



Water Enhanced Resource Planning "Where water supply meets demand"



Abstract

WatERP will develop a web-based “**Open Management Platform**” (**OMP**) supported by real-time knowledge on water supply and demand, enabling the entire water supply distribution system to be viewed in an integrated and customized way and preventing integrated water resources management (IWRM) to be fully achieved. **The main purpose of this information interaction and processing will be to improve the matching between water supply and demand.** The inferred knowledge is used for a) Decision Support System (**DSS**) to support coordination of actions throughout the entire water supply distribution chain, prioritization of water uses and distribution efficiency improvements. and b) Demand Management System (**DMS**) to analyze socio-economical



Project description

Water supply involves many actors. While many management tools exist, they cannot intercommunicate and no framework is available for integrating all of them, preventing integrated water resources management (**IWRM**) to be fully achieved. WatERP will develop a web-based Open Management Platform (**OMP**), **integrating intelligent systems through open interfaces and combining agent and SOA architectures with the purpose of enable water supply distribution chains to be managed in a unified and customized way.**

The OMP will provide inferred information on water supplies, flows, consumption, distribution efficiency, and supply and demand within a single framework. It comprises three tools: a) **Data Warehouse**, using semantics and common language, b) **Decision Support**, for coordinating actions, prioritizing water uses, improving distribution efficiency, and saving water, energy and costs, and c) **Demand Management**, supporting socio-economical analyses and policies. Open standards will be used to maximize interoperability and data sharing.



WatERP technologies will be developed under a user-centred participatory design. Nine partners (ES, DE, GR and UK, with a large SME component, a water authority, a water utility and a big water sector companies association) will validate the project outcomes in two different pilots: (1) Ter-Llobregat water supply system (ES) representing water-stressed parts of Europe and (2) Karlsruhe water supply system (DE) representing more water-rich regions.

WatERP enables improved matching of water supply and demand from a holistic point of view, pursuing two objectives: a) **improving coordination among actors** and b) **fostering behavioural change to reduce water and energy consumption**. By enabling a more dynamic and agile interaction among the different actors involved in water supply distribution, the platform improves water governance while maintaining the autonomy and independence of the actors. WatERP will also develop a strong dissemination capability, besides an evaluation of their anticipated cost and benefits and market prospects.



Objectives

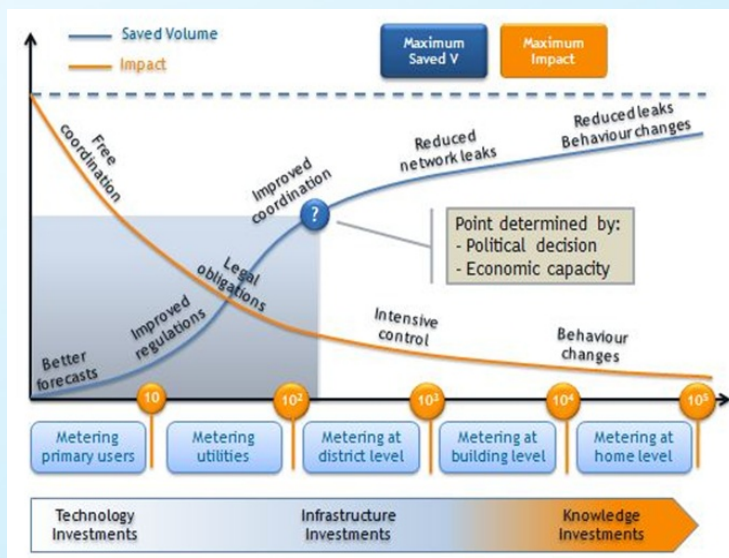
Provide to the users (water utilities and authorities) inferred information regarding water supplies, flows, water consumption patterns, water losses, distribution efficiency, and water supply and demand forecasts, within a **web-based unified framework to improve management of the water supply distribution chain**. This management enhancement will result in:

- **Water savings of up to 8%** in water-scarce areas where water distribution is already efficient, but further it is possible to achieve savings through improved coordination among operators in the upper part of the distribution chain.
- **Energy savings of up to 5%** in areas where water is abundant and water distribution is already efficient but where energy savings could help reduce costs.
- Additional water, energy and costs savings from **increased user awareness and behavioural change**.



Expected Results

- A **standardized Open Management Platform** that will foster water management efficiency improvements utilizing cutting edge ICT technologies that will provide a unified framework for EU water management activities, in line with IWRM.
- Identification of key variables that must be tracked throughout the water supply distribution system to **enable water supply and demand to be matched across the entire water supply network** and in accordance with the new water scarcity, drought and vulnerability indicators being developed by JRC and the EC.
- **Protocols for data collection** to ensure data quality, reliability and consistency, including methodologies to ensure a continuous stream of information in real-time and storage of the necessary historical and metadata records.
- A **generic ontology, taxonomy and water data information model** for water supply distribution systems.
- **Advanced data management tools** for processing and storing consistent, continuous and useable water supply and usage data originating from heterogeneous sources in static, real-time and near-real time.
- A **comprehensive knowledge base on water sources and usage** open to the different actors involved in the water supply distribution chain to



provide accurate, comprehensive and timely hydrologic data to water managers and water users as well as to other stakeholders and general public.

- **Algorithms, procedures and methodologies to discover water availability and distribution datasets and usage consumption patterns**, enable data to be compared to historical values, trends and indicators, analyze the socio-economic driving forces behind water usage (to support policy and water pricing) and to foresee future water shortage and water scarcity events (to enable risk management and planning).



Project Info

Project Acronym: WatERP

Project Title: Water Enhanced Resource Planning. "Where water supply meets demand"

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