Interreg
Baltic Sea Region

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SUSTAINABLE WATERS
WaterMan

Water Recycling Toolbox

Recycling water from a public indoor swimming pool

Braniewo Municipality

Gdańsk University of Technology

Real-world pilot replication blueprint

Interreg
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SUSTAINABLE WATERS
WaterMan

Introduction to the pilot measure

Recycling water from a public indoor swimming pool

Braniewo Municipality

Gdańsk University of Technology

15 March 2023

GDAŃSK UNIVERSITY OF TECHNOLOGY

WaterMan Kick-off meeting

Kalmar & Västervik, Sweden (14-16/03/2023)

Braniewo Municipality (PP5) &GUT (PP7)

Presented by Magdalena Gajewska

WP- 2 PILOTING

WaterMan pilot actions in Braniewo (Poland)

- 2.2 Pilot measure / recirculation of retained water: **Urban raingarden at public swimming pool**
- 2.3 Pilot measure / reuse of treated water: **Reuse of public swimming pool water**
- 2.4 Local model strategy: **Municipal water re-use strategy**

Responsible Project Partner:

Braniewo Municipality (PP 5)

Gdansk University of Technology (PP7),
Faculty of Civil and Environmental Engineering

Municipal Sports Center „Zatoka”

Recreation & Rehabilitation Complex „Healthy Braniewo”

[Source: geoportal.gov.pl]

Location:

Łąkowa 1 Street, **Braniewo**, Poland

[Source:mos.braniewo.pl]

Infrastructure:

- **Indoor pool complex:**
  - sport swimming pool
  - leisure pool with wading pool
  - SPA bath
- **Wellness facilities:**
  - sauna rooms (x2)
  - gym
  - massage parlour
  - rest zone
  - tanning beds

2.3 Pilot measure / reuse of treated water: Reuse of public swimming pool water

Indoor pool complex:

- **Water purification technology:**

coagulation ⇨ filtration ⇨ chlorination (NaOCl)

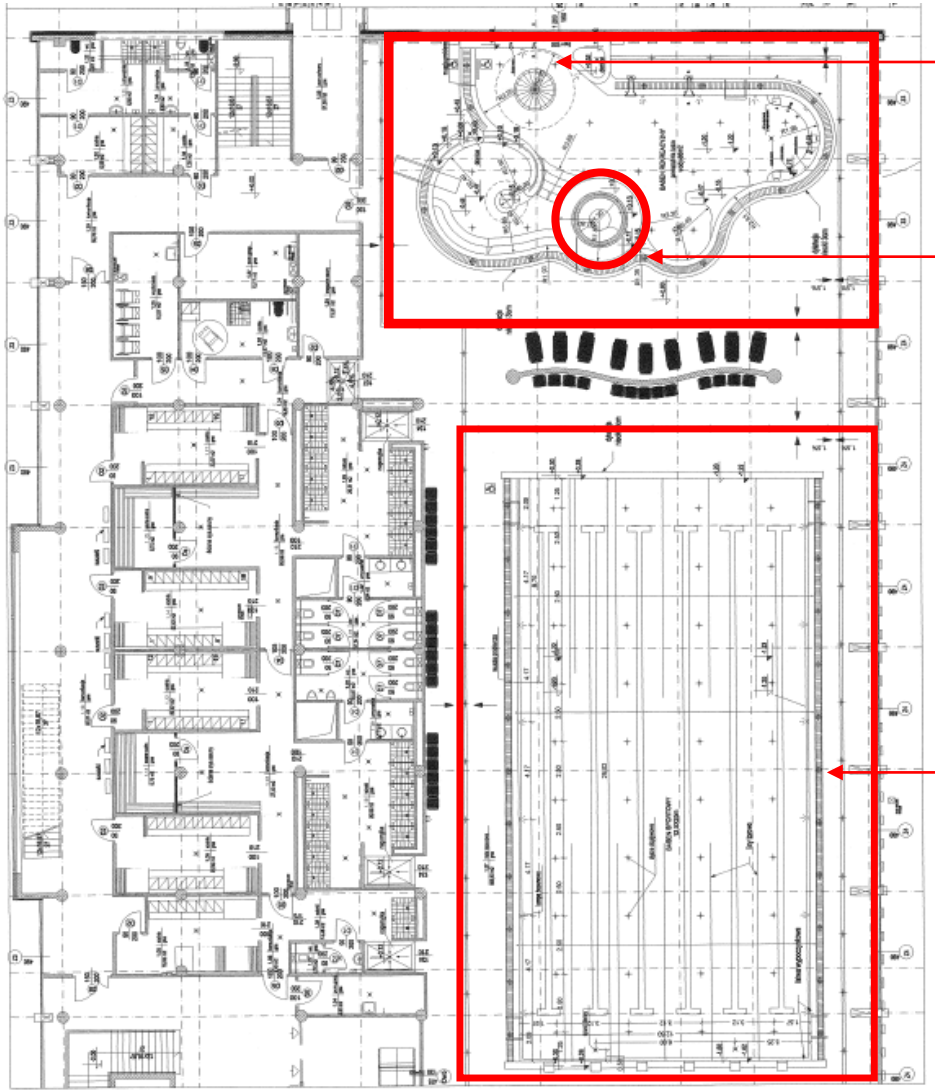
- **3 separate water treatment circuits**
  - **sport swimming pool**
  - **leisure pool with wading pool**
  - **SPA bath**

FOR REUSE:
rinse water from filters
and used water discharged from pools

[Source:mos.braniewo.pl]

2.3 Pilot measure / reuse of treated water: Reuse of public swimming pool water

Technical data: characteristics of pools



Leisure pool: V= 100 m^3
A = 86 m^2
T_{max} = 30°C

SPA bath: V= 10.0 m^3
A = 2.5 m^2
T_{max} = 34°C

Sport swimming pool:
(L:25 x W:12.5 x D:1.2-1.8m)
V= 469 m^3
A = 312.5 m^2
T_{max} = 28°C

[Source:mos.braniewo.pl]

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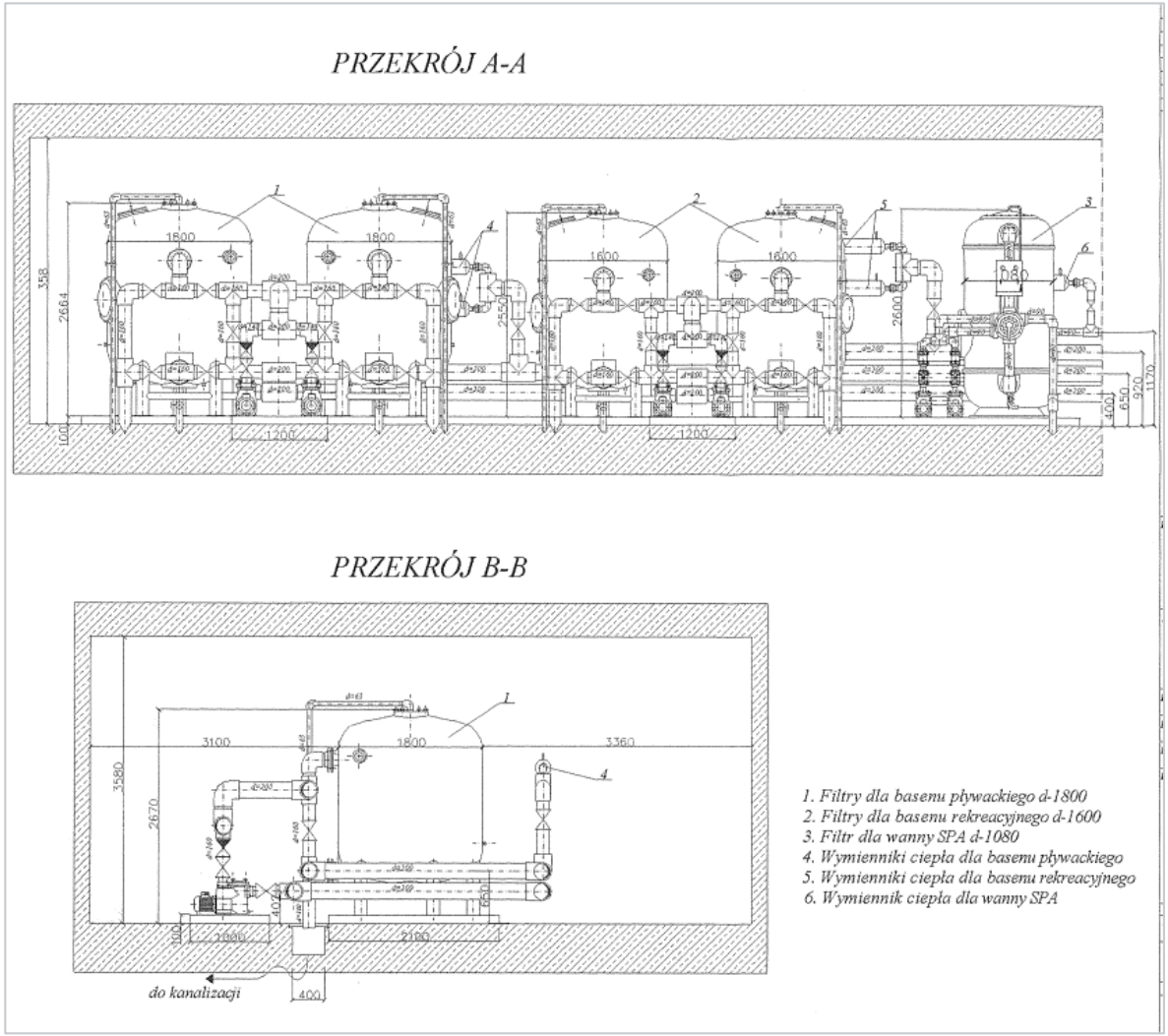
RESEARCH UNIVERSITY EXCELLENCE INITIATIVE

2.3 Pilot measure / reuse of treated water: Reuse of public swimming pool water

Technical data (indoor pool complex): water filters and heat exchangers



Water filters:

1. Sport swimming pool filter
2. Leisure pool filter
3. SPA bath filter

Heat exchangers for:

4. sport swimming pool
5. leisure pool
6. SPA bath

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2.3 Pilot measure / reuse of treated water: Reuse of public swimming pool water

Searching for potential in used pool waters – water reuse and energy recovery

WATER FOR REUSE – rinse water and discharged water

- **3 separate water treatment circuits**
  - sport swimming pool
  - leisure pool with wading pool
  - SPA bath

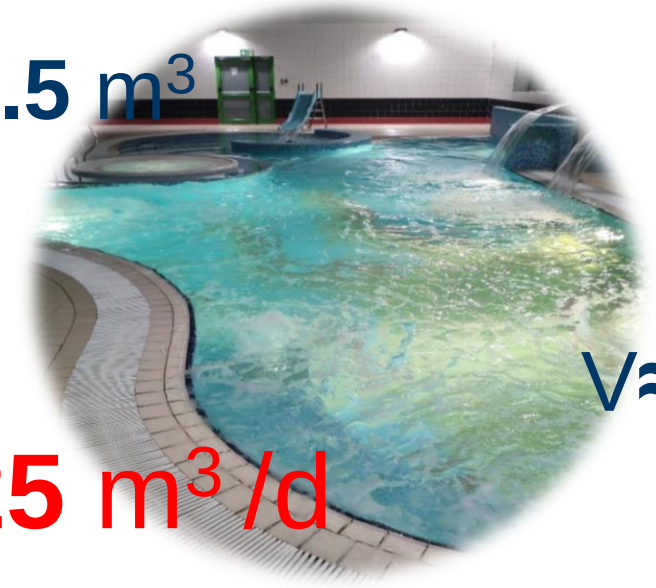
DAILY POOL WATER DISCHARGE
(according to sanitary requirements)

+ 15 m³(30°C)**/day**

Rinse water
(rinsing the filters once every 3 days):

$V \approx 15\ m^3$

$V \approx 5.5\ m^3$



$V \approx 12.5\ m^3$

$\Sigma V \approx 25\ m^3/d$

[Source:mos.braniewo.pl]

2.3 Pilot measure / reuse of treated water: Reuse of public swimming pool water

Reuse of treated pool waters - future steps

Tasks to be performed:

- overview of possible methods of treatment *(based on literature)*
- determination of qualitative and quantitative parameters of water (*laboratory tests*)
- development of purification technology (*lab or semi-technical scale*)
  - dechloration
  - removal of oxidation by-products
  - odor removal

Goals to be achieved:

- reuse of treated pool waters for economic purposes
  - watering lawns and football fields
  - possibly also: alternative source of water for allotment gardens
- or: circulation of used pool waters in a closed circuit
- water heat recovery

[Source: mkszatoka.futbolowo.pl/stadion-1]

[Source: geoportal.gov.pl]

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SUSTAINABLE WATERS
WaterMan

1st Peer-review session

Recycling water from a public indoor swimming pool

Braniewo Municipality

Gdańsk University of Technology

5 Sept 2023

GDAŃSK UNIVERSITY OF TECHNOLOGY

WaterMan partner meeting

Ringsted, Denmark (5-6/09/2023)

WaterMan pilot actions in Braniewo (Poland)

- 2.2 Pilot measure / recirculation of retained water: **Urban raingarden at public swimming pool**
- 2.3 Pilot measure / reuse of treated water: **Reuse of public swimming pool water**
- 2.4 Local model strategy: **Municipal water re-use strategy**

Responsible Project Partner:

Braniewo Municipality (PP

Gdansk University of Technology (PP7),
Faculty of Civil and Environmental Engineering

Reuse of pool waters - advantages

Tasks to be performed:

- overview of possible methods of treatment *(based on literature)*
- determination of qualitative and quantitative parameters of water (*laboratory tests*)
- development of purification technology (*lab or semi-technical scale*)

[Source: mkszatoka.futbolowo.pl/stadion-1]

Goals to be achieved:

A

- I. reuse of treated pool waters for economic purposes
  - watering lawns and football fields
  - under consideration: alternative source of water for allotment gardens

B

- II. circulation of used pool waters in a closed circuit
- III. water heat recovery

[Source: geoportal.gov.pl]

Reuse of pool waters – technical data

Indoor pool complex:

- **Water purification technology:**

coagulation ⇨ filtration ⇨ chlorination (NaOCl)

- **3 separate water treatment circuits**
  - sport swimming pool
  - leisure pool with wading pool
  - SPA bath

FOR REUSE:
- **rinse water from filters**
- **used water discharged from pools**

[Source:mos.braniewo.pl]

Reuse of pool waters - monitoring campaign

Water quality analysis

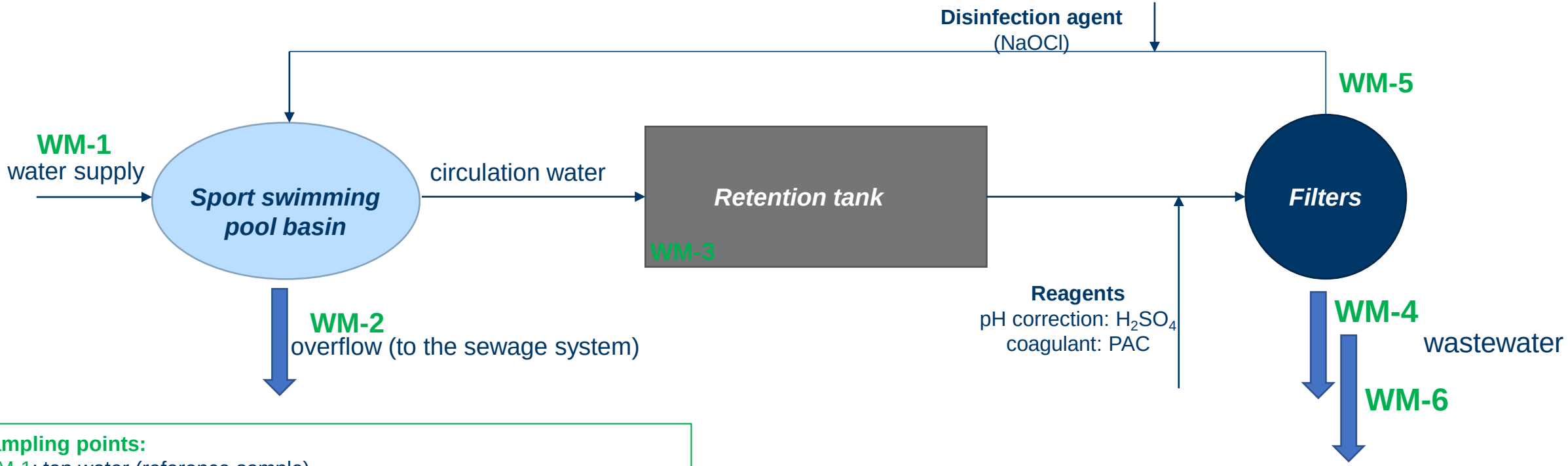
- Preliminary analysis: February 2023
- **Regular monitoring: June, July, August 2023**

[Source:mos.braniewo.pl]

6 sampling points (grab samples):

WM-1: tap water (reference sample)
WM-2: **pool water overflow to the sewage system**
WM-3: pool water + sediment (mixture)
WM-4: filter rinsing wastewater (from sport swimming pool); first stream
WM-5: water after filtration (to sport swimming pool)
WM-6: filter rinsing wastewater after aeration

Reuse of pool waters – monitoring campaign



Sampling points:
WM-1: tap water (reference sample)
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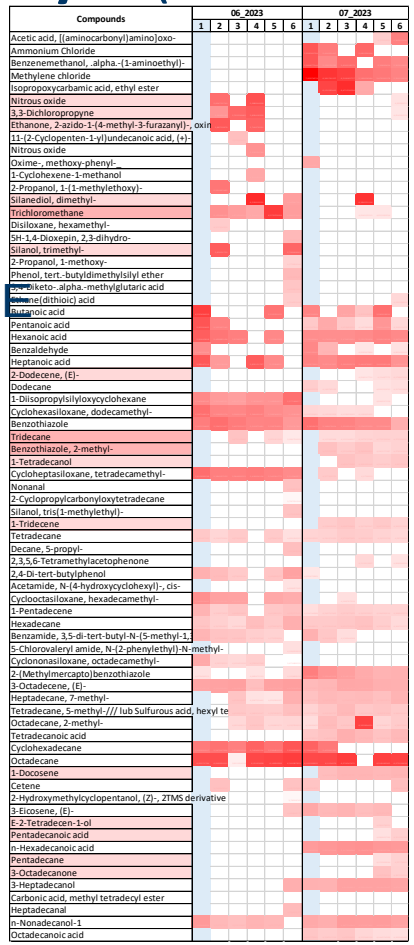
WM-3: pool water + sediment (mixture)
WM-4: filter rinsing wastewater (from sport swimming pool); first stream
WM-5: water after filtration (to sport swimming pool)
WM-6: filter rinsing wastewater after aeration

GC/MS analyze (water without sample preparation)

SKAN MOD



Emerging compounds

- **Nitrous oxide**
- **Chlorocarbons** e.g. 3,3-Dichloropropyne, Trichloromethane
- **Ketones**: Ethanone, 2-azido-1-(4-methyl-3-furazanyl)-, oxime, 3-Octadecanone
- **Aliphatic hydrocarbons** e.g. 2-Dodecene, Tridecane, Docosene, Cetene, Eicosene, Pentadecane
- **Aromatic hydrocarbons** e.g. Benzothiazole, 2-methyl,
- **Alkohols** e.g. 2-Hydroxymethylcyclopentanol, Tetradecen-1-ol
- **Organic acid** e.g Pentadecanoic acid, n-Hexadecanoic acid,
- **Silanodiols** e.g. Silanediol, dimethyl-, Silanol, trimethyl-

One-way ANOVA (α 0.05)
There no significant difference between groups

NEXT STEP:
ANALYSIS OF COMPOUNDS TYPE ISOLATED DURING LIQUID LUIQID EXTRACTION WITH DICHLOROMETHANE

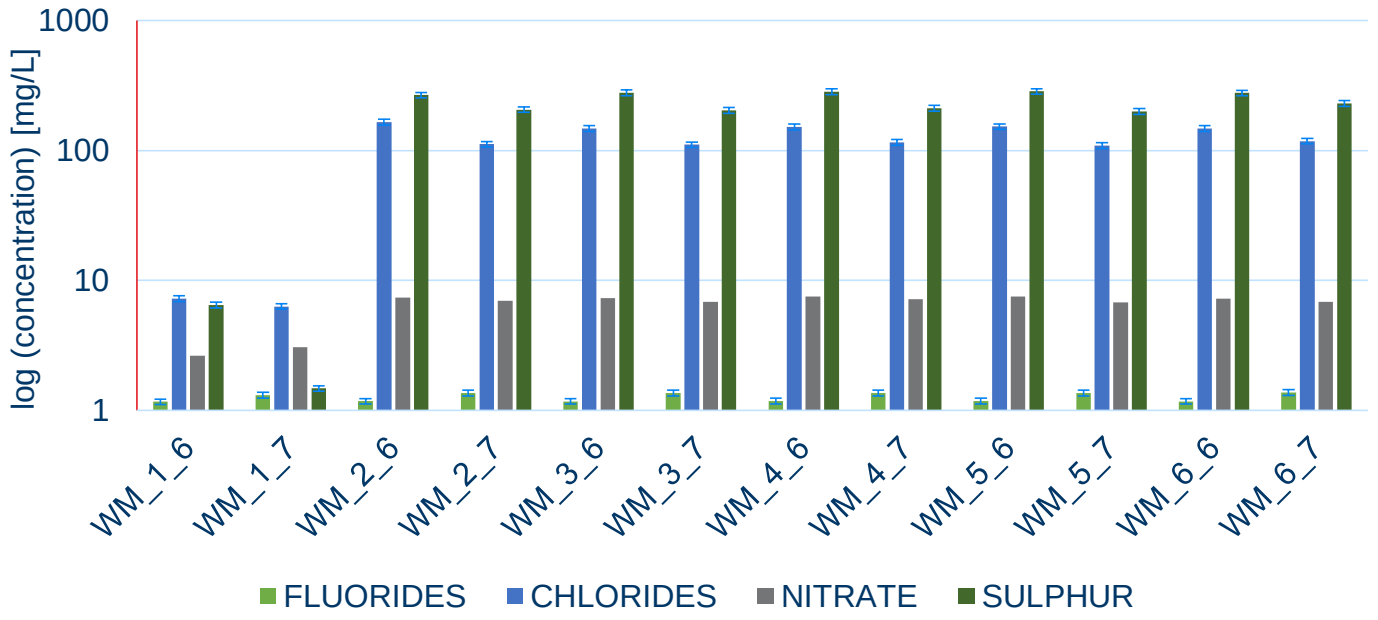
2.3 Pilot measure / reuse of treated water:
Reuse of public swimming pool water

IC analyze (water without sample preparation)

NO BROMIDES, NITRITES, PHOSPHATES

but...

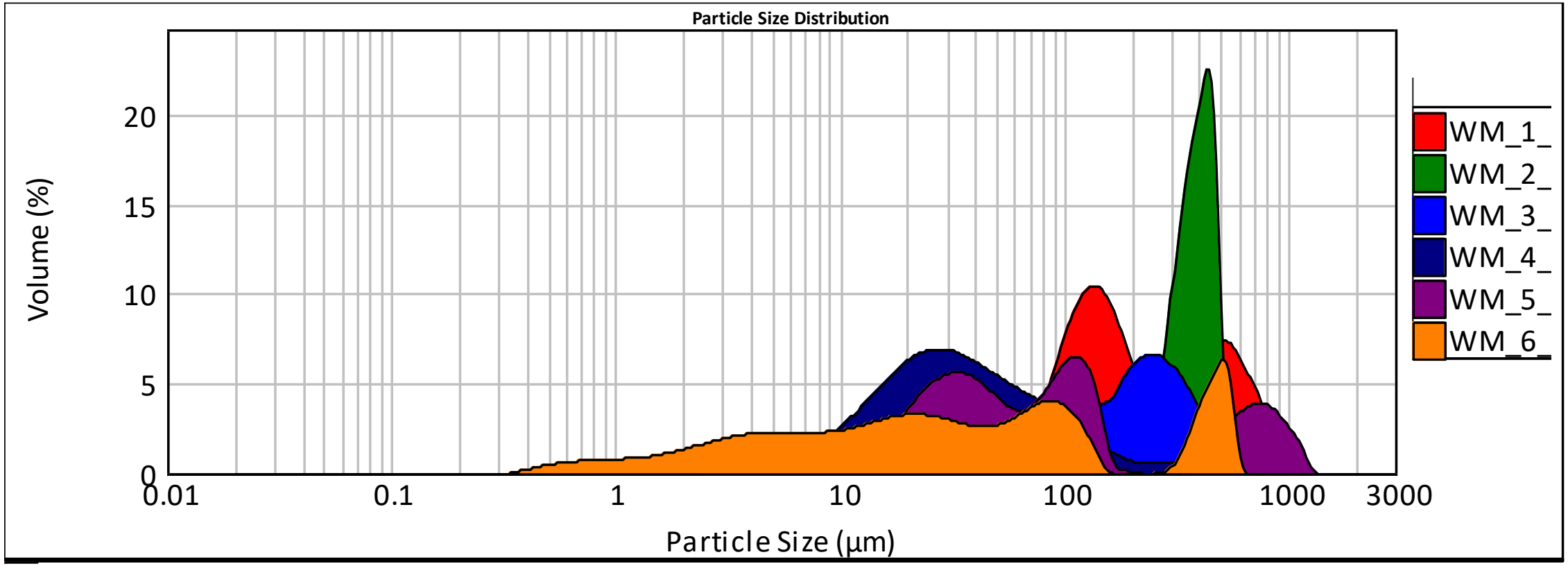
DATA FOR ION CHROMATOGRAPHY



One-way ANOVA (α 0.05)
There no significant difference between groups, p=0.88

2.3 Pilot measure / reuse of treated water:
Reuse of public swimming pool water

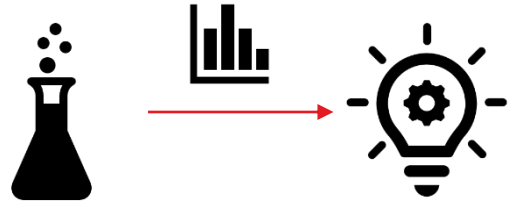
GRANULOMETRY analyze (water without sample preparation)



Development of water reuse technology

Suggested unit processes:

- dechloration
- removal of oxidation by-products
- odor removal



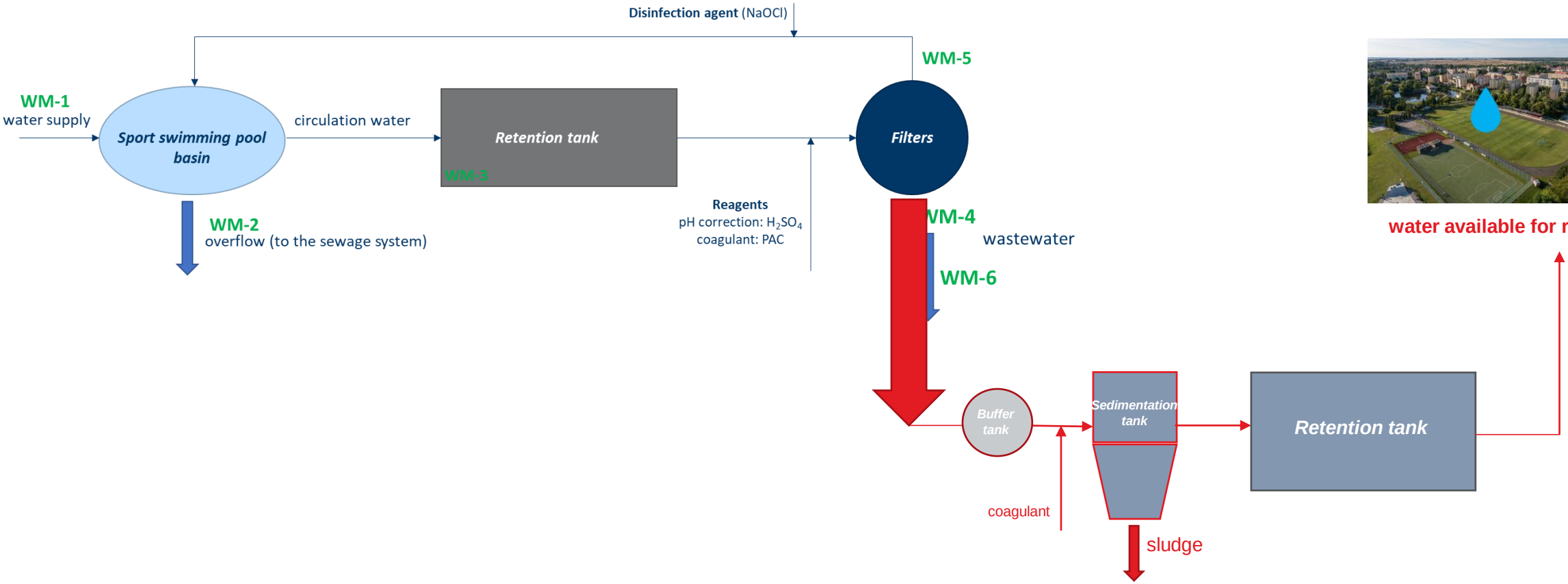
Adaptation of technology after laboratory tests: to be performed

According to legal requirements:

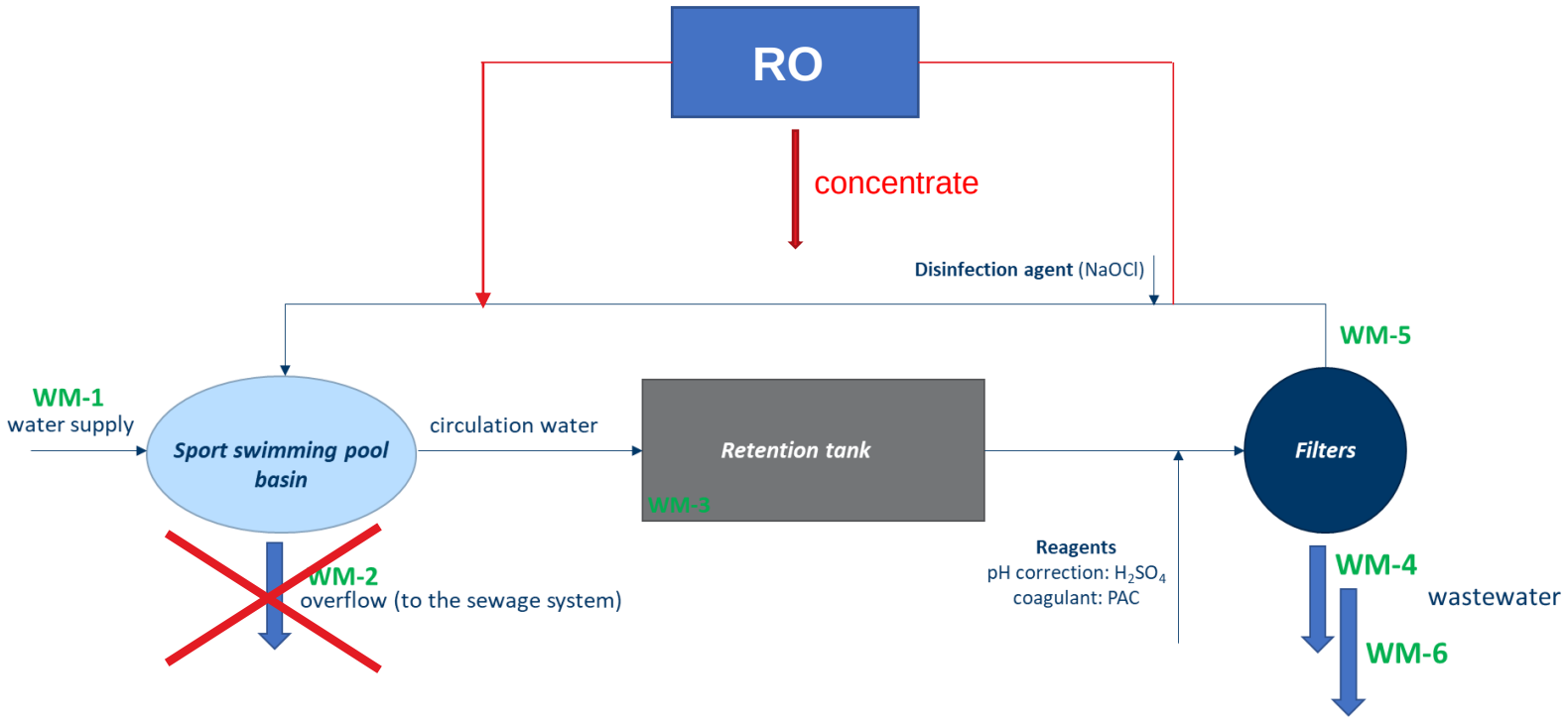
- ✓ *Regulation (EU) 2020/741 of the European Parliament and of the Council of 25 May 2020 on minimum requirements for water reuse*
- ✓ *Regulation of the Minister of Health of 9 November 2015 on the requirements that should be met by swimming pool wate [Journal of Laws of the Republic of Poland 2015, Item 2016]*

2.3 Pilot measure / reuse of treated water:
Reuse of public swimming pool water

Development of water reuse technology– water reuse scheme (solution A)



Development of water reuse technology– water reuse scheme (solution B)



[Source: GdanskTech materials]

1st Peer & expert review session: Recommendations & conclusions

- Consider also possible use cases for the collected water in the winter time. At present, almost all the use cases are related to summer season (only exception: recirculating water in a closed circuit).
- Reconsider the timing of your risk assessment. You do it “in the back of the head” anyway while planning & designing your pilot. A structured, written down risk assessment in the early stage allows to adjust the technology accordingly.
- Find out if you can reduce sulphur and chlorine in the swimming pool water. For example, talk to the swimming pool operator on possibilities to change the disinfection processes. This can reduce the efforts for the treatment of the water before the reuse.
- Retention tank for rainwater: Consider “nature embedded” / green design (e.g. with vegetation on the top), in order to avoid creating another steel construction. Otherwise, the tank may counteract the ambitions to make the swimming pool surroundings greener and to decrease the temperature.
- The swimming pool roof may be a better place for the photovoltaics (solar panels), than placing it on top of the retention tank. Maybe in this way the panels could even generate the energy for the whole process?
- Keep an eye on salinity (important for watering the grass). Do you need to lower salt concentrations in times of low precipitation and if yes, how can they be ensured (not mixing with rainwater)?
- Reconsider monitoring of bacteria, if e.g. the storage time of water in the tank is long. Question: Will mixing rainwater & pool water be enough to keep the water disinfected with the help of the residual chlorine?).
- Keep in mind that you will have to evaluate not only the treatment & retention of the water, but also the actual re-use of the treated / retained water and its effects. Consider this in your work schedule – it seems that you are already on the edge with the timeline.
- Put “water reuse” on the local agenda in parallel to the planning & implementation. Start the stakeholder involvement as soon as possible. Inform the public about the plans early.

Pilot replication bluprint: Braniewo / PL: Recycling water from a public indoor swimming pool

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SUSTAINABLE WATERS
WaterMan

Absorption report

Recycling water from a public indoor swimming pool

Braniewo Municipality

Gdańsk University of Technology

07 November 2023

GDAŃSK UNIVERSITY OF TECHNOLOGY

Absorption report: Pilot measures in Braniewo / PL

Uptake of recommendations & adjustments of the concept after the 1st peer & expert review session

Braniewo Municipality (PP5) & GUT (PP7)

Presented by Magdalena Gajewska

Ronne 07-11-2023

WP- 2 PILOTING

WaterMan pilot actions in Braniewo (Poland)

- **2.2 Pilot measure/recirculation of retained water: Urban raingarden at public swimming pool**
- **2.3 Pilot measure/reuse of treated water: Reuse of public swimming pool water**

Responsible Project Partner:

Braniewo Municipality (PP 5)

Gdansk University of Technology (PP7),
Faculty of Civil and Environmental Engineering

9 points to be considered

1 of 9

1. **Consider also possible use cases for the collected water in the winter time. At present, almost all the use cases are related to summer season (only exception: recirculating water in a closed circuit).**

- **Available water recovery directions result from the characteristics of the city of Braniewo, and in particular, the limited number of industrial facilities that could utilize such water throughout the year.**
- **An important limitation is the cost of transporting water recovered from the reservoir.**
- **An analysis of potential recipients of water recovered from the reservoir will be carried out, such as car washes and concrete manufacturers.**

2. **Reconsider the timing of your risk assessment. You do it “in the back of the head” anyway while planning & designing your pilot. A structured, written down risk assessment in the early stage allows to adjust the technology accordingly.**

- **A risk analysis has been conducted for the selected option of using pool water, i.e., for watering the sports field.**
- **The treated water discharged from the pool will undergo a qualitative analysis to assess its potential negative impact on the condition of the grass.**
- **Field research is planned to be conducted on a designated section of the field to verify the influence of this water on the quality of the grass.**

3. **Find out if you can reduce sulphur and chlorine in the swimming pool water. For example, talk to the swimming pool operator on possibilities to change the disinfection processes. This can reduce the efforts for the treatment of the water before the reuse**

- **Due to the high costs of changing the method of disinfecting pool water, the operator does not anticipate taking such actions.**
- **The technology for treating pool water is aimed at ensuring the required quality as specified by regulations, which affects the type of reagents used and their dosage. The operator does not foresee making significant changes to this technology.**

4. **Retention tank for rainwater& swimming pool water : Consider “nature embedded” / green design (e.g. with vegetation on the top), in order to avoid creating another steel construction. Otherwise, the tank may counteract the ambitions to make the swimming pool surroundings greener and to decrease the temperature.**

- **Initial assumptions envisioned the construction of an underground tank, with photovoltaic panels installed on the pool ceiling**
- **We recommend the construction of an open tank with a vegetation area, which will contribute to the renaturalization of the water discharged from the pilot.**

5. **The swimming pool roof may be a better place for the photovoltaics (solar panels), than placing it on top of the retention tank. Maybe in this way the panels could even generate the energy for the whole process**

- **The issue of photovoltaic panels is not the subject of the WaterMan project.**
- **There is a need to change the initially proposed location if the open retention tank option is accepted.**
- **Placing panels on the roof would require a construction expertise.**

6. **Keep an eye on salinity (important for watering the grass). Do you need to lower salt concentrations in times of low precipitation and if yes, how can they be ensured (not mixing with rainwater)?**

- We are aware of the problem caused by excessive saltwater irrigation of the grass, and field studies are planned on a section of the field.
- The technology for purifying pool water in the pilot facility will be focused not only on achieving the required quality parameters but also on limiting further increases in water salinity.
- The only realistic method to reduce salinity is the use of membrane methods (reverse osmosis), and we are prepared to conduct such studies.
- An effective method that reduces the negative environmental impact is precisely the mixing of pool water with rainwater.

7. **Reconsider monitoring of bacteria, if e.g. the storage time of water in the tank is long. Question: Will mixing rainwater and pool water be enough to keep the water disinfected with the help of the residual chlorine?**

- **Water intended for watering lawns does not need to be devoid of bacteria; however, it cannot contain indicator bacteria (E.coli and Legionella if aerosols are formed). Such bacteria may be present in used pool water. Chlorination is an effective method for their elimination, thus preventing their secondary proliferation in the retention tank.**

8. **Keep in mind that you will have to evaluate not only the treatment & retention of the water, but also the actual re-use of the treated / retained water and its effects. Consider this in your work schedule – it seems that you are out of the timeline.**

- **We are carrying out work on the pilot installation according to the schedule. We plan to conduct field studies next year on the impact of irrigating with such water on the quality of the grass on the field.**

9. Put “water reuse” on the local agenda in parallel to the planning and implementation. Start the stakeholder involvement as soon as possible. Inform the public about the plans early.

- Appropriate information activities regarding the local water reuse strategy are carried out in the Braniewo commune. Further dedicated actions are also planned.


P
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Ministry of Science
and Higher Education

Interreg Baltic Sea Region

Co-funded by the European Union

SUSTAINABLE WATERS WaterMan

2nd Peer-review session

Recycling water from a public indoor swimming pool

Braniewo Municipality

Gdańsk University of Technology

7 November 2024

WaterMan
All-partner Meeting

Berlin 4-7 November 2024

Braniewo (PP5) & GUT (PP7)

Municipal Sports Center „Zatoka”

Recreation & Rehabilitation Complex „Healthy Braniewo”

[Source: geoportal.gov.pl]

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Braniewo / PL:

Reusing swimming pool water for irrigation of football fields

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RESEARCH UNIVERSITY EXCELLENCE INITIATIVE

2.3 Pilot measure / reuse of treated water:
Reuse of public swimming pool water

30 m³/d

water supply from the municipal network


[Source:Braniewo Municipal Waterworks Ltd.]

Before implementation of the WaterMan pilot solution:

wastewater *from showers and toilets*

pool water ***overflow***

filter rinsing ***wastewater***

15 m³/d

4÷5 m³/d

10÷11 m³/d


[Source:Braniewo Municipal Waterworks Ltd.]

1. ***Wastewater*** *from showers and toilets and pool water* ***overflow*** *are combined within the Basin and discharged through a* ***common sewage system -*** *directing the pool water overflow to the pilot requires reconstruction of the sewage system in the swimming pool building*

2. ***Filter rinsing wastewater*** *is discharged from the swimming pool building by a* ***separate sanitary collector*** *- it can be easily directed to the pilot*

discharge into the sewage system (100%):
30 m³/d

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RESEARCH UNIVERSITY EXCELLENCE INITIATIVE

2.3 Pilot measure / reuse of treated water:
Reuse of public swimming pool water

30 m³/d

water supply from the municipal network

After implementation of the WaterMan pilot solution:

Reuse of treated wastewater:

- *flushing the sewer system in Braniewo: ap. 3 m³/d (all year round)*
- *watering urban greenery (vegetation period)*
- *watering of plants by residents (vegetation period)*
- *…… (in the process of arrangements)*

wastewater *from showers and toilets*

pool water ***overflow***

filter rinsing ***wastewater***

15 m³/d

4÷5 m³/d

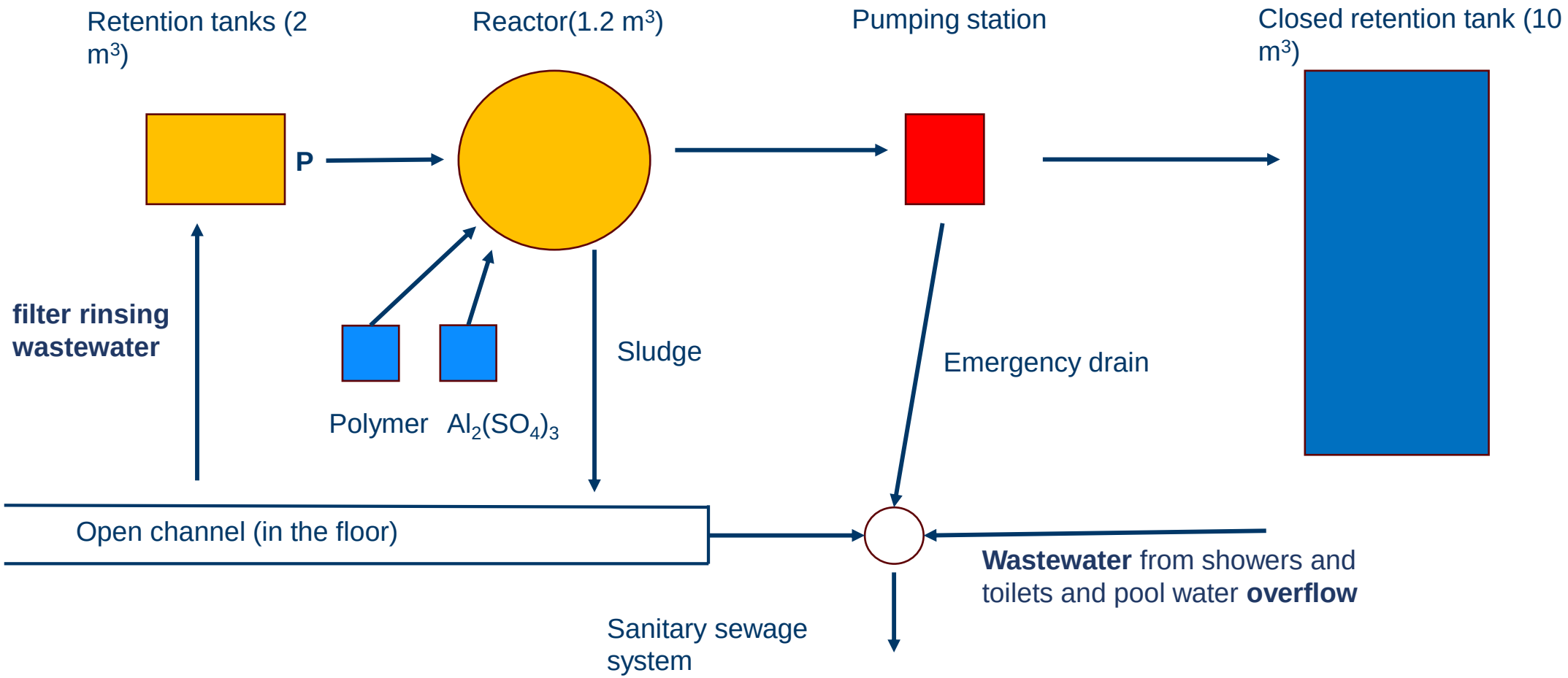
4÷6 m³/d

4÷5 m³/d

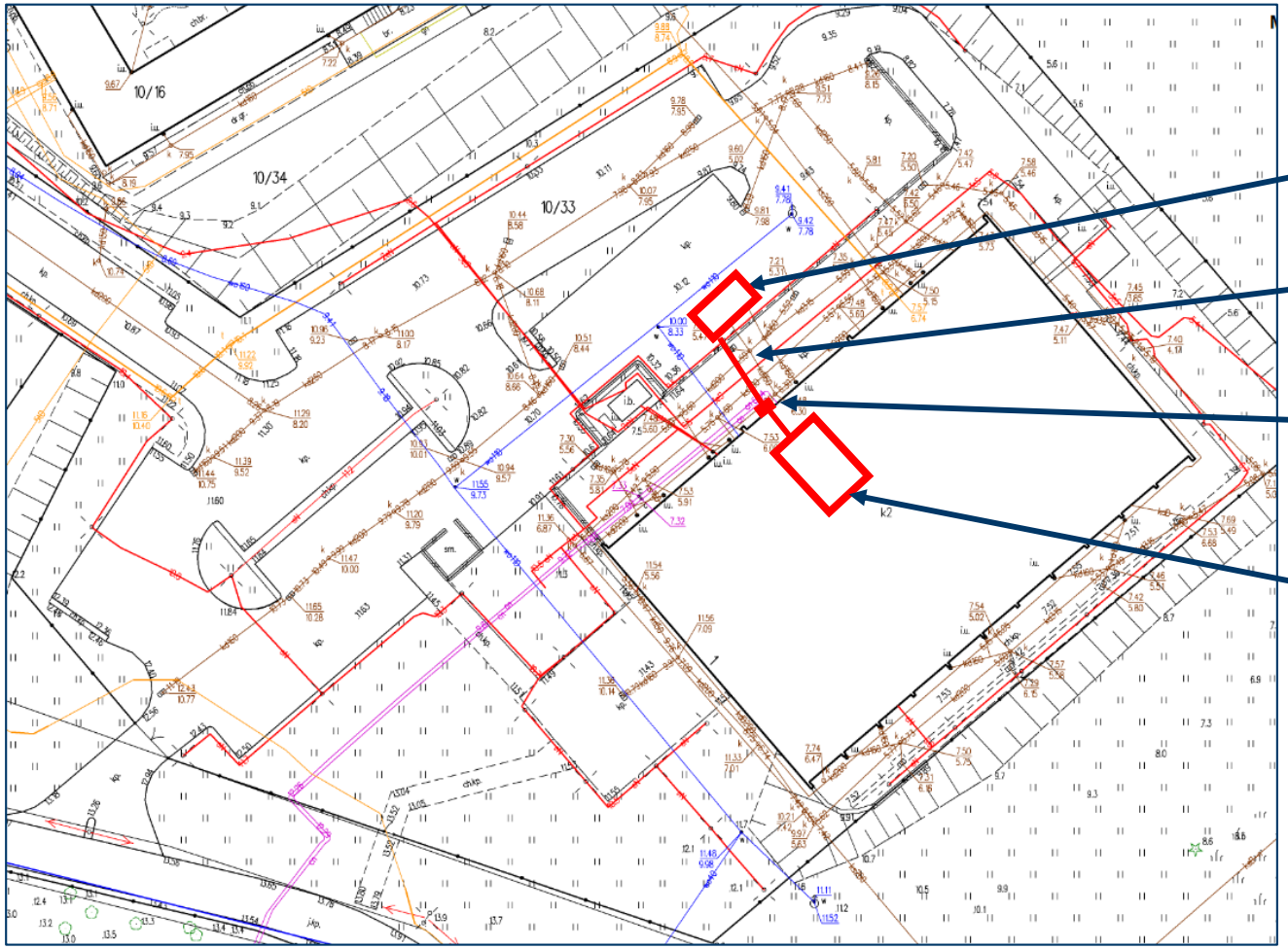
discharge into the sewage system

- ✓ 40-50% **reduction** in filter rinsing wastewater
- ✓ 15% **reduction** in sewage discharge
- ✓ 15% **savings** on tap water

Swimming pool water reuse technology – **Proposed wastewater treatment system**



Swimming pool water reuse technology – **pilot location**



[source: geoportal.gov.pl]

Closed retention tank (in the parking)

New section of sanitary sewage system

Pumping station

Pilot instalation (in the filter room)

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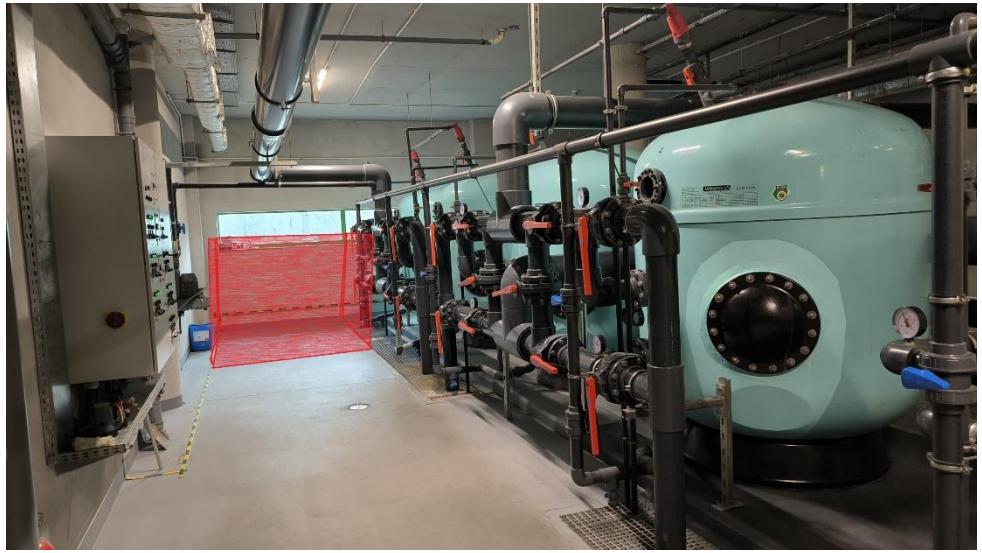
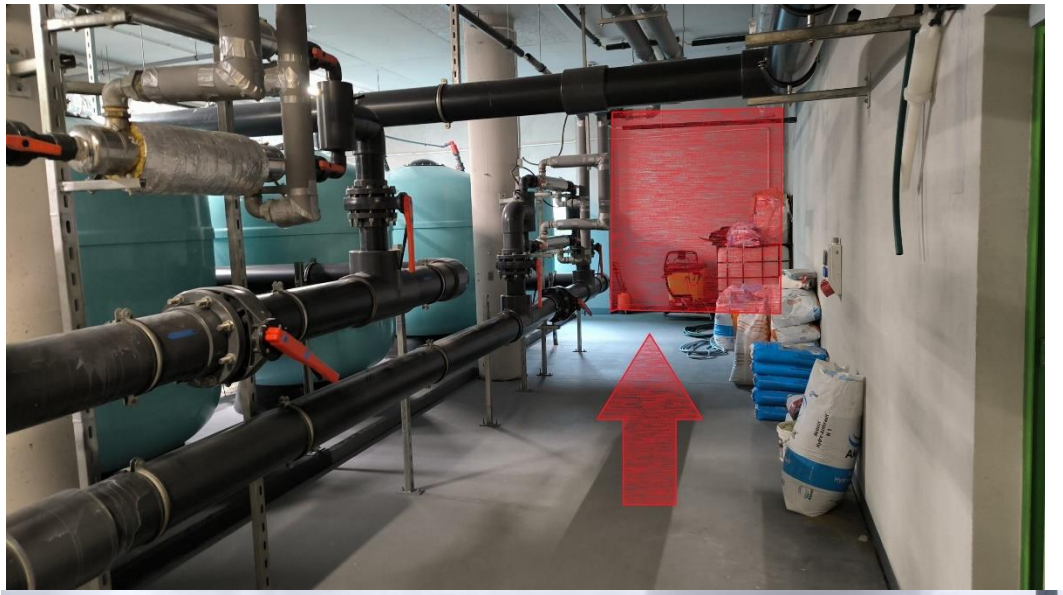
2.3 Pilot measure / reuse of treated water:
Reuse of public swimming pool water





institutional recipients

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Anticipated user groups of users of recycled water,
c.a 10m3 in the tank

INSTITUTIONAL RECIPIENTS

a) Municipal Waterworks: flushing of the sanitary network;
b) Municipal Services Department: for street sweepers, street sprinkling during heat waves, and watering shrub and perennial flower beds;
c) Military Equipment Wash Station;
d) Municipal Waste company (company responsible for waste collection and transport): washing of tanks, containers, and operational equipment;
e) Municipal Sports Center: watering of park green areas (May - August); (of football stadion – after the warranty period expires (since 2027)
f) Concrete Plant: production of liquid concrete and concrete products;

INDIVIDUAL RECIPIENTS

g) Allotment Gardeners."

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Methods for evaluating water usage

a) Water consumption meter reading; "A flow meter on the tank and readings, e.g., once a week, showing how many cubic meters were taken for private use by external recipients. Readings are taken from valves and pump operating time

b) Water usage log;

c) Contractor register (assessment of demand trends and volumes)."

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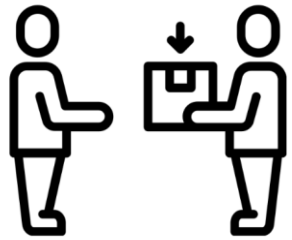
Methods to engage them in the pilot program and motivate them to use recycled water:

a) Active participation of potential contractors in promoting the effects and benefits of the WaterMan program;
b) Municipal Waterworks, Municipal Services Department, and the Municipal Sports Center are municipal units mandatorily involved in the project and municipal activities;
c) Allotment Gardeners – meetings, active informational outreach, and use of social media."

d) school trips during the construction phase. Pool activities combined with facility tours.
e) Teacher training on climate change, limited water resources, and the water reuse system at the pool, so they can explain it to children, along with developing educational materials such as leaflets, information on the city and pool websites, describing the system, how to use it, and that it is free of charge.
f) To be combined with an educational trail

Involvement of Stakeholders
By Association of Polish Communes Euroregion Baltic

Recipients



- External stakeholders (external environment)
- Recipients/ local stakeholders - consumers of treated water
- Municipal employees representing the City Hall, budgetary entities and entities with a municipal budget share (other municipal workers from the nearest municipalities
- Young people (school children, ecological youth clubs supported by teachers and school administration, parents' councils)
- General public

Ways to engage them in the pilot programme and motivate them to use recycled water

Possible actions:

- "Civic and Urban Engagement Days"
- A series of workshops titled "Water-Sensitive Cities"
- Conferences with dedicated training sessions for local government authorities, employees, and organizational units
- Awareness-Raising Events
- An Educational and Informational Campaign
- Contest for kids and youth

Working with external stakeholders (external environment)

Engaging and informing the invitation of various stakeholders:

Central:
- Gospodarstwo Wody Polskie (National Water Agency)
- Ministry of Environment
- General Directorate for Environmental Protection (GDOŚ)
- Chief Inspectorate for Environmental Protection (GIOŚ)

Regional level:
- Voivodeship Departments (Department of Environment and Agriculture);
- Regional Water Management Boards
- Regional Inspectorates for Environmental Protection carry out monitoring of water quality
- Voivodeship Fund for Environmental Protection and Water Management in Olsztyn

County level:
- Counties (poviats):
Poviat Environmental Protection and Water Management Fund (PFOŚiGW);
District Sanitary and Epidemiological Station in Elbląg
- County Office (Poviat Starosty in Braniewo)

AIMS:
- **gain political and strategic support**
- **to strengthen the impact of project activity and impact area**
- **interest of external audiences and transferability of solutions**
- **better publicity and building up local government expertise in this area**

How to do it? Individual invitations, bilateral meetings, participation in open events (project and external), invitation and study trip during event in Braniewo

Work with recipients/ local stakeholders – consumers of treated water

Direct:

- Family allotments and allotment holders (ROD)
- Municipal waterworks
- Municipal Utilities Company
- Municipal Sports Centre ‘Zatoka’

In future:

- Military
- Private companies (Car washes)
- Local religious associations/churches - for the purpose of watering church greens

Other related

- legal bodies and politicians (local), municipal council
- environmental protection departments and the department of investments, municipal affairs and the environment, municipal economy enterprises

How to do it? Establish a local reference group (consisting of e.g. water stakeholders, policy makers, experts, exemplary water users and citizens) to oversee the development process, Integration into existing water economy and specialisation networks such as the Elblag Water Economy and Specialisation Network

Work with young people (school children, ecological youth clubs supported by teachers and school administration, parents' councils)

Young people

Young people of school age and local school establishments:

- involvement of schoolchildren from three public schools: John Paul II Primary School No. 6 in Braniewo, Senat Polish Primary School No. 3 in Braniewo; Primary School No. 5 in Braniewo
- involvement of the research staff and the school management in the care of the place created (rain garden)
- involvement of parents' councils

In cooperation with the county (poviat authorities):

- Feliks Nowowiejski Secondary School in Braniewo
- Jan Liszewski Vocational School Complex in Braniewo
- Construction School Complex in Braniewo
- Special School and Rearing Centre in Braniewo

Other:
-Scouts
- Youth fire fighting groups

How to do it? Workshops, round table meetings; interactive workshops; local festivals and events, dedicated school programs, competitions and interactive city games

Our good practice from “Green up” project

Actions related to work with youth:

1. Diagnostic meetings in the city
2. Methodological meetings in schools
3. Local study visit
4. Interactive workshops (Sphere Lab)
5. Public hearings

EFFECT: Involvement of a number of schools, local authorities, schoolchildren, teachers, local communities

School youth

practice-oriented and participatory activities - resulting in project ideas generated by young people, including those in the field of water management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GDAŃSK UNIVERSITY
OF TECHNOLOGY


RESEARCH
UNIVERSITY
EXCELLENCE INITIATIVE
Ministry of Science
and Higher Education

2nd Peer & expert review session: Recommendations & conclusions

Further info from the presentation:

- An option: underground reservoir – for private and for public use.
- We have users (public) for the whole volume of processed swimming pool water.
- New use case for autumn and winter (part of strategy, not part of the pilot): discharge the water to the ditches (to increase water table in the melioration ditches and ensure that the neighbouring soil benefits from the water in early spring). > Braniewo suffers mostly from the droughts in springtime – vegetation is suffering.
- Separate flow meters for the public users, and for the private users (that's why 2 connections / pipes).
- The water during the dry summer can be used internally – by the sport center – to water the greenery around.

Comments from the peer & expert review:

- Prioritize / organise users according to their needs & re-use demand. Perhaps also in relation to conditions (e.g. wet weather, dry weather – who will be allowed to use). This is very important.
- At the moment the priority is for municipality use (canalisation cleaning).
- Make sure that all the time there is water for the final consumers.
- Do you monitor the quality of the water? No – the process is very good (coagulation, flocculation – all is being cleaned).
- Monitor the quality for the water – because people who work with it (employees) have a constant contact with the water (aeration). Answer: We are going to monitor the water from time to time from the tank. Recommended: to monitor salinity.
- You have a lot of potential users. Select one user with which you will go to with "real testing", evaluation, etc. We recommend here to have a very concrete, detailed plans for the last months of evaluation. Plan it now.

Interreg Baltic Sea Region

Co-funded by the European Union

Access the „BSR Water Recycling Toolbox" here.
https://www.eurobalt.org/waterrecyclingtoolbox/

SUSTAINABLE WATERS
WaterMan

The „BSR Water Recycling Toolbox" was elaborated as part of the project "WaterMan - Promoting water reuse in the Baltic Sea Region through capacity building at local level", The project 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 region-specific approach to water recycling, which intends to use the alternation of too much and too little water that has become typical in the Baltic Sea Region to make the local water supply more resilient, and supports municipalities & water companies in adapting their strategies.