

# ADAPTING URBAN WATER SYSTEMS TO CLIMATE CHANGE

## Introduction

This handbook on adaptation of urban water systems to climate change is an initiative of the SWITCH project<sup>1</sup> and the result of a collaboration between ICLEI – Local Governments for Sustainability, the International Water Association (IWA) and the UNESCO-IHE Institute for Water Education. It draws on the research and findings from the SWITCH<sup>1</sup> and PREPARED<sup>2</sup> EU Framework Programme projects. This handbook is a "living" document that is envisaged to be updated yearly with new information and experiences and is complemented by a website with additional information ([www.adaptationhandbook.org](http://www.adaptationhandbook.org)).

## An adaptation handbook for cities



Adaptation to

climate change is the subject of increasing interest and research efforts.

As a result, large amounts of information, studies and reports are available about topics such as climate projections, vulnerability assessment or practical adaptation options. However, there is a lack of guidance for decision makers at the local level who wish to proactively prepare for and adapt to climate change. Missing is also single ‘home’ for this information.

Building upon the wealth of knowledge within ICLEI, IWA and UNESCO-IHE as well as the vast quantity of information that has been or will be assembled during the SWITCH and PREPARED projects, this handbook – and its accompanying web pages – aims to be that home. The handbook will provide local governments and utilities with up-to-date information as well as access to resources and good practice examples. This will enable them to increase their awareness of how the potential impacts of climate change will affect their urban water systems and to build their capacity to develop a long-term strategy for adaptation in the water sector.

Climate change will disproportionately affect cities since these concentrate populations and economic activity and are mostly located in climate-sensitive areas such as floodplains and coastal zones. The urban water system – which includes water supply, wastewater and stormwater – is particularly at risk because climate change will mainly manifest itself through alterations in the water cycle.

More variability and the increased occurrence of extreme weather events are predicted with a reasonable amount of confidence, in spite of some uncertainty. Some of these changes are already happening, and require cities to take urgent action.

‘SWITCH – Managing Water for the City of the Future’ was an action research project, implemented and co-funded by the European Union and a cross-disciplinary team of 33 partners from 15 countries around the world. The project ran from 2006 to 2011, and its aim was to bring about a paradigm shift in urban water management away from existing ad hoc solutions towards a more coherent and integrated approach.

‘PREPARED Enabling Change’ is a project running from 2010 to 2014 that will work with a number of urban utilities in Europe and worldwide to develop advanced strategies to meet anticipated challenges in the water supply and sanitation sectors brought about by climate change.

Luckily, it is possible for cities to increase their ability to adapt to climate change while at the same time increasing their overall sustainability and quality of life. This handbook illustrates some of the options that are available to make this happen.

The handbook does not aim to cover all aspects relating to adaptation or to present a complete picture of the origins and consequences of climate change, but rather aims to distil the most relevant aspects for urban water management. For example, the handbook details the main anticipated impacts of projected climatic variations on urban water systems and services, but does not go into scientific explanations about the causes of climate change.

For this and other topics, the necessary background information is readily available if needed – some links are provided on the handbook’s website.

## **Target audience**

This handbook is aimed at local governments and utilities in cities of all sizes in both developed and developing countries. Certainly, much of its content has been drawn from the experiences of larger developed country cities, due to their greater familiarity with adaptation planning and implementation. However, the methods and concepts laid out in this handbook are applicable at all scales and levels of economic development, since adaptation is not merely a matter of available finances but also of knowledge and sound planning. A lot can also be achieved through the accumulation of individual adaptive actions.

The handbook will be most useful for mid-level managers and strategic planners within utilities or relevant local government departments who are responsible for taking decisions in the area of urban water management. Indeed, such managers and planners possess the necessary background both to understand the wider implications of climate change and to grasp the practical realities of adapting to it, and are thus able to initiate real change but also to wield influence at the political level.

Source:

<http://www.iwawaterwiki.org/xwiki/bin/view/Articles/Adaptingurbanwatersystemstoclimatechange>