

WaterMan & ERB Water Core Group Dialogue Forum Potentials & Challenges of Water Reuse in the Baltic Sea Region

Rønne / DK, 8 Nov 2023

Agenda

Opening & introduction

- **Welcome addresses**
- Climate projections for the Baltic Sea Region
- The WaterMan project

Water Reuse in practice: Experiences from other parts of Europe

- Water reuse vs. water scarcity: Approaches in Europe
- Co-existence with water scarcity in Murcia Region / Spain

Thematically related projects in the Baltic Sea Region

- ReNutriWater, NurseCoast-II, AQUARES

Projects for water reuse in the Baltic Sea Region

- Challenges for water management in the BSR
- Panel discussion

Outlook & farewell

Welcome addresses

Claus M. Andersen

Managing Director

Bornholm`s Energy & Utility Co.

Maria Ixcott Nilsson

Chairperson ERB Water Core Group

Region Kalmar County

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Time for a...

Coffee break

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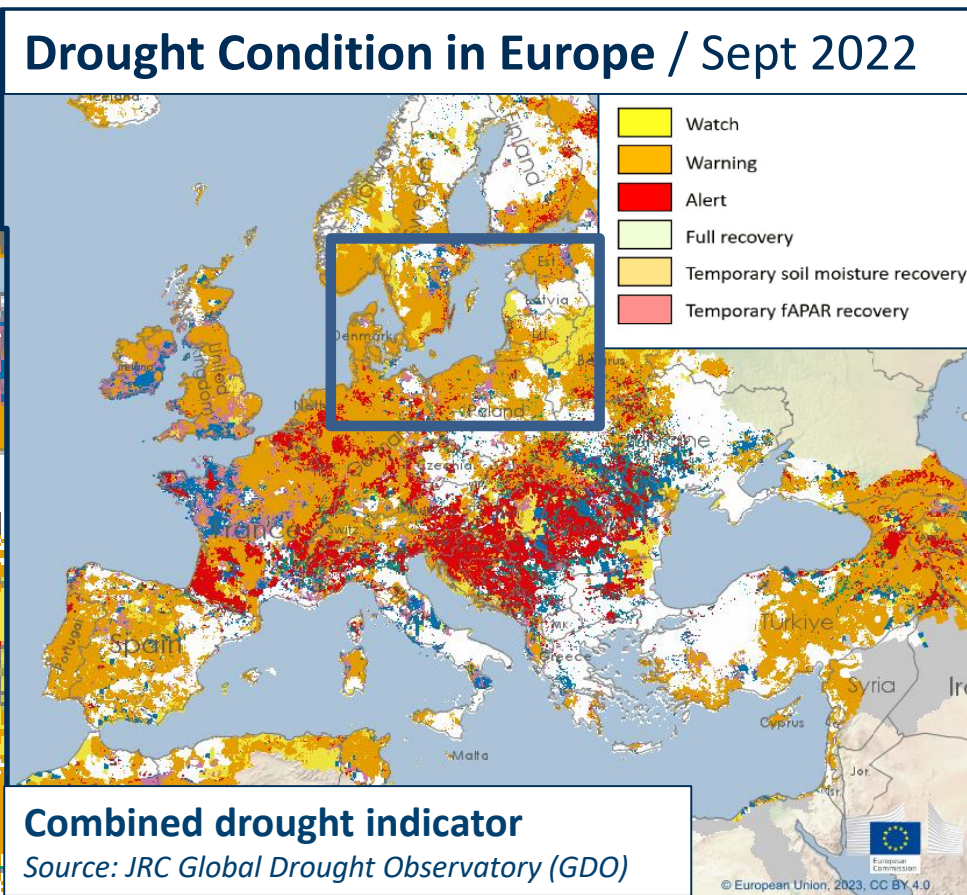
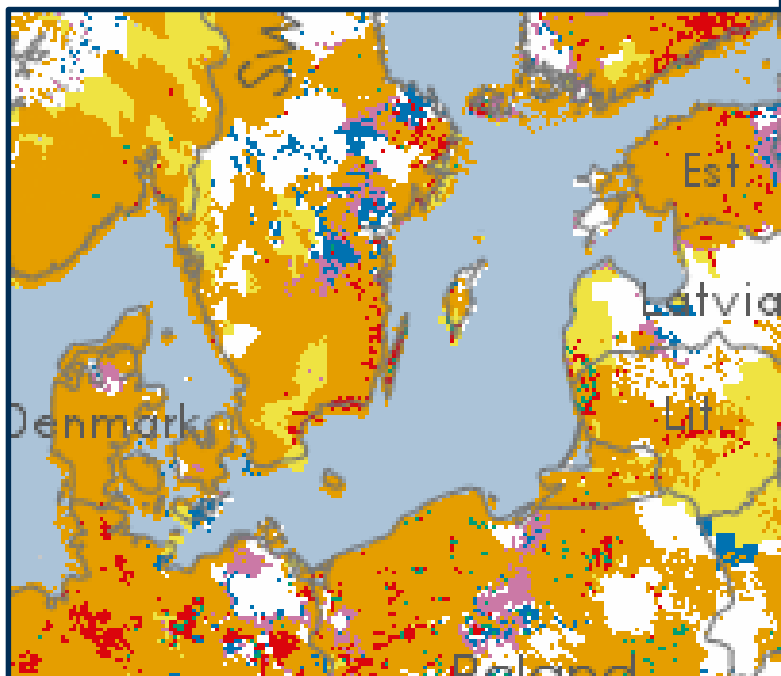
WaterMan

Promoting Water Reuse in the Baltic Sea Region

Tobias Facchini, WaterMan Lead Partner / Region Kalmar County
Jens Masuch, WaterMan project management / GA-MA Consulting

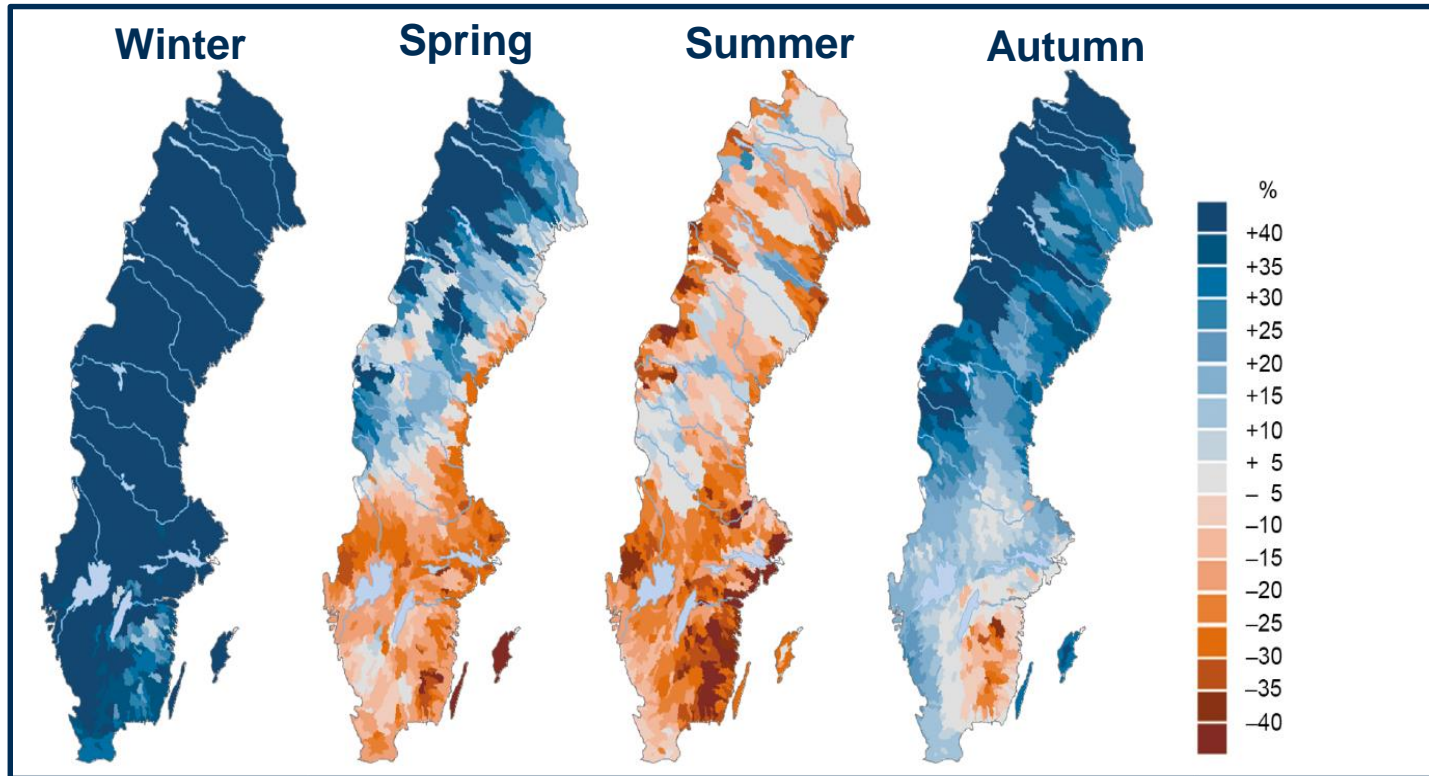
Climate change vs. water supply

- Until recently, **water scarcity** was a “far-away problem” for most parts of the Baltic Sea Region
- This has changed in the last years due to **climate change**



The example of Sweden

Imaginable changes to water supply during the 21th Century

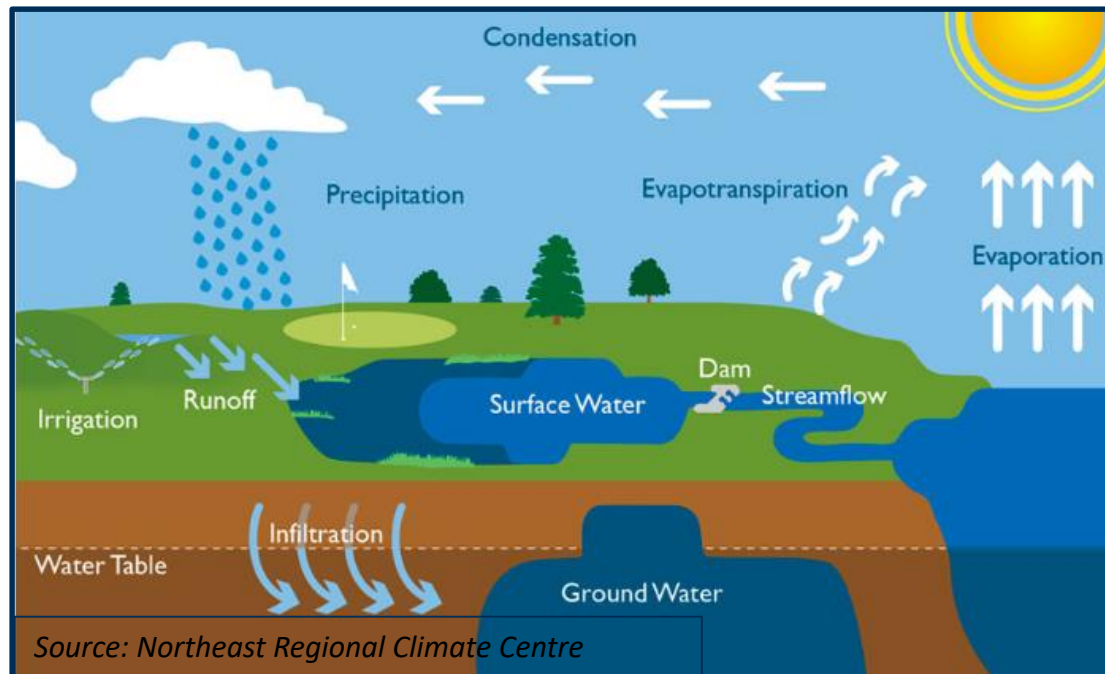


FRÅN EKLUND ET AL. (2015)

Source: SMHI - Swedish Meteorological and Hydrological Institute

Rethinking water supply & water use

- Consequence: **The prevailing way of water supply & water use in the Baltic Sea Region** is challenged and may no longer work, i.e.
 - Utilisation of **ground water & fresh surface water**
 - **Using drinking water** for (almost) all kinds of utilisations



Source: Northeast Regional Climate Centre

Rethinking water supply & water use

- **Water supply & water use patterns in the Baltic Sea Region** will have to be reconsidered & **may have to be altered** in the future, by increasingly:
 - Opening up & utilising **alternative sources of water** beyond groundwater & fresh surface water
 - Using not only water of drinking quality, but also water of **lower & varied qualities** – depending on the concrete use case (so-called “fit-for-purpose” water)

Using water of different qualities

Do we **need drinking water quality for all purposes?** – for example:

- Irrigation of **green** areas in urban space
- Irrigation of **private gardens**
- Watering of **sport fields**
- **Industrial processes** of different kinds
- Flushing of **toilets**
- **Agricultural** irrigation
- ...

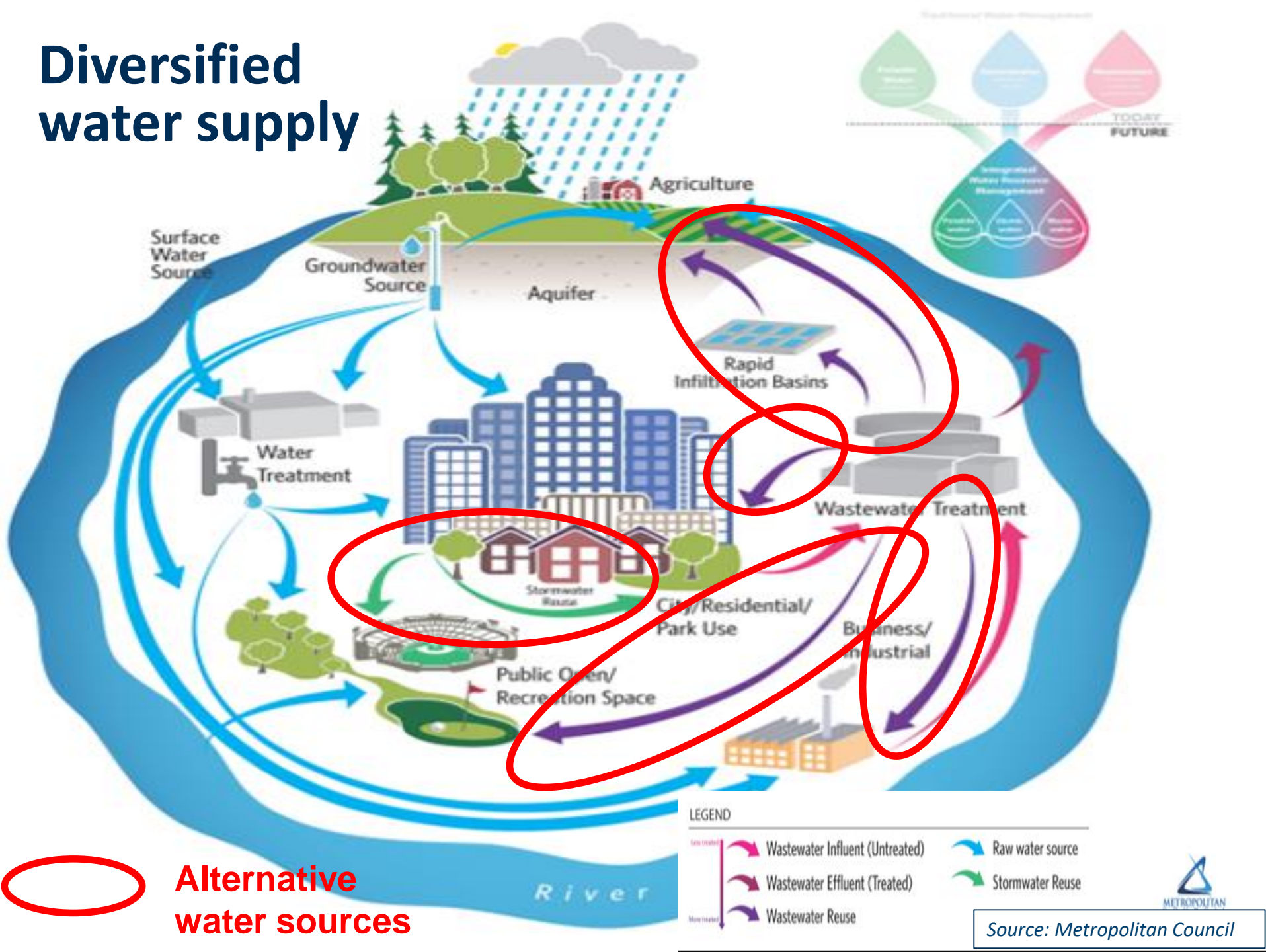
> **EU Regulation 2020/741** on minimum requirements for water reuse (*in force since 26 June 2023*): **First step of a EU-wide rethinking** by defining graded water quality standards for agricultural irrigation

Diversifying the sources of “use water”

Using alternative sources of water of different qualities, e.g.

- **Rain water** harvesting
 - Surface runoff / retained **storm water**
 - Desalinated **seawater**
 - Treated **waste water** from Waste Water Treatment Plants (WWTPs)
 - ...
 - ...
- > This creates “**shortcuts**” within the water cycle, i.e. ways to **(re-)water before** it turns into ground water or fresh surface again and **can be obtained** from these “**standard sources**”

Diversified water supply



Water reuse: More than a technical issue

Changing the water supply patterns **means to change mindsets** of:

- **Water consumers** (e.g. households / citizens, industry, farmers)
- **Water industry** (local drinking water & wastewater services)

> They have to **be made aware that it will be necessary** to use water of different qualities & from different sources

> Experience from south Europe: **Acceptance of water reuse** can be even more **difficult to achieve** than the “technical” reorganisation of water supply



Goal & approach of the WaterMan project

Overall goal:

- To promote **reuse of water** (along with other alternative sources) in order to make water supply in the Baltic Sea Region more climate resilient

Approach:

- **Capacity building at local level** (municipalities, water companies)

Final outcome:

- **BSR Water Reuse Toolbox** that can be used by municipalities & water companies to start up own activities for water reuse
> accompanied by a **“BSR Water Reuse Helpdesk”** that provides in-depth advice on its basis

Project consortium

Kinds of institutions involved:

- **Local & regional authorities / water companies**
 - > both frontrunners & newcomers in water reuse
- **Domain experts & research institutes**
 - > to support the “hands-on” partners in their activities
- **Regional authorities & umbrella organisations**
(e.g. associations of local authorities & water companies)
 - > to spread the word about the project results and to initiate a broad dialogue about water reuse in the Baltic Sea Region

Project consortium – Project partners

1	Region Kalmar County (Initiator & Lead Partner)	Sweden
2	Kalmar Municipality	Sweden
3	Kalmar Water	Sweden
4	Vastervik Municipality	Sweden
5	Braniewo Municipality	Poland
6	Association of Polish Communes Euroregion Baltic	Poland
7	Gdańsk University of Technology	Poland
8	Economic Chamber "Polish Waterworks"	Poland
9	Bornholms Water A/S	Denmark
10	Bornholms Wastewater A/S	Denmark
11	Association "Klaipeda Region"	Lithuania
12	Administration of Klaipėda District Municipality	Lithuania
13	Klaipeda University	Lithuania
14	Kurzeme Planning Region	Latvia
15	Saldus Municipality	Latvia
16	Berlin Centre of Competence for Water gmbH	Germany

Project consortium – Associated Organisations (1)

1	Estonian Waterworks Association	Estonia
2	Water Reuse Europe	Other
3	Union of the Baltic Cities / Sustainable Cities Commission	Sweden
4	Kalmar Sound Commission	Sweden
5	Administrative Board of Kalmar County	Sweden
6	WS-Neighbours (a regional network for Water Companies)	Sweden
7	Västervik Environment and Energy	Sweden
8	Linnaeus University	Sweden
9	RISE Research Institutes of Sweden	Sweden
10	Braniewo Municipality Municipal Sport Centre "Zatoka"	Poland
11	Braniewo Municipal Waterworks Ltd.	Poland
12	City Commune of Elbląg- Elbląg Technology Park	Poland
13	Association of Communes "Ekowod"	Poland
14	The Association of Sea Cities and Municipalities	Poland
15	Assoc. of Warmińsko-Mazurskie Borderlands Communes	Poland

Project consortium – Associated Organisations (2)

16	Wastewater Technical Association	Denmark
17	DANVA - Danish Water- and Wastewater association	Denmark
18	Association of Local Authorities in Lithuania	Lithuania
19	Lithuanian Water Suppliers Association	Lithuania
20	Saldus Utility Service Ltd.	Latvia
21	Latgale Planning Region	Latvia
22	Riga Planning Region	Latvia
23	Vidzeme Planning Region	Latvia
24	Zemgale Planning Region	Latvia
25	Senate Department for the Environment, Urban Mobility, Consumer Protection and Climate Action / City of Berlin	Germany
26	Berlin Partner for Business and Technology	Germany
27	Berlin Water Utility	Germany

Activities: Jointly learning from existing practices

Diagnosis / strategic focus:

- Utilising **alternative water sources** & water of varied qualities is a **new & exceptional approach** in the **Baltic Sea Region**
- But it is a common, well-established **practice in other parts of Europe** (and the world) **since many years**

Approach:

- Exploring and **“importing” knowledge** & experiences from more **advanced countries** (e.g. study trips, expert lectures)
- **Jointly** adapting & **customising successful practices** for use in the Baltic Sea Region (incl. peer learning & co-creation of solutions)

Activities: Local & regional model strategies

Diagnosis / strategic focus:

- There exist individual water reuse measures in the BSR
- But **local or regional strategies** that utilise water reuse to reorganise water supply systematically are still **rare**
- **Lack of acceptance** is not strategically addressed

Approach:

- Elaborating & adopting **local & regional model strategies** that alter the water supply & use patterns by combining:
 - Measures for **reuse of treated waste water**
 - Measures for **recirculation of retained storm water**
 - Actions to promote **consumer & stakeholder acceptance**

WaterMan: Model regions & model strategies

Local & regional model strategies for water reuse



Activities: Local pilot measures

Purpose / strategic focus:

- Bringing **replicable examples** of water reuse into practice **under** the specific (humid) **conditions in the Baltic Sea Region**
- Creating concrete **reference points** for the elaboration of the local & regional **model strategies & awareness raising** activities

Scope of the pilot measures:

- Measures for **recirculation of retained storm water**
> first steps into water reuse / low-threshold solutions
- Measures for **reuse of treated waste water**
> advanced practices / rather complex solutions

Nature of the pilot measures:

- Both “real-world testing” & feasibility studies

Local pilots: Recirculation of retained storm water

“Real-world” testing:

- Braniewo / PL: **Urban rain garden** at public swimming pool (reuse purpose: greening of swimming pool surrounding)
- Saldus / LV: **Underground rain water retention reservoir** (operating a fountain in public space)
- Gargzdai / LT: **Stormwater retention ponds** for water reuse (irrigation of green areas, fire fighting)
- Västervik / SE: **Next-gen multi-dams** for extended water reuse (irrigation of cemetery, technical water for companies)

> **Advancing existing water retentions practices** in the Baltic Sea Region **for the purpose of water reuse**

Local pilots: Recirculation of retained storm water

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Interreg
Baltic Sea Region



Co-funded by
the European Union

SUSTAINABLE WATERS
WaterMan

Saldus Municipality

WaterMan





AREA

**217 658 ha /
2 179,9 km²**



DISTANCES

**120 km Rīga
108 km Ventspils
100 km Liepāja
Lithuania 35 km**



INHABITANTS

26 529



Saldus piepilda

The problem to be solved in the project



The Ciecere river flows through the municipality and is its main drainage point.



Saldus is facing both periods of drought and regular floods, in particular in Saldus town centre that is located lower than the surrounding areas and lacks water reservoirs to absorb water from heavy rainfall or rapid snowmelt.

**Saldus is arranged
like a “bowl“**




Sometimes this happens...

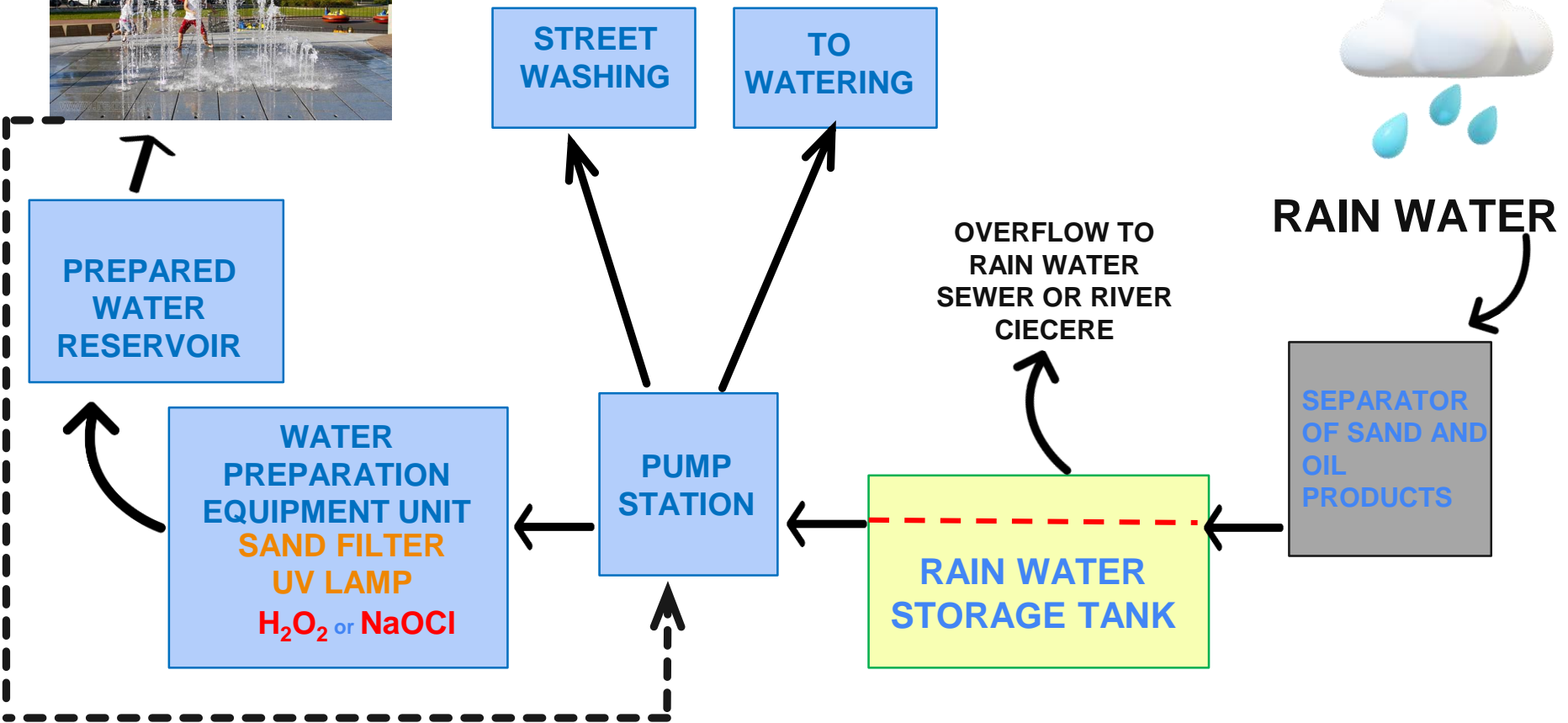


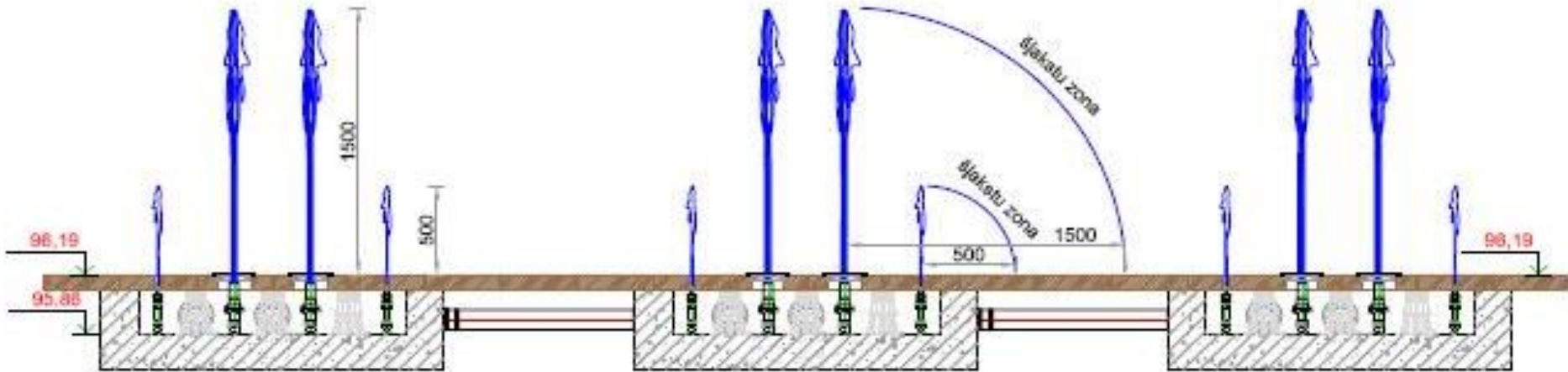
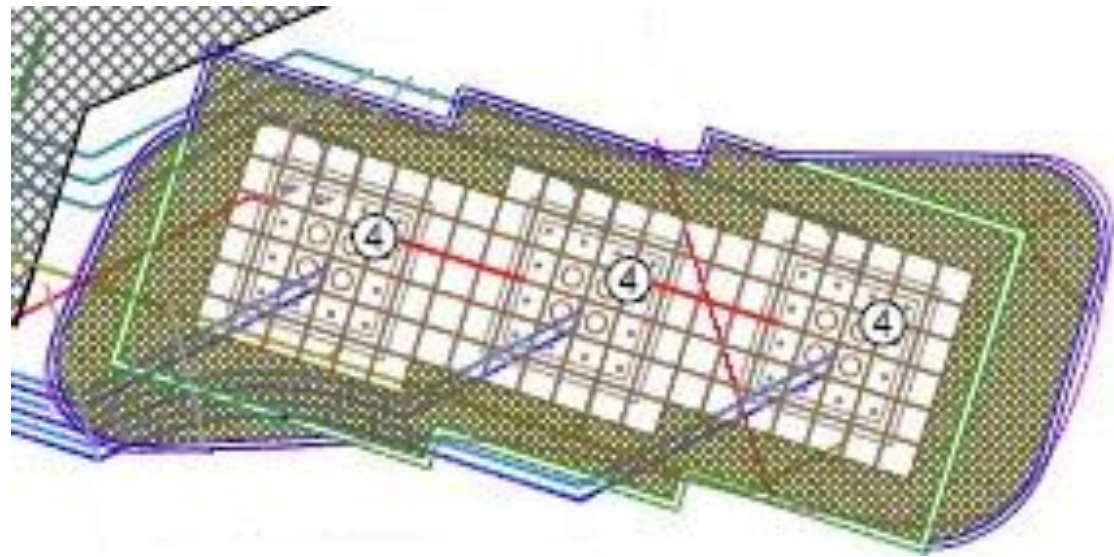
Place of implementation the pilot project – Oscar Kalpak Square



 - Construction of the fountain, which will use the accumulated rainwater with underground accumulation tank







MULTIFUNCTIONAL USE OF THE FONTAIN



Foresee the possibility of using rainwater for **street watering/washing** in dusty weather.



Install a connection point for watering green plants in Kalpak Square which can be used if there is a surplus of water.



An **educational solution** that informs visitors about climate change (screen etc.)



Fountain water will not be used in heating system, due to specific requirements

Thank you!

Jānis Blūms



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Local pilots: Reuse of treated waste water

“Real-world” testing:

- Braniewo / PL: **Reuse of public swimming pool water** for irrigation of sport fields & green areas nearby
- Bornholm / DK: Improved **purification of WWTP effluent for agricultural irrigation** with a low-tech filter
- Kalmar / SE: **Mobile facility for disinfecting treated waste water** for irrigation of trees & parks

Feasibility studies:

- Berlin / DE: Reuse of large-scale **WWTP water** in industrial area
- Bornholm / DK: Reuse of **WWTP water** for **hydrogen electrolysis**
- Kalmar / SE: **Dual pipe system** in public building

> **Adapting available technologies & approaches** for typical use cases of water reuse in the Baltic Sea Region

Local pilots: Reuse of treated waste water

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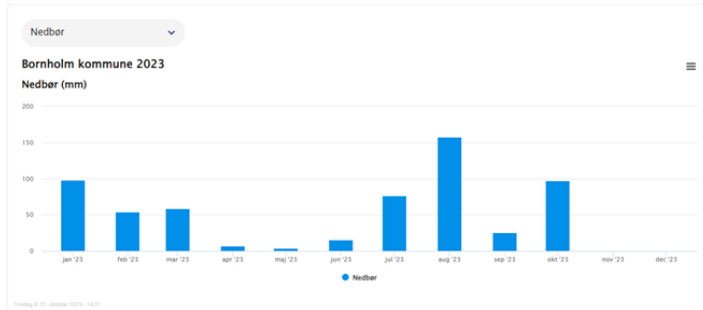
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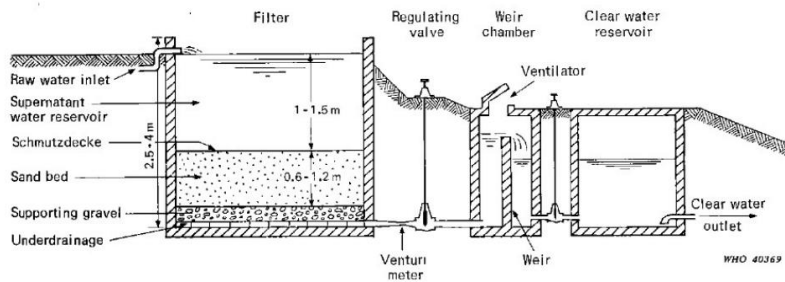
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> **Adapting available technologies & approaches** for typical use cases of water reuse in the Baltic Sea Region

WATERMAN PILOT BORNHOLM - SLOW SAND FILTER POLISHING TREATED WASTEWATER, USE FOR AGRICULTURAL IRRIGATION



Rainfall – [Vejrarkiv \(dmi.dk\)](http://vejrarkiv.dmi.dk)



World Health Organization (WHO) "Slow Sand Filtration" design manual (Huisman & Wood, 1974. pg 18).



WaterMan: Model Regions & Pilot Measures

Local & regional model strategies for water reuse

Pilot measures – Recirculation of retained storm water



Pilot measures - Reuse of treated waste water



Final outcome: BSR Water Reuse Toolbox

Diagnosis / strategic focus:

- **Model strategies & pilot measures** alone are **not enough** for ensuring the **uptake** of the developed approaches by others
- It needs **practical guidelines & targeted advice** on top

Approach:

- Creation of a “hands-on” **BSR Water Reuse Toolbox**, incl. e.g.
 - **Methodological guidelines** for strategy elaboration
 - Replication **blueprints** for concrete water reuse measures
 - **Success stories** from the WaterMan project (& beyond)
 - A generic **PR toolkit** to promote acceptance for water reuse
- Setting up **BSR Water Reuse Helpdesk** for accompanying in-depth advice for interested parties

Stay tuned on WaterMan & water reuse in the BSR!

Our offers for further information on WaterMan & water reuse

- **WaterMan Dialogue Fora** on water reuse in the Baltic Sea Region
- **Presentations** at national & international events
- **On-site visits** to the WaterMan **pilot sites** (from 2024)
- **Roundtable talks** in Brussels for EU-wide exchange & dialogue
- **WaterMan website** > <https://interreg-baltic.eu/project/waterman/>
> to be extended step-by-step during the implementation

> We would like to cordially invite you to our **upcoming events**:

WaterMan Study Trip to Spain

23-25 April 2024

WaterMan Study Trip to Northern Europe

Autumn 2024

The **WaterMan** project in a nutshell

- **Goal:** Promoting the reuse of water in the Baltic Sea Region by capacity building at local level
- **Lead Partner:** Region Kalmar County / SE
- **Partners:** 16 (SE, DK, DE, PL, LT, LV)
- **Associated:** 27 (SE, DK, DE, PL, LT, LV + FI & EE)
- **Participating countries:** 8 (6 eligible + 2 associated)
- **Funding programme:** Interreg Baltic Sea Region
- **Budget:** 4.38 Mio EUR
of which: 3.50 Mio EUR ERDF
- **Duration:** 3 years (Jan 2023 – Dec 2023)

Thank you very much for your attention!

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Time for ...

Joint lunch

See you again at 13:30 h!

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Short break

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Discussion

How can water reuse contribute to climate resilient water supply in the Baltic Sea Region?

Discussion

Is water reuse essentially needed for climate resilient water supply in the Baltic Sea Region?

Time for a...

Coffee break

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Upcoming WaterMan events & offers

Events to learn more **about** water reuse

- **Feb 2024** **Roundtable talk** in Brussels
- **12-14 March 2024** WaterMan **Conference** in Braniewo / PL
- **23-25 April 2024** **Study trip** to Spain
- **Autumn 2024** **Study trip** to Northern Europe
- **From autumn 2024** **On-site visits** to the **WaterMan pilots**

Online resources to obtain further information on water reuse

- **WaterMan website** > <https://interreg-baltic.eu/project/waterman/>
- **BSR Water Reuse Toolbox** (to be launched in 2024)

Closing remarks

Tobias Facchini

WaterMan Lead Partner
Region Kalmar County

Torben Jørgensen

ERB Water Core Group
Bornholm`s Energy & Utility Co.

Thank you very much for your
attention and your contributions!