GRUPPO CAP: digital solutions to support water reuse

Marco Bernardi, Canada-Italy business Forum on AI, 18/11/2021

Gruppo CAP - Who we are

is the operator of the integrated water system for the METROPOLITAN CITY OF MILAN and other cities of the province of MONZA-BRIANZA, VARESE and COMO.

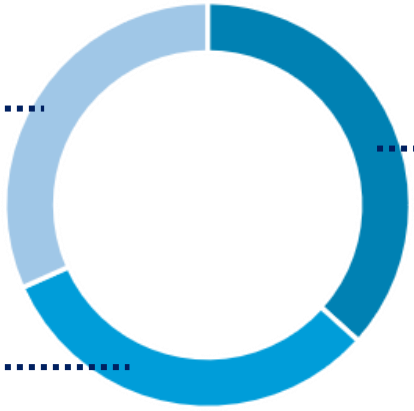
Thousands of kilometres of water and sewer networks, wastewater treatment plants and potabilization plants: a complex system that brings quality water to homes and returns it to the environment.

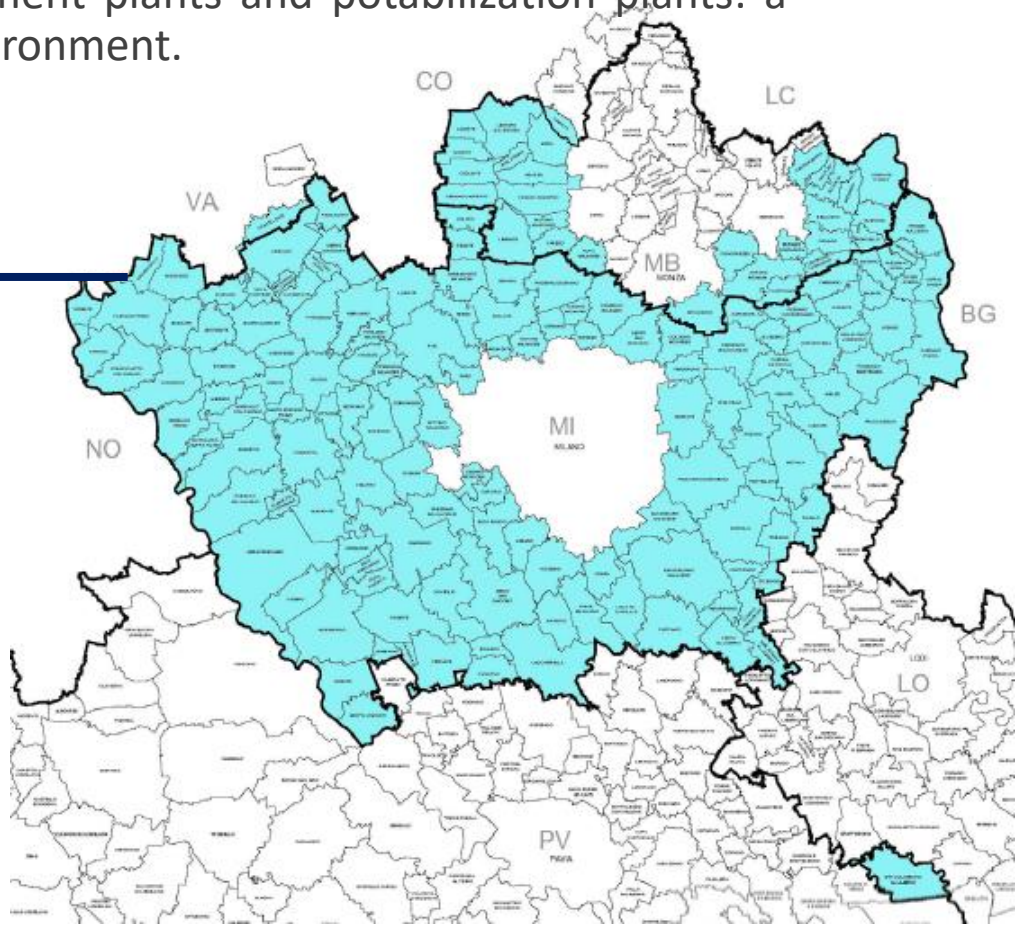
No. Municipalities served

154
Aqueducts

133
Water treatments

133
Sewers





Circular Economy in Gruppo CAP: water reuse

Treated water reuse is one of the possible application of Circular Economy concept in the water service.

It can support agriculture and help secure drinking water for the future, in the perspective of climate change

Water reuse practice should be applied in the framework of a risk assessment and sanitation safety planning procedure, as prescribed by WHO and European Commission

Funded projects: H2020 DIGITAL-WATER.CITY

In the framework of the EU funded digital-water.city project, Gruppo CAP is developing a framework of digital solutions to support the water reuse practice.

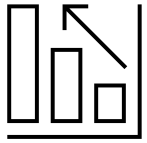
Digital-water.city: digital Early Warning System

The Early Warning System (EWS) is a risk-based management tool that contributes to implementing water reuse risk management plans requested by the new regulation (EU) 2020/741 of the European Parliament and of the Council on minimum requirements for water reuse.

EWS aims to prevent contamination linked to treated wastewater reuse practices by assessing the risk through machine learning and statistical correlation. It employs data from multi-parameter analyzers at the wastewater treatment plant (WWTP) and novel sensors for real-time in-situ measurement of microbiological parameters.

Monitoring

Online sensors provide real time data about water quality.



Data analysis

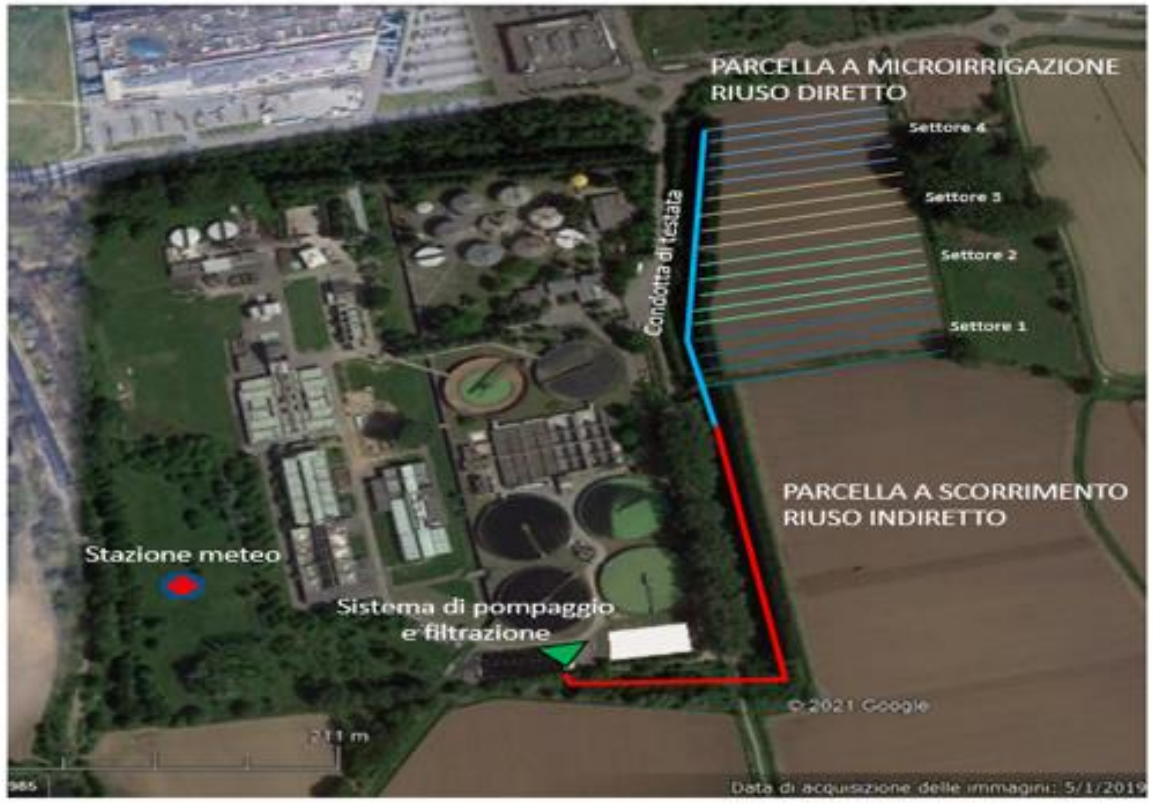
Data are processed through machine-learning algorithms.

Warnings

Warning are produced on the basis of the previous analysis.

Digital-water.city: supporting the farmers

In combination with ground and satellite data, the Active Unmanned aerial vehicle intends to provide real-time knowledge on water stress and other relevant parameters in the soil-plant-atmosphere system enabling the analysis of the efficiency of irrigation schemes. The overall goal is to help farmers raise their yields by optimizing fertilizer and water spreading in order to reduce the overall environmental impact of farming activity.



Digital-water.city: Match-making tool

The Match-making tool is a webpage (mobile friendly) that creates a communication channel between farmers and utilities, exploiting the real potential of the two above solutions. The former group guarantees information about the current irrigation needs, while the latter provides data about treated water quality and quantity. This solution enables real-time data sharing between the stakeholders of the reuse water supply chain, increasing its safety and reliability.

Utilities Dashboard

Farmer Dashboard

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THANK YOU