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Municipal Wastewater Management in Developing Countries – Principles and engineering

Editors: Zaini Ujang, Mogens Henze
2006, IWA Publishing 352pp ISBN:
1843390302, hardback £70; IWA
members £52.50

The book has been prepared by a team of leading academics who have written chapters on a range of technical and managerial issues related to urban wastewater management in developing countries. As many developing countries are undergoing a stage of rapid economic and industrial development, the authors argue that solving sanitation and wastewater problems requires the application of modern technologies as well as specific approaches towards service delivery designed for the specific cultural context of each developing country.

In order to illustrate the book with relevant examples, the authors draw heavily from experiences from Malaysia. These case studies are both relevant and interesting as they put the issues into context, but there is perhaps a bit too much emphasis on Malaysia. Reference is made to other countries at various points in the text, but these tend to lack the detail and depth of analysis from Malaysia. Consequently, the reader is left feeling that the inclusion of a broader range of experiences and examples from other parts of the world would have been useful.

Although a broad range of aspects related to sanitation are covered, and

on-site sanitation systems are mentioned at various points throughout the book, the main focus of the book is on technological aspects related to wastewater collection, treatment and disposal/reuse of residuals from wastewater treatment. The chapter on collection systems provides a useful overview of technologies for drainage of urban wastewater and stormwater runoff with a focus on the need to adopt an integrated approach in planning and design. Alternative sewerage options such as the small-bore system, which are increasingly considered to be an appropriate technology in developing countries are also introduced in Chapter 6.

Chapter 4 describes various types of wastewater treatment technologies such as biofilm processes and trickling filters, but it is primarily about the activated sludge process and variants of the activated sludge process, such as the application of floc enhancement filter media, which is designed to improve treatment performance. Chapter 6 also focuses on wastewater treatment and introduces the wide range of technologies such as septic tanks, ponds and lagoons, and land-based treatment options.

Further discussion about wastewater treatment is found in Chapters 7 and 8, which focus specifically on the design and operation of waste stabilization ponds and constructed wetlands respectively, which are considered to be particularly appropriate for developing countries. These provide a good overview of these technologies and sufficient information for preliminary design purposes.

Chapter 10 provides a comprehensive overview of different aspects of sludge management, which is important as the production and disposal of sludge from wastewater treatment is often not given sufficient attention. But, somewhat disappointingly, there is little attention paid to the collection of sludge and septage from on-site sanitation nor the requirements for off-site treatment prior to disposal or reuse. This would seem to be an oversight as the majority of urban communities in developing countries world are still served by various forms of on-site sanitation and the management of faecal

sludge is a vital component of good sanitation.

Chapter 9 has the interesting title 'Innovation and Technology for Sustainability' and aims to inform the reader about ecological sanitation, low-cost sewerage and high-tech on-site treatment systems such as aerated treatment and vermifiltration. There is some overlap between this chapter and Chapter 6, which also provides an

Local Initiatives for Better Hygiene: four case studies from Asia

Sijbesma, C. and Appleton, B. (eds)
2007 (occasional paper series; No. 43), Delft, The Netherlands, IRC International Water and Sanitation Centre. 68 pp; download from <http://www.irc.nl/page/32224>

This publication contains four case studies from Asia in which the authors have analysed initiatives in their own countries that aimed to improve hygiene behaviour in individual communities. The cases contain a mix of positive and negative experiences in community-level efforts to improve hygiene behaviour.

The Bangladesh case study describes how a Village Development Committee (VDC) was able to bring about a seven-fold increase in latrine use in a small village community, but fell short of its targets for improving hand-washing behaviours and became much less effective once the programme ended.

In Kerala, India, a pioneering programme involving neighbourhood groups successfully trained 100 women masons, who proved to be highly effective change agents in improving hygiene behaviours. Failure by the local authority to come up with pledged funds, however, eventually led to the women masons being unpaid and most giving up altogether.

In the Philippines, a municipality's efforts to improve sanitation did not include any hygiene promotion and the residents of a remote municipality were forced to opt out of the flagship national rural water supply and sanitation project because of its focus on grandiose projects and long delays in implementing activities.

introduction to wastewater reuse (aquaculture) as well as on-site sanitation options such as VIP latrines and composting toilets. These descriptions provide an introduction to the range of technologies that are available but there tend to be insufficient attempts to evaluate critically the suitability of these technologies and a lack of guidance as to when and where one should apply them.

In general, it would have been beneficial to focus the reader's attention a bit more on some of the critical issues that constrain the effective planning, implementation and subsequent sustainable operation of wastewater systems in developing countries. Some of the authors emphasize that the success of implementing a modern and efficient sewerage system depends on institutional arrangements for wastewater management and stress the need for public participation in planning and implementation. However, these aspects are not fully explored and the book could have been improved if it provided more detail about the various management options that are potentially appropriate for different types of settlement and community in develop-

ing countries. For example, there is an increasing number of attempts to promote public-private partnerships in service delivery as well as the importance of involving NGOs and civil society organizations in planning and implementation of infrastructure for wastewater management. Unfortunately, these don't seem to appear much in the book.

Although some of the authors aim to address institutional and regulatory issues, this is done in a fairly piecemeal fashion. For example, Chapter 2 focuses the discussion of the need for setting appropriate effluent quality standards and describes a stepwise approach towards their implementation, but this discussion could have been broadened out to cover standards for a wider range of issues relating to urban waste management.

To a certain extent, some of these criticisms can be levied against the way in which the book has been prepared. The main authors have adopted a model for book writing, which seems to be increasingly common in which the editors invite selected authors to prepare chapters that focus on their area of specialization. Notwithstanding

the importance and relevance of each chapter, there is a danger that different authors invariably cover similar ground, whereas in other cases, important issues may be overlooked or not addressed adequately.

There is a considerable amount of interesting information contained in the book and it will prove to be a useful reference book – particularly as a text book for students who need an introduction to technologies that may be applied for the management of wastewater in developing countries. If you are a regular reader of *Waterlines*, you will probably have already gained a considerable amount of knowledge and have access to similar information already. However, if you want to add to your collection of reference books you might consider investing in this book. The book is available in hardback from the International Water Association at a fairly weighty price of £70, but is available at a significantly reduced price of £52.50 for IWA Members, which makes its purchase a bit more attractive.

Jonathan Parkinson
WS Atkins International Ltd.

Successful Experiences in Municipal Public Water and Sanitation Services from Brazil

Costa, S.S. da, et al.
2006, Brazil, ASSEMAE, download from: <http://www.tni.org/books/brazilwater.htm>

The book, which was first published in Portuguese as *Experiências de Êxito em Serviços Públicos Municipais de Saneamento*, presents 20 examples of successful public water delivery in large and small, wealthy and poor municipalities across Brazil. The city of Porto Alegre is already known around the world for its use of participatory budgeting and other democratic reforms to achieve universal access to clean water. The book shows that similar approaches are used in many other cities in Brazil and in many cases have led to rapid expansion of access to water and sanitation for the poorest communities.

Obituary

Albino Mucabel died in Angola very tragically on 3 February of a suspected heart attack. This was completely unexpected, as he had no history of health problems. Albino was only 30 and was one of Oxfam's foremost water and sanitation engineers. He had been working with Oxfam since 2000, being first recruited during the floods in his home country, Mozambique. All the staff that worked with Albino during this emergency response will remember his professionalism, commitment and questioning mind. He was never happy to do something without completely understanding why, which meant that he learnt a lot in a very short space of time. Albino then worked in Liberia setting up camps for displaced people and continued his steep learning curve working also in Eritrea, Pakistan, Angola and Darfur.

With every assignment he impressed his colleagues with his conscientious and meticulous planning processes as well as always trying to ensure the involvement of beneficiaries. He never lost his community perspective, continually reminding us all of the major purpose of the humanitarian programme. In 2005–6 Albino was awarded a British Council scholarship for an MSc in Water Engineering at University of Surrey. He then became part of Oxfam's core humanitarian response team where his first deployment was back to Angola in response to an outbreak of cholera. This was where he spent the most time during the last six years, and the staff in Angola will especially miss his happy face and positive attitude. However, all of Albino's friends and work colleagues from across the world feel the tremendous loss of a great soul, a young man, one so bright and energetically passionate about humanitarian work and a good friend. We regret this tragic loss.

Andy Bastable, Oxfam Public Health Engineer Team Leader.