



# River Basin Management in the Twenty-first Century

## Understanding People and Place

Editors: Victor R. Squires • Hugh M. Milner  
Katherine A. Daniell



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## Understanding People and Place

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# **River Basin Management in the Twenty-first Century**

**Understanding People and Place**

# Scope and Purpose

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## Scope and Purpose

The book is written by leading authorities on the current and latent issues relating to river basin management (RBM) and brings to the reader an up to date analysis and provides a window into this important subject. A key aspect of the work is that of achieving *balance*. Technical approaches can address some issues such as hydropower generation, flood mitigation, provision of water for irrigated agriculture to feed burgeoning populations, recreation and navigation, etc. but balancing these is the negotiated outcome of social processes. Ultimately it is these social processes that are the hard part, and often the stumbling block, for improving RBM.

This book is divided into four Parts.

## PART 1 IWRM—Principles and Practices

Integrated Water Resources Management (IWRM) is seen by many as the way forward towards food, water, and energy security. It ideally offers a way and means to better manage water across a territory; managing demand and using limited water more efficiently; adopting new policies in order to cope with climate change and variability, including flood and drought events; increasing water supply through the use of non conventional water resources, especially waste water; adopting approaches of stakeholder participation and information exchange; and raising public awareness of the value of water.

This Part comprises 6 chapters detailing experience with IWRM formulation, transfer, adaptation and implementation in both developed and developing countries. It draws on the rich experience of water management practitioners and puts into sharp focus the strengths and limitations of the IWRM approach. *Mukhtarov and Cherp* take a global perspective. *Maurel et al.*, provide insights into how IWRM can be merged with territorial development to better account for people and place in river basin management. *Mitchell* focuses on experiences from Canada while *Ffolliott and Brooks* give a synoptic overview of experience from USA. The little known situation in China's arid north west, where inland rivers

predominate, is outlined by *Li and Squires* in their study on the Shule River basin in north-west China, and *Marr and Raut* examine issues and experiences in working with local farmers in India.

## **PART 2 Transboundary River Management and Politics**

No problem is so vexed as how to manage rivers that pass through several jurisdictions, especially international transboundary rivers. It has been predicted that access to water will create conflict between countries, even if initial conflict eventually leads to heightened cooperation. In Africa, central Asia, west Asia and the Americas, some countries are already arguing fiercely over access to rivers and inland seas, and confrontations could arise as water shortages grow. Countries currently or potentially involved in international disputes over access to river water and aquifers include: Turkey, Syria and Iraq (the Tigris and Euphrates Rivers); Israel, Jordan, Syria and Palestine (the Jordan River and the aquifers of the Golan Heights); India and Pakistan (the Punjab Rivers); India and Bangladesh (the Ganges and Brahmaputra Rivers); China and South-East Asian countries (the Mekong River); Tajikistan, Kyrgyzstan and Uzbekistan (the Amu Darya and Syr Darya Rivers); Ethiopia, Sudan and East African riparian countries, including Kenya, Tanzania, Rwanda, Burundi, Uganda and Egypt (the Nile River) and Iran and Turkmenistan over the Atrek River and Caspian sea.

The 4 chapters here draw on examples from many countries. *Hassenforder and Noury* examine 8 case studies on transboundary water management projects drawn from their work in 4 continents, *Kibaroglu and Ahmetova* address the real life issues in the Tigris-Euphrates river basin, *Sullivan* deals with the largest river in Southern Africa that rises in Lesotho, flows across south Africa and enters the Atlantic ocean via Namibia. Water management policy and practice in the Nile River system receives scrutiny from *Thuo and Riddell*.

## **PART 3 Water Management Policy, Politics and Economics**

Water, especially freshwater, is such a vital resource. Policies and projects focused on freshwater ecosystem alterations have been carried out through much of modern history, with the intensity of modifications increasing in the early to mid-1900s. Common waterway modifications, such as the construction of dams and irrigation channels, inter-basin connections and water transfers, can impact on the hydrology of freshwater systems, disconnect rivers from floodplains and wetlands, and decrease water velocity in riverine systems. This, in turn, can affect the seasonal flow and

sediment transport of rivers downstream, impacting on fish migrations and changing the composition of riparian ecosystems. All of these issues require a balanced approach to their resolution. Legislation, policy formulation and the role of socio-economic forces are all part of the complex matrix that represents modern day responses to increasing demand for water and its dwindling supply relative to global population.

The five chapters examine aspects of the responses of societies concerned about ensuring a continuing supply of freshwater to service the needs of agriculture, industry, domestic use and the environment. *Du et al.*, use the Yellow River Commission in China as a case study of how a large but mainly arid country supporting the world's largest human population has legislated to manage and allocate water from one of the world's longest rivers, *Loch et al.*, elaborate on the issues and conflicts involved in managing Australia's largest river system that services water users in five separate jurisdictions. *Xu et al.*, present an analysis of how China has tackled the management of a large inland river basin in an arid part of north-west China, and *Krutov et al.*, summarize the present situation in the Aral Sea basin and examine the role of the Republic of Tajikistan in the Inter-state Aral sea commission. *Kingsford et al.*, analyze the issues in the Lake Eyre basin in central Australia.

## PART 4 People and Place

The successful implementation of river basin management, integrated or not, depends on how the local stakeholders (urban, rural, industrial, environmental, etc.) behave in relation to water. It depends on their perceptions of the role of the water. Place is paramount because inevitably those upstream will have different priorities from those downstream in a river basin. Agriculture, collectively the world's biggest user of freshwater, lays claim to vast quantities of water to produce food for the world's burgeoning population. Increasing awareness of impending water shortages (at crisis point in some countries or regions) and the concern about ecosystems invariably lead to a clash of opinions over water allocation priorities. Some of these issues are dealt with in this Part of 5 chapters. *Squires* looks at the pivotal role of people and the importance of place. The national water policies in Nepal are outlined and assessed by *Pradhan et al.*, while *Wenger* looks at the consequences of devastating floods, often exacerbated by human interference with rivers, and the lessons drawn from experiences on four continents. *Plant et al.*, then investigate the importance of information and communication arrangements for people working together across the Thau water territory in France. Finally *Daniell, Milner and Squires* provide an overview of a number of key issues raised in this book.

There are no quick or easy solutions to the complex land and water problems faced by many countries. If this book can help in the process of advancing better RBM, we will feel truly rewarded.

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