INVESTMENT FACT SHEET

Version 2

Project index number and acronym	CE1578 CityWaterCircles
Responsible partner (PP name and number)	PP3 Torino
Linked to pilot action (number and title)	O.T2.3 Pilot actions testing and demonstrating urban NBS anchored in rainwater harvesting
Project website	https://www.interreg-central.eu/Content.Node/CWC.html
Delivery date	December 2022

Description and technical characteristics of the investment

The pilot consists of building a rooftop garden with green roofing tech and a greenhouse on a public building to test & demonstrate the results of RW-based aeroponic cultivation and a linked closed food production cycle.

The pilot includes:

- a new intensive green roof of about 180 m^2;
- an aeroponic system to cultivate food on the green roof;
- a rain garden with a surface area of about 6 m^2, to accumulate and slowly infiltrate part of the harvested rainwater.

The pilot includes the **following rainwater harvesting** scheme for the total area roof area (about 520 m^2):

- rainwater harvesting from about 230 m^2 of the Youth hostel Open011 roof, collected in a underground storage tank of 13 m^3 and harvested rainwater reused for green roof irrigation;
- rainwater harvesting from other 180 m^2 of Youth hostel Open011 roof, collection in storage tank of 350 liters and harvested rainwater reused for aeroponic irrigation;
- rainwater harvesting from green roof (about 180 m^2) and from the overflow of the aeroponic storage tank, accumulation and infiltration by a rain garden with a surface area of about 21 m^2 and storage volume of about 10 m^3 (corresponding to a rain event of about 20 mm (rain event with a return time of 5-10 years)

The pilot also follows a **multipurpose design** of the used NBS systems, since both the green roof and the rain garden were designed for urban restoration, amenity increase, and urban biodiversity support. Particularly, the following plant species were selected for the NBS:

- Green roof: *Phyla nodiflora, Veronica liwanensis, Fragaria vesca, Duchesnea indica, Convallaria japonica, Rubus articus, Hedera helix, Fragaria mount everest, Passiflora caerulea, Aronia melanocarpa, Perovskia atriplicifolia, Vaccinium macrocarpon, Mhulembergia capillaris. Mentha piperita, Echinacea purpurea.*
- Rain Garden: *Ribes uva cripsa, Hibiscus palustris, Typha latifolia, Equisetum hyemale, Caraderia selloana, Panicum variegatum, Schoenoplectus lacustris*

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

Cost type (e.g. planning, construction, etc.)	Description of cost (what is included into the contract, what was delivered, etc.)	Real amount (based on contract) (EUR)	Description
SUM		**57 160 EUR**	
1. Rainwater harvesting tank plus stormwater filter	■ Concrete rainwater harvesting tank (13 m3) ■ stormwater filter ■ piping ■ concrete and excavation works ■ pump and electrical panel for reuse of harvested rainwater	N/A	
2. Retrofitting works on existing drainpipes	■ all works required to retrofit existing drainpipes, including excavation and new required piping material ■ stormwater filters on drainpipes	N/A	
3. Storage tank on terrace for aeroponic	■ polyethylene storage tank (1200 liters)	N/A	
4.1 Green roof: layers	■ green roof layer according to UNI 11235 standards ■ specific substrate for intensive green roof	N/A	
4.2 Green roof: irrigation system	■ irrigation system, piping and control panel	N/A	
4.3 Green roof: plants	■ biodiverse plants (shrub, climbing, meadow, aromatic) ■ include also the plantation works	N/A	
4.4 Green roof: pedestrian path paving	■ pedestrian path for access and usage of intensive green roof	N/A	
4.5 Green roof: benches	■ benches for green roof furniture	N/A	
4.6 Green roof: emergency water supply	■ emergency water supply in case of lack of harvested rainwater for irrigation	N/A	

4.7 Green roof: others retrofitting works	■ general works to make suitable the existing roof to install a green roof	N/A	Works paid by the Open 011 Hostel owners
5.1 Aeroponic: greenhouse	■ greenhouse structure to host the aeroponic	N/A	
5.2 Aeroponic: aeroponic system	■ aeroponic system for food production, including fertigation system, nebulization, food baskets, etc.	N/A	
5.3 Aeroponic: electrical works	■ electrical works to provide electricity to the aeroponic	N/A	
6.1 Rain garden: material and works	■ construction material (gravel, earth, geotextile, pipes) ■ realization works (e.g. excavation)	N/A	
6.2 Rain garden: plants	■ various aquatic and semi-aquatic plants	N/A	
7. Costs for safety in realization works according to Italian law	■ dedicated budget to guarantee the safety of the workers, according to Italian law	N/A	
8.1 VAT for works (10%)	■ taxes on works and work material	N/A	
8.2 VAT for safety	■ taxes on worker safety expenses	N/A	
8.3 Budget for Contractor	■ budget for the Contractor for variation of the works during construction phases	N/A	

Investment location		
NUTS 3	**Address (Street, house number, postal code, city, country)**	**GPS coordinates**
ITC11 Torino	Corso Venezia 11, Torino	N 45.09299021577825, E 7.680151472335728

Duration and process of investment implementation	
Start date	**End date**
September 2020	December 2021

Major milestones of investment implementation

The city of Turin has acquired experience on the theme of water and its circular management and will therefore be more capable of both replicating similar interventions and suggesting and possibly regulating them

The pilot has already achieved a demonstration and dissemination objective. The greenhouse created under the CWC project will also be an opportunity for training and dissemination on the issues of urban agriculture and food.

The events of prolonged drought in the last year introduce environmental criticalities not present in the city until now that induce a deep reflection on the theme of water recovery and the CWC project has allowed the city to build knowledge and a network of international experts that will be the technical reference point for the years to come.

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

The building owner is the City of Torino, the Hostel is run by a Cooperative, Cooperativa Doc. The city itself will maintain the terrace for the first 3 years, involving the crew in some lab and useful maintenance works, so that after the cooperative that manages the Open 011 facility will continue with maintenance on their own. The commitment about the maintenance is included in the contract of concession to the cooperative, which is signed by the City of Torino and the cooperative without indicating an end date, with a minimum duration of 5 years.

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

D.T2.7.1 FINAL SELF-EVALUATION REPORT

D.T2.5.3 JOINT PEER REVIEW REPORT

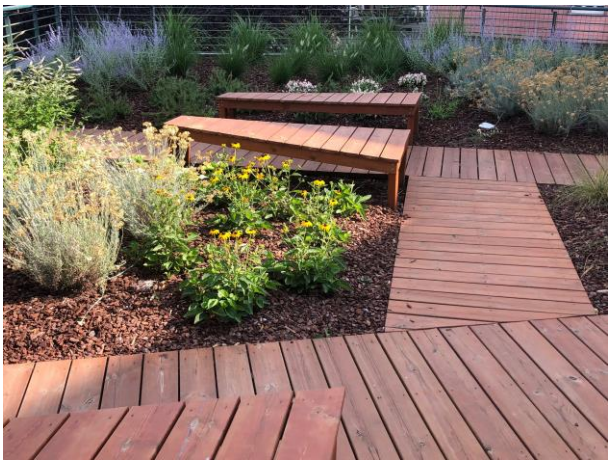
D.C.5.1 CWC public consultation workshops for targeted citizen groups

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

https://www.interreg-central.eu/Content.Node/CWC.html

https://www.interreg-central.eu/Content.Node/Green-roof-and-pubic-space-in-Turin.html




Interreg
CENTRAL EUROPE
European Union European Regional Development Fund
CWC
PROGETTO EUROPEO CWC
CITY WATER CIRCLES
RICICLO DELL'ACQUA IN CITTÁ
Il progetto CWC City Water Circles mira ad aiutare le città a innovare le infrastrutture idriche urbane con un approccio di economia circolare, dai molti vantaggi economici e ambientali.
Incontrare l'acqua
Incontrare le persone
Incontrare le piante
Open011 è il luogo ideale dove realizzare questi principi affinché abbiano la massima diffusione e possano diventare un progetto pilota da sperimentare, da raccontare, da ripetere.
Raccogliere l'acqua di pioggia dai tetti e riutilizzarla per irrigare la terrazza verde, la serra aeroponica e il Giardino della Pioggia.
Fare in modo che il ciclo sia a spreco zero è l'obiettivo del progetto, e dall'acqua far fiorire nuovi spazi di incontro per i cittadini.
L'acqua di pioggia non sarà più raccolta dal sistema delle fognature cittadine, ma ogni singola goccia darà vita a nuovi prime, a nuovi spazi, a nuova vita.
RACCOLTA ACQUA PIOVANA
Terrazzo verde
Serra aeroponica
Giardino della pioggia
Budget del progetto
2.418.392,29 Euro
FESR (Fondo Europeo di Sviluppo Regionale)
2.017.978,82 Euro
Durata del progetto:
04.2019-03.2022
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