

Executive Summary

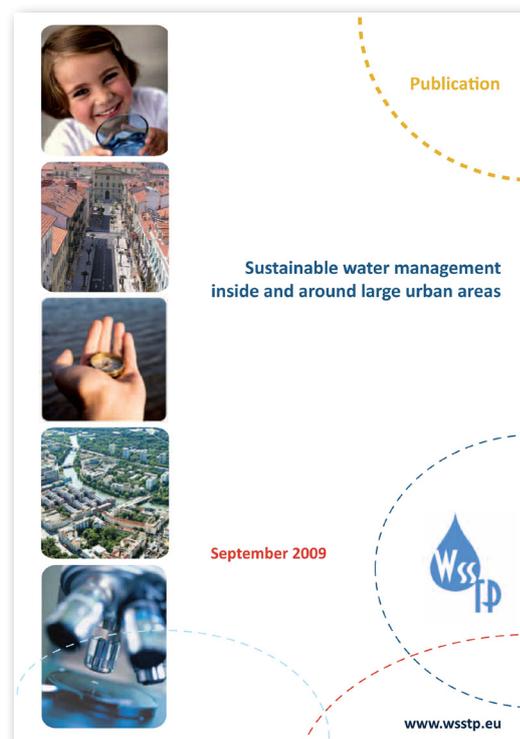
Sustainable Water Management inside around large urban areas Report

METHODOLOGY AND WORKING PROCESS

Urban areas, especially large or densely inhabited ones, raise specific issues with regard to water management. Often, the demand for water in urban areas outstrips the available water resources.

In urban areas, the concentration of water uses and users, often does not correspond to available water resources. This generates pressures on these resources and on the environment: as a result of over abstraction and discharge of treated or non treated point and non point pollution.

The key objectives are therefore the reduction of the ecological footprint of urban areas on water resources, as well as a fair and efficient interdependence and co-ordination with surrounding areas. Management of urban water systems can be complex because of the interaction with the different components of urban-systems and with urban land management. Diagnosis, decision support and management tools need to offer solutions from real time to long term, and to integrate multiple stakes and aspects.



FIVE RESEARCH TOPICS FOR THE FUTURE OF URBAN AREAS

Managing rain events and flooding in urban areas

Fact sheets provided by different utilities/cities formed the basis for the identification of four research proposals:

- Multi-hazard and Multi-Risk Modelling Tools for Integrated Risk Assessment of Urban Flooding and Pollution
- Integrated and Water Quality based Stormwater Management based on Online-monitoring, Ecological Engineering and Cost-effective Technologies
- Integrated Real Time Monitoring/Control of Sewer Systems and Wastewater Treatment Plants combined with Early Warning Systems
- Solving Flooding and Water Quality Problems through Integrated approach and improved Decision Making Tools for Urban Water Management

Asset management for sustainable urban water

The result of the further analysis was the identification of three main topics; each one branched in the asset management themes, as listed below:

- Technologies for Advanced Asset Management

A Common Vision for Water Research and Innovation

- Decision Methodologies and DSS components for Advanced Asset Management Contribution for development of a “Sustainable SIM City 2030”
- Building a Common Market for the New Tools

Supply demand balance & public participation

The result of the further analysis was the identification of five main topics:

- Developing tool & methodologies to manage risk associated to security of supply and level of service
- Improving customer perception & involvement to facilitate efficient use of water
- Understanding & managing demand of domestic, commercial, industrial and institutional water use
- Developing new environmental footprint indicators of urban water uses to facilitate public participation
- Improving water use efficiency through the use of advanced metering technologies

Alternative water resources

Among the possible alternative water resources, the following four key topics were identified for detailed analysis:

- Desalination (saline and brackish water)
- Water reuse (including grey water and ecosanitation)
- Rainwater harvesting management (RWHM)
- Managed aquifer recharge (MAR)

Sustainable sludge management in urban areas

The following key topics were identified for detailed analysis:

- Energy Recovery from Sludge: Eco-innovation for Sustainability & Competitiveness
- Sustainable Sludge Management: From Waste Management to Commodity Management as a Support to the New Community “Energy, Technology and Climate Change” Goals

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