

River Basin Management III

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Published by

WIT Press

Ashurst Lodge, Ashurst, Southampton, SO40 7AA, UK

Tel: 44 (0) 238 029 3223; Fax: 44 (0) 238 029 2853

E-Mail: witpress@witpress.com

<http://www.witpress.com>

For USA, Canada and Mexico

Computational Mechanics Inc

25 Bridge Street, Billerica, MA 01821, USA

Tel: 978 667 5841; Fax: 978 667 7582

E-Mail: infousa@witpress.com

<http://www.witpress.com>

British Library Cataloguing-in-Publication Data

A Catalogue record for this book is available
from the British Library

ISBN: 1-84564-023-3

ISSN: 1746-448X (print)

ISSN: 1743-3541 (on-line)

*The texts of the papers in this volume were set
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Preface

This volume contains the edited version of the selected papers presented at the Third International Conference on River Basin Management held at Bologna, Italy, in September 2005.

The book addresses recent advances in the overall management of riverine systems, including advances in hydraulics and hydrology, water quality modelling, sediment transport, flood forecasting, environmental protection and information systems.

The dynamics of the inter-relationship between the various elements that constitute a hydrographic basin involve cause-effect relationships that can lead to constant alterations in fluvial dynamics. The combination of elements such as morphology, altimetry and structural controls in a fluvial network enables a specific longitudinal profile to develop which is dynamic and constantly in search of an equilibrium between the rates of water discharge, erosion and the transport and deposition of sediment. Human activities carried out on a stretch of a river may alter this balance in different ways and with differing levels of intensity.

Recent changes in water systems are the result of use and practices that have been carried out without due care being taken to provide suitable management of the natural resources.

The deterioration of the soils, alteration of the structure and functionality of the landscape, extraction of inert materials, building of hydraulic infrastructures, discharge of untreated urban and industrial effluents and unregulated hunting and fishing activities are all associated with a reduction in the quality of life of local populations that forces us to think about the future in a different way. Arguments are put forward for development based on the relationship between people and nature, linking activities orientated towards economic dynamism with improvements in the quality of life of local populations, participation in political decision-making, a concern for the future and preservation of the natural environment.

All this demands a concentrated effort to create public awareness of the issue of water, and a strengthening of the collective bodies for managing hydrographic basins and user organisations, together with investment in development and the transfer of knowledge and technology towards better use and conservation of environmental resources.

Efficient management of water resources necessarily includes measures to strengthen institutions, support for citizen participation and the development and transfer of technology for this purpose.

Water resource information systems bring together information on quality, quantity, availability and demand for water, as well as those factors – natural or resulting from human actions – that affect its use. They should be based on, and remain accessible through, a reliable database that is scientifically and technically sound. They should also be dynamic systems which, on the one hand, incorporate information generated by the integrated management system and, on the other hand, supply the information needed to define projects, activities and intervention in basin areas.

It should also be recognised that social participation is the most effective means of selecting the best path to follow in terms of conserving natural resources and guaranteeing their rational and democratic use. In order for this to happen, it is necessary for the social actors and agents in public office to be aware of the role that each one has to play. Guaranteeing and exercising social participation are difficult tasks that demand adequate mechanisms to ensure that: *i*) water management is orientated towards collectively established guidelines and goals and that *ii*) projects based on user and community needs and priorities are economically efficient, socially effective and do not damage the environment.

The editors are grateful to all the authors for their excellent contributions, as well as to the members of the International Scientific Advisory Committee for their help in reviewing the abstracts and final papers thus ensuring the quality of the book.

The Editors
Bologna, 2005

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