



## Optimized urban water reuse in water scarcity situations

The European water research project DESSIN (Demonstrate Ecosystem Services Enabling Innovation in the Water Sector) created a small footprint packaged treatment plant with a corresponding control unit and is now willing to share the blueprints of how this can be done with interested technology providers in the water sector.

The small treatment plant and the corresponding control unit are two research results, which are related to the Athens demo site of the DESSIN project and which deal with the subject of sewer mining for urban reuse, enabled by advanced monitoring infrastructure.

The first result (Deliverable D34.1) 'An optimal configuration small packaged plant for urban sewer mining, maintenance and operation book' focuses on the installation of a small footprint packaged treatment plant. This explains the design of a packaged plant consisting of an advanced membrane bioreactor coupled with nano-filtration and reverse osmosis membranes that has now been installed in KEREFT, the Sanitary Engineering Research and Development Center of EYDAP in Greece. The installation simulates direct abstraction from main sewers and is able to accept multiple types of effluent (municipal and industrial), also linked to the Metamorfoosi waste water treatment plant (WWTP). The reclaimed water is appropriate for irrigation purposes and will be used to irrigate the surrounding urban green area. This document aims to serve as the maintenance and operation book of the proposed solution.

Since the second result (Deliverable D34.2) 'A demonstrated intelligent software-hardware platform for monitoring and control of small packaged plants for urban sewer mining' is of a nature that can't be submitted electronically, it is accompanied by a report, which summarizes the results of the implementation of the monitoring and supervisory system. Specifically, it focuses on the implementation of an intelligent software-hardware platform for monitoring and control of small packaged plants for urban sewer mining. It documents the implementation details of the software and hardware platform for collecting, processing and visualizing field sensors installed at the packaged plant in KEREFT. In the report, the front- and back-end implementation aspects are described, including the adaptation of OGC standards, the data models and encodings used, the cloud based user interface, the web technologies and the web services implemented. The platform presented has been integrated and tested at KEREFT and is fully functional and operational.

For more information, contact DESSIN scientist Christos Makropoulos (NTUA) ([cmakro@mail.ntua.gr](mailto:cmakro@mail.ntua.gr)) or download the results at the DESSIN website: [https://dessin-project.eu/?page\\_id=61](https://dessin-project.eu/?page_id=61)