



Preface: Innovative Water Resources Management in a Changing Environment – Understanding and Balancing Interactions between Humankind and Nature

Zongxue Xu^{1,2}, Dingzhi Peng^{1,2}, Wenchao Sun^{1,2}, Bo Pang^{1,2}, Depeng Zuo^{1,2}, Andreas Schumann³, and Yangbo Chen⁴

¹College of Water Sciences, Beijing Normal University, Beijing, China

²Beijing Key Laboratory of Urban Hydrological Cycle and Sponge City Technology, Beijing, China

³Institute for Hydrology, Water Management and Environmental Technology,
Ruhr-University Bochum, 44780 Bochum, Germany

⁴Department of Water Resources and Environment, Sun Yat-Sen University, Guangzhou 510275, China

Correspondence: Zongxue Xu (zongxuexu@vip.sina.com)

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The 8th International Symposium on Integrated Water Resources Management (IWRM2018) brings together experts and scholars from nearly 30 countries and regions to present their researches, and discuss related issues of innovative water resources management. This symposium, part of the series of International Symposium on Integrated Water Resources Management (IWRM) organized by International Commission on Water Resources Systems (ICWRS) of IAHS (International Association of Hydrological Sciences), is focused on the innovative and integrated management of water resources.

During the past hundreds of years, various kinds of water resources systems have been developed to support efficient uses of water resources for humankind worldwide. Such kinds of systems were mainly used to provide humankind with clean water for irrigation, industry and domestic uses. The history of water resources systems is part of the history of humankind itself. The development of water resources systems needs a careful analysis on water demands and environmental impact. Unfortunately, consideration on the water needs for nature is not enough for many water resources systems. This fact has resulted in the deterioration of water quality and even degradation of ecosystem in many river basins. Due to the rapid development of economics and society worldwide, present challenges for water resources systems are mostly unprecedented. A new effort to devise innovative technologies and solutions for present water problems should be paid much attention by research community in-

cluding IAHS. These challenges for water resources systems highlight that the adaptation to the changing environment is an essential field of research, which is also involved in the Panta Rhei Scientific Decade (2013–2022) of IAHS. Efficient adaptation requires gaining a forward vision on future water demands and water availability. A deep understanding of the two-way interaction between nature and humankind is needed to develop such vision.

This volume is the outcome of the 8th International Symposium on Water Resources Management of ICWRS, held at Beijing Normal University in Beijing China, on 13–15 June, 2018. Beijing Normal University, Beijing Key Laboratory of Urban Hydrological Cycle and Sponge City Technology, ICWRS of IAHS and Chinese National Committee for IAHS, jointly organized the symposium. More than 100 participants from Australia, Canada, China, France, Germany, Japan, USA, UK, and so on 30 countries and regions, assembled in Beijing. Fanghua Hao (Vice President of Beijing Normal University), Zhiyu Liu (Secretary-General, Chinese National Committee for IAHS) and Andreas Schumann (President of IAHS-ICWRS), delivered welcome speeches on behalf of Beijing Normal University, Chinese National Committee for IAHS and IAHS-ICWRS, respectively. Zongxue Xu, Vice President of IAHS-ICWRS, Chairman of Organizing Committee, chaired the opening ceremony.

Changming Liu, Kinzelbach Wolfgang, Kuniyoshi Takeuchi (former President of IAHS), Dan Rosbjerg, Jun Xia (former Vice-President of IAHS), Andreas Schumann

(President of IAHS-ICWRS), gave the Loucks lectures and keynote speeches on 13 June, respectively. In the afternoon of 13 June, on 14 June and in the morning of 15 June, there are three parallel sessions held in three meeting rooms, including the following themes:

- Water resources management under changing environment
- Socio-hydrology as the basis of water resources management
- Assessment of available water resources at regional and basin scales

During the preparation of the symposia, the secretariat received more than 140 abstracts. The Organizing Committee of IWRM 2018 reviewed all the submitted papers, and finally accepted 60 papers. The editors would like to thank all anonymous reviewers and Katrin Krüger at Copernicus for the production of this volume.