Marketing and dissemination of PREPARED deliverables

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COLOPHON

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PU = Public

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1 Overview

After 4 years, PREPARED Enabling Change comes to an end. One way to ensure that the results, recommendation and outcomes from the project are disseminated, a PREPARED publication ("Climate Change, Water Supply and Sanitation: Risk Assessment, Management, Mitigation and Reduction") is being developed to provide access to a global audience (scientific research community, end-users, high-level decision makers, etc.) on PREPARED outputs and further encourage the adoption of a framework and methodologies to inspire change and transition in managing water supply and sanitation systems in a time of climate change related challenges.

The PREPARED project confirms and demonstrates the technological preparedness of water supply and sanitation systems of 12 cities in Europe and also Melbourne and Seattle to adapt to the expected impacts of climate change. It shows that the water supply and sanitation systems of cities and their catchments can adapt and be resilient to the challenges of climate change; and that the technological, managerial and policy adaptation of these PREPARED cities can be cost effective, carbon efficient and exportable to other urban areas within Europe and the rest of the world.

The book:

- Addresses issues related to the management of water, waste water and storm water that are impacted by climate change both in quantitative and qualitative aspects.
- Addresses many of the Pan-European problems and optimises, tests and implements adaptive solutions that contribute towards an integrated and coordinated approach.
- Develops adaptation strategies, considering and weighting the mitigation side of solutions to minimise our carbon- and water footprint.
- Improves resilience to deal with the impact of climate change.
- Contributes to the development of the knowledge base where it concerns the water supply and sanitation sector.

2 How is the book being produced

The publication is a consolidated book with chapters on research and science outcomes interspersed with supporting information on demonstrations and practical application. The two editorial teams were formed for reviewing and quality control of the books. The publication of the book is being coordinated by the commissioning editor from IWA Publishing, Maggie Smith.

3 Outline and brief explanation

1. General introduction to the PREPARED Enabling Change Project (PMT)
Provides an overview of climate change related challenges in the water sector across Europe and from a wider perspective, illustrating the need for a new approach to manage the climate change induced risks on the water sector (water supply and sanitation) in order to achieve or push towards water sensitive cities. Essentially this chapter introduces the project and the rationale behind PREPARED.

2. Chapter on risk assessment, management, mitigation and reduction
Climate change will challenge current water supply and sanitation systems, creating risks for the society (including public health), the environment and the economy. Risk/based approaches are an essential aspect for identifying and applying cost effective adaptation measures. The technological and managerial response opportunities identified in PREPARED are intended to be developed in the context of environmental, social and economic perspectives. The actually needed technological solutions required depend on how much climate change is going to affect the infrastructure; this is quite uncertain.

The chapter provides an overview of the risk assessment/risk management tool (using the innovative concept "Water Cycle Safety Plans) to allow for appropriate identification of the priority of short and long term initiatives for mitigation and reduction of challenges to water supply and sanitation due to climate change.

3. Chapter on RT monitoring and modelling, RTC and EW
PREPARED has helped increase the technological capacity and performance of traditional water supply and sanitation systems through better use of sensors and models. It improves on current limitations and enhances the capability of existing measuring and forecasting technologies, as well as new monitoring, modelling and control systems integration and overall on-line optimisation. A toolbox and the demonstration of its components was developed, contributing to the increase in technological capacity and performance of traditional water supply and sanitation systems, which strongly supports the development of the adaptive solutions.

Furthermore, the expected increase of the frequency and severity of extreme events will lead to a more rapidly changing input (quantity and quality) to the water supply and sanitation infrastructure and consequently also affect the outputs to the receiving waters. This chapter also addresses improved real-time control to make optimal use of existing infrastructures, resulting in postponement of investments in new infrastructure. Adaptation and higher efficiency can be obtained through the development of new integrated Real-time Control strategies and Early Warning/Decision Support Systems. Adaptation of existing systems, to this new working regime requires faster responding and more efficient operation to better meet challenging water supply and sanitation requirements.

4. Chapter on planning for resilient water supply and sanitation systems
Climate change presents serious challenges to the wastewater systems. This chapter focuses on how the urban wastewater system can be better designed and operated to reduce the risk of water quality failure all within the context of increasing uncertainty associated with climate change. Methodologies and tools are identified which propose new planning and management strategies to optimise design and operation of wastewater treatment systems.

5. Chapter on Enabling Change
The chapter facilitates the implementation of new adaptive approaches at the utilities through the creation of an environment that enables change and transition. Tools and the knowledge and learning material for all stakeholders to be able to acquire the capacity to manage water supply and sanitation systems using an adaptive approach are discussed. This allows for the exploration of new paradigm that accepts uncertainty and redundancy and embraces a wider range of technologies and other responses to climate change.

6. Chapter on practical implementation and demonstration (work title)
Chapter 6 provides examples of practical implementation and demonstration to promote climate change adaptation for water supply and sanitation systems. The Chapter refers back to issues addressed earlier, the challenges, the catalogue of adaptation measures, the cost and benefit measures, etc.

The chapter address the following, to illustrate the capacity to mitigate and adapt to manage the challenges brought about by climate change:

- Demonstration of a Decision Support System for planning complex urban water systems for regions under water stress in Barcelona
- Demonstration of a conceptual scheme of catchment and conservation of water from high flow events in Barcelona
- Demonstration of a conceptual scheme for rainwater harvesting and grey water management as alternative resource for regions under water stress in Istanbul
- Demonstration of a Decision Support System for the competing uses of source water incl. protection of water intakes in Genoa
- Demonstration of a system for distributed real time disinfection control in Lisbon
- Demonstration and test of the efficiency of remedial actions to prevent adverse effects of regrowth in networks at higher temperatures in Oslo
- Demonstration of a system for early warning of deteriorating water quality in distribution networks in Eindhoven
- Demonstration of methodologies for urban runoff risk assessment in Barcelona
- Demonstration of a planning instrument for an integrated and recipient/impact based CSO control under conditions of climate change in Berlin
- Demonstration of an integrated real time control of sanitation systems incl. early warning for Water quality in receiving waters in Aarhus
- Demonstration of an integrated real time control of sanitation systems incl. early warning for Water quality in receiving waters in Oslo
- Demonstration of a system for early warning of health risks from faecal contamination in recreational waters in Lisbon
- Demonstration of a software tool on the sensors calibration and verification and the evaluation of uncertainties in Lyon
- Demonstration of models and knowledge for operation and maintenance of wastewater networks exposed to rapid changes in flow in Oslo
- Demonstration of enhanced real-time measuring and forecasting technologies for combined sewer system in Gliwice