



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

WATER RESOURCE MANAGEMENT

Moving towards a sustainable management of the different steps of the integrated water cycle.

The University of Bologna is developing technological and management solutions to increase the sustainability of water management.



The research of the University of Bologna covers a wide range of issues:

Drinking water

Water demand modelling; Optimisation of reservoir management and alternative water resources; Leakage reduction and energy efficiency in water distribution.

Wastewater and groundwater

Technologies for energy-efficient wastewater treatment and reuse, including fluid-dynamic analysis of equipment, nature-based solutions, membrane processes for water treatment and desalination, maintenance of water treatment & purification plants; Recovery and bioproduction of chemicals and biofuels from wastewater; Urban green technologies for wastewater valorisation; Bioremediation of aquifers; Geothermal energy production.

Water use in agriculture

Rainfall water collection, reuse and modelling; DSS for agricultural water management; IoT/ICT for precision irrigation; Modelling of salt ingress in agriculture in coastal areas.

Costs, benefits, impacts and risks

Costs/benefits, LCA and water footprint of water management solutions; Drought risk assessment; Water vulnerability analysis; Climate resilience and adaptation; Water policies and tariffs.

HIGHLIGHTS

Over the years the University of Bologna has been involved in national and EU funded **projects**, among them: [AQUAMONEY](#), [WATER4CROPS](#), [MINOTAURUS](#), [ULIXES](#), [FIGARO](#), [MOSES](#), [SWAMP](#), [GST4WATER](#), [AGROWETLANDS II](#), [SWITCH-ON](#), [TRUST](#), [SMART WATERTECH](#), [WATACLIC](#), [CLARA](#), [MADFORWATER](#), [H2020 OPERANDUM](#) - *OPEn-air laboRAtories for Nature baseD solUtions to Manage environmental risks*, **PROSUMER** - Technical and economic feasibility study on industrial symbiosis of the full supply chain of phosphorus with particular reference to food and dairy industrial sectors, EIT Climate-KIC, 2020.

Facilities and infrastructures

Several facilities for a sustainable management of water are available at the University of Bologna, including pilot plants for wastewater treatment, laser and tomographic techniques for equipment optimization, green roofs for rainwater collection and reuse, sediment-transport flumes, DSS and wireless networks for precision irrigation.

Collaborations

The University of Bologna has established an extensive network of collaborations with water authorities, satellite imaging and software companies, water service utilities, companies and NGOs active in the water supply and wastewater treatment sectors.