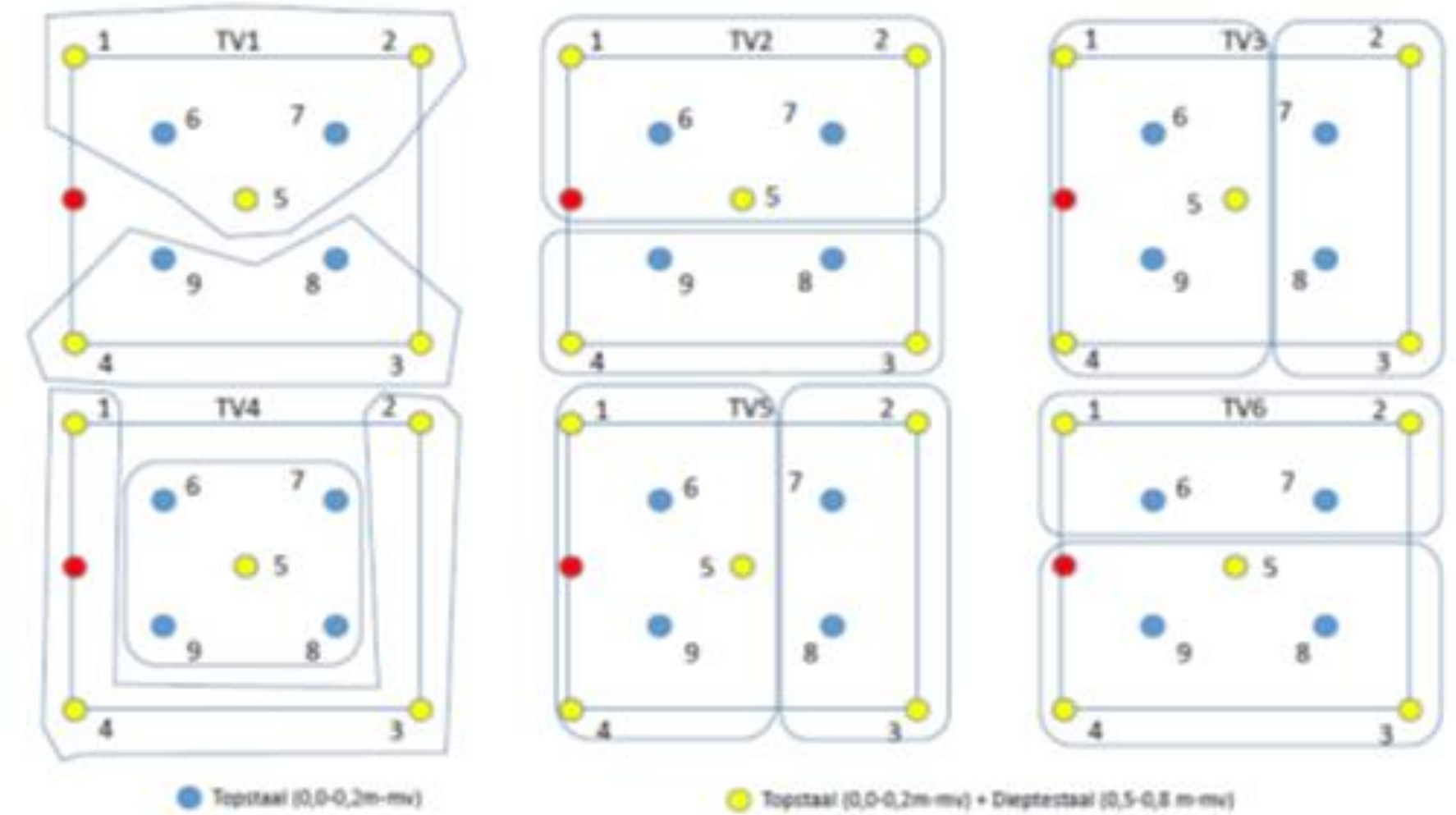

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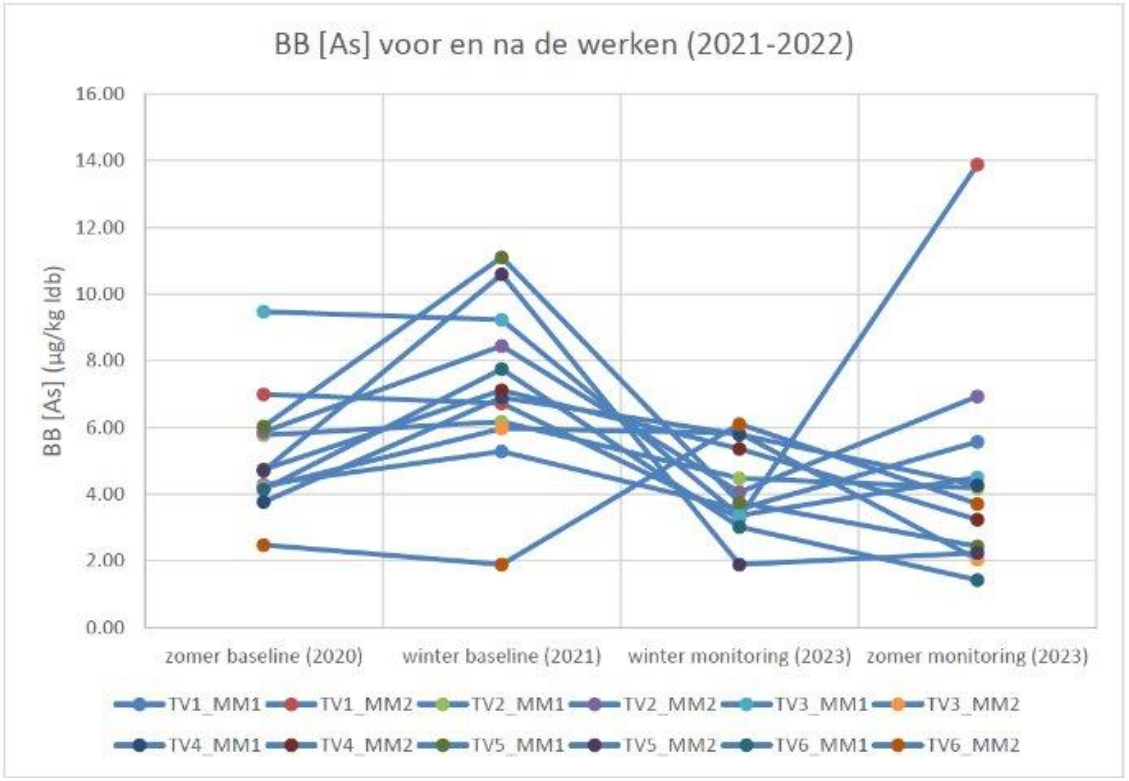
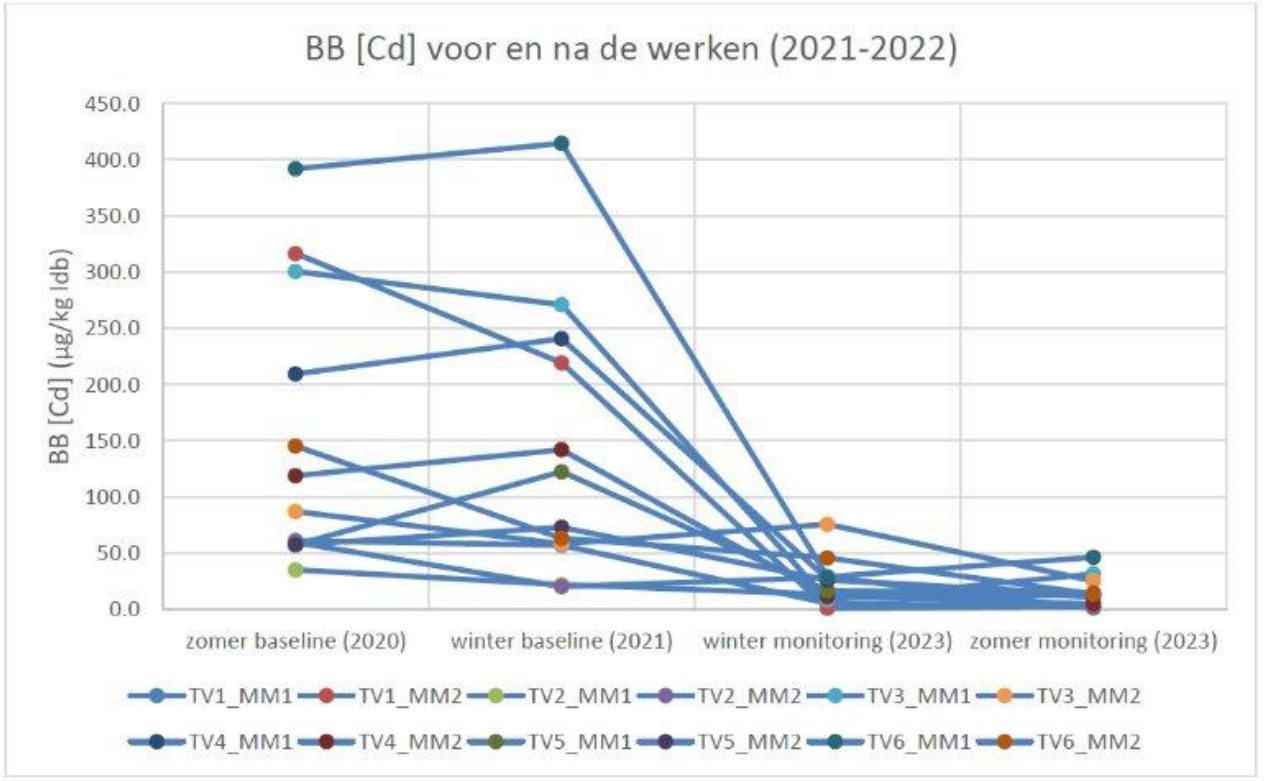
Case Winterbeek

Bioavailable concentrations Arsenic (As) and Cadmium (Cd)





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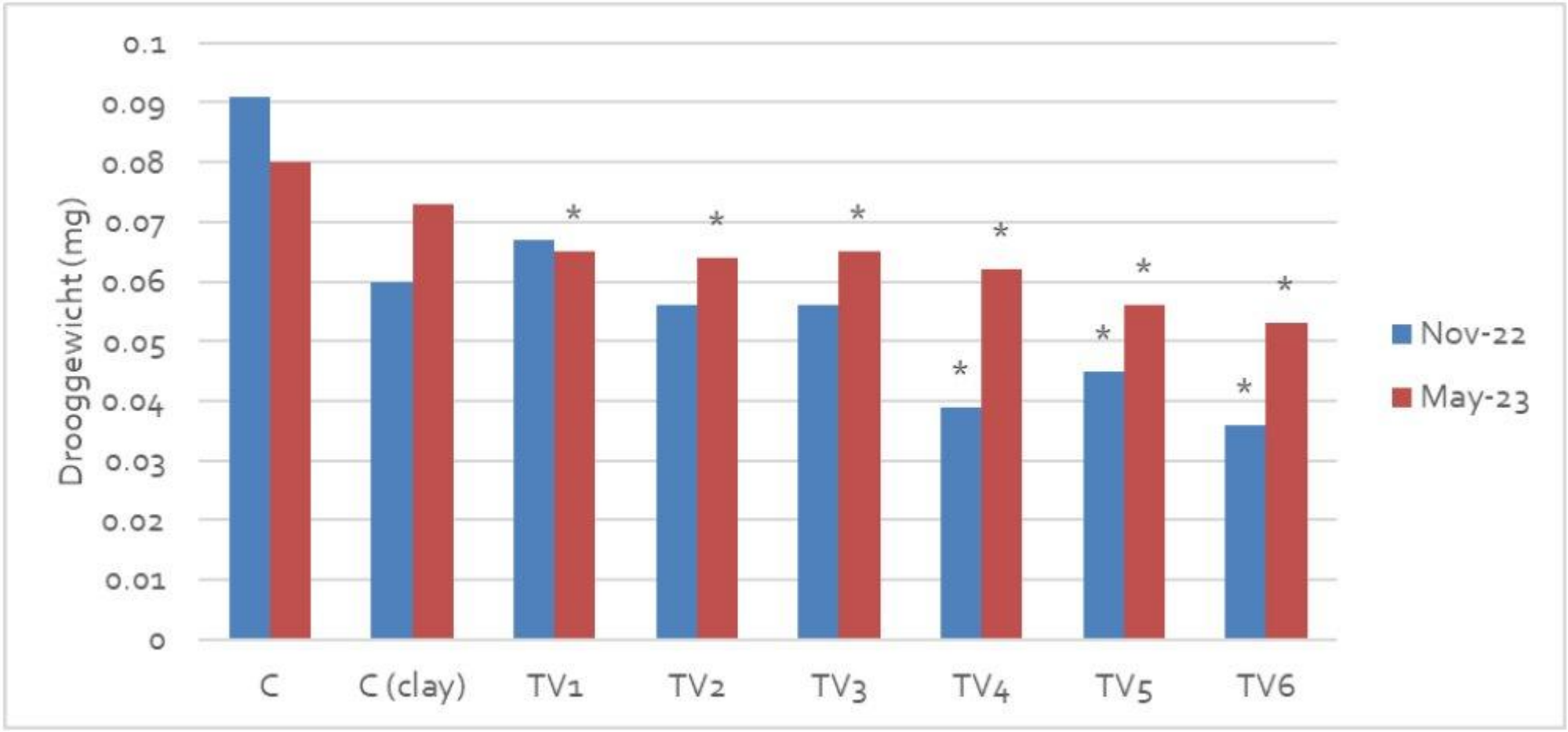
Bioassay (mg dry weight) Oct 2020 – April 2023



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Stakeholders and public involvement

- **Narmena partners**: Agency Nature and Forestry (main landowner), Flemish Environmental Agency (waterway manager Winterbeek), ABO (soil remediation consultant), ARCHE (expert in bioassays, ecotoxicity)
- **Other stakeholders**: Flemish Waterway (waterway manager Demer), commune Scherpenheuvel-Zichem, other landowners, other authorities, recreational users
- **Public involvement**: Public inquiry soil remediation plan, communication strategy (excursion day, information panels, audio tour)

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Case Winterbeek

Lessons learned

- Underestimation of preparatory phase: stakeholder consultation, importance of modelling, trial and error/adjustments, design of the solution, several permits involved with all different trajectories
- Stakeholder management: different goals, takes time to find the design that covers objectives of all entities
- Implementation phase: timing is very delicate (breeding season, working only in dry periods) as well as the order of the different works

Challenges & best practices

- Technical: All best practices in Application Framework
- Drafting a roadmap for the preparatory phase
- Including enough time for stakeholder management from the start
- Not every polluted site is adequate for a NBR. Customization is necessary. E.g.: implementation of a wetland can spread/leach out pollution as well

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Work & impacts towards the next RBMP update

- Currently the **preparation of the RBMP 2028-2033** (OVAM and VMM)
  - ➢ *Objective: to add critical waterbodies regarding soil/sediment pollution, possible replications (2028)*
- Exercise of the **most priority waterbodies** considering sediment quality
  - In most cases first a sediment survey is required
  - ➢ *Objective: to be included in RBMP 2028-2033 and/or stimulate water managers to start investigating these water bodies (next years)*
- Exercise for NBR **replication**
  - overlay of the 'waterlevel regulation decisions' (peilbesluiten) with metal contamination (maps OVAM)
  - Sediment explorer
  - ➢ *Objective: replication sites for Narmena, in RBMP 2028 & follow-up in After-LIFE*
- **'Blue Deal' projects** (Flemish projects to create space for water): role OVAM to supervise and advice on soil pollution
  - ➢ *Objective: influence coming projects regarding pollution control (next years)*