

OUTPUT FACT SHEET

Pilot actions (including investment, if applicable)

Version 3

Project index number and acronym	CE1578 CityWaterCircles
Output number and title	O.T2.2. Pilot actions testing and demonstrating combined urban rainwater and grey/wastewater utilization
Investment number and title (if applicable)	I1 Implementation of combined rainwater and greywater reuse concept in a kindergarten in Zugló
Responsible partner (PP name and number)	Budapest 14. District Zugló Municipality, LP
Project website	https://www.interreg-central.eu/Content.Node/CWC.html
Delivery date	June 2020 - June 2022

Summary description of the pilot action (including investment, if applicable) explaining its experimental nature, demonstration character and transnational added value

Rainwater harvest and greywater reuse in the Hétszínvirág Kindergarten in Zugló, Budapest

On the impact of climate change the average precipitation in Budapest is slightly increasing, but the yearly consistence of distribution is changing radically: the dry periods are even longer, while the heavy rains are more often. The changes in precipitation cause increased needs of water supply of green areas in the vegetation period and high pressure and overflow situations in the sewage system. The increasing water and sewage prices are additional motivation factors.

The pilot is an experiment, testing the technological and socio-economic viability of rainwater and greywater utilisation in for non-consumption purposes.

In the frame of the CWC pilot investment, a greywater and rainwater harvesting system has been installed at the Hétszínvirág Kindergarten in Zugló. The rainwater run-off from the roof of the building and the greywater of the handwashing units are drained to a gravel bed pre-filtration zone. The pre-filtered water is collected in two, 7 m³ (14 m³ in total) capacity tanks sunk into the ground in the courtyard. This purified and stored water is used for flushing the toilets and to irrigate the garden.

The pilot was developed with involvement of local and transnational stakeholders: the teachers of the kindergarten, technical advisory partner of the project (fbr.de), designer and technical experts, the maintenance staff of the institute.

The pilot action provides opportunity to learn more about the technical solutions, the market, and the reception of the innovative technologies on the stakeholder's side.

Hétszínvirág is a member of the "Hungarian Green Kindergartens Network" and provides priority green pedagogical programme. This represents optimal potential for dissemination and ensures a proper target location for a pilot action in aspect of connection between generations and room for early education.

NUTS region(s) concerned by the pilot action (relevant NUTS level)

NUTS HU101, Budapest

Investment costs (EUR), if applicable

Type of work	Description	Related cost
Preparatory works	Preparing the site for the construction works: demolishing walls in the toilets, digging up the garden	7.174 EUR
Site construction	Installation of the water tanks; masonry works; preparation of the shaft	24.298 EUR
Technological works	Installation of the new pipe system, mechanical work	6.769 EUR
Electric works	Installation of the security system, incl. the red distress light	3.136 EUR
Building engineering works	Reconstruction of the site for original usage	6.702 EUR
Gardening	Gardening works, grass planting	3.269 EUR
Irrigation	Adaptation of the irrigation system with the new construction	751 EUR
Extra metering	Installing a correction valve in the system based on the mentoring visit	548 EUR
SUM		52.647 EUR

Expected impact and benefits of the pilot action for the concerned territory and target groups and leverage of additional funds (if applicable)

The pilot project system results

- > significant reduction on tapwater and wastewater, contributing to the sustainability of the institution
- > balance in extremities in annual precipitation: alleviation of sewage network from heavy rain stress, stores the rainwater for later use
- > a live example of green and sustainable behavior for local stakeholders, included children and parents, contributing to the mindset shift in the area.

Benefits

The municipality realizes direct savings in the water bills, and indirectly freeing up drinking water treatment plant capacity.

The pilot project contributes to decreasing natural water resource usage and alleviates the water stress of heavy rains on the sewage system, it contributes to the sustainable and cost-effective operation of the water and sewage infrastructure of Budapest.

The pilot serves as an active and tangible good practice example for both the children of the kindergarten and the wider community, it promotes changes in attitudes of the local stakeholders.

Follow up activities

The inquiry of different stakeholders in sustainable urban water management solution growing fast in recent years. Recognizing the needs, the municipality of Zugló procures small scale rainwater reservoirs and transfers them for use to local institutions, kindergardens, social, cultural institutions and residential buildings and initiates a local water community to manage water supply of Padlízán community garden with rainwater harvested from the neighbour buildings.

Sustainability of the pilot action results and transferability to other territories and stakeholders

The pilot system will be managed by the Zugló Asset company. The experiences of operation will be built in the future investments of the municipality.

Transferability

In Hungary the kindergartens are maintained by the municipalities, and there are several institutional buildings with similar technical conditions, hence the Zugló pilot can be an inspiring example for further similar projects in Budapest and surroundings.

Based on the feedback of transnational project partners, the principle of the technology can be transferred to other regions and countries in CE, as the climatic, economic, and social conditions show slightly differences.

Dissemination and knowledge transfer

Zugló is mainly working on the knowledge transfer in the territory of Budapest. The project results were presented in several platforms e.g. municipality meetings, site visit, targeted meetings etc. The publications of the Zugló pilot, e.g. pilot video, articles, project description, provide long term and unlimited availability of information.

The benefits and experiences of the pilot project support other stakeholders as well. City/district municipalities and public institutions in the region receive detailed technical and financial information on request. The good example of the investment could speed up investments in the business sector, especially in field of property management, construction and in the residential sector.

Water and sewage supply companies are also indirect beneficiaries, with high potential of follow up investments.

Lessons learnt

- > Investments should be harmonized to the local water related strategies.
- > The involvement of a wide range of stakeholders from a very early stage of the planning is a crucial condition of success, as well as clear expectations regarding information flow, documentation, transparency and clear definition of responsibilities and decision-making process.
- > Indicators, monitoring, and measurement methodology should be defined at a very early stage of the pilot.

References to relevant deliverables (e.g. pilot action report, studies), investment factsheet and web-links

If applicable, additional documentation, pictures or images to be provided as annex

Public pilot video: <https://youtu.be/mBlAM4vL-0c>

Public pilot description: <https://www.interreg-central.eu/Content.Node/Water-retention--rainwater-harvest-a-early-education-in.html>

D.T2.7.1 FINAL SELF-EVALUATION REPORT

D.T2.5.3 JOINT PEER REVIEW REPORT

D.C.5.1 CWC public consultation workshops for targeted citizen groups

D.T2.1.4 Finalised CWC transnational online handbook also including the pilot showcases and their conclusions

D.T2.1.6 Tailored CWC online handbooks translated to national languages

PICTURES of rainwater & greywater collection and reuse system



Yard in Hétszínvirág Kindergarten



To be reused



Indoor construction works



Collection of leaves



Supplies



Gravel bed



Water tanks (2x7 m3)



Water tank embedding



Indoor construction works



Indoor construction works



Toilet flush with greywater



Plant beddings in the garden