

INVESTMENT FACT SHEET

I.1. Implementation of combined rainwater and greywater reuse concept in a kindergarten in Zugló

Project index number and acronym	CE1578 CityWaterCircles
Responsible partner (PP name and number)	Budapest 14. District Zugló Municipality, LP
Linked to pilot action (number and title)	O.T2.2. Pilot actions testing and demonstrating combined urban rainwater and grey/wastewater utilization
Project website	https://www.interreg-central.eu/Content.Node/CWC.html
Delivery date	June 2020 - June 2022

Description and technical characteristics of the investment

The pilot demonstrates circular water use through rainwater harvesting and greywater recycling in a Kindergarten in the district of Zugló in Budapest. Rainwater from approx. 200 m² of roof surface area of the building is collected via 5 downpipes with filters. Together with the greywater from 9 handwash basins and 2 showers, the two water flows (rainwater and greywater) are drained into an underground soil filter made up of sand and gravel of different grain sizes. The pre-filtered or cleaned water is eventually collected in two water tanks placed underground in the courtyard with a capacity of 7 m³ each (14 m³ total). The watertanks for the storage of collected rainwater and greywater installed underground and connected to each other. The capacity of the tanks calculated by the study of raining situation of the certain area. The rainwater of approx 100 m² roof area via 2 downpipes utilized in 2 raised bed-raingardens of the Egressy st. side. (This part of the project under reparation, now, because of the bad quality of the imported raise beds)

Treatment of the collected rainwater and greywater streams takes place during their passage through the constructed soil filter. The surface area of the soil filter is given as 13 m². Most of the pollutants, including organic matter and suspended solids are filtered out by means of several biotic and abiotic processes such as adsorption, sedimentation, biodegradation in the soil, uptake by plants, etc. Two zones of the constructed soil filter can be identified:

Zone 1: which will be covered only with lawn (pre-treatment zone);

Zone 2: will be planted with plants tolerable to extreme water conditions, such as prolonged drought and standing water levels.

Suitable plant species include reeds (Phragmites), sedges (Carex) or common cattail (Typha). The chosen plant species was lavender (Lavandula).

The treated water will be reused for two purposes: for flushing the 8 toilets and for garden irrigation. The wastewater from the toilets (blackwater) will continue to follow the „traditional route” into the public sewer. In times of low water level in the cisterns, due to little rain or during holiday times, where no greywater is produced, a drinking water backup system from the public network will supply the cisterns with water to flush the toilets and use for irrigation.

A signal light is installed on the wall of the building which should detect the water level in the cisterns and lights up red when the level drops.

Monitoring of the pilot plant will include water quality control analysis and evaluation of results.

Investment costs (EUR) including a break-down of main cost items

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

Investment location

NUTS 3	Address (Street, house number, postal code, city, country)	GPS coordinates
NUTS HU101, Budapest	Egressy út 182, 1141 Budapest, district 14, HUNGARY	N 47,52330; E19,13089

Duration and process of investment implementation

Start date	End date
06.2020	06.2022

Major milestones of investment implementation

Milestone	Description	Timing
Development concept	Complex green development of the kindergarten including extra investment to optimize the operation of the kindergarten, consultation with the kindergarten-teachers and parents.	May - Oct 2020
Review of development concept	The new concept based on the financial restrictions caused by the COVID-policy of the government.	Oct 2020 - May 2021
Planning	Architectural and mechanical planning	June - Aug 2021
Procurement & contracting	Preparation of in-house procurement based on the organizational changes of the municipality: 100% municipality owned local asset company (ZVK) responsible for all municipal investments.	July - Nov 2021
Preparation of the building	Review of plans, procurement of sub-contractor.	Sep - Nov 2021
Building activity	Only the execution of the building plans without gardening (winter works).	Dec 2021 - Jan 2022
Mentoring visit	Changes in the metering system, extra valves needed	Feb 2022
Procurement for sub-contractors	Extra works in the metering system, adaptation of irrigation system, reconstruction of the lawn in the playground of the kindergarten.	March - April 2022
Additional construction works	Water measurement, irrigation system adaptation, raingarden.	May 2022
Monitoring		April - June 2022

Ownership and durability of the investment (e.g. maintenance, financing)

The kindergarten owned by the Municipality of Zugló, and operated professionally by the Kindergarten Directorate of the Municipality of Zugló and technically by the Zugló Asset Co. (ZVK) is responsible for the maintenance, too. All activities of the kindergarten covered in the annual budget of the municipality, and they are financing directly (professional operation) and indirectly (ZVK=technical operation, maintenance) by the Municipality of Zugló. The financing is based on per capita state norms and extra (own) resources of the municipality. Renovations are financed occasionally based on the decisions of the assembly of Zugló.

References to related pilot action (output fact sheet) and relevant deliverables (e.g. pilot action report, studies) 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-and-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:



CWC billboard at the kindergarten entrance



Garden of the Hétszínvirág Kindergarten



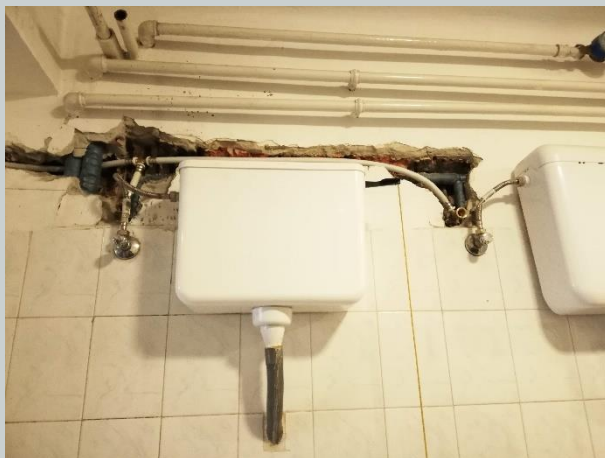
Indoor construction works



Water tanks (2 x 7 m3)



Water tank installation



Indoor construction works

