

## books

### Urban sanitation – a guide to strategic planning

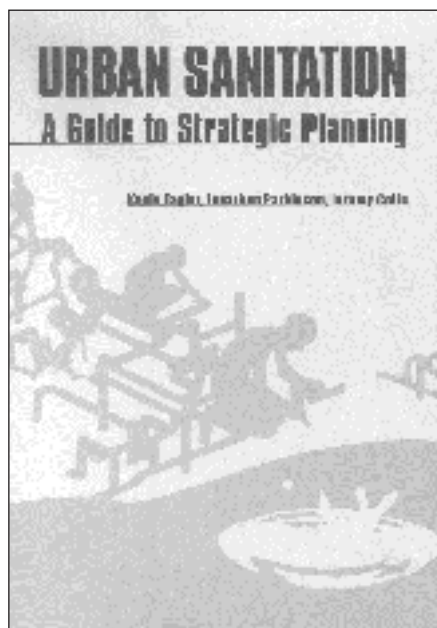
Kevin Tayler, Jonathan Parkinson, Jeremy Colin, 2003, ITDG Publishing, 256pp, ISBN 1853395587, £19.95

The international development target to reduce the number of people without adequate sanitation is challenging; however, there has been very little written about providing sanitation on a large scale. This book starts to fill that gap.

Using the concepts of the strategic sanitation approach, the authors provide practical examples and guidance on developing a flexible strategy made up of lots of small incremental steps, as opposed to a 'master plan' that assumes the planners not only know everything about the present situation but are also able to predict the future.

The subject is complex and wide ranging, involving a variety of skills such as financial analysis, social mobilization and making maps, so the reader has to be familiar with the basic concepts of management, planning, engineering and socio-economic development. A series of appendices, however, provide a useful introduction to specific aspects of sanitation provision.

The authors recognize that each situation is unique and strict recommendations are not appropriate, but rather than just give general and non-specific guidance, they use a series of useful examples to illustrate the process. These examples are mostly from South Asia, but there is



also information from other parts of the world. Occasionally the general guidance does get a bit prescriptive (for example, specifying the duration of a workshop) but usually the balance between detailed practical information and theoretical approaches is achieved.

Just when the information appears to be overwhelmingly intricate and you are getting lost in the maze of parallel activities and confused by the iterative process that investigates, learns, pilots, measures and repeats itself but with a narrower focus, the authors provide a list of key points made in each chapter, allowing the reader to return at intervals and see the whole picture emerging.

Do not expect this book to give you all the answers you need to plan for sanitation, but do expect it to raise a few questions you have not yet thought about.

*Brian Reed*

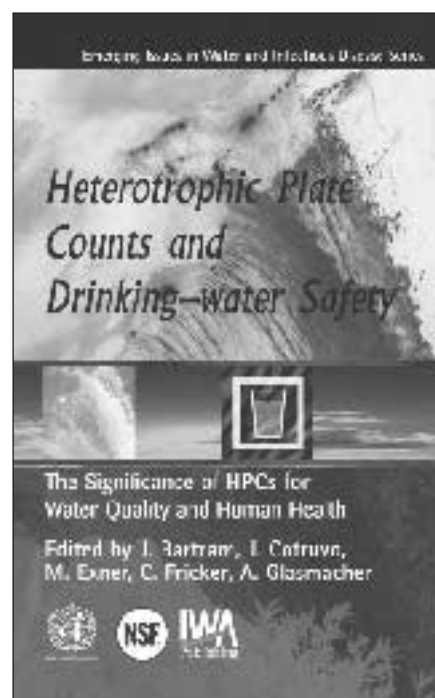
*Assistant Programme Manager, WEDC*

### Heterotrophic Plate Counts and Drinking-Water Safety: the significance of HPCs for water quality and human health

Edited by J. Bartram, J. Cotruvo, M. Exner, C. Fricker and A. Glasmacher, 2003, IWA Publishing (on behalf of WHO), London, 256pp, hardback: ISBN: 1 84339 025 6 (IWA Members' price: £37.50, Non-members' price: £50.00)

This book is part of the WHO/IWA series: Emerging issues in water and infectious disease. It comes out of a symposium held in Geneva in 2002 and a follow-on expert consultation. The book is authoritative on an interesting subject and provides an excellent discussion of the important issues relating to the use of HPCs in water supply. However, it is also perhaps true to say that given limited development of effective water-quality monitoring and control in developing countries and the continuing low rates of access at higher service levels, a discussion on the importance of HPCs is more relevant to developed countries than to water supply management in developing countries.

I suspect many readers of *Waterlines* will not be familiar with HPC analyses. These are a range of methods to analyse the numbers of heterotrophic bacteria (those that need organic carbon for growth). The use of HPC tests in water supplies dates back to the very beginning of sanitary microbiology in the late nineteenth century with the pioneering work by Robert Koch that formed the basis of the first microbiological standards. Many



developed countries retain HPC standards or guidelines; however, the identification of more specific faecal indicator bacteria, most notably *E.coli*, has meant that the use of HPC tests has declined.

The book examines the role of HPC tests in relation to water safety. This book shows that HPCs have limited relevance to the safety of a normal drinking-water supply, although some HPC bacteria are of potential health significance to immuno-compromised groups, particularly those in hospital settings.

HPC bacteria are commonly associated with regrowth and biofilm in piped systems and therefore their control can be an important strategy in overall water quality and supply management. However, as Paul Hunter concludes in chapter 7 of the book, there are many other more pressing public health concerns from drinking-water supply and therefore resolving the uncertain relationships between HPC bacteria and health effects does not warrant intensive public health action. That said,

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the first chapter of the book does highlight a number of interesting research questions, but again probably of greater relevance to developed countries.

HPC tests are useful in assessing treatment processes (of sand filtration in particular) and therefore are a useful tool in evaluating treatment performance. They also have value in identifying abrupt changes in water quality within distribution systems and as a marker for further investigation. In the new *WHO Guidelines for Drinking-Water Quality* (WHO, 2004), an emphasis is placed on risk assessment and risk management through the use of water safety plans. When applying the new Guidelines, HPCs may retain a role, but only as a means of validating or verifying performance and not as an operational tool for water safety management.

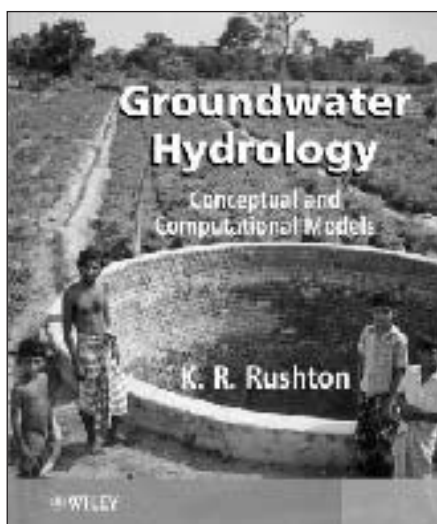
Although excellent, I suspect that this book will primarily be of interest to microbiologists and particularly those working in countries where the quality of water supplied through public water systems is generally of high quality. It is likely to be of less interest to the general reader involved in providing water and sanitation services in poor communities in rural and urban areas of developing countries.

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## Groundwater Hydrology – conceptual and computation models

Ken Rushton, 2003, John Wiley and Sons (Chichester), 416 pp hardback, ISBN 0 470 85004 3, £60 (€90)

Ken Rushton, Emeritus Professor of Civil Engineering at the University of Birmingham, UK, has produced an invaluable reference for practising hydrogeologists



and civil engineers engaged in aquifer assessment and management. A key strength of the text, highlighted in the title, is the strong emphasis placed upon developing a coherent, conceptual understanding of groundwater flow before racing – as is all too common – to the selection and application of a computational (i.e., computer) model of groundwater flow.

The author highlights the importance of this process throughout the book, using practical case studies that draw extensively from the author's own experiences in a variety of hydrogeological environments both in the UK and at lower latitudes (e.g., Indian subcontinent, Nigeria, Mexico, Saudi Arabia).

Although the first part of the text (chapters 1 to 4) provides a useful review of the basic principles of groundwater flow, this is an advanced text with descriptions of groundwater flow that move beyond more accessible but elementary texts such as *Introducing Groundwater* (Price, 1996) and classic texts such as *Groundwater* (Freeze and Cherry, 1979) and *Physical and Chemical Hydrogeology* (Domenico and Schwartz, 1997). For practising hydrogeologists and field engineers who regularly encounter field observations that do not conform to the simplistic descriptions of groundwater flow contained in such basic texts, this is the great asset of the book.

The remaining two parts of the text focus strongly on how aquifer development affects groundwater flow on different scales: localized, radial flow to wells including large-diameter collector wells commonly used in Africa and Sri Lanka; and regional groundwater flow (e.g., use of multi-aquifer systems in India and Mexico). The casual fieldworker occasionally engaged in groundwater development is likely to find the strong numerical basis of the book, reflected by the proliferation of equations and widespread use of numerical models, difficult to access.

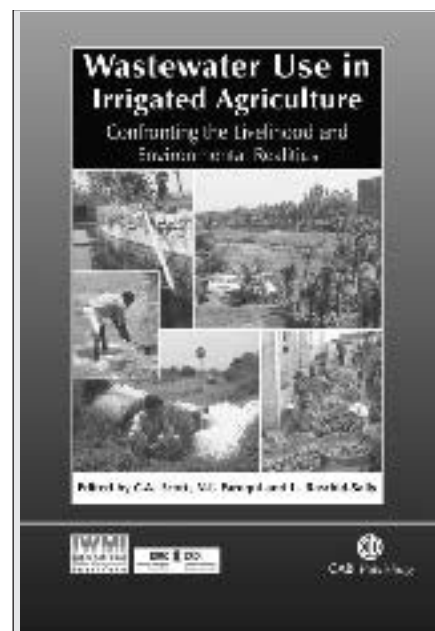
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### Books received

#### Wastewater Use in Irrigated Agriculture – Confronting the livelihood and environmental realities

Edited by Christopher A. Scott, Naser I. Faruqi, and Liqa Raschid-Sally, 2004, CABI/IWMI/IDRC, 240 pp, hardback, ISBN 0 85199 823 2 £45

The use of urban wastewater in agriculture is a centuries-old practice that is



receiving renewed attention with the increasing scarcity of fresh water resources in many arid and semi-arid regions of the world.

Driven by rapid urbanization and growing wastewater volumes, wastewater is widely used as a low-cost alternative to conventional irrigation water: it supports livelihoods and generates considerable value in urban and peri-urban agriculture despite the associated health and environmental risks. Though pervasive, this practice is largely unregulated in low-income countries, and the costs and benefits are poorly understood.

This book critically reviews experience worldwide in the use of wastewater for agriculture through a series of peer-reviewed papers defining and elaborating on the issues at the centre of the debate around wastewater use in agriculture. Particular emphasis is placed on untreated wastewater use by means of field-based case studies from Asia, Africa, the Middle East and Latin America that address the environmental and health impacts and risks.

In a first step toward better understanding the global extent of wastewater use in agriculture, a methodology is developed and applied for selected countries to quantify the magnitude of wastewater use in agriculture. The chapters consider multiple aspects including the economic, health, agronomic, environmental, institutional, and policy dimensions and research needs.

The editors conclude with a prognosis of future challenges and realities of wastewater use in agriculture.