



**Regional Action Plan
for the Lodzkie Region
under the project
"Water reuse policies advancement for
resource efficient European regions"
AQUARES (INTERREG EUROPE)**

PART I – General information

Project:	"Water reuse policies advancement for resource efficient European regions" AQUARES
ID:	PGI05592
Duration:	01 June 2018 – 31 May 2023
Partner organization:	Partner no. 3: Lodzkie Region
Country:	Poland (POLSKA)
NUTS 1:	Makroregion Centralny
NUTS 2:	Lodzkie
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PART II – Policy context

The Action Plan aims to impact:

Investment for Growth and Jobs programme:	
European Territorial Cooperation programme:	
Other regional development policy instrument:	X
Name of the policy instrument addressed:	
Regional Operational Programme of Lodzkie Voivodeship 2014-2020	
European Funds for Łódzkie 2027 (FEŁ 2027)	

PART III – Details of the actions envisaged

The background

Increasingly extreme weather conditions, such as droughts and heavy rainfall, are causing climate change across Europe. This results in periodic water shortages during the summer and local flooding. The adverse effects associated with these phenomena affect both the social and economic aspects, causing significant losses in particularly vulnerable sectors (primarily agriculture). Cities are also exposed to the negative aspects of not adapting to climate change.

The AQUARES project brings together 10 partners from 9 countries to promote efficient water management through water reuse, exploit water market opportunities, and ensure the protection of water bodies.

Due to regional characteristics, Lodzkie Region, in the first phase of the AQUARES project, focused on the exchange of knowledge and experience between partners in areas related to rational and efficient management of water resources, focused on solutions in the field of water retention and technologies improving the quality of municipal and industrial wastewater.

The main challenges faced by the Lodzkie Region in terms of water management are:

- improvement of surface water quality and
- preventing the threat of drought and other extreme weather and climate phenomena.

Surface waters in the Lodzkie voivodeship are heavily polluted and characterised by poor chemical condition. Biological and physicochemical indicators have a decisive influence on the negative results of the ecological quality assessment of waters.

Despite successive works related to construction and modernization of sewage treatment plants, the main source of surface water pollution is still municipal and industrial wastewater from point sources, furthermore area pollution (rinsed off by precipitation from urbanized and agricultural areas) and linear pollution (of transport).

In the above context, it seems reasonable to promote solutions enabling the treatment and possibly also the reuse of water generated by production processes on site, i.e. in production facilities. An example of reusing water in industrial processes is a good practice presented by the AQUARES project partner from the Czech Republic (Regional Development Agency of Pardubice Region): "Reuse of water in a food company for cooling system at vinegar production". On the other hand, the improvement of urban wastewater quality can be achieved through technologies such as grey water reclamation or rainwater reuse in newly constructed buildings. A project of this type ("Water reuse at the building level - Condominio di via Sasseti") was presented by the Lombard Foundation for the Environment from Italy. It is particularly interesting example, because it was created within the framework of Regional Operational Program of Lombardy Region, which is an analogous instrument is being prepared by the łódzkie Region.

Extreme weather phenomena (increasingly high air temperatures, strong insolation, rainfall deficit, extreme droughts) occurring in the lodzkie voivodeship, generate soil water deficits, decrease surface, ground and underground water resources. This results in phenomena associated with the process of steppe formation (e.g. loss of organic matter in soil) which is one of the most important problems occurring in the area of intensive agriculture.

During the last few decades, the temperature in the łódzkie voivodship increased by 2-3°C. Moreover, the annual sum of precipitation has decreased by 10-30%. An additional factor contributing to drought is the lowest forest cover in Poland and a very low retention capacity of the catchment area.

During the first phase of the AQUARES project, numerous examples of good practices for increasing retention were presented (e.g. "Constructed Wetlands Gorla Maggiore" - Lombardy, Italy, "Dry polder Žichlínek" - Severovýchod, Czech Republic, "Surface flow constructed wetland for nutrient retention from agricultural catchment" - Latvia).

Urban centers in łódzkie voivodeship, especially the largest ones, face the necessity of adaptation to climate change due to extreme weather conditions such as heat and heavy rainfall. Due to impeded water infiltration and often clogged systems, flooding is a consequence of heavy rainfall. The area of largest concentration of problems related to extreme weather conditions are cities with population over 100,000. For Łódź, three out of ten major climate risks have been diagnosed, i.e. heat waves, intense precipitation, storms, and urban floods.

One of the solutions dedicated to the modernisation of urban water retention systems is the practice from the Greek region of Attica ("Combination of rainwater network and stormwater storage tanks").

The analysis of good practices that were presented by AQUARES partners during study visits and site visits was carried out with the aim to use them in the Regional Operational Programme of Łódzkie Voivodeship. In the current budget perspective (2014-2020), the possibility of modifying the Regional Operational Programme was considered, under two thematic objectives: "Supporting climate change adaptation, risk prevention and management" and "Preserving and protecting the environment and promoting resource efficiency". Due to the advancement in the implementation of the Programme in the 2014-2020 perspective, adding a new scope of support would involve negotiations with the European Commission, which are a time-consuming process. Due to the limited time for implementation and settlement of projects, there would be a risk of losing funds. Therefore, based on the lessons learned from the experience sharing process in the AQUARES project, it was proposed to include specific solutions in the regional programme for the 2021-2027 perspective (FEŁ2027).

Therefore, the Regional Action Plan for Łódzkie Region assumes the inclusion of the following comprehensive actions:

1. incorporation of solutions supporting efficient and rational water management within the Programme European Funds for Łódzkie 2027 (FEŁ2027).
2. taking comprehensive actions for adaptation to climate change within the Programme European Funds for Łódzkie 2027 (FEŁ2027).

Action no 1:

Integrate international solutions of the AQUARES project supporting efficient and rational water management in the Policy Instrument European Funds for Łódzkie 2027 (FEŁ2027) by modifying the assessment criteria, taking into account innovations in the field of water recycling and reuse and introducing additional points favouring the use of sustainable water management technologies.

Reference to the project (background)

During the first phase of the AQUARES project, numerous examples of good practices supporting efficient and rational water management were presented. The solutions presented below will form the basis for defining project selection criteria within the framework of programme documents and ROP calls for proposals in the field of efficient water management.

1. Czech Republic, Pardubice: "Water reuse in a food company for the cooling system in vinegar production".

During production, one of the steps is cooling the product. Cooling is done by means of so-called cooling towers. Large volumes of water are used for cooling, so the water circuit is closed and water is reused 20-30 times to cool the product.

2. Italy, Lombardy: "Water reuse at building level - Condominio di via Sassetti".

To reduce water consumption, a system was installed to recycle grey and white water: water from showers, wash basins and bidets, and rainwater. Thanks to different levels of filtration and sterilisation, this water is purified and returned to a state suitable for later reuse, such as watering the garden, cleaning the areas around the building or flushing the toilets.

3. Czech Republic, Pardubice: "Botanica K with grey water system in a residential building".

Grey waste water management system - treated water from bathrooms (mainly from sinks, baths and showers) is reused to flush toilets. If grey water from these sources is insufficient, the system supplements it with captured rainwater or drinking water.

4. Latvia: „Car wash using rainwater”.

The collected rainwater is used to wash cars and can be reused many times. Not only is the rainwater reused, but the collected sand is also reused during the winter season to cover the roads.

5. Latvia: "Bioswale in the parking lot of SPICE Home shopping center".

Stormwater harvesting in Bioswale offers many functions/benefits, also for water reuse: groundwater recharge, landscape function, reduction of stormwater runoff into the sewer system, treatment of stormwater by plants and soil, space for winter snow storage.

6. Report: "Evaluation of best practices for monitoring, assessment and ensuring compliance with water reuse standards".

Effective monitoring is essential to protect society and the environment. Water reuse is already safely implemented in many parts of the world, including water reuse monitoring standards to protect water quality and thereby minimize public and environmental health risks. It can be concluded that water reuse compatible with established approaches and best practices can help protect existing water

resources, create new economic opportunities while being consistent with the goal of a circular economy, and provide water resources that can be safely used for agricultural and other purposes.

Character of actions

Due to the diagnosed threat of strong desertification, the water deficit area will cover a significant part of the voivodeship¹, actions concerning efficient water management will be supported:

- development and modernisation of water and sewage infrastructure and urban waste water treatment, including construction and modernisation of sewage treatment plants.
- support for intelligent management systems for water and sewage networks.
- support for technologies allowing to reduce water consumption in production processes (closed water circuits, reuse) and in communal management, including installations allowing to drink water straight from the tap (e.g. filters, drinking bowls).
- management of sewage sludge from municipal wastewater treatment plants;
- water management measures aimed at using water in a closed loop, reuse of water, reducing water consumption (in the energy sector);
- improving drinking water quality.

The above-mentioned projects will be granted, among others, additional points during the evaluation of applications. Moreover, calls for proposals and regulations will include provisions referring directly to water saving, recovery and reuse technologies.

Players involved

Organisational units of the Marshal's Office of the Łódzkie Region (UMWŁ), beneficiaries of calls for proposals announced by UMWŁ under FEŁ 2027, regional self-governments, SMEs in the region, NGOs, entities performing the tasks of self-governments.

Timeframe: 2022-2023

Costs: Approximately 1 mln Euro (Not possible to estimate at this stage precisely)

Funding sources: The European Regional Development Fund under the Programme European Funds for Łódzkie 2027 (FEŁ 2027)

Action no 2:

Integrate the international solutions of the AQUARES project supporting comprehensive climate change adaptation measures into the Policy Instrument European Funds for Łódzkie (FEŁ2027) by modifying the evaluation criteria, taking into account innovations in infrastructure adaptation to extreme weather conditions, supporting water retention, and introducing additional points to award the use of sustainable water management technologies.

¹ In accordance with the provisions of the National Environmental Policy 2030

Reference to the project (background)

The exchange of experiences conducted in the project, both through international and local meetings, consultations, workshops, study visits, good practices identified in the project and AQUARES analytical activities provided knowledge and inspiration for nature-based solutions for climate change adaptation that can be undertaken in the łódzkie voivodeship.

The solutions presented below will form the basis for defining the project selection criteria within the FEŁ 2027 programme and calls for proposals documents on water efficiency for climate change adaptation:

1. Italy, Lombardy: "Gorla Maggiore constructed wetlands".

Example of green infrastructure for water purification, retention and recreation

2. Czech Republic, Pardubice: "Žichlínek dry polder".

A solution for water retention and fire protection. The polder area also has landscape and ecological value.

3. Czech Republic, Pardubice: "Innovative City of Lanskroun".

An example of complex solutions in the field of "green innovation" including, among others a green roof on a new community centre, street renovation with water seepage, and a fire protection system in the city.

4. Czech Republic, Pardubice: "Hanging garden".

Drip irrigation on the library in the town of Polička. Automated irrigation system that can be used in dry areas to add greenery.

5. Czech Republic, Pardubice: "Biotop Hlinsko".

A natural water pool that uses the biological functions of plants to purify the water naturally without adding chemicals or disinfectants.

6. Latvia: „Constructed wetlands with surface flow to retain nutrients from an agricultural catchment”.

Constructed wetlands are used to improve water quality, provide habitat to support biodiversity in simplified, unified areas, and as water storage for reuse during dry summer periods. The capacity of wetlands has helped to reduce flood risk in surrounding areas during spring floods or heavy rains.

7. Greece, Attica: "Combination of stormwater drainage network and rainwater retention tanks".

The reservoir is divided into two tanks, the second of which is used during heavy rainfall. The project successfully enables flood control, retention time and storage of water of proper quality for irrigation of nearby urban areas and other uses (street washing, firefighting, etc.) as there is a mechanism to

remove solids from the tank. The existence of a separate compartment allows a certain amount of rainwater to be retained during the summer months.

8. Czech Republic: "Nanofiltration unit in stand-by regime at water treatment plant in Domašov nad Bystricą".

With nano-filtration technology, all contaminants can be removed, treated and provide residents with potable and clean water on a daily basis. Nano-filtration purifies water from all kinds of impurities, staining, microplastics and increases the efficiency of removing drug and pesticide residues. At the same time, this technology keeps calcium, magnesium and other beneficial substances in the water.

Character of actions

Due to the diagnosed progressive water deficit, which will cover a significant part of the voivodeship, the support will include investments in the field of:

- adaptation of infrastructure to extreme weather conditions, development of green and blue infrastructure, including the use of intelligent rainwater management systems and elimination of urban heat islands
- promotion of water retention, including small retention, measures to stop the outflow of rainwater;
- development of water intake, treatment, supply and storage systems (on the assumption that water supply infrastructure projects may be implemented independently from the sewerage network);

This will result in sustainable management of water and natural resources and comprehensive action on climate change adaptation.

The above-mentioned projects will be awarded, among others, additional points during the evaluation of applications. Moreover, calls for proposals and regulations will include provisions referring directly to technologies in the field of efficient water management for adaptation to climate change, e.g. innovations in the field of adaptation of infrastructure to extreme weather conditions, supporting water retention and introduction of additional points to award application of technologies from the area of sustainable water management.

Players involved

Organisational units of the Marshal's Office of the łódzkie Region (UMWł), beneficiaries of calls for proposals announced by UMWł under FEł 2027, regional self-governments, SMEs in the region, NGOs, entities performing the tasks of self-governments, scientific entities.

Timeframe: 2022-2023

Costs: Approximately 890 thousand Euro (not possible to estimate at this stage precisely)

Funding sources: The European Regional Development Fund under the Programme European Funds for łódzkie 2027 (FEł 2027).



Dyrektor
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