

OUTPUT FACT SHEET

Strategies and action plans

Version 2

Project index number and acronym	CE1578 CityWaterCircles
Output number and title	O.T3.1.1 Integrated urban strategies for introducing and boosting circular urban water management
Responsible partner (PP name and number)	PP3 Torino
Project website	https://www.interreg-central.eu/Content.Node/CWC.html
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Summary description of the strategy/action plan (developed and/or implemented), explaining its main objectives and transnational added value

The TURIN FUA Strategy and Action Plan has been built and improved step by step throughout the CWC project in cooperation with the Stakeholders.

The problem in building plans at the FUA level is of course the absence of a FUA administrative authority that can give policies and regulations on the municipalities. Only 4 municipalities including Turin, out of the 89 composing the FUA, were active in the Stakeholder group, and Strategies and Action Plan received the official endorsement only from Turin municipality.

With the strong support of Iridra and the constant and active participation of the Stakeholders, we have developed a strategic plan with short- and long-term horizons (2030 and 2050) and the first Action Plan envisaging the actions to be implemented in the first 4 years. The idea is that every 4 years, with the experience gained and considering the context evolution, a new short-term Action Plan will be built and implemented.

Following an analysis of the situation in the FUA including the water resource management patterns, the Strategy Plan defined "core" objectives, organized in a logical framework of cause and effect. The logical framework was then simplified into operational objectives, each characterized by an indicator and a target value with medium-term horizon to 2030 and long-term horizon to 2050. The operational objectives defined by the Strategy Plan are:

- Reduce network leakage
- Reduce consumption of potable water for civilian uses
- Increase the use of rainwater.
- Increase the use of graywater
- Cut back on planned urban sprawl in FUA municipalities.
- Promote nature-based solutions (NBS) and sustainable urban drainage systems (SuDS) in urban settings
- Promote both urban and rural forestry
- Involve key stakeholders in educational activities
- Involve citizens in information, education and awareness-raising activities

The FUA-wide strategies also identify local policy measures useful in promoting sustainable water use.

The Action Plan calls for the implementation of a catalogue of actions starting with the city's vulnerable areas for intense precipitation events. These actions can be directly activated, in particular in Turin municipality, and it will be up to the city in the coming years to identify funding to make the plan concrete and effective.

Regarding the transnational added value, our strategy/action plan constitutes a good example both for its contents, that can be particularly useful in cities with a context similar to Turin, and for the process followed to build it, that can be easily adapted or at least be of inspiration for most European cities.

NUTS region(s) concerned by the strategy/action plan (relevant NUTS level)

ITC3

The territory of the FUA of Turin is about 1.701 km² and has 89 different municipalities. Municipalities are very different in terms of urbanization and green areas, as some of them are mountain municipalities and others are urbanized cities. The criteria for determining the FUA territory elected by OECD encounter significant problems when it comes to adopting laws, regulations, and policies on water management and creating a real governance system, because there is no administrative body corresponding to the FUA. It would be more feasible to work in a different geographic area, such as the “Città Metropolitana” or the “Regione”.

Expected impact and benefits of the strategy/action plan for the concerned territories and target groups

Although Turin is in a lucky situation regarding availability and quality of water, climate change and patterns of urbanization are increasingly creating new problems and challenges, in particular related to dry periods and intense precipitations. The strategy/action plan provides an answer to these challenges. Since the plan has been built through a cooperative process, we foresee that its implementation will be less conflictual and problematic than that of a plan “imposed” from above, and that all the actors will be willing to cooperate and contribute to the objectives. Of course, the interest of the plan also lies in its attention towards circular and sustainable solutions. We expect that the implementation of the plan will give a good contribution towards meeting its operational objectives and will pave the way toward increasingly effective solutions.

In order to implement the plan and obtain results at the FUA level and not only at the Municipality level, we will need the contribution of Città Metropolitana, which can manage all the FUA Municipalities. City of Turin is therefore willing to increasingly involve and give the lead to Città Metropolitana.

A benefit for stakeholders participating in the process has been the increase of knowledge and understanding among themselves. This was pointed out with particular emphasis by the water service company of the FUA. We expect that the level of knowledge and understanding will increase with the implementation of the plan, also leading to better solutions.

Sustainability of the developed and/or implemented strategy/action plan and its transferability to other territories and stakeholders

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.

Firstly, the other R&D project on NBS involving the Municipality of Turin, proGReg (productive Green Infrastructure for post-industrial urban regeneration - Grant Agreement: No. 776528, 2018-2023), was cross-fertilized with the concepts delivered by CWC. Indeed, proGReg 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. Following the request of the Municipality of Turin, irrigation was carried out through the recovery of rainwater, following the CWC principles. In particular, the green roof is now fed by a cistern placed in the nearby garden, with a capacity of 11.000 liter for the accumulation of rainwater, pumped to the roof and connected to the downpipes of the building.

Secondly, the contacts created during the stakeholder group meeting permitted to start a Master Thesis with the Politecnico di Torino. The thesis will regard the hydraulic modelling of the CWC pilot (green roof, rain garden, rainwater harvesting), with two main aims:

- i - estimating the indicators for Results 2 (Harvested rainwater for green roof irrigation) and Results 3 (Harvested rainwater infiltrated) through a modelling approach (software SWMM)
- ii - estimating the impact of the pilot in terms of climate change adaptation, simulating the indicators performance under synthetic rain fall events affected by climate changed atmospheric conditions (e.g. increase of frequency of heavy rainfall)

The Master Thesis Candidate is Paolo Cavallaro, supervised by prof. Fulvio Boano (Politecnico di Torino) and co-supervised by PhD Eng. Anacleto Rizzo (IRIDRA).

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 project is coordinated by CEETIM (Spain) and counts 14 international partners. One of the partner is Politecnico di Torino and another one is IRIDRA, which supported as sub-contractor the Municipality of Turin within the CWC project. Moreover, Municipality of Turin has signed a commitment letter for the NICE project, giving its availability to host NICE activities in Turin and to install a demo NBS site. As a consequence, Turin will be one of the 11 Urban Real Lab (URL) of the project, which will be coordinated by IRIDRA. The foreseen activities for the Turin’s URL regard:

the realisation of a small demo site for the treatment and reuse of 2 m³/d greywater with a small green roof in a real context a number of co-designed activities related to the involvement of stakeholders in defining the local needs and in developing future NBS up scaling scenarios for the URL

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. The strong link is also guaranteed by the presence of IRIDRA in both CWC and NICE projects; particularly, IRIDRA followed all the activities requested by CWC for the definition of the CWC Strategic and Action plans, including the facilitation of the SGMs. Therefore the NICE activities have been included in the CWC Action plans as ongoing actions. Moreover, the group of stakeholders involved in the CWC SGMs will be kept active on CWC topics in the future NICE co-design activities, in which the CWC Strategic and Action plans are expected to guide the up scaling NBS scenario for the Turin’s URL.

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. The funds are given by the Italian Ministry of Ecological Transition and finance the following green-blue infrastructure:

- urban forests for carbon sequestration
- shading and low heat adsorbing material to fight heat island effects
- green roofs and green walls
- NBS for rainwater harvesting
- NBS for wastewater treatment and reuse, including greywater

The funds are not competitive, since a budget is dedicated to each Italian city above 60.000 inhabitants. Turin, being among the 15 biggest Italian cities, has a significant potential budget available of 2,266,927.00 €. The grant is only related to the capability of Turin to provide suitable projects of green-blue infrastructure at a basic design level, according to Italian Law. Three on five of the financed green-blue infrastructure (green roofs and green walls; NBS for rainwater harvesting; NBS for wastewater treatment and reuse) are strictly correlated with CWC aims and scope and personnel of Turin Municipality have been encouraged to apply to implement these kind of NBSs also thanks to increased know-how gained during the CWC project. Therefore, the NBS that will be realized thanks to this grant can be seen as a spin-off continuation of CWC project, contributing to fulfil Impact 6 expected by CWC, i.e. funds leveraged based on project achievements, for a significant amount of funds. The Municipality has approved the basic design projects the 1st September 2021, the first required step to proceed in funding proposal. After the official funding requested, it is expected the approval by the Italian Ministry of Ecological Transition to proceed in detailed design and implementation of the foreseen NBS.

Project follow-up

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/suggesting similar interventions and 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. 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.

References to relevant deliverables and web-links

If applicable, pictures or images to be provided as annex

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

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

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

D.T3.3.2 FUA-level collaborative visions on circular urban water use

D.T3.3.3 FUA-level concepts on creating enabling frameworks for integrated circular urban water management

D.T3.3.4 FUA-level CWC strategies on integrated circular urban water management incl. targeted action plans

D.T3.3.5 Declaration (of intent) of the official endorsement of the CWC strategies in the 5 involved FUAs



