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Volume 86

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Comments or suggestions for future volumes are welcomed.

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Martina Zelenakova  
Editor

# Water Management and the Environment: Case Studies

 Springer

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# Preface

Water is a fundamental natural resource. It is a vital component of the natural environment, but it is also a basic prerequisite for all human economic and social activities in general. Water is a form of wealth which requires protection; its usage needs to be regulated, and its supply needs to be regenerated. Water may be continuously renewed in nature, but only on the precondition that the fundamental principles of its protection are respected. Everybody carrying out some activity which may affect the state and relations of surface and underground waters has the obligation to make all necessary efforts for their preservation and protection (Fig. 1).

The first step towards effective protection of water resources is to know their size and distribution, but also their quality. Systematic investigation and evaluation of the occurrence and condition of surface and underground waters within the European countries as well as worldwide is a basic responsibility of the state, as an indispensable requirement for ensuring the preconditions for permanently sustainable development as well as for maintaining standards of public administration and information. Sustainable development of water management is based on the principle that water as a natural resource may be utilized only to that extent which

**Fig. 1** Water in the environment (*Photo Fialová*)



ensures future generations sufficient usable supplies of water in the seas, rivers, lakes and reservoirs, and that reserves contained in porous environments below the surface of the land remain preserved in the same quantity and quality. It is evident that surface waters are more vulnerable than those underground in terms of their hygienic quality and safety, but also of their protection as a natural ecosystem and maintenance of their amounts. They are an important medium regarding the transport, decomposition and accumulation of pollutants, whether of natural or anthropogenic origin, which in excessive amounts represent considerable risks for all kinds of living organisms, thus also for human beings. For this reason, it is necessary to devote all the more attention to the protection of water sources. The basic requirement in this context is to optimize their monitoring, the assessment of their quality and the implementation of necessary environmental measures.

The essence of protection of the environment in general and the water environment in particular lies in establishing a system enabling acceptable development of anthropogenic activity while preserving the quality of the environment, natural resources, ecosystems and health. Application of a process of evaluation of environmental risks in the conditions of water-flow catchment areas has now become indispensable. It is necessary to engage in environmental risk assessment in response to highly-intensive anthropogenic activity in river basins. This consists primarily in agricultural and industrial production and the associated building and operating of production plants, forestry management, waste disposal solutions, infrastructure development, as well as water management installations.

The benefit of this book lies in bringing together scientists, researchers, academics and lecturers in the field of water management to share experiences and successes in addressing water management. It deals with a wide variety of water resource management issues from water quality to water quantity, considering all impacts of water management on the environment. The book presents international approaches to utilizing the latest developments in both the theoretical basis and the applicability of state-of-the-art knowledge which can be effectively used for resolving a variety of pressing problems in integrated water resource management. The main problems focused on in the book are water pollution, whether physical, chemical or biological, and hydrology issues including limnology projects considered also from the geographical and human point of view.

The editors would like to thank the authors for their constructive contributions and the publisher for providing the opportunity for this edition.

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Košice, Slovakia  
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Martina Zelenakova

# Contents

## Part I Water and Landscape

- 1 **Possible Use of Water Areas by Disabled People** . . . . . 3  
Pavla Kotásková, Jitka Fialová, Mariana Jakubisová,  
Miloslav Šlezinger and Pavlína Procházková
- 2 **Construction of Hydrotechnical Structures in Terms of Rational  
Management of Mineral Resources** . . . . . 29  
Slávka Gałaš and Andrzej Gałaš
- 3 **The Impact of Rainwater Harvesting System Location  
on Their Financial Efficiency: A Case Study in Poland** . . . . . 43  
Agnieszka Stec and Daniel Słyś
- 4 **Participatory Management for Rainwater Harvesting  
in Patan, Nepal** . . . . . 65  
Zuzana Boukalová, Jan Těšitel, Binod Das Gurung  
and Daniel Kahuda
- 5 **Geomorphologic Hazard in Romania. Typology  
and Areal Distribution** . . . . . 85  
Florina Grecu

## Part II Climate Change: Floods and Droughts

- 6 **Backwater Floods—Case Studies with Punctual and Extremely  
Rare Manifestation on the Romanian Territory. A Review** . . . . . 103  
Gheorghe Romanescu

- 7 Winter Phenomena (Ice Jam) on Rivers from the Romanian Upper Tisa Watershed in 2006–2017 Winter Season** . . . . . 125  
Daniel Sabău, Gheorghe Șerban, Istvan Kocsis, Petrică Stroi  
and Răzvan Stroi
- 8 Relation Between Air Temperature and Inland Surface Water Temperature During Climate Change (1961–2014): Case Study of the Polish Lowland** . . . . . 175  
Włodzimierz Marszelewski and Bożena Pius
- 9 Overview of River-Induced Hazards in Romania: Impacts and Management** . . . . . 197  
Liliana Zaharia and Gabriela Ioana-Toroimac

### **Part III Polluted Water in Urban Areas**

- 10 Contributors to Faecal Water Contamination in Urban Environments** . . . . . 215  
Lisa Paruch and Adam M. Paruch
- 11 Occurrence and Removal of Emerging Micropollutants from Urban Wastewater** . . . . . 231  
Petr Hlavínek and Adéla Žižlavská
- 12 Water and Aquatic Fauna on Drugs: What are the Impacts of Pharmaceutical Pollution?** . . . . . 255  
Piotr Klimaszyk and Piotr Rzymiski
- 13 Constructed Wetlands and Groundwater Infiltration Treating Industrial Wastewater, Treatment Efficiency, and Pollution Tracing** . . . . . 279  
Ketil Haarstad



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