

OUTPUT FACT SHEET

Pilot actions (including investment, if applicable)

Project index number and acronym	CE1578 CityWaterCircles
Output number and title	O.T2.3 Pilot actions testing and demonstrating urban NBS anchored in rainwater harvesting
Investment number and title (if applicable)	I2 Rainwater recovery rooftop garden and aeroponic greenhouse in Turin
Responsible partner (PP name and number)	PP3 Torino
Project website	https://www.interreg-central.eu/Content.Node/CWC.html
Delivery date	December 2021

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

Green roof in open 011

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.

Moreover, the pilot follows the sustainable water management principles with a rainwater harvesting scheme, aimed to reuse harvested rainwater for green roof and aeroponic irrigation, as well as for pluvial flood mitigation and managed aquifer recharge in urban context.

The challenge for the city is to think about new ways to recover and use water. The opportunity to apply in practice in a pilot some of the innovative practices on the water cycle allows both to build knowledge within the municipal technical offices and to tell all citizens what steps can be taken together towards the preservation of a resource so important.

The pilot represents an opportunity to develop a strategy for rooftop farming as a solution for the resilient city of tomorrow in CE (and beyond). The pilot will help Turin and other public authorities to define innovative “Green & blue infrastructure strategies” to feed the future “Local Environmental Adaptation Plan” in line with the “Mayors Adapt” initiative.

The pilot is implemented at the site originally planned at the proposal phase. Open 011 is a Youth Hostel built for the Olympic Games 2006 in a former 1940’s Factory. A big terrace facing south is available to be transformed together with a big metal roof to harvest from the rainwater and a garden for the overflow.

The pilot takes place on the roof of a public building offering students’ housing. The building is ECOLABEL EU certified and it is already the place where other ICT devices have been implemented to control the building’s environmental performance: a temperature monitoring system, to compare internal and external temperatures through data logger; a weather station. The dissemination and education potential is high, due also to its use.

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

NUTS3 - ITC11 Torino

Investment costs (EUR), if applicable				
Cost type (e.g. planning, construction, etc.)	Description of cost (what is included into the contract, what was delivered, etc.)	Planned amount in AF (EUR)	Real amount (based on contract) (EUR)	Description
1. Rainwater harvesting tank plus stormwater filter	<ul style="list-style-type: none"> ■ Concrete rainwater harvesting tank (13 m3) ■ stormwater filter ■ piping ■ concrete and excavation works ■ pump and electrical panel for reuse of harvested rainwater 	€ 10,387.45	N/A	
2. Retrofitting works on existing drainpipes	<ul style="list-style-type: none"> ■ all works required to retrofit existing drainpipes, including excavation and new required piping material ■ stormwater filters on drainpipes 	€ 800.47	N/A	
3. Storage tank on terrace for aeroponic	<ul style="list-style-type: none"> ■ polyethylene storage tank (1200 liters) 	€ 932.49	N/A	
4.1 Green roof: layers	<ul style="list-style-type: none"> ■ green roof layer according to UNI 11235 standards ■ specific substrate for intensive green roof 	€ 11,564.20	N/A	
4.2 Green roof: irrigation system	<ul style="list-style-type: none"> ■ irrigation system, piping and control panel 	€ 1,162.36	N/A	
4.3 Green roof: plants	<ul style="list-style-type: none"> ■ biodiverse plants (shrub, climbing, meadow, aromatic) ■ include also the plantation works 	€ 3,936.67	N/A	

4.4 Green roof: pedestrian path paving	<ul style="list-style-type: none"> pedestrian path for access and usage of intensive green roof 	€ 6,919.08	N/A	
4.5 Green roof: benches	<ul style="list-style-type: none"> benches for green roof furniture 	€ 1,608.43	N/A	
4.6 Green roof: emergency water supply	<ul style="list-style-type: none"> emergency water supply in case of lack of harvested rainwater for irrigation 	€ 232.83	N/A	
4.7 Green roof: others retrofitting works	<ul style="list-style-type: none"> general works to make suitable the existing roof to install a green roof 	€ 0.00	N/A	Works paid by the Open 011 Hostel owners
5.1 Aeroponic: greenhouse	<ul style="list-style-type: none"> greenhouse structure to host the aeroponic 	€ 2,856.07	N/A	
5.2 Aeroponic: aeroponic system	<ul style="list-style-type: none"> aeroponic system for food production, including fertigation system, nebulization, food baskets, etc. 	€ 5,375.00	N/A	
5.3 Aeroponic: electrical works	<ul style="list-style-type: none"> electrical works to provide electricity to the aeroponic 	€ 334.61	N/A	
6.1 Rain garden: material and works	<ul style="list-style-type: none"> construction material (gravel, earth, geotextile, pipes) realization works (e.g. excavation) 	€ 2,091.23	N/A	
6.2 Rain garden: plants	<ul style="list-style-type: none"> various aquatic and semi-aquatic plants 	€ 1,017.75	N/A	

7. Costs for safety in realization works according to Italian law	<ul style="list-style-type: none"> dedicated budget to guarantee the safety of the workers, according to Italian law 	€ 2,000.00	N/A	
8.1 VAT for works (10%)	<ul style="list-style-type: none"> taxes on works and work material 	€ 4,921.86	N/A	
8.2 VAT for safety	<ul style="list-style-type: none"> taxes on worker safety expenses 	€ 200.00	N/A	
8.3 Budget for Contractor	<ul style="list-style-type: none"> budget for the Contractor for variation of the works during construction phases 	€ 819.50	N/A	

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

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 do 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.

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

The city will maintain the terrace for the first few years, and thereafter the cooperative that manages the Open 011 facility will continue with maintenance.

As for transferability of the project, the activities done by the Municipality of Turin within the CWC cities have been already exploited in a number of potential spin-off projects of interest. The other R&D project on NBS involving the Municipality of Turin, **proGInreg (productive Green Infrastructure for post-industrial urban regeneration - Grant Agreement: No. 776528, 2018-2023)**, was cross-fertilized with the concepts delivered by CWC. Indeed, proGInreg installed an extensive green roof of 140 m² on a public building located in Municipality of Turin and implemented by the project partner “OrtiAlti”, one of the stakeholder also engaged in the SGM of CWC. Secondly, the contacts created during the stakeholder group meeting permitted to start a **Master Thesis with the Politecnico di Torino**. Thirdly, Turin Municipality will be involved in the recently H2020 funded project **NICE (Innovative and enhanced nature-based solutions for sustainable urban water cycle - Grant Agreement: No. 101003765, 2021-2025)**, related on NBS for sustainable water management. The strong link between CWC and NICE is quite straightforward, making the NICE project a perfect spin-off to continue the activities developed within the CWC project. Finally, the Turin Municipality is applying for **National funds dedicated to the implementation of green-blue infrastructure for climate change adaptation and mitigation (D.D 117-2021)**¹.

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

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-public-space-in-Turin.html>

¹ <https://www.mite.gov.it/pagina/adattamento-climatico>

