

18-11-2022



Brainport Smart District

Towards a water wise neighbourhood

KWR

Bridging Science to Practice

Background

Quadruple Helix



- Brainport Smart District in Helmond
- 2073 houses
- Water Wise Neighbourhood
- Co-creation since 2017
- 2022: design phase of circular water system

Why a water wise neighbourhood?

Pressure on fresh water sources

Increasing impact of drought and extreme weather events

Increasing impact of heat stress

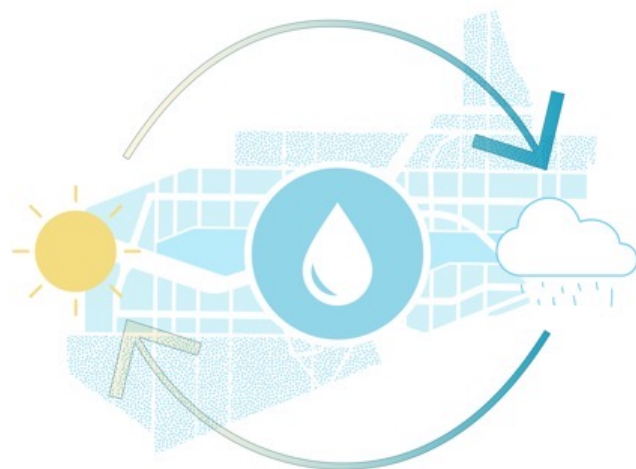
Declining biodiversity

Awareness gap



Context

Climate adaptation and biodiversity



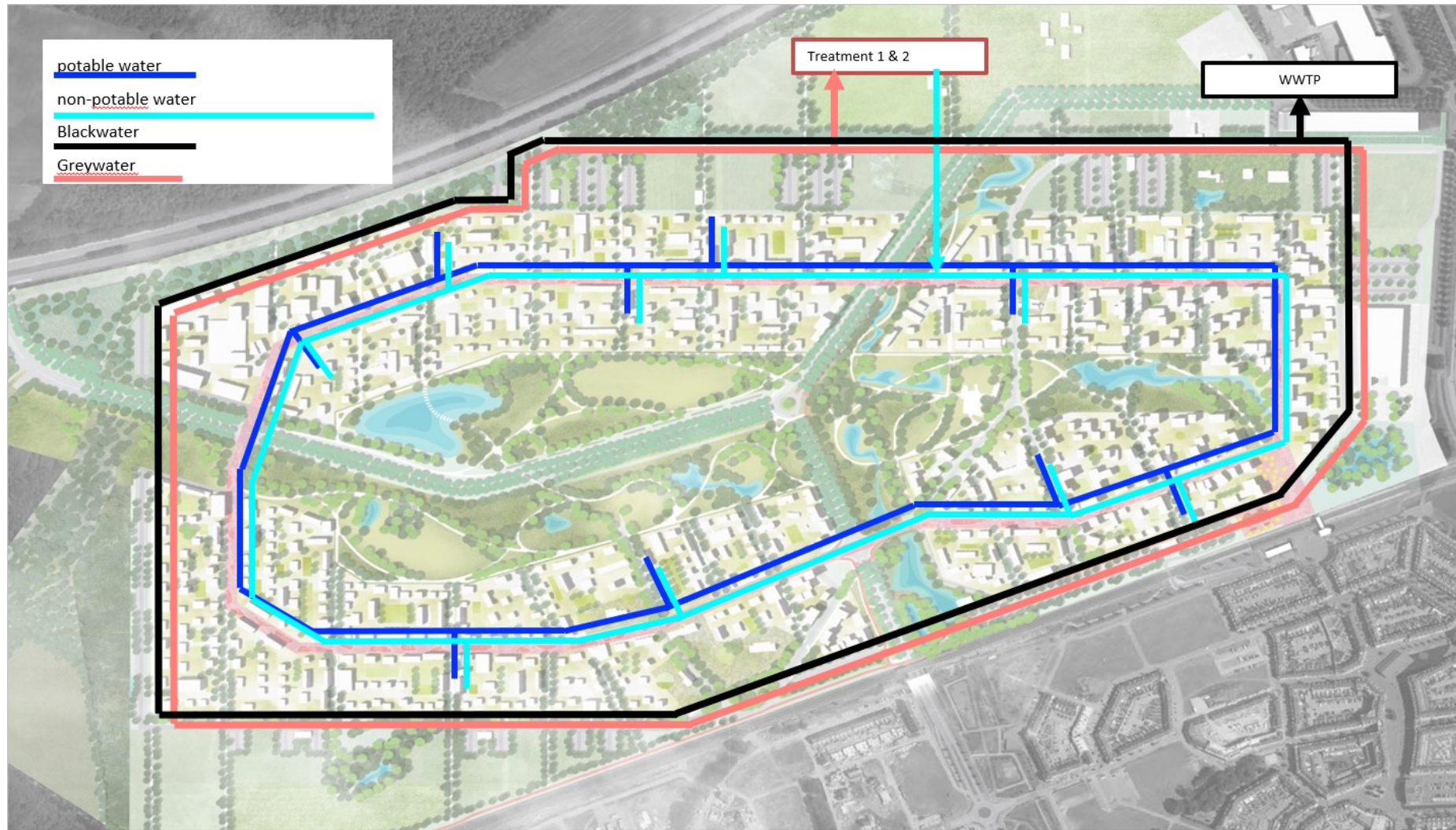
- Geomorphology
- District acts as a sponge
- Infiltration landscape(>50% green area)
- Water retention (<30% storm water drainage)

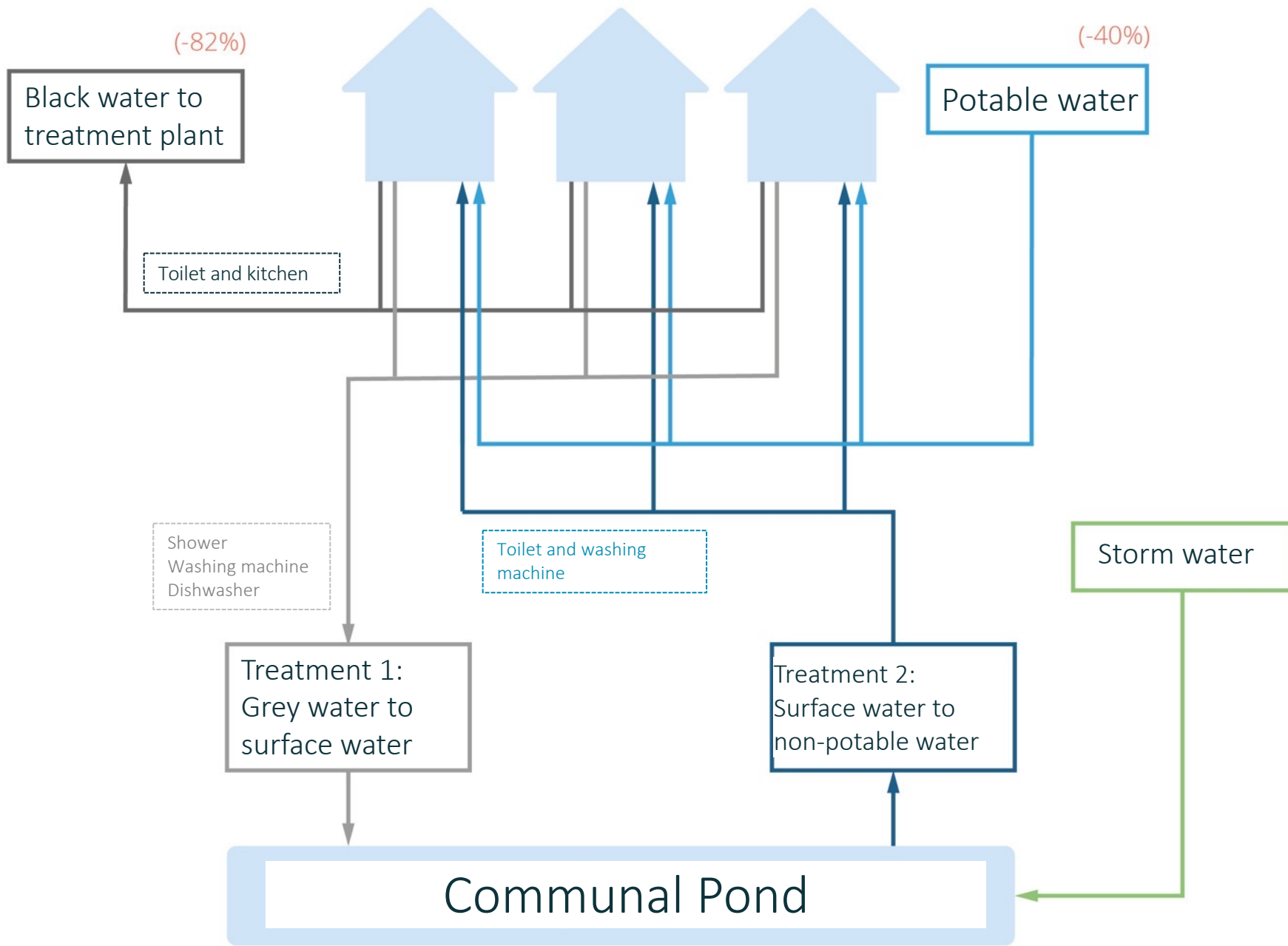
Circular water system

Total water use per person, per day.	119,2 (source: Vewin statistiek)
Potable water use	119,2
Non-potable water use	0,0
Water use per function	
Shower	49,2
Toilet	34,6
Washing machine	14,1
Garden	4,5
Dishwasher	2,5
Kitchen tap	7,3
Bathroom tap	5,2
Bath	1,9

- 40-70% reduction in potable water use
- Less waste water
 - Grey water reuse
 - Only black water to regional WWTP (-82%)

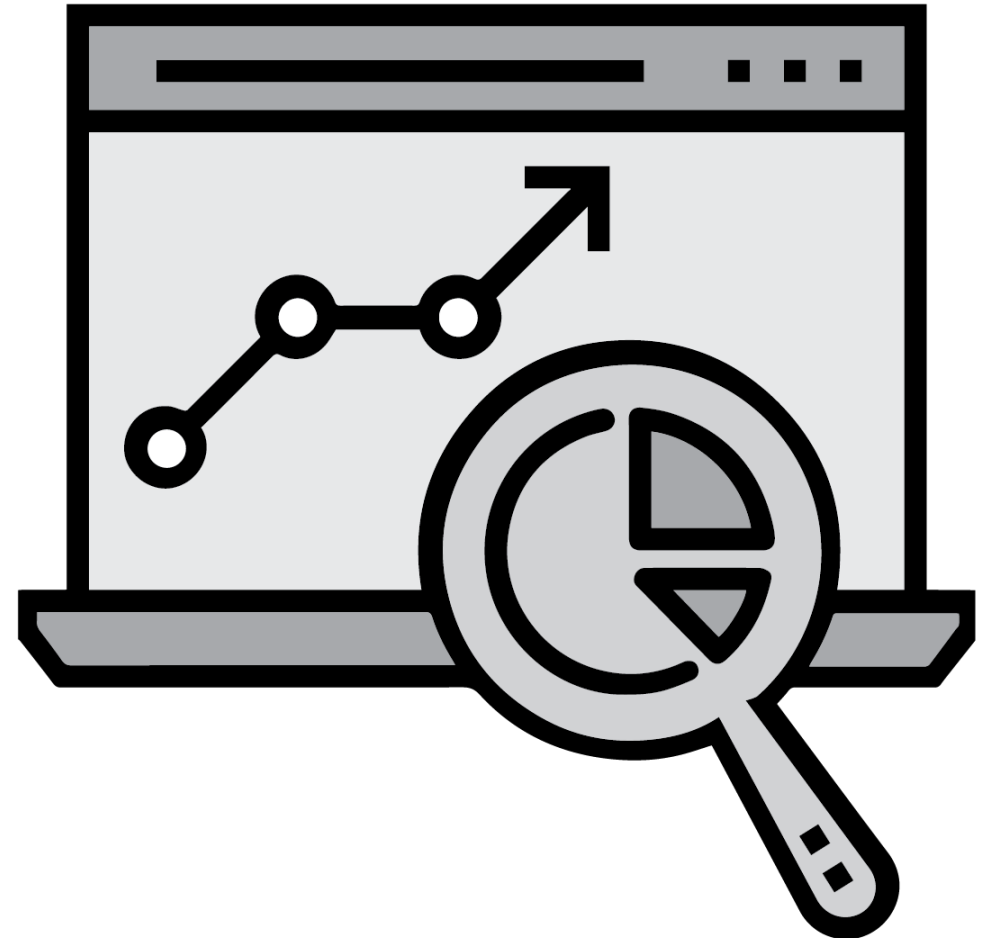
Circular Water System (concept)





Feasibility: main issues

- Quantity and Quality
 - Governance
 - Finance
 - Legal
 - Risks
-
- Informing the decision making process



Quantity and Quality

Water Balance: simulation model

Too little or too much water

Different qualities





Governance

Current roles and responsibilities

New governance arrangement?

Who does what?

Who is responsible?

What is the role of the end user?



Finance and value

CAPEX and OPEX

Water price

Multi Value Creation

Value case



Legal

Relevant legal frameworks:

- Drinkwaterwet
- Water Framework Directive
- Environmental Management
- Zoning regulations



~ Risks

Quality issues

Cross connections

Greywater quality

Surface water quality

Non-potable water quality

Quantity issues

Greywater quantity

Surface water quantity

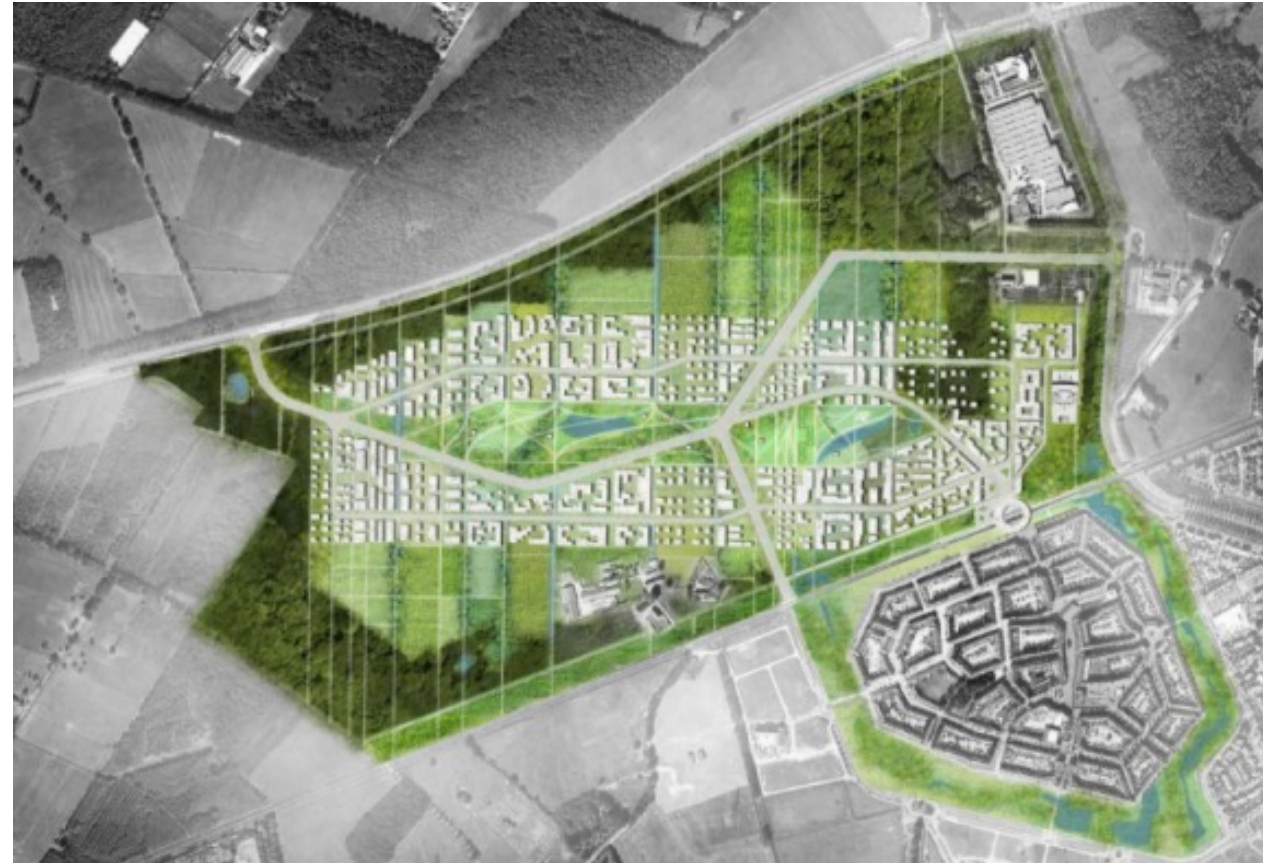


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Living Lab

Learn from experience

Adapt to new insights

Upscaling to other areas





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