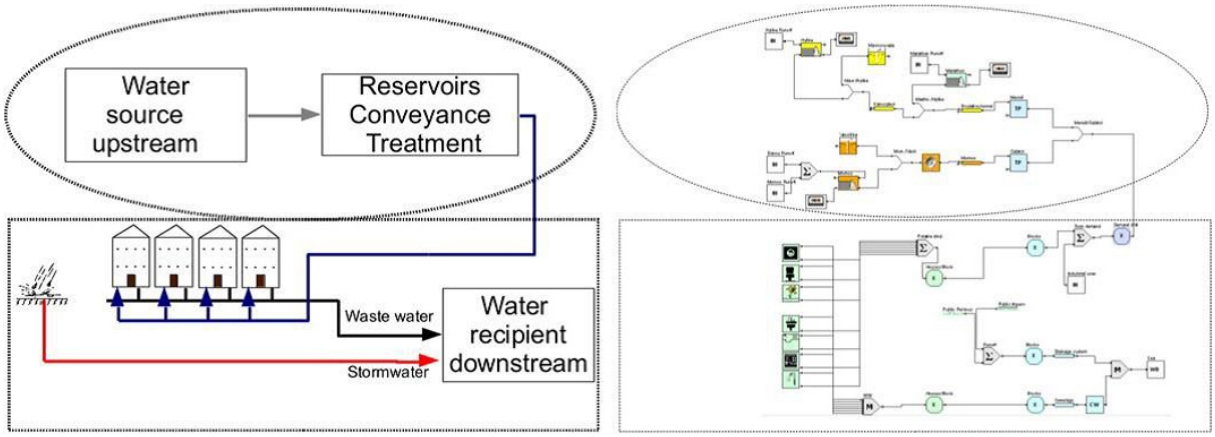
Product factsheet

Urban Water Optioneering Tool

Software solution
Service offering



Description

UWOT is a decision-support tool that allows users to compare different water management technologies (including water saving, recycling, treatment and drainage) at different scales. The tool simulates the urban water cycle by modelling individual water uses and technologies, and aggregates their combined effects at development scale. UWOT provides a range of technology combinations, which are ranked according to user-based criteria. This allows the user to determine which combination of technologies will be most appropriate or beneficial for their new development.

Training material: Video with overview of UWOT is available at https://youtu.be/PL_2s_S958Y and a tutorial for setting up a simple topology and running a simulation is available at https://youtu.be/yV-j2osWtNw.

Target audience

UWOT is primarily targeted at water planners, developers and relevant consultants and is designed to be used during: 1) early and conceptual stage of development, for preliminary design and comparison of different options, 2)master planning stages of development, to have a holistic system view for the baseline and future (masterplan) scenarios.

Actors, their roles and interactions

- Water utilities provide data concerning (waste) water supply and quality characteristics of the inflow (e.g., BOD);
- Municipalities provide data related to water demand (for example, for irrigation needs of an examined park) or other information about the area of their responsibility (for example, the area of an examined park).

Unique selling points

- Bottom-up, component based urban water circle model;
- Multiple components, multiple technologies (DW, WW/GW, RW/Runoff);
- Able to simulate flows on a daily/hourly time step, in scenarios that span years to decades;
- Able to assist smartness in water, by modelling a range of decentralized, distributed interventions: RWH, GWR, blue-green areas, smart appliances and estimate water quantity and quality;
- Able to assimilate (time-series, parameter) data from multiple sources;
- Able to construct scenarios based on socio-economic assumptions;
- Supports spatial scales from appliance level and up, house/neighbourhood/city;
- Provides links with water and energy, water and nutrients.

Technical requirements

Available as stand-alone software (.exe) in MS Windows environments.

Hardware Requirements:

- x86-64 CPU, preferably >= 8GB RAM and 256GB HD

Software Requirements:

- OS: Windows 10, 8.1, 7, 2008R2, Thin PC as well as Windows Server 2016, 2012, and 2012R2
- Dependencies: Microsoft Visual C++ 2010 x64 Redistributable

Software data

- Version: v4
- Initial release: 2008
- Operating environments:
  - Windows
- License: Software is available for research purposes free of charge upon request on a time limited license. For commercial purposes there are commercial agreement options.

Publications

- Rozos, E., C. Makropoulos, and C. Maksimovic (2013). Rethinking urban areas: an example of an integrated blue-green approach, Water Science and Technology: Water Supply, 13 (6), 1534-1542, doi:10.2166/ws.2013.140.
- Rozos, E., and C. Makropoulos (2013). Source to tap urban water cycle modelling, Environmental Modelling and Software, 41, 139-150, doi:10.1016/j.envsoft.2012.11.015, Elsevier.
- Rozos, E., and C. Makropoulos (2012). Assessing the combined benefits of water recycling technologies by modelling the total urban water cycle, Urban Water Journal, 9 (1), doi:10.1080/1573062X.2011.630096.
- Rozos, E., C. Makropoulos, and D. Butler (2010). Design robustness of local water-recycling schemes, Journal of Water Resources Planning and Management - ASCE, 136 (5), 531-538, doi:/10.1061/(ASCE)WR.19.
- Makropoulos, C. K., Natsis, K., Liu, S., Mittas, K., and D. Butler (2008). Decision support for sustainable option selection in integrated urban water management, Environ. Modell. Software 23(12), 1448-1460.
- Butler, D., Memon, F.A., Makropoulos, C., Southall, A. and Clarke, L. (2010). WaND – Guidance on water cycle management for new developments. C690 CIRIA, London.

URL

https://www.watershare.eu/tool/urban-water-optioneering-tool/

Technologies applied by the product

- **Groundwater systems**
- **Rainwater harvesting systems**
- **Resource for Circular Economy**
- **Surface water and infiltration systems**
- **Urban Waterbuffer**
- **Wastewater treatment technologies for water reuse**
- **Water recovery technologies for water reuse**

Costs

Software is available for research purposes free of charge upon request on a time limited license. For commercial purposes there are commercial agreement options.
Last update: 2022-11-01

Technology Readiness Level

Level 7

Case Studies applying the product

Filton Airfield, United Kingdom

https://mp.watereurope.eu/d/CaseStudy/31

Westland, Netherlands

https://mp.watereurope.eu/d/CaseStudy/12

Flanders, Belgium

https://mp.watereurope.eu/d/CaseStudy/32

East Frisia, Germany

https://mp.watereurope.eu/d/CaseStudy/19

Related tags

sustainability | Water storage and recovery | circularity | climate change | efficiency | energy | innovations | performance | re-use | recycling | sewer mining | water management | wastewater | Water reuse | wastewater treatment technologies | Circular Economy | rainwater harvesting

Downloads

The following files can be downloaded from the online page of the product: https://mp.watereurope.eu/d/product/25

- UWOT overview presentation
  An overview presentation of UWOT tool, introducing the users to its content and role, explaining the way it works and providing results of its application to case studies and insights from past projects.
- UWOT short guide and FAQ
  A short guide on installation and usage along with the most typical issues and their solutions.
- Demo timeseries of UWOT model
  Demo timeseries of fluctuation, occupancy, rainfall and runoff.
- UWOT hands-on training
  A step-by-step guide to create a topology and run a simulation.
- Video - UWOT hands-on training
  Hands-on presentation serving as a step-by-step guide to create a topology and run a simulation using UWOT model.