Interreg Baltic Sea Region

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SUSTAINABLE WATERS WaterMan

Water Recycling Toolbox

Water recycling strategy for Västervik / SE

Västervik Municipality

WaterMan

VÄSTERVIKS KOMMUN

Västervik Municipality

Livskvalitet varje dag

Gun Linberg — Strategist sustainable development
Anders Fröberg — Water cooperator
Dennis Wiström — Project manager

Pilot area(s)


N
Yxnerum
Gusum
Berg
Valdemarsvik
Åtvidaberg
Gryt
Tryserum
Falerum
Ukna
Östra Ed
Kvädöfjärden
Edsbruk
Dalhem
Överum
St Åskö
Tyrn
Syrsan
Löftahammar
Gamleby
Storkläppen
Hallingeberg
Almvik
Knöldjupet
Lockneri
Törnsfall
Piperskärr
Västervik
Gunnebo
Spårö
Kungsgrundet
Ankarsrum
Västrum
Helgerum
Hjorted
Blankaholm
Tuna
Vena
Misterhult
Simpevarp
Stockholm
Uppsala
Västerås
Karlstad
Örebro
Nyköping
Linköping
Visby
Göteborg
Jönköping
Växjö
Kalmar
Halmstad
Karlskrona
Köpenhamn
Östersjön
1:500 000
0 5 10 20 Km

Challenges in the pilot area

Climate changes

>>>>>>> Floods and droughts

- Nutrient leakage
- Sensitive archipelago environment
- Quality and quantity of drinking water

Solutions

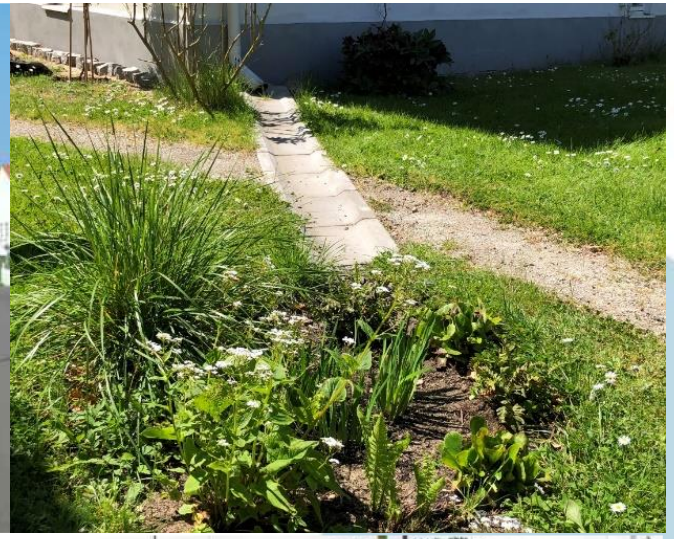
>>> Climate Change Adaptations

Win- Win

Strategy Stormwater

Open stormwater treatment
Ditches, vegetation, filter

- Action plan 2020
- Measures in private gardens, streets, parking areas, industrial areas
- Measures in new projects

Gun Linberg Strategist sustainable development
Anders Fröberg Water cooperator
Dennis Wiström Project manager

Interreg Baltic Sea Region

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Initial exchange

Water recycling strategy for Västervik / SE

Västervik Municipality

9 November 2023

WaterMan
Västervik Municipality
Local water reuse strategy

VÄSTERVIKS KOMMUN

Livskvalitet varje dag

Anders Fröberg — Water coordinator, Strategist
Akko Karlsson — Coach Sustainable development
Ingela Karlsson — Engineer Municipal Water and wastewater

Priority issue

- To much and to little of water
  Southeast of Sweden exposed area climate changes
- Waterrestrictions 4 of the last 5 years
- Touristarea, use of water increase in summer

Local strategies

- Drinkingwater
- Stormwater

Local strategy
Sustainable supply of drinkingwater

- Development of production (new sources, better quality)
- **Watersparing**
- Waterprotection

Local strategy Stormwater

- Local delaying and use
- Open stormwater treatment if possible (new areas)




Resource instead of problem

Climateadaption, recreation,
estetic, irrigation, biodiversity

Multidam Gamleby
Ekhagen, Örbäcken

From actionplan

- Delay water 75% locally – Demand new houses and reconstruction
- Develop multifunctional dams
- Information to owners/business (resource)
- Manual - how to delay and use stormwater (private land)

RIKTLINJE FÖR FÖRDRÖJNING AV DAGVATTEN PÅ KVARTERSMARK OCH TOMTMARK

Reuse of water
Working together

- Project group in the municipality organisation
- VMEAB
- VBAB
- Other stakeholders Business, houseowners, clubs/associatians (sports, housing), housing companies, construction companies

  Who are interested, demands
  Information possibillites

Where to start

- Where are we using processed drinking water for irrigation etc.
- Where can we use alternative to drinking water

Step 1

- Irrigation sportfields
- Irrigation private gardens

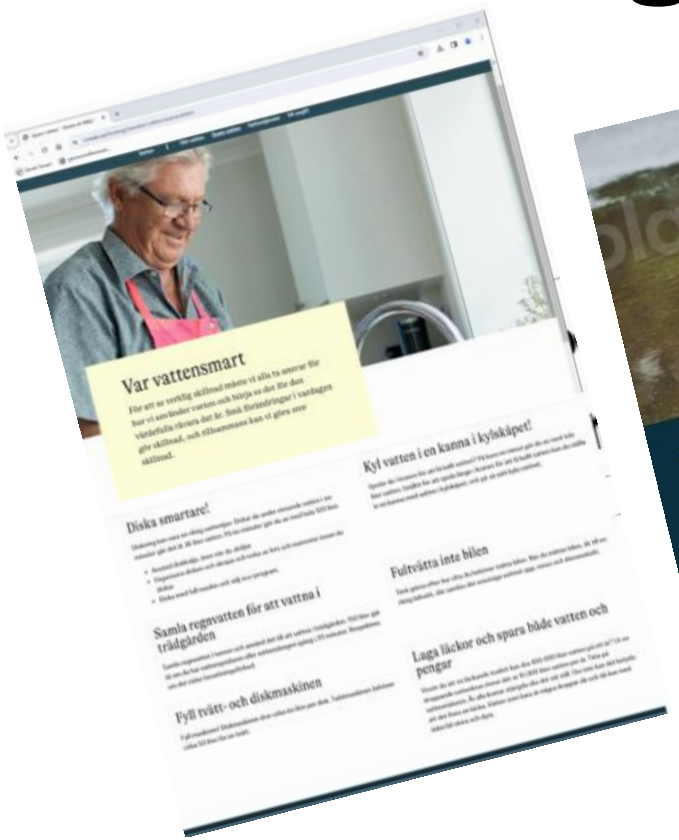
Step 2

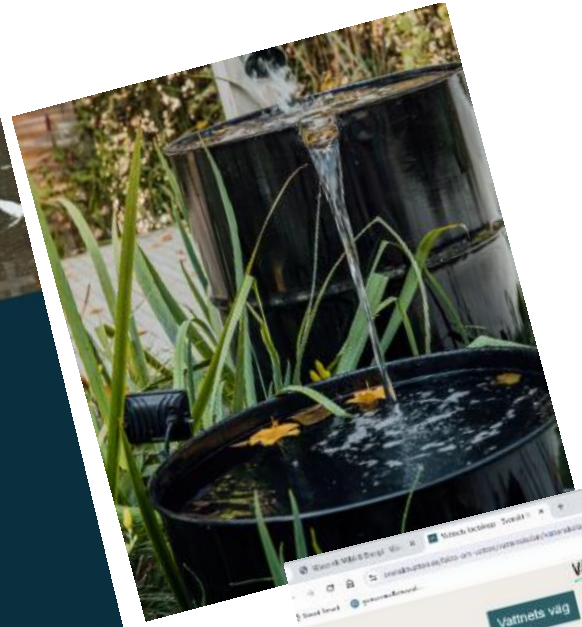
- Irrigation plantations/parks
  Need for tap point

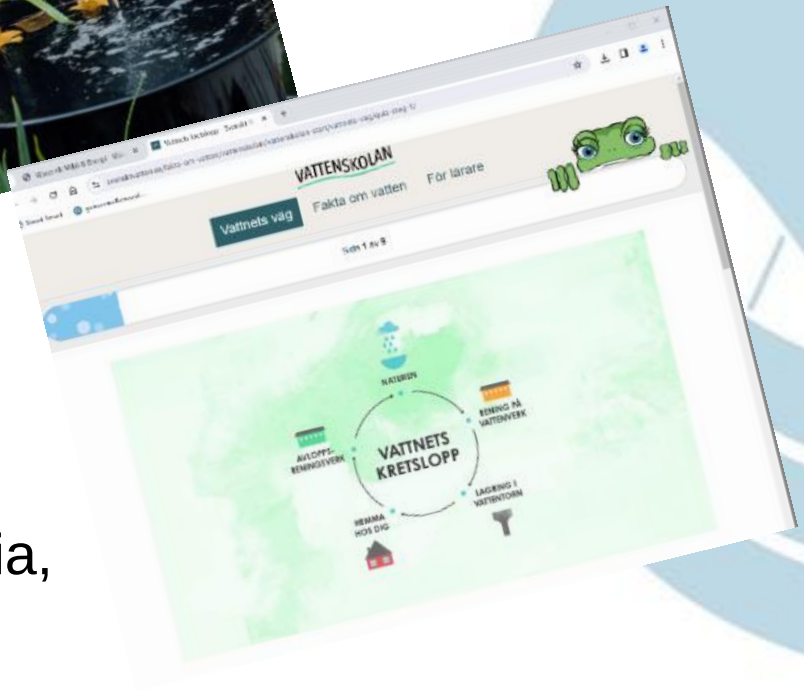
Step 3

- Double pipes in buildings, roof water
- Public tap point (technical water) and information (new users)
- Restriction, not allowed to use drinkingwater for irrigation
- Reuse of processed sewage

Encurage/inspire to save water

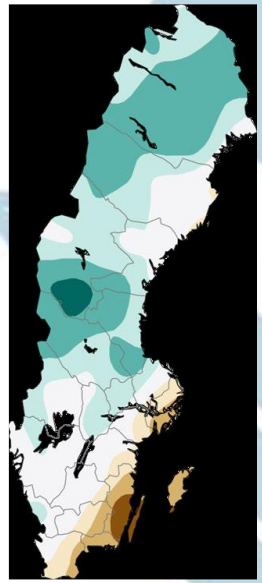






Webpage, broschures, social media, newsletters

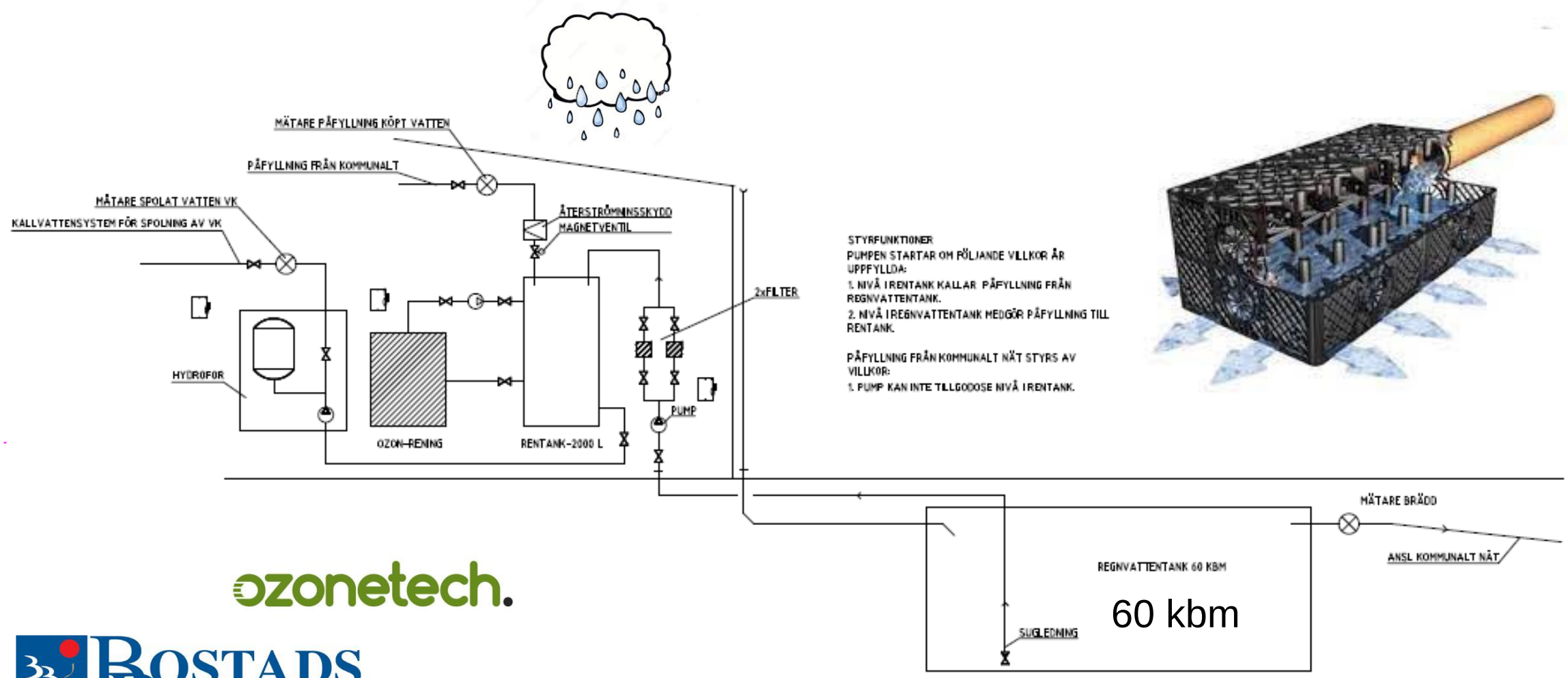
VÄSTERVIK Miljö Energi



- Public space
- Awareness water, stormwater, climate
- 12 months season winter/summer
- Cooperation with school

Åbylund

Reuse of rainwater for flushing Åbyhöjden

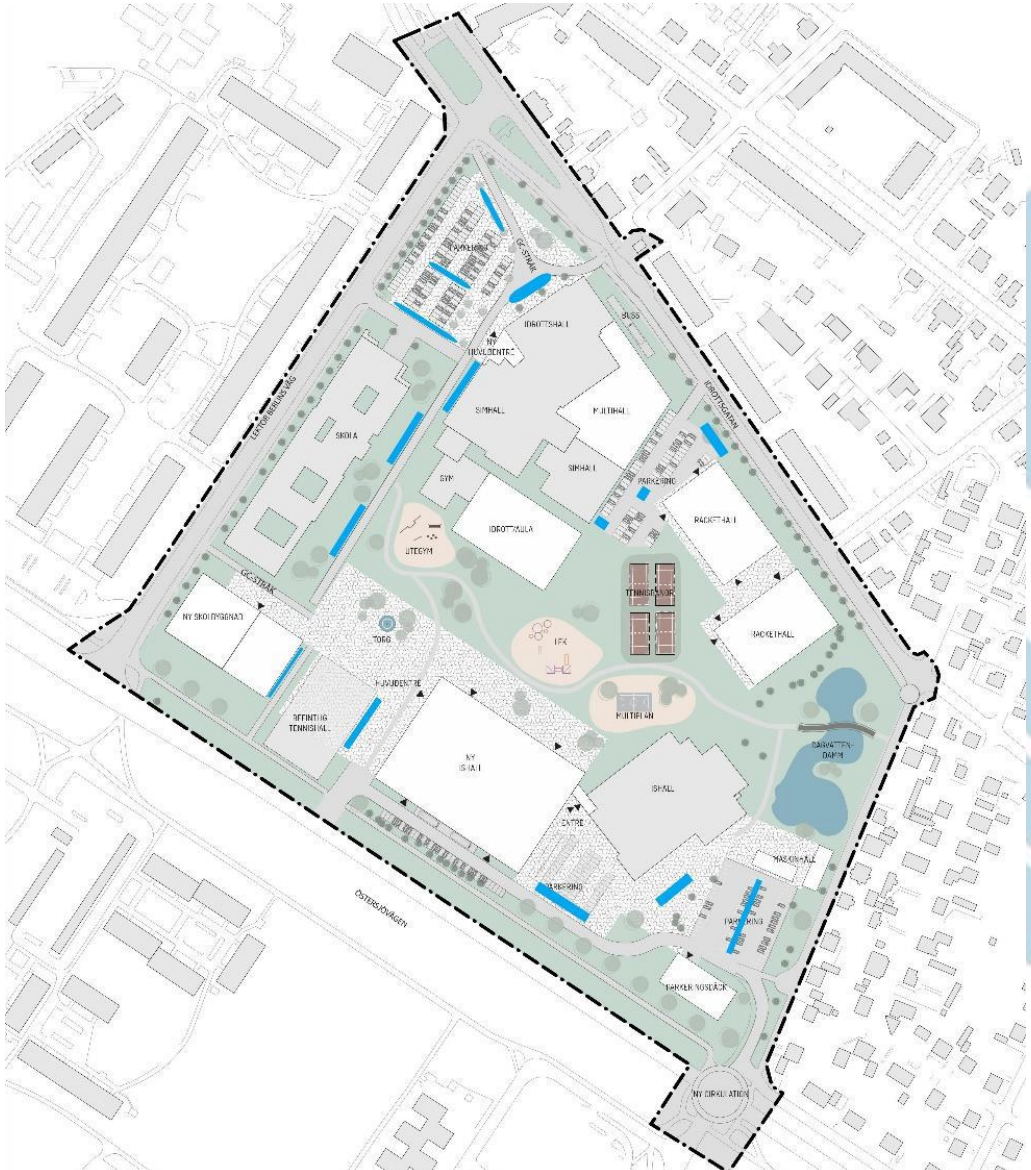


ozonetech.

BOSTADS BOLAGET

”New” sportsarea Bökensved and arena

- Pilot area Stormwater
- Open stormwatercare
- Rain(roof)water for irrigation
- Multidam



Thank you for your attention

Anders, Akko, Ingela

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Baltic Sea Region

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the European Union

SUSTAINABLE WATERS
WaterMan

1st Peer-review session

Water recycling strategy for Västervik / SE

Västervik Municipality

14 March 2024

WaterMan Västervik Municipality Local water reuse strategy – elaborated version

Klaipeda 14 March 2024

VÄSTERVIKS KOMMUN

Livskvalitet varje dag

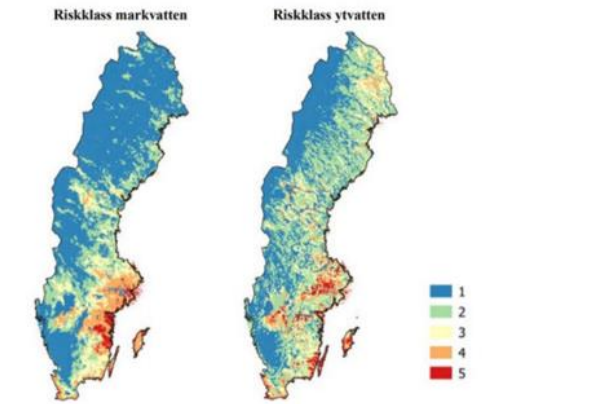
Anders Fröberg — Water coordinator, Strategist
Akko Karlsson — Coach Sustainable development
Ingela Karlsson — Investigation Engineer

Elaborated version of Action plan for reuse of water

- Revised version after meeting in Bornholm

Priority issue

Why we need water reuse



Riskområden avseende mark och ytvatten, högst risk för minskning i sydöstra Sverige

Risk areas regarding ground water and surface water, highest risk of decline in the southeast of Sweden

- To much and to little of water Southeast of Sweden exposed area climate changes
- Water restrictions 4 of the last 5 years
- Tourist area, use of water increase in summer

Priority issue

Water scarcity only parts of the year

Foto: Olle Sporrong/Expressen/TT

- Higher precipitation in wintertime
- Increased risk of flooding
- Measures to mitigate water scarcity should preferably also mitigate effects of heavy rains

Reuse of water
Working together

- Project group in the municipality organisation
- VMEAB
- VBAB
- Other stakeholders Business, houseowners, clubs/associatians (sports, housing), housing companies, construction companies

Preparatory work (Step 1)

Strategic documents, guidelines and national legislation

- Water supply, Drinking water

- Stormwater management

Local strategy Stormwater

- Local retaining and use
- Open stormwater treatment if possible (new areas)




From action plan

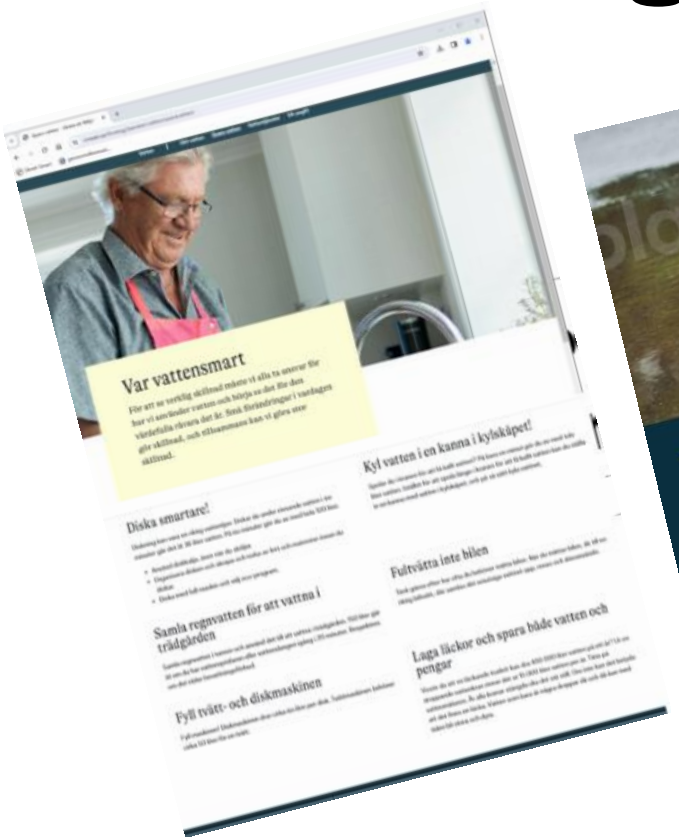
- Retain water 75% locally – Demand new houses and reconstruction
- Develop multifunctional dams
- Information to owners/business (resource)
- Manual - how to retain and use stormwater (private land)

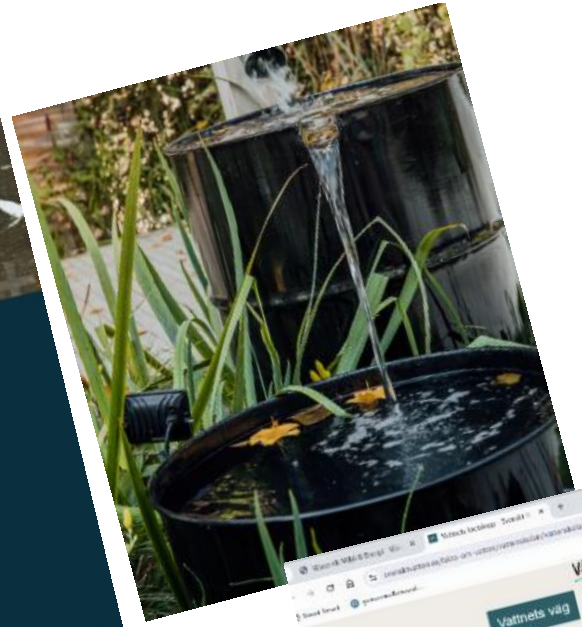
RIKTLINJE FÖR FÖRDRÖJNING AV DAGVATTEN PÅ KVARTERSMARK OCH TOMTMARK

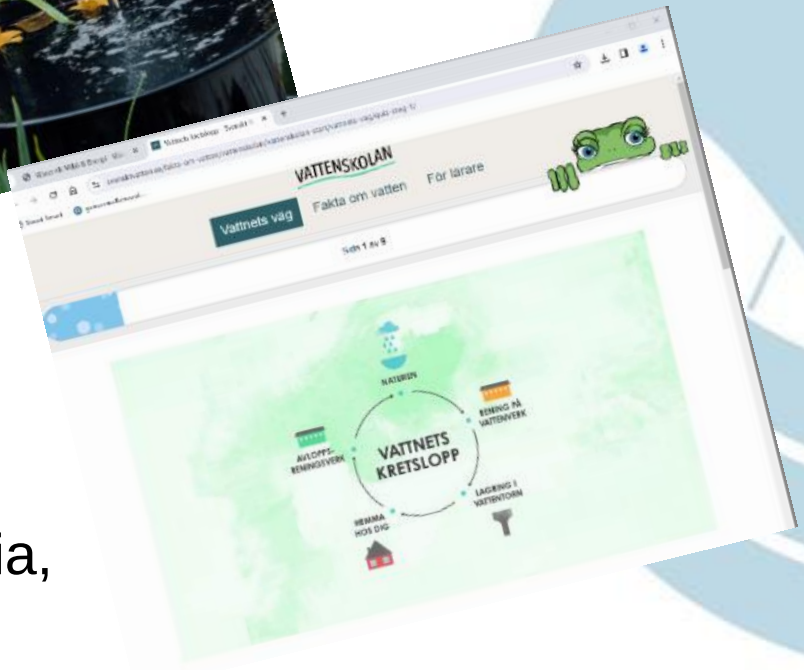
Local strategy
Sustainable supply of drinkingwater

- Development of production (new sources, better quality)
- **Water saving**
- Waterprotection

Encurage/inspire to save water







Webpage, broschures, social media, newsletters
Nudging as a strategy

VÄSTERVIK Miljö Energi

Continuation Preparatory work (Step 1)

- Mapping of needs, possibilities and stakeholders
- Where can we reuse stormwater to a greater extent
- Information
- Counseling

Continuation Preparatory work (Step 1)

National legislation

- Unclear stormwater legislation
- Swedish Water’s new recommendation for stormwater regulation?
- Changes in the Public Water Services Act?
- Changes in laws about city planning?

Where we start to make changes (Step 2)

- Irrigation sportfields
- Irrigation private gardens
- Irrigation agricultural businesses (counseling)

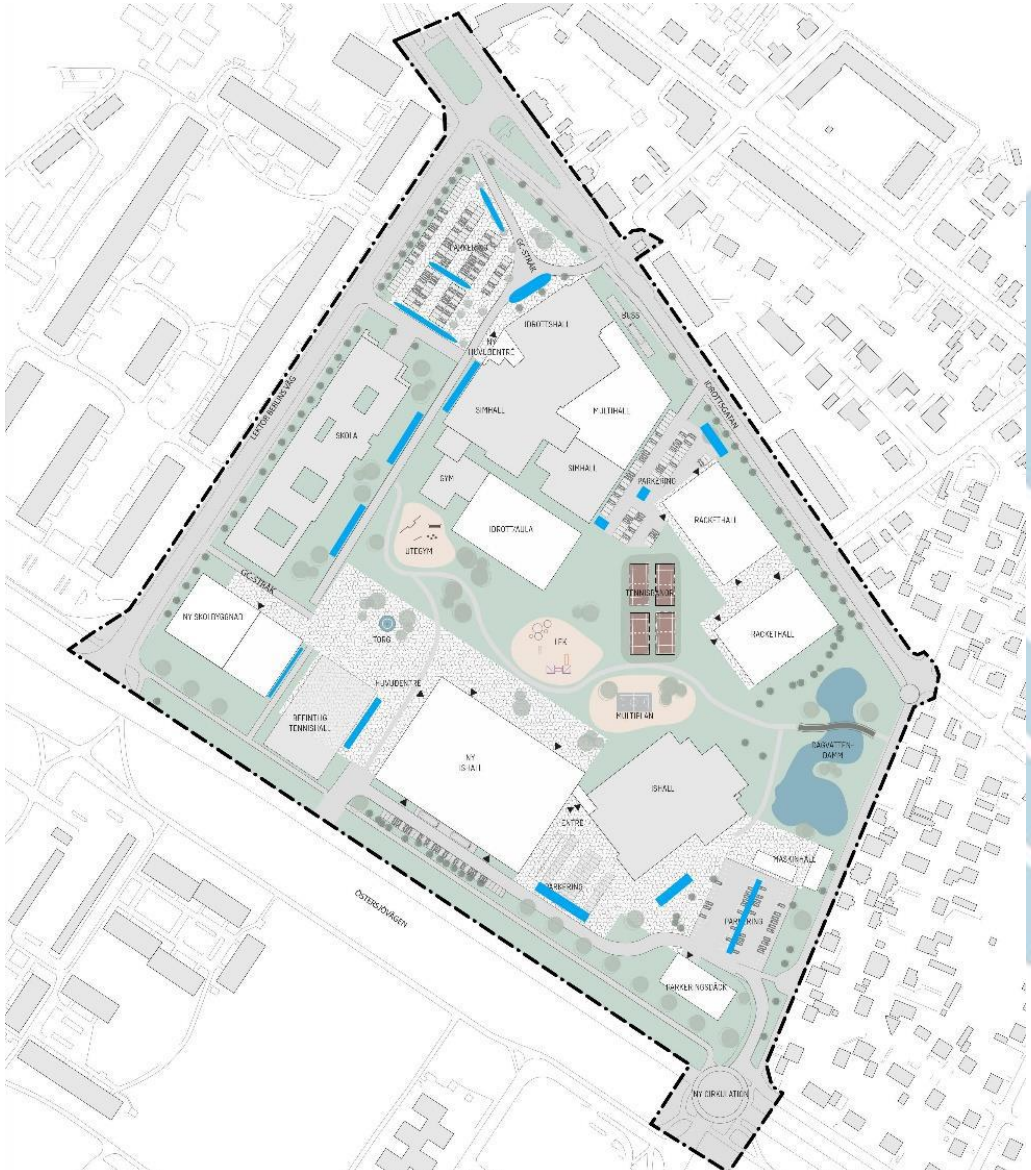
Resource instead of problem

Climate adaption, recreation, estetic, irrigation, biodiversity

Multidam Gamleby
Ekhagen, Örbäcken

”New” sportsarea Bökensved and arena

- Pilot area Stormwater
- Open stormwatercare
- Rain(roof)water for irrigation
- Multidam



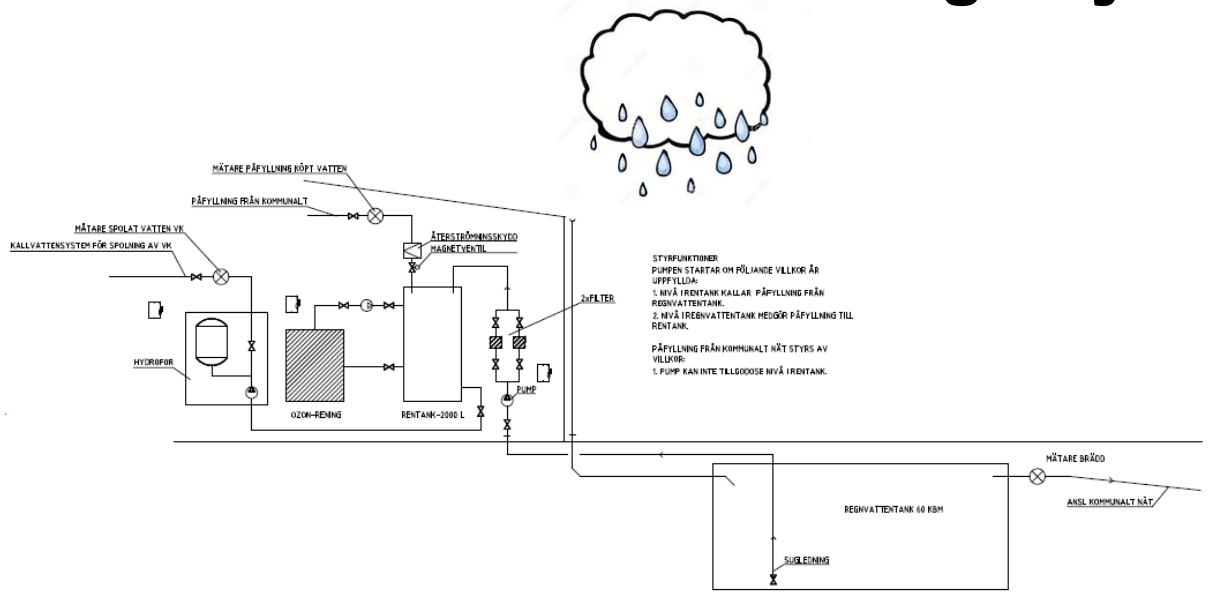
Tap points for retrieval of collected stormwater (Step 3)

- Irrigation plantations/parks. Need for tap point
- Public tap point (technical water) and information (new users)

Reuse of rain/storm water in apartment buildnings and businesses (Step 4)

- Dubble pipes in buildings, roof water

Reuse of rainwater for flushing Åbylund



Reuse of process water (Step 5)

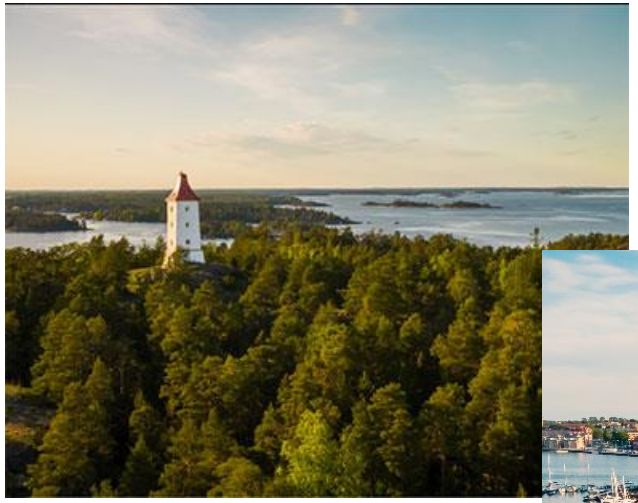
- Reuse of process water and treated waste water if priority of storm water is not enough/applicable
- Continued use of treated waste water at Loftahammar golf coarse

Challenges and work ahead

- Meetings with focus groups
- Uncertainties regarding storm water legislation
- New draft of local water reuse strategy
- Synergy with new urban planning work e.g. plan for blue-green infrastructure?

Thank you for your attention

Ingela Karlsson
ingela.karlsson@vastervik.se



1st Peer & expert review session: Recommendations & conclusions

Comments from the peer & expert review:

- Consider if you need a new monitoring process for the storm water quality, based on future potential use cases (on top of screening/evaluating the catchment areas).
- Consider other potential water sources in the strategy (beyond stormwater).
- Check if there any legislation rules or initiatives related to re-use of rainwater / stormwater in private houses.
- Stormwater is also in the Urban Waste Water Treatment Directive. It's urban – so may not apply to smaller municipalities, but maybe that's a good point to have a look into it, see what guidelines are there for bigger cities and if they could be partly applicable also for our local strategies.

Related project examples:

- SWaT–SmartWaterTank (in German only) https://www.leader-vechta.de/projekte/projekte-2021/wassermanagement-oowv/
  Prototype (hardware and software) for precipitation-dependent rainwater management. The basis is a control system that evaluates precipitation forecasts depending on the location so that the storage tanks are emptied in a targeted manner before heavy rainfall. If this is successful for a large number of storage tanks, a considerable retention volume can be activated to relieve the rainwater drainage system and save potential drinking water consumption. The prototype consists of an IBC container whose solenoid valve can be opened and closed for emptying depending on precipitation, a control module that receives the precipitation data via the in-house router and controls the solenoid valve, as well as the SmartWaterTank (SWaT) app, which is used for visualization, evaluation and monitoring by the user.
- CATCH - Water sensitive Cities: the Answer To CHallenges of extreme weather events https://northsearegion.eu/catch/
  - Pilot: Reducing surface flooding in Norwich https://northsearegion.eu/catch/pilot-projects/norwich/
  - Pilot: How can serious gaming raise awareness for climate adaptation? https://northsearegion.eu/catch/pilot-projects/zwolle/
  - Water sensitive communities: https://northsearegion.eu/catch/water-sensitive-communities/

Elaboration on local model strategy: Västervik Municipality / SE

Interreg Baltic Sea Region

Co-funded by the European Union

SUSTAINABLE WATERS WaterMan

Status update

Water recycling strategy for Västervik / SE

Västervik Municipality

18 September 2024

VÄSTERVIKS KOMMUN

WaterMan
Västervik Municipality
Hamburg 18-19/9

Livskvalitet varje dag

Changes since start meeting in Kalmar/Västervik

- Involving Local agency for environment protection, Local Water Company VMEAB and Local Housing Company VBAB

- Not only one big multifunctional pond.
  Find interesting locations – Adaption to local conditions and the users

- Actions in residential areas and public buildings (exhibition use of rainwater)

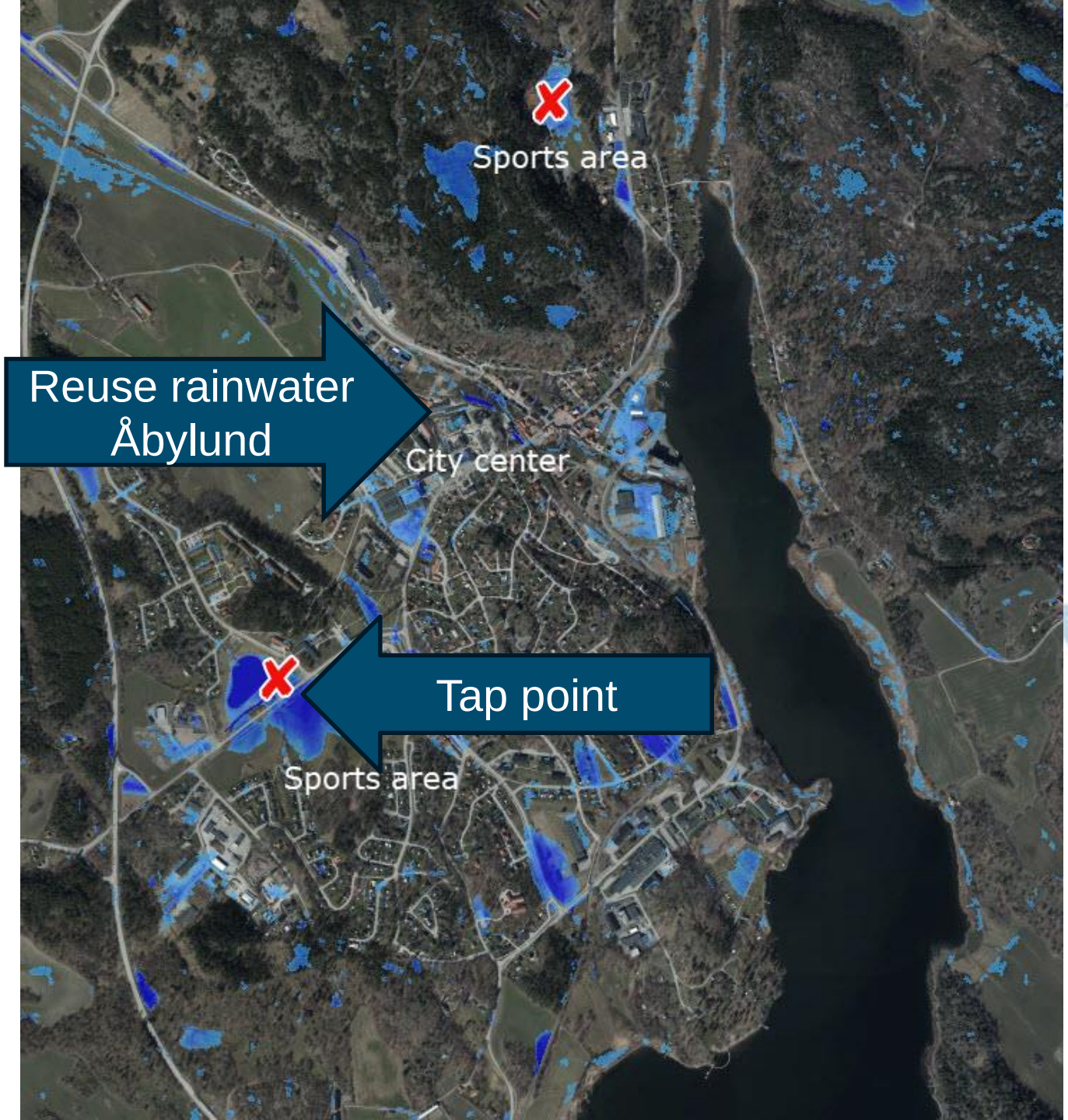
- More specific plan of actions and measures.

Actions in Gamleby

- Tap point
  Use for irrigation in a larger area
  Plantations and trees in city

- Experiences double pipes flushing with rainwater – Åbylund

- Tjustvallen
  Reuse of stormwater – Icefield/footballfields

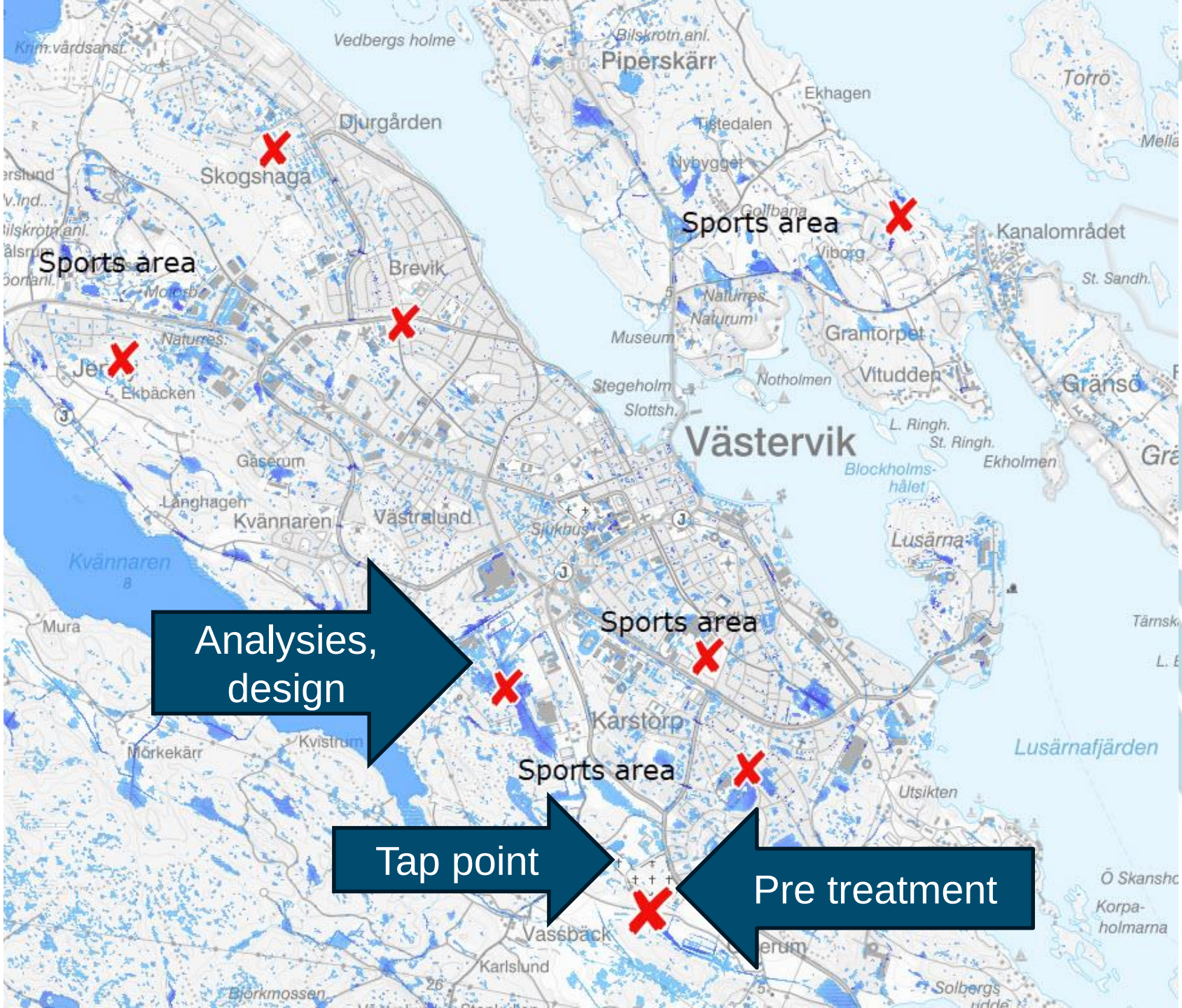

Sports area
Reuse rainwater
Åbylund
City center
Tap point
Sports area

Actions in Västervik

- Analyses to find the right places for multifunctional ponds.
- Prestudy Karstorp area

Development of existing dam (Örserum)

- Tap point (station for technical water)
- Pre treatment Open stormwater treatment (aeration)


Vedbergs holme
Piperskärr
Djurgården
Skogsnäga
Sports area
Brevik
Sports area
Kanalområdet
Grantorpet
Vitudden
Gränsö
Stegeholm
Notholmen
Västervik
Gåserum
Kvännaren
Västralund
Lusärna
Blockholms-hålet
Ekholmen
Sports area
Karstorp
Sports area
Lusärnafjärden
Utsikten
Vassbäck
Karlslund
Björkmossen
Solbergs
Analysies, design
Tap point
Pre treatment

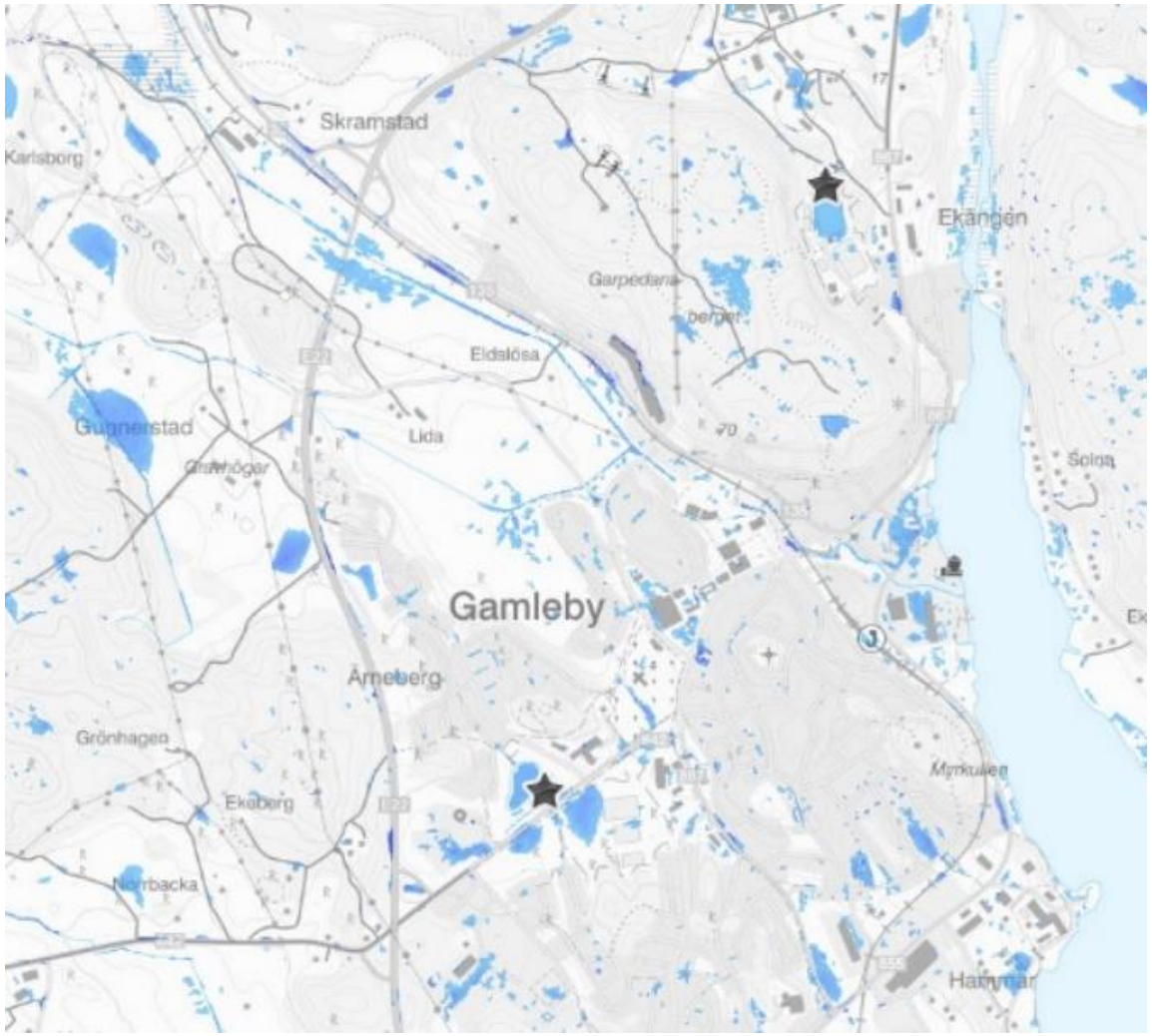
Where to start

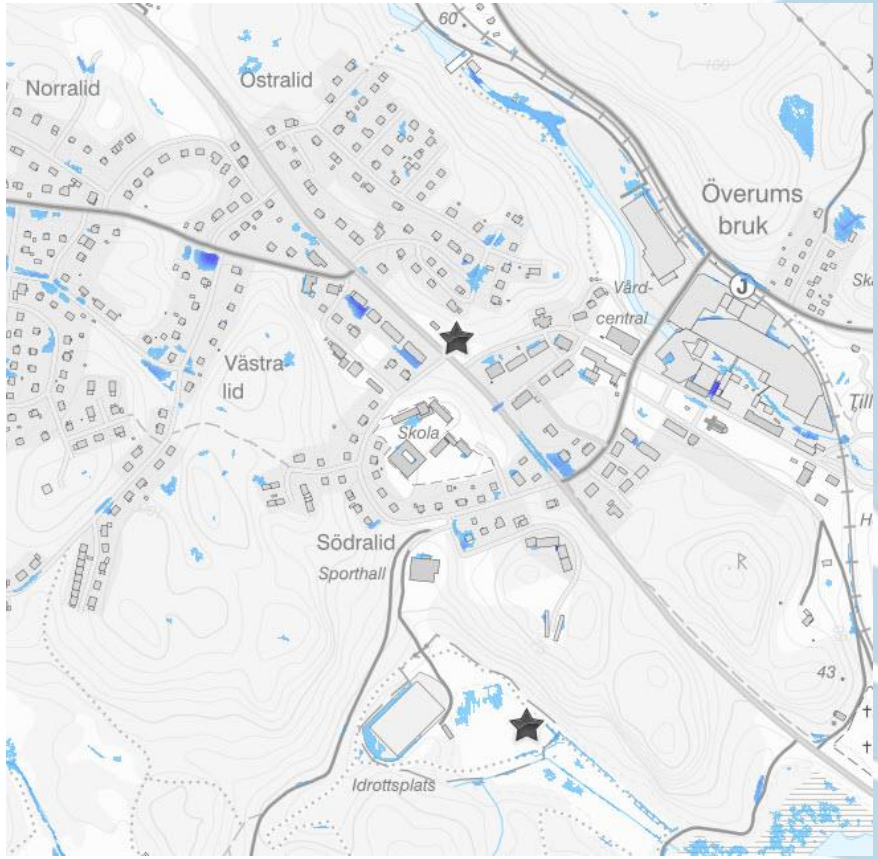
- Where are we using processed drinking water for irrigation etc. Dialog
- Where can we use alternative to drinking water where are the users
- Waterdelaying interesting areas

Västervik


Västervik
Piperskärr
Ekdalen
Bilskrotn.anl.
Vedbergs holme
Djurgården
Ekhagen
Tjstedalen
Nybygget
Golfbana
Torrö
Päraudden
Mellanh.
Mjödö
Ljungbo
Krim.vårdsanst.
Skogsnaga
Kejserslund
Tillv.ind.
Bilskrotn.anl.
Målsrum
Avfallsanl.
Hästsportanl.
Brevik
Naturres.
Naturum
Museum
Viborg
Kanalområdet
L. Sandh.
St. Sandh.
Bockh.
Grantorpet
Vitudden
Notholmen
Stegeholm
Slottsh.
Gränsö
Fiskartorpet
Gravröse
Lillö
L. Ringh.
St. Ringh.
Ekholmen
Blockholms-
hålet
Ekbäcken
Rössle
Gåserum
Långhagen
Kvännaren
Västralund
Sjukhus
Lusärna
Kvännaren
Hagen
Mura
Bergbo
Alviken
Blåsarudden
Badhus
Tärnskär
L. Ekholmen
Ryttartorpet
Solhäll
Karstorp
Kvistrum
Mörkekärr
Skogaholm
Lusärnafjärden
Utsikten
Sandvik
Nyhagen
Koloni-
område
Golfbana
Ö Skansholmen
Brittebo
Korpa-
holmarna
Vassbäck
Örserum
Karlslund
Björkmossen
Västralund
Stenkullen
Solbergs
udde
Borgö

Gamleby, Överum





Step 1

- Irrigation sportfields Stormwater
- Irrigation private gardens

Step 2

- Tap points Stormwater Irrigation plantations/parks

Step 3

- Reuse of stormwater
  Public housing areas
  Business

- Good examples
  Dubble pipes in buildings, roof water
  Public buildings

- Information
  Local authority, local water company, local housing comany

Step 4

- Advisingservice for famers/landowners
  Reuse of water, waterdelaying

Step 5

- Reuse of processed sewage

Reuse of stormwater today

Plans Gamleby

Measure	When	Status	Comments	Costs
Tap point Use in wider area	2023	x		
Follow-up double pipes	2024-2025	Ongoing	Recirculation in recidential area	
Analyses waterquality	2023-2025	Ongoing		
Circulation, stormwater	2024-2025		Tjustvallen Irrigation and	

Plans Västervik

Measure	When	Status	Comments	Costs
Tap point Use in wider area	2024	Ongoing	Place located	
Pre treatment aeration	2025	Ongoing	Design, procurement 2024	
Analyses Multi ponds	2024	Finished	Where, how	
Analysies, design Karstorp Lev 2	2024	Procoure ment		
Residential area, public	2025		Exhibition	

Thank you for your attention

Anders, Ingela

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Baltic Sea Region

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SUSTAINABLE WATERS
WaterMan

2nd Peer-review session

Water recycling strategy for Västervik / SE

Västervik Municipality

3 April 2025

2nd Peer & expert review session: Recommendations & conclusions

- Comment: Very clear and well thought-through action plan and communication with different stakeholders.
- How do you interact / incentivise private house owners? Answer: From time-to-time we have meetings with private sector, and we have also breakfasts with the private sector, where we can act as a role model – we show that we have real savings in the money, because we reduce consumption of water, and we also do not need to increase prices of water.

Elaboration on local model strategy: Västervik Municipality / SE

Interreg
Baltic Sea Region

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the European Union

SUSTAINABLE WATERS
WaterMan

Final review

Water recycling strategy for Västervik / SE

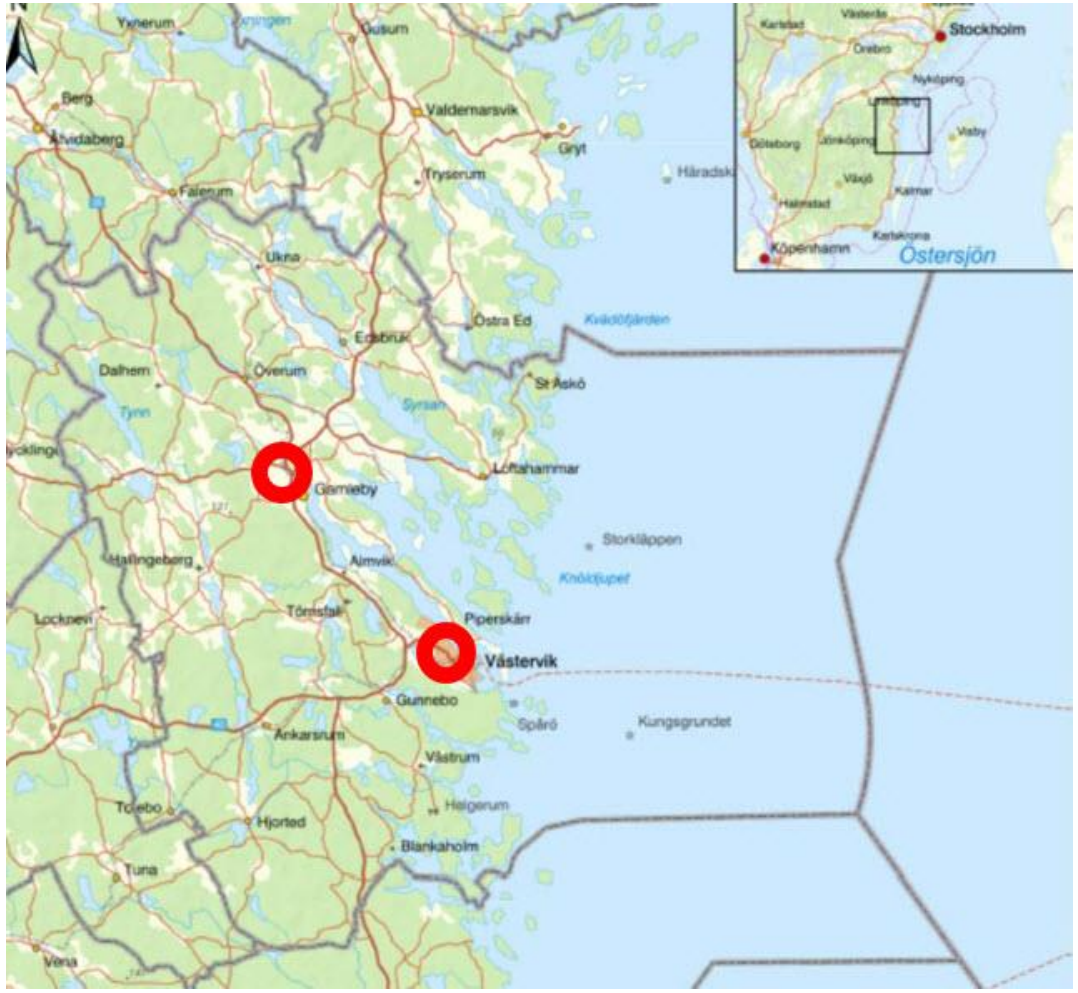
Västervik Municipality

26 September 2025

Local model strategi Västervik

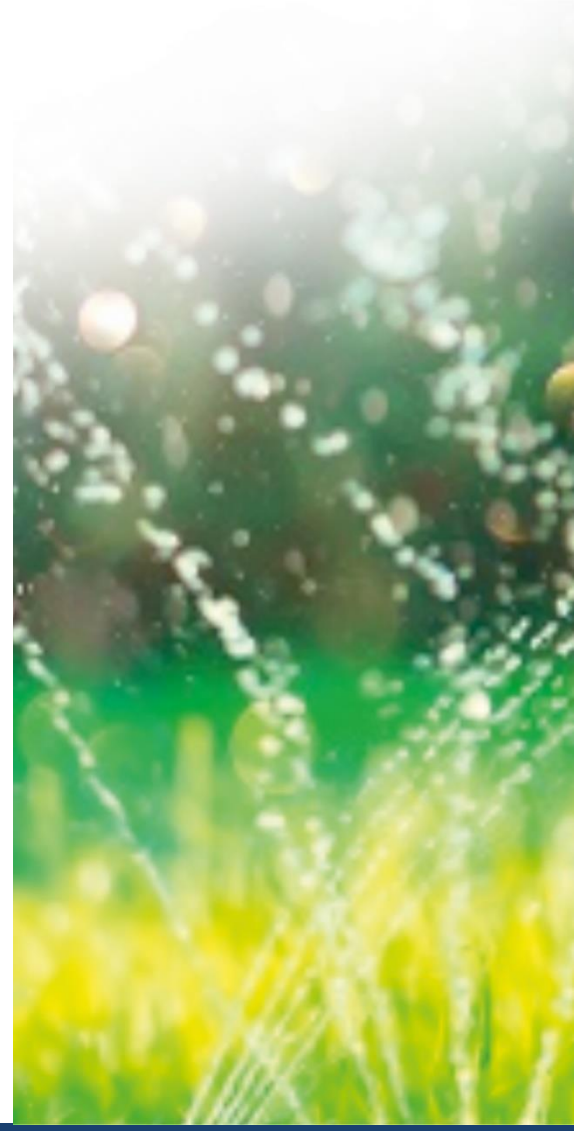
Main objectives

- Increase the problems with to much and to little of water
- Save drinking water
- Water retention
- Public raw model, good examples



Scope of the strategy

- ”Action plan”
  Political governance in existing strategies
- Goals
  Save drinking water, Water retention
- Focus – Use of storm water as a resource
- Document for Västervik municipality



Links to goals and strategies

Sustainable and open stormwater treatment

Sustainable supply of drinking water

- Action plan 2020-2030
- Measures in private gardens, streets, parking areas, industrial areas
- Measures in new projects (houses)
- No drinking water for irrigation (municipality owned)

Action plan Step 1

Low hanging fruits

- Irrigation sportfields
- Irrigation private gardens

Action plan Step 2

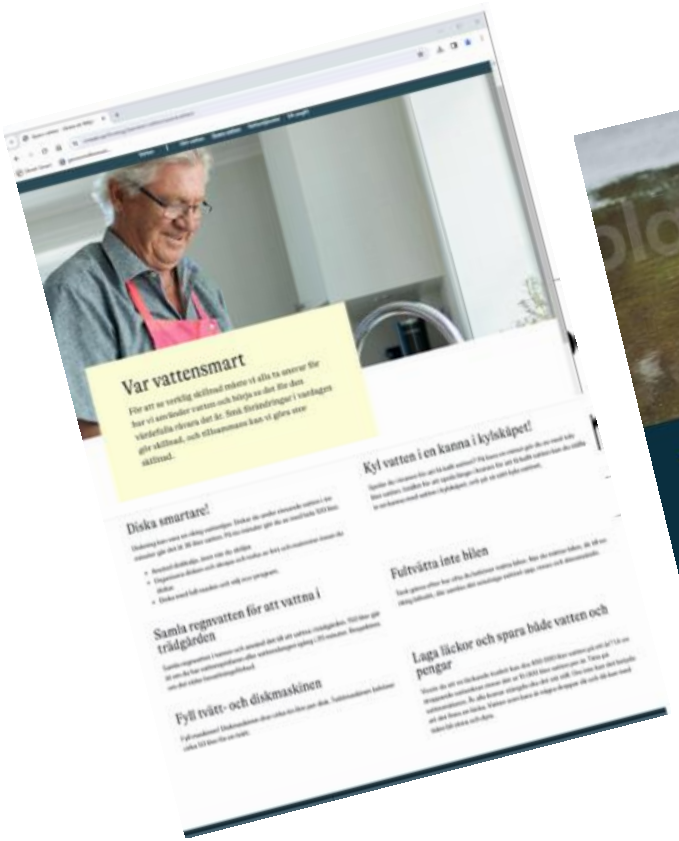
- Tap points for reuse of storm water Irrigation plantations/parks

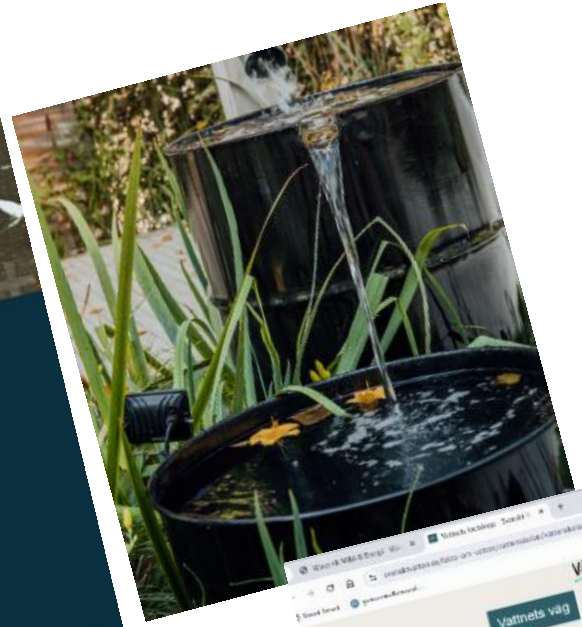
Action plan Step 3

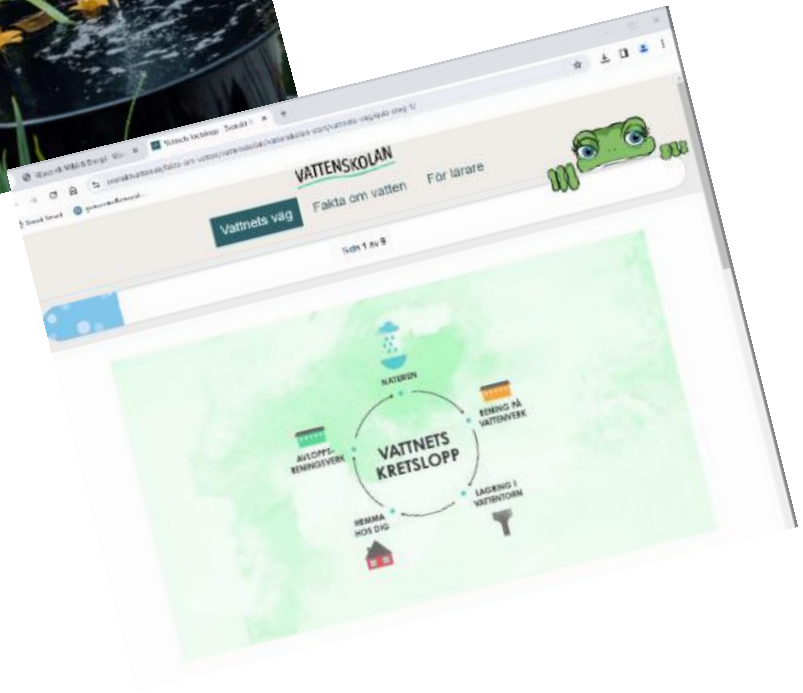
Involve private business
New users, information and dialog

- Water from the tap point
- Local rainwater/stormwater

Encourage/inspire to save water







Webpage, broschures, social media, newsletters

VÄSTERVIK Miljö Energi

Reduction in storm water tariff

- Retaining water gives 50 % reduction

VÄSTERVIK Miljö Energi

Capacity based water tariff – incentive for water conservation

Water tariff

Brukningsavgifter (periodisk avgift)

Avgifter för allmänna vattentjänster är belagda med lagstadgad mervärdesskatt.

§ 14 Brukningsavgift för bebyggd fastighet

14.1 För **bebyggd fastighet** skall erläggas brukningsavgift.

Avgift utgår per fastighet med:

A	Grundavgift - en fast avgift per år	1 250 kr
B	Kubikmeteravgift - en avgift per m³ levererat vatten	25,50 kr
C	Kapacitetsavgift – en avgift per år och mätarkombination	
C1	Småhus	2 365 kr
C2	1 x 2,5 Qn	7 095 kr
C3	2 x 2,5 Qn	21 285 kr
C4	3 x 2,5 Qn	47 300 kr
C5	4 x 2,5 Qn	70 950 kr
C6	1 x 6 Qn	28 380 kr
C7	2 x 6 Qn	94 600 kr
C8	3 x 6 Qn	189 200 kr
C9	4 x 6 Qn	236 500 kr
C10	1 x 10 Qn	70 950 kr
C11	2 x 10 Qn	212 850 kr
C12	3 x 10 Qn	354 750 kr
C13	4 x 10 Qn	520 300 kr
C14	För småhus som saknar mätare tas avgift ut för motsvarande som för Småhus	2 365 kr
D1	Dagvattenavgift för småhus	1 065 kr
D2	Dagvattenavgift, per 1 000 m²	1 330 kr
D3	Dagvattenavgift för allmän platshållare – Dg (APH)	1,25 kr/m²

- Higher cost for water meter size for large capacity
- Incentive to use other water sources where drinking water quality it not needed

VÄSTERVIK Miljö Energi

Components and key actions

- Waterretention but also saving
- Focus on reuse of stormwater
- Good examples, information
- Low hanging fruits

Development process

- Muncipality
  Project managing, coordinating
- Together
  Local authority, Water company, Local housing company
  Project group
- Survey Problem/possibilities
- Information and contact with users

Challenges in implementation

- Make it a prioritated issue
- Time for stakeholders
- Motivated users (to realise proposed measures)

Adaptability

- Adaptability – Yes
  Adaptions possible – contacts, evaluation

- Potential for scaling up
  Easy for other to use the ideas

Final reflections

- Already implemended
- Work step by step
- Involve the users
- Reuse of storm water from ”multidams” are working
- Demands in Building permits/planning
- Technical water
  Not storm water, but potential with treated waste water
- Making interest Ripple effect

ALREADY IMPLEMENTED

START WITH LOW HANGING FRUITS AND THE BIG CONSUMERS

WORK STEP BY STEP

REUSE OF STORM WATER ARE WORKING

INVOLVE THE USERS

Interreg Baltic Sea Region

Co-funded by the European Union

VÄSTERVIKS KOMMUN

SUSTAINABLE WATERS

WaterMan

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SUSTAINABLE WATERS
WaterMan

The „BSR Water Recycling Toolbox" was elaborated as part of the WaterMan project, which is co-financed by the European Union (European Regional Development Fund) and implemented within the Interreg Baltic Sea Region Programme. More information:

eurobalt.org/WaterRecyclingToolbox
interreg-baltic.eu/project/waterman

WaterMan promotes a Baltic Sea Region-specific approach to water recycling, which makes use of the alternation of too much and too little water that has become typical for humid areas in the EU to strengthen the resilience of local water supply. Building on this approach, the project supports municipalities and water companies in adapting their water supply strategies.