

## WP7 Case studies Watermining voor toekomstbestendige blauw-groene stedelijke infrastructuur

Arjen van Nieuwenhuijzen  
Part-time Industry PI Circular Urban Resources  
AMS Institute / Wageningen UR



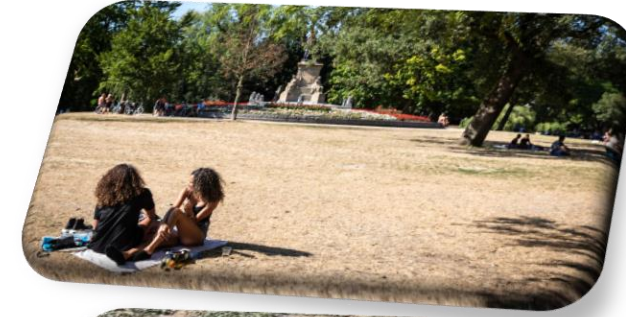
# WP7 Casus Metropolitan Regio Amsterdam

## The Case Challenge

The urbanized North Holland Coastal zone of the **Amsterdam Metropolitan Area** is affected more and more by **climate change related local drought issues and brackish water intrusion** into water bodies.

**Fresh water systems are under pressure:**

- Ecological and chemical **water quality of water bodies** are endangered (canals and water bodies are getting saltier and more polluted)
- **Green-blue infrastructure:** parks and green areas suffer from periodic droughts and increasing salinity
- **Risks** involved: land declining (damage) and oxidation of peaty soil (greenhouse gas emission)
- **Fresh water sources** for urban, industrial and landscaping water supply are endangered





# WP7 Casus **Metropolitan Regio Amsterdam**



Gemeente  
Amsterdam



**Future Proof by AquaConnect**



Gemeente  
Amsterdam



**Strategie Klimaatadaptatie  
Amsterdam**

4 februari 2020, Amsterdam

**The Amsterdam approach in  
becoming a resilient city**

Sacha Stolp  
Department Engineering, director of innovation



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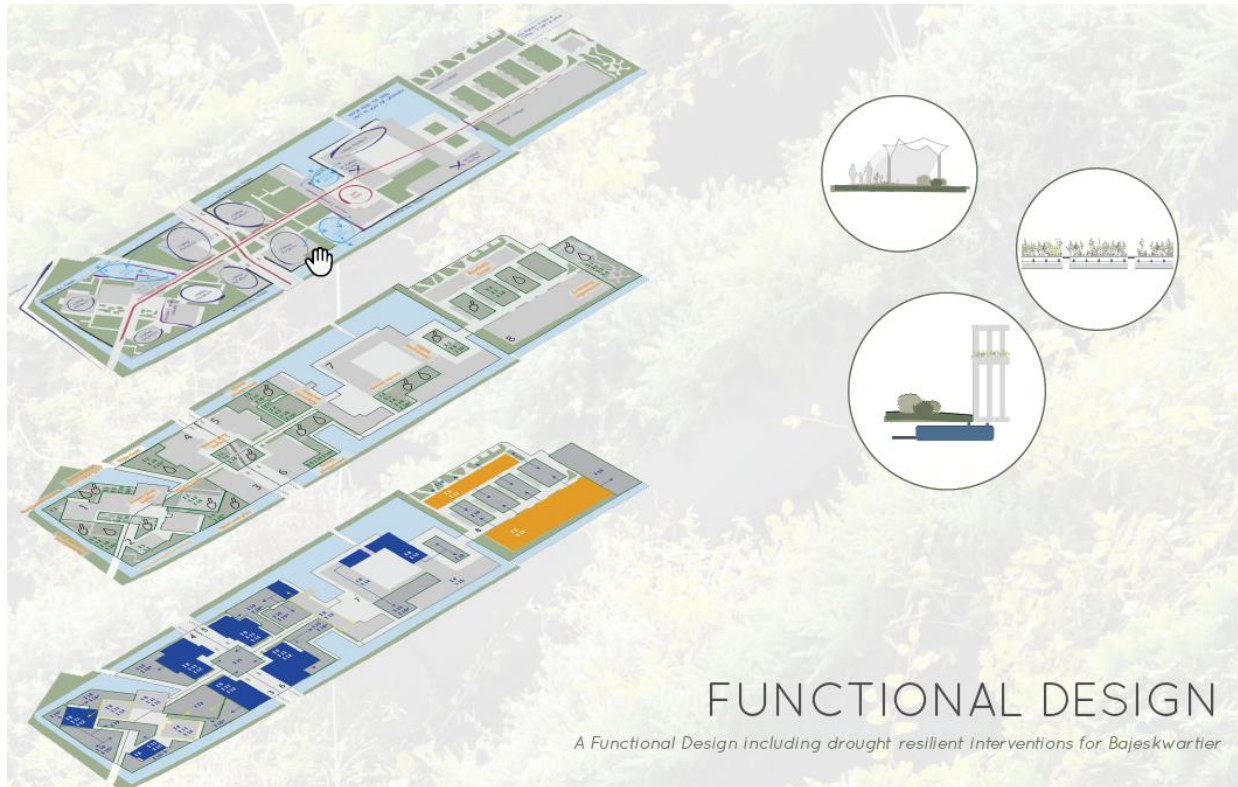


Inspecting, testing and cleaning Amsterdam's Water Systems  
by AMS Institute team



# WP7 Casus Metropolitan Regio Amsterdam

- Living lab Blue-Green Infrastructure related to drought prevention in Urban Area's conducted for Urban Area Amsterdam (Bajes Kwartier)
- Follow up MSc MADE student Sewer Water Harvesting
- MSc student WUR Lab-research Watermining



## Sewer Water Harvesting to Support Urban Green Spaces

The potential of 'waste' water as a resource to support urban green spaces during dry periods through integrated local water treatment

Author: Jan-Joris van der Plas  
Email: jan-joris.vanderplas@wur.nl  
Student ID: 1158139 (WUR) & 4595637 (TUD)

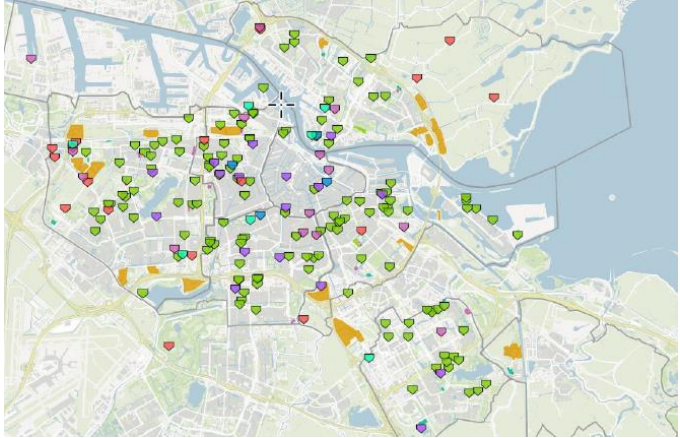
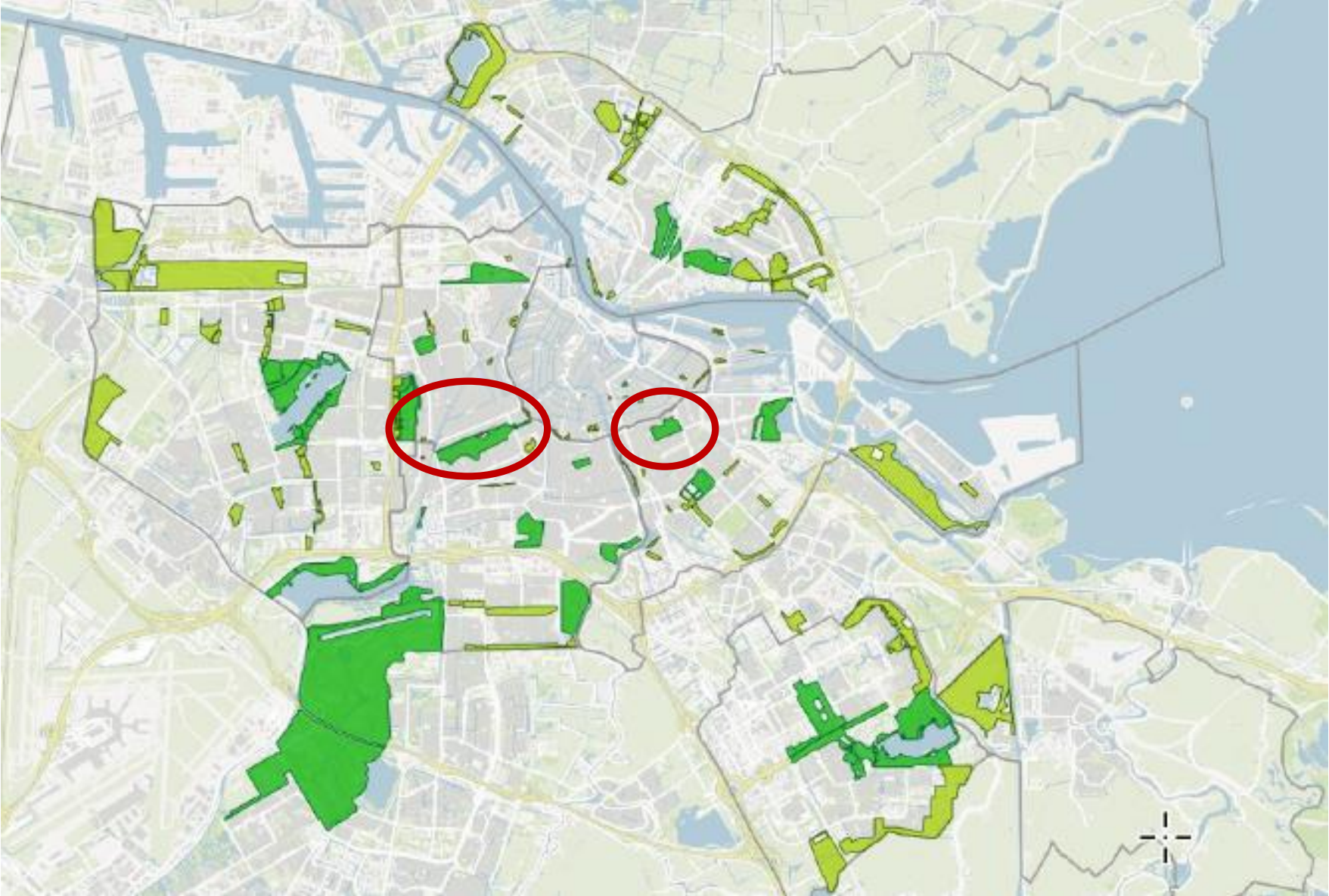
First Supervisor: Dr. ir. Arjen van Nieuwenhuijzen (Wageningen University and Research)  
Email: arjen.van.nieuwenhuijzen@ams-institute.org

Second Supervisor: Prof. Dr. Zoran Kapelan (Delft University of Technology)  
Email: Z.Kapelan@tudelft.nl

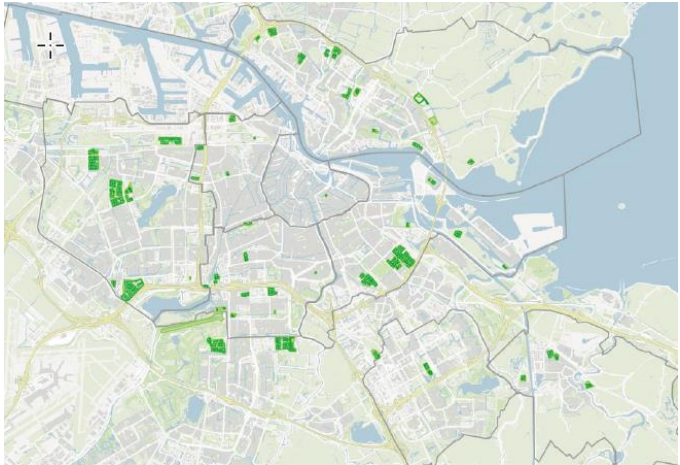




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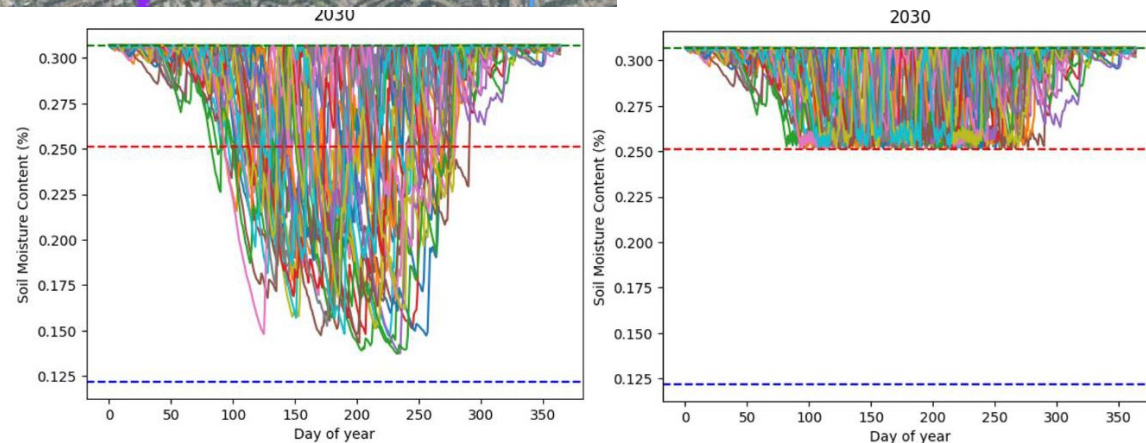
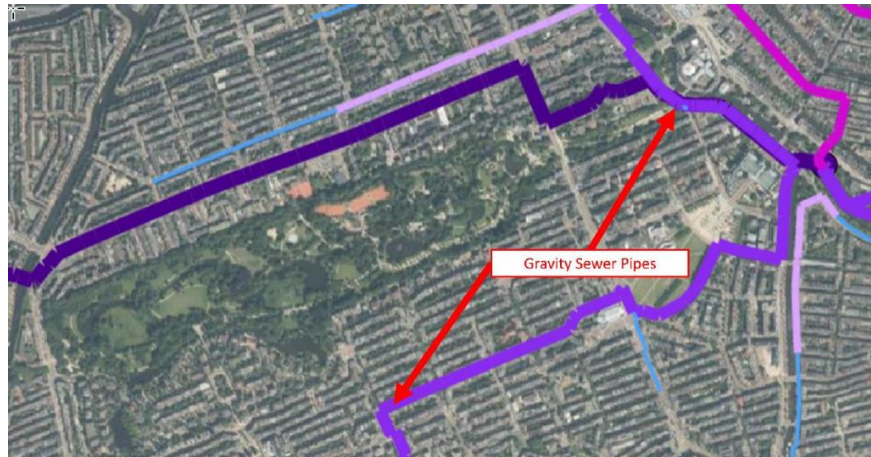
**Mapping Demand and Supply**





# WP7 Casus Metropolitan Regio Amsterdam

- Findings: To prevent drought related starvation of essential vegetation in the (28 ha) Vondelpark a fresh water flow of 2.8 – 5.2 m<sup>3</sup>/h would be needed for daily greenery irrigation over a maximum period of 2,5 month



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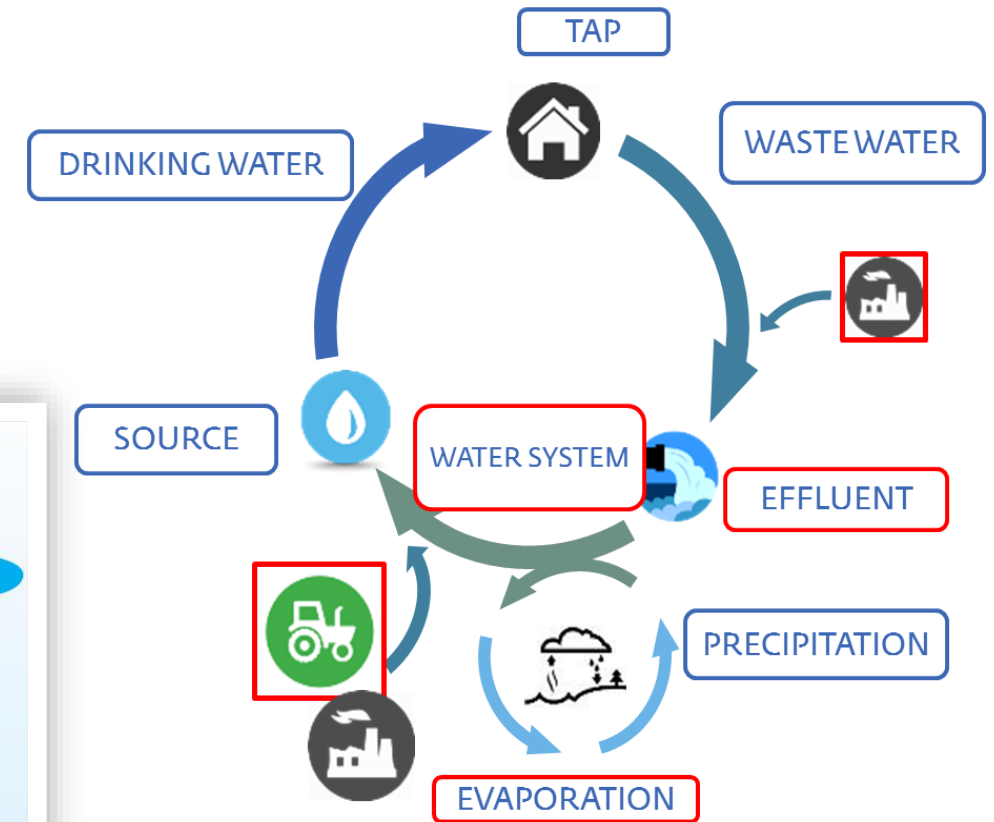
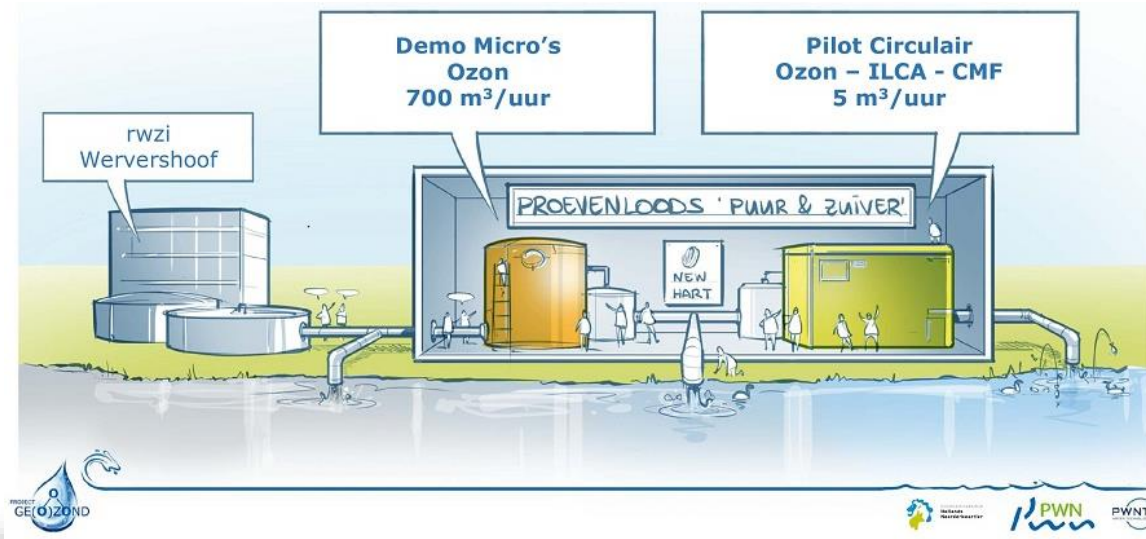
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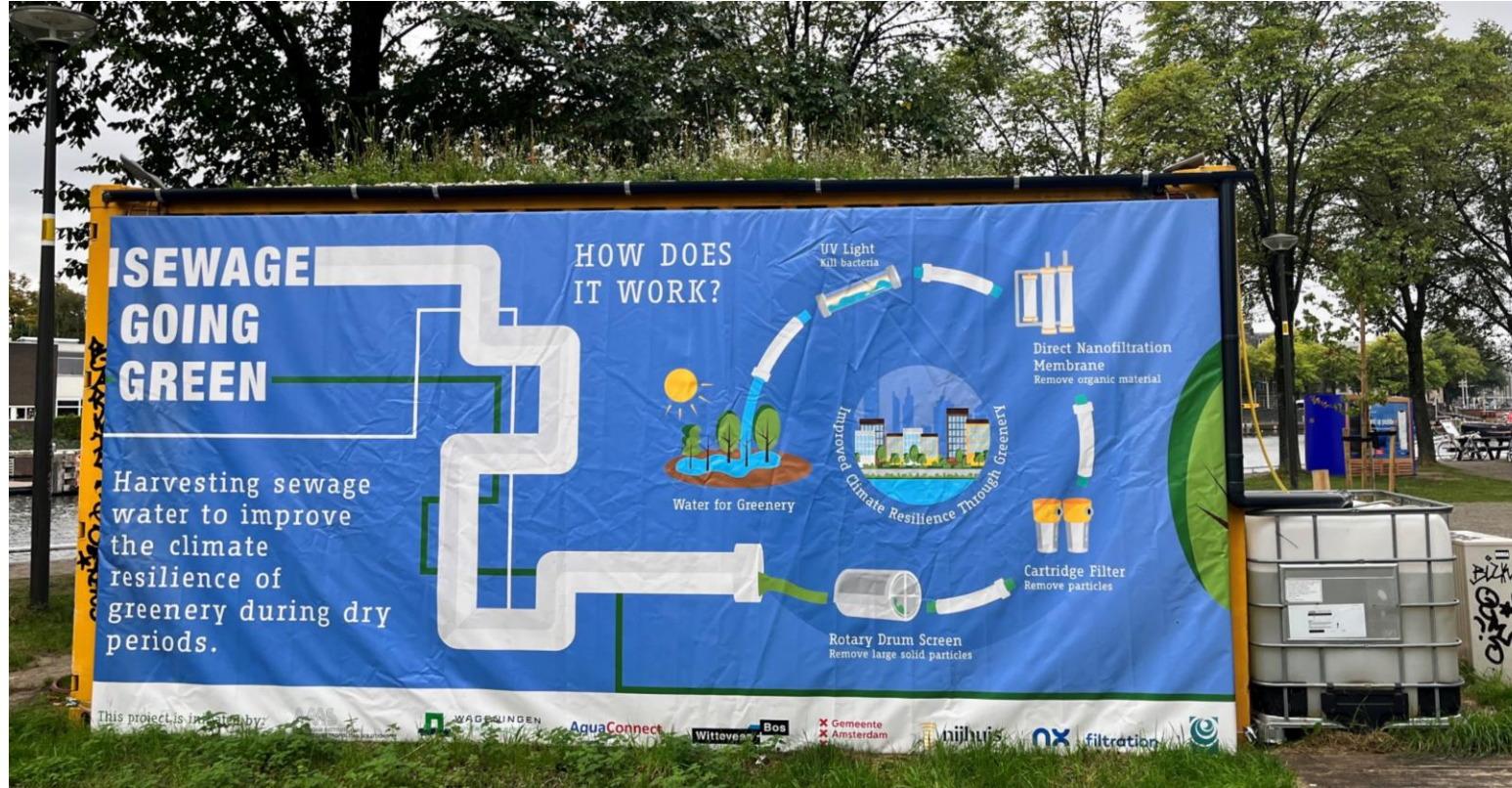




# WaterHarvesting Demonstrator

Fresh Water Harvesting from Sewers for Urban Green-Blue Infrastructures and Park Management

[www.aquaconnect.nu](http://www.aquaconnect.nu)



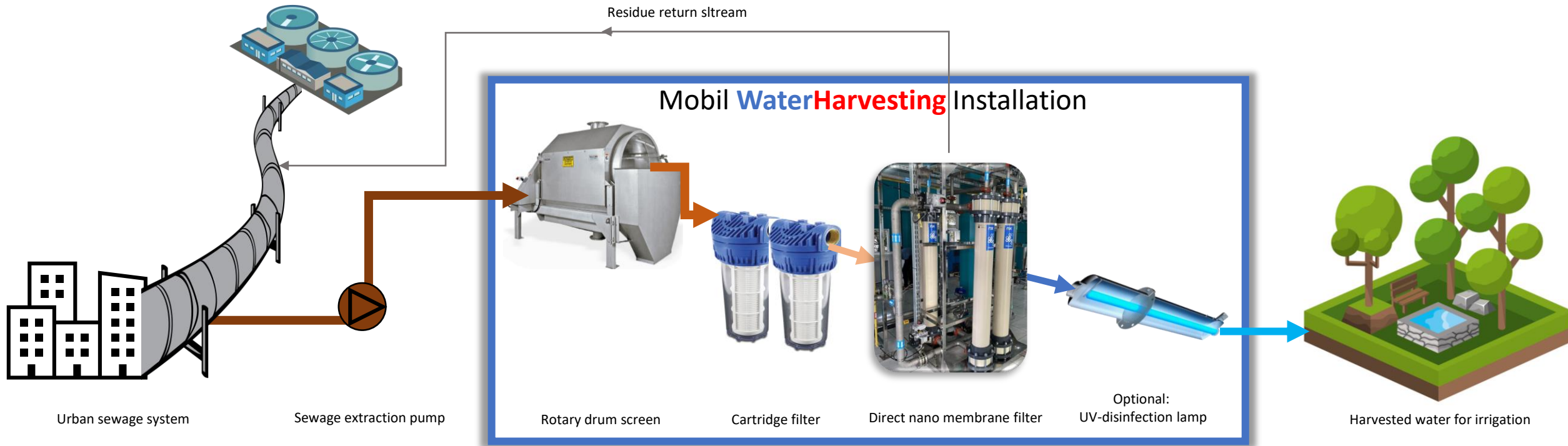
In periods of **long -lasting droughts** Fresh Water Harvesting from Sewers provides a **solution to the drought and salinity challenge in urban area's** by extracting non-salty fresh water from the daily flowing urban sewage water. This water needs to be **fresh, healthy and environmentally safe** but may still contain nutrients useful for urban vegetation.



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The **WaterHarvesting Demonstrator** consist of:  
sewer water extraction pump, screening, drum sieving, direct nanofiltration and optional UV-  
disinfection



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Test Location (Living Lab)  
Marineterrein Amsterdam



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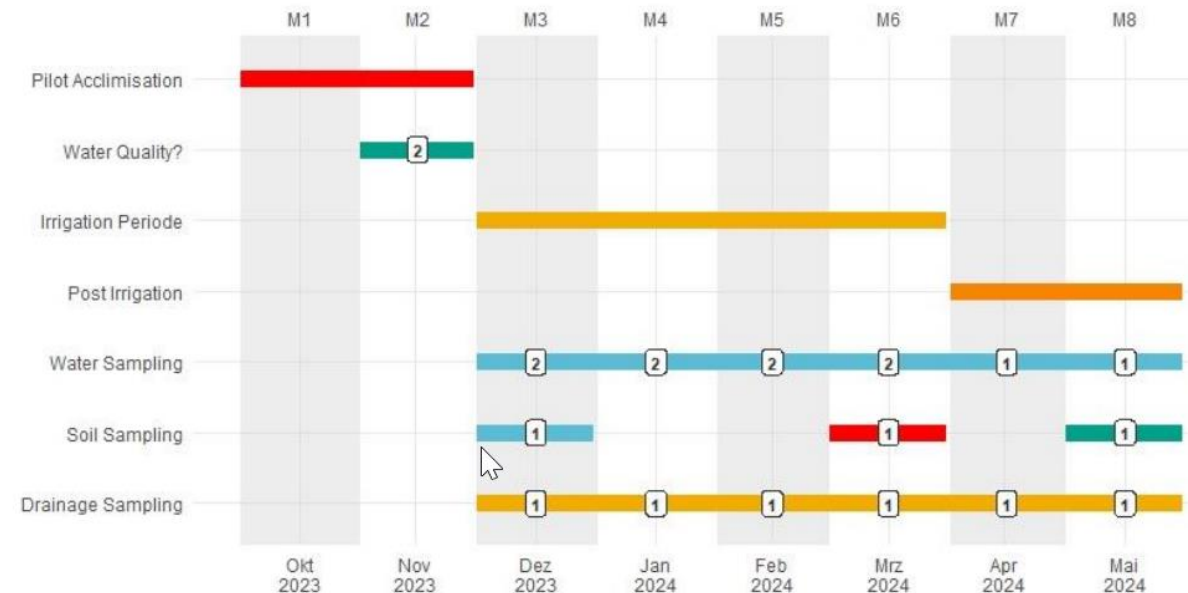
## Research Plan

September 2023 Installation

October 2023 Testing with canal water and storm water sewer – operation of installation (AMS) and testing of water qualities (together with Jan Specker of UvA)

November – December 2023 Testing sewerage water sewer – operation of installation (AMS) and testing of water qualities (together with Jan Specker of UvA)

January 2024 – Back up time for operation and testing





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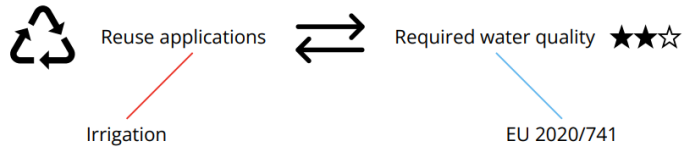
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## Testing Plan

### Main Question

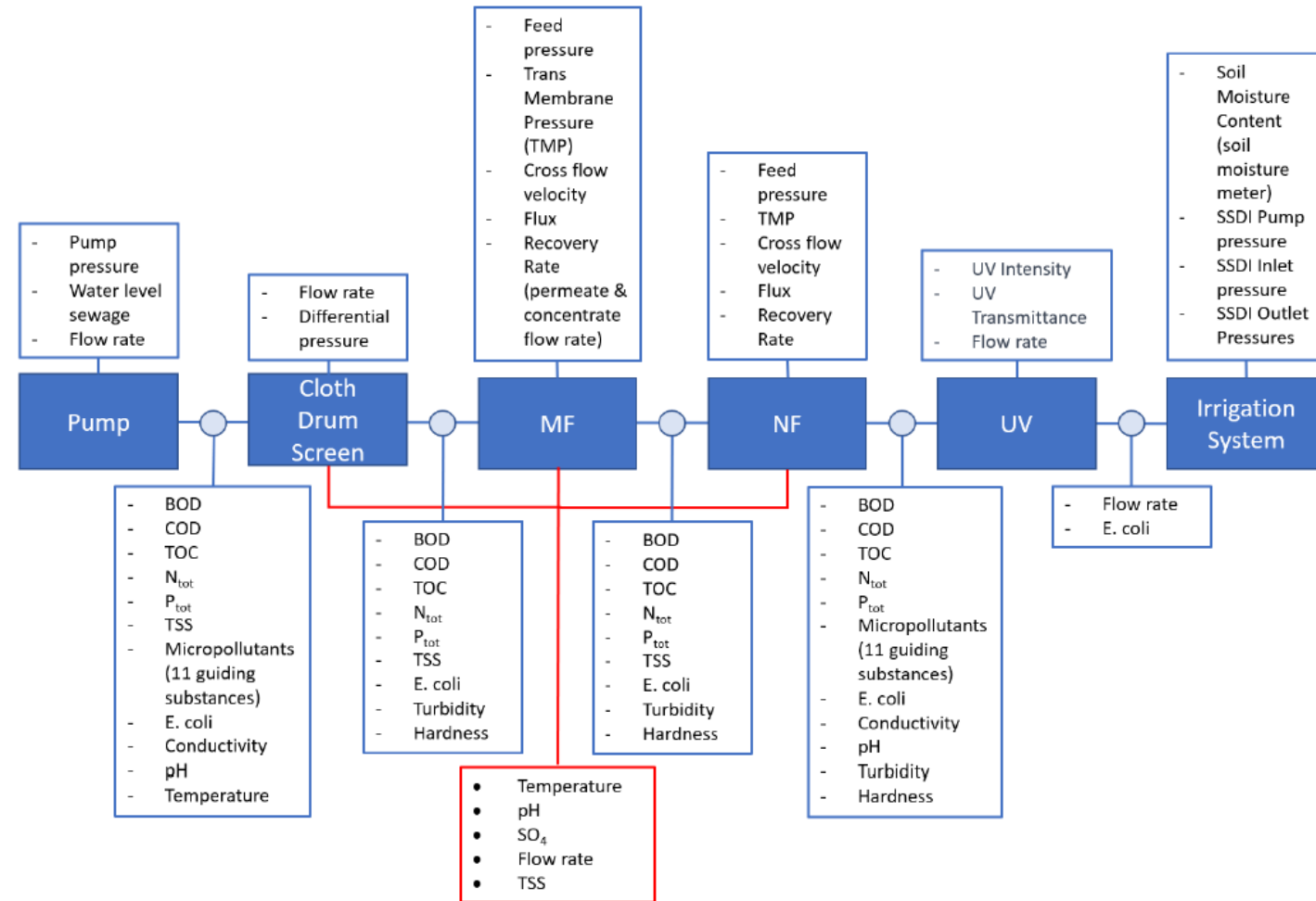
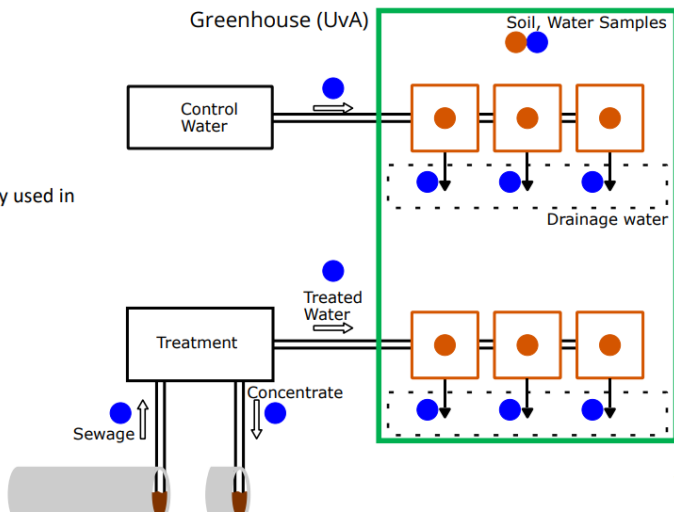
Can the sewer mining pilot produce water of sufficient quality for potential reuse?



Control Water:

- Tap Water?
- Canal Water?

What is commonly used in the city parks?





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✘ Gemeente  
✘ Amsterdam  
✘





# AquaConnect

Key technologies for safeguarding regional water provision in fresh water stressed deltas

[www.aquaconnect.nu](http://www.aquaconnect.nu)

