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skat_foundation

Resource Centre for
Development

Drinking Water Supply and Environmental Sanitation

20 Basic Books

Aimed primarily at planning and executing technicians and engineers across a wide spectrum of institutions, this document contains brief summaries of 20 basic reference books, covering the topics of drinking water supply and environmental sanitation. The books have been selected according to the following categories:

- General Literature on Water Supply and Sanitation
- Health, Hygiene Behaviour, Education and Promotion
- Drinking Water Supply and Treatment Technologies
- Environmental Sanitation and Wastewater Treatment
- Drinking Water and Environmental Sanitation in Emergencies
- Operation and Maintenance of Infrastructure

The potential user should keep in mind that the books included in this list have been selected in an attempt to cover the widest possible range of essential drinking water and environmental sanitation topics in just 20 titles.

Skat Foundation has elaborated this list, in collaboration with EAWAG/SANDEC (Swiss Federal Institute for Environmental Science and Technology/Department for Water and Sanitation in Developing Countries). Inputs were also received from various other sector specialists in the water supply and sanitation sector.

Many of the publications listed here can be ordered through:

Intermediate Technology Publications Ltd.
103-105 Southampton Row, London WC1B 4HH, UK
Tel: +44 20 7436 9761, Fax: +44 20 7436 2013,
E-mail: orders@itpubs.org.uk URL: <http://www.itdgpublishing.org.uk/>

Additionally, an increasing number of these resources are being made available either on-line or in downloadable format. Contact Skat Foundation for further information.

The list is regularly revised and updated. Skat Foundation is therefore interested in receiving your comments, your feedback and your suggestions for new books.

The information in this publication is also accessible on-line at the following URL:
<http://www.skat-foundation.org/resources/downloads/htm/ws/20BB/>



Overview of the Selected Books

- ***General Literature on Water Supply and Sanitation***
 1. Guidance Manual on Water Supply and Sanitation Programmes

- ***Health, Hygiene Behaviour, Education and Promotion***
 2. Environmental Health Engineering in the Tropics: An Introductory Text (2nd edition)
 3. Guidelines For Drinking-Water Quality (2nd edition)
 4. Together for Water and Sanitation - Tools to Apply a Gender Approach: the Asian Experience.
 5. Studying Hygiene Behaviour: Methods, Issues and Experiences
 6. Sanitation Promotion – WSSCC Working Group on Promotion of Sanitation

- ***Drinking Water Supply and Treatment Technologies***
 7. Water Supply (5th edition)
 8. Series of Manuals on Drinking Water Supply
 9. Rainwater Catchment Systems for Domestic Supply

- ***Environmental Sanitation and Wastewater Treatment***
 10. Low-Cost Urban Sanitation
 11. Low-Cost Sewerage
 12. Design Manual for Waste Stabilization Ponds in India
 13. Decentralised Sanitation and Reuse - Concepts, Systems and Implementation
 14. Ecological Sanitation
 15. Strategic Planning for Municipal Sanitation - A Guide (1st edition)

- ***Drinking Water and Environmental Sanitation in Emergencies***
 16. Engineering in Emergencies: a Practical Guide for Relief Workers (2nd edition)
 17. Humanitarian Charter and Minimum Standards in Disaster Response (The Sphere Project)
 18. Emergency Sanitation: Assessment and Programme Design
 19. Vector Control

- ***Operation and Maintenance of Infrastructure***
 20. Operation & Maintenance of Rural Water Supply & Sanitation Systems

General Literature on Water Supply and Sanitation

1. *Guidance Manual on Water Supply and Sanitation Programmes*

Author: Batteson H., Davey K. and Shaw R.

ISBN: 0-906055-58-X Year: 1998 Pages: 338

Publisher: WEDC, Loughborough, UK

The primary purpose of this outstanding guidance manual is to set out principles, procedures, and practices that should guide decisions on the choice, design, and management of appropriate WS&S projects. Because the effectiveness and sustainability of such projects depend not only on technology choice, but also, on user involvement, on the right gender approach, on innovative community based financing, and on the promotion of behavioural change, the guidance manual includes discussion of social, financial, and institutional aspects as well as engineering and health concerns.

The Guidance Manual on Water Supply and Sanitation Programmes is available in portable document format (.PDF) at www.lboro.ac.uk/well/resources/books-and-manuals/guidance-manual/guidance-manual.htm

Health, Hygiene Behaviour, Education and Promotion

2. *Environmental Health Engineering in the Tropics: An Introductory Text (2nd edition)*

Author: Cairncross S. and Feachem R. G.
ISBN: 0-471-93885-8 Year: 1993 Pages: 306
Publisher: John Wiley & Sons Ltd., Baffins Lane, Chichester, West Sussex PO19 1UD, UK

Environmental Health Engineering in the Tropics describes many of the major infectious diseases encountered in tropical and developing countries and the environmental measures that may be used effectively to combat them. The second edition includes information on composting, the safe re-use of wastes, and low-cost sewerage, as well as policy and the strategies for implementing water and sanitation programmes. This book is intended both for those from an engineering background and those whose training is in medicine or public health.

3. *Guidelines For Drinking-Water Quality (2nd edition)*

Vol.1 - Recommendations

ISBN: 92-4-154460-0 Year: 1993 Pages: 180
Publisher: WHO, 1211 Geneva 27, Switzerland

Volume 1 contains the guideline values themselves, together with an explanation of how they should be used, the criteria used in selecting the various contaminants considered, a description of the approaches used to derive the guideline values.

Vol.2 - Health Criteria and Other Supporting Information

ISBN: 92-4-154480-5 Year: 1996 Pages: 973

Volume 2 explains how guideline values for drinking-water contaminants are to be used, defines the criteria used to select the various chemical, physical microbiological, and radiological contaminants included in the report.

Vol.3 - Drinking Water Surveillance and Control of Community Supplies

ISBN: 92-4-154170-9 Year: 1997 Pages: 238

Volume 3 describes the methods used in the surveillance of drinking-water quality in the light of the special problems of small-community supplies, particularly in developing countries, and outlines the strategies necessary to ensure that surveillance is effective.

Note that all three volumes are complemented by companion addenda, which were released in 1998 to keep the Guidelines current. In addition, a major revision of the guidelines is in progress. For various on-line resources, progress reports and downloads, the reader is advised to consult the appropriate section of the WHO website, currently at www.who.int/water_sanitation_health/Water_quality/drinkwat.htm

4. *Together for Water and Sanitation - Tools to Apply a Gender Approach: the Asian Experience.*

Author: Bolt E. (ed.)
ISBN: - Year: 1994 Pages: 107
Series: Occasional Paper 24
Publisher: IRC, P.O. Box 93190, 2509 AD The Hague, Netherlands

Part I of this manual gives a theoretic framework about women's involvement and applying a gender approach. Part II provides tools to apply a gender approach based on consolidated field experience for the various phases of a project.

5. *Studying Hygiene Behaviour: Methods, Issues and Experiences*

Author: Cairncross S. and Kochar V. (ed.)
ISBN: 81-7036-387-X Year: 1994 Pages: 334
Publisher: Sage Publications India PV Ltd., 32 M-Block Market, Greater Kallash-I, New Delhi 110 048, India

Studying Hygiene Behaviour deals with general theoretical and empirical issues relating to research methods for studying hygiene behaviour, educational interventions to change hygiene behaviour, and the responses of communities to such programmes.

6. *Sanitation Promotion - WSSCC Working Group on Promotion of Sanitation*

Author: Simpson-Hébert M. and Wood S. (ed.)
ISBN: - Year: 1998 Pages: 277
Publisher: WHO, 1211 Geneva 27, Switzerland

Sanitation Promotion includes articles on new ways of approaching sanitation issues, guidance articles, checklists to guide the planning of particular programme elements, worksheets, lists of guiding principles, and lists of the features that characterize better programmes.

This publication can be downloaded via portable document format (.PDF) at [www.who.int/water sanitation health/Environmental sanit/Sanprom/saniprom.htm](http://www.who.int/water_sanitation_health/Environmental_sanit/Sanprom/saniprom.htm)

Drinking Water Supply and Treatment Technologies

7. *Water Supply (5th edition)*

Author: Twort A.C., Ratnayaka D. D. and Brandt M.J.
ISBN: 0-340-72018-2 Year: 2000 Pages: 676
Publisher: IWA Publishing, Alliance House, 12 Caxton Street, London SW1H 0QS, UK

Water Supply is a comprehensive reference on public water supply, from hydraulics to tariff structures, from treatment and distribution practice to utility management, from water quality to dam design. The emphasis is on industrial scale processes, which makes this book particularly useful in understanding how urban water systems are designed and operated.

8. *Series of Manuals on Drinking Water Supply*

This well-illustrated and practical series of manuals is primarily aimed at project managers, engineers and technicians. It is also an important working tool for all actors in the sector, ranging from those involved with policy development to those constructing systems at village level. The series has a clear focus on community-based and managed water supply in rural settings and proposes technologies with due consideration for socio-cultural, economic, institutional and regulatory requirements. The series draws on experience in Swiss-supported projects, taking account of new developments in this field. The series is also available in Portable Document Format (.PDF) on CD-Rom.

Vol. I - Management Guide

Author: Frölich U.
ISBN: 3-908001-93-5 Year: 2001 Pages: 235
Publisher: SKAT, Vadianstr 42, CH-9000, Switzerland

The Management Guide is intended to provide guidance in the non-technical tasks of management in the field of water supply and sanitation projects. It is a complimentary volume that supplements all other manuals in the series and is presented in three components; fundamentals of water and sanitation sector management; project development; and methods and tools for project management.

Vol. II - Engineering Guide

Author: Gaehwiler F., Wehltre K. and Christen J.
ISBN: not known Year: 2002 Pages: 300 approx
Publisher: SKAT, Vadianstr 42, CH-9000, Switzerland

The Engineering Guide deals with the theme of engineering that cuts through all other manuals in the series. An important aspect of the manual is that while the focus is necessarily technical, attention is also given to the many non-technical factors that influence the design and management of any water supply system. The manual discusses selected topics from the following subjects; general civil engineering; water (re)sources; water quality; water quantity; technology choice; design criteria; component design; supply & distribution; and engineering procedures.

Vol. III - Building Construction

Author: Meuli C., Wehlre K., Mueller H. and Pfiffner H.
ISBN: 3-908001-95-1 Year: 2000 Pages: 57
Publisher: SKAT, Vadianstr 42, CH-9000, Switzerland

Presented almost as a collection of technical briefs, the aim of this concise and highly practical manual is to describe the variety of working techniques (as well as providing a summary of the types of building materials) used in rural water supply construction.

Vol. IV - Spring Catchment

Author: Meuli C. and Wehlre K.
ISBN: 3-908001-96-X Year: 2001 Pages: 52
Publisher: SKAT, Vadianstr 42, CH-9000, Switzerland

Spring Catchment is a concise and well-illustrated "how-to" manual. It is a valuable *aide-mémoire* for those already well versed in the construction of spring catchments as well as being an invaluable reference text for the novice. Useful tips and tricks cover the initial planning of a new catchment right through to sustainable operation and maintenance of existing systems. The main thrust of the publication is the construction strategy and techniques that are necessary to ensure that appropriate hardware is built to high standards – able to stand the test of time and requiring only simple and straightforward maintenance. The book deals with the major categories of springs, how to classify and understand them and their underground characteristics, and how to plan, design and construct a good spring catchment. There is a section covering the specifics of spring chamber construction and concluding comments outline the most common mistakes that are made when harnessing spring water.

Vol. V - Hand-Dug Shallow Wells

Author: Collins C.
ISBN: 3-908001-97-8 Year: 2000 Pages: 92
Publisher: SKAT, Vadianstr 42, CH-9000, Switzerland

Hand-Dug Shallow Wells deals with the planning, construction, management, operation and maintenance of hand-dug wells for water supply to communities in the South. Its aim is to facilitate technology selection for a given situation and to outline the steps necessary to realise such choices. Topics covered include; health, hygiene, management, institutional & economic considerations, social & environmental considerations; the water cycle, water quality & water quality; options for the exploitation of drinking water sources; principles of hand-dug wells; site investigation; practice and procedures in hand-dug well construction; management, operation & maintenance of hand-dug wells.

Vol. VI - Drilled Wells

Author: Ball P.
ISBN: 3-908001-98-6 Year: 2001 Pages: 72
Publisher: SKAT, Vadianstr 42, CH-9000, Switzerland

Written in an entertaining and straightforward manner, Drilled Wells is a well-illustrated manual which summarises the theory and practice of drilling for water. The emphasis is placed on drilled well construction in rural settings in the South. The scale of drilling operations is mostly limited towards exploitation of tapped groundwater at low flows, primarily through the use of hand pumps for rural communities. The contents cover various drilling machines, drilling with fluids, compressed air and foam, logging, borehole design, well completion, use of drilling technology with hand-dug wells, social responsibilities of the drilling operation and what to do then things do go wrong.

Vol. VII - Water Lifting

Author: Baumann E.
ISBN: 3-908001-98-6 Year: 2000 Pages: 72
Publisher: SKAT, Vadianstr 42, CH-9000, Switzerland

Focusing on the task of pumping water, Water Lifting serves either as a stand-alone reference text or as a valuable companion for the publications in this series that focus more on the subject of ensuring primary access to potable water. Demand Responsive Approaches give village communities the power to choose which type of technology they want for their water supply facilities. Villages are also responsible for the management of the systems and have to take into consideration costs for operation, maintenance and major repairs as well as the reliability. To arrive at a sensible choice, it is necessary that the communities are aware of the technical, financial and institutional implications of their technology preferences. This book gives information on the different technology options for pumping water (point sources or piped systems) in an easy-to-read format. It lists possible managerial models for provision of services and O&M through the private sector. Technical fact sheets catalogue the most common hand pumps used in rural water.

9. Rainwater Catchment Systems for Domestic Supply

Author: Gould J. and Nissen-Petersen E.
ISBN: 1-85339-456-4 Year: 1999 Pages: 335
Publisher: ITDG Publishing, 103-105 Southampton Row, London WC1B 4HL, UK

Rainwater Catchment Systems for Domestic Supply provides a state-of-the-art review of practice in the collection of rainwater. It presents case studies with numerous examples from around the world, which will help anyone intending to design or construct a rainwater catchment system.

Environmental Sanitation and Wastewater Treatment

10. Low-Cost Urban Sanitation

Author: Mara D.
ISBN: 0-471-961639 Year: 1996 Pages: 223
Publisher: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, UK

Low-Cost Urban Sanitation covers the public health, technical, socio-economic, socio-cultural and institutional aspects of sanitation in towns in developing countries. Sanitation technologies covered are VIP latrines, pour-flush toilets, septic tanks, settled sewerage.

11. Low-Cost Sewerage

Author: Mara D. (ed.)
ISBN: 0-471-966916 Year: 1996 Pages: 225
Publisher: John Wiley & Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, UK

Low-Cost Sewerage, which is the result of contributions to the International Conference on Low-cost Sewerage in England in July 1995, describes low-cost sewerage technologies and their applications in both developed and developing countries.

12. Design Manual for Waste Stabilization Ponds in India

Author: Mara D.
ISBN: 0-9519869-1-0 Year: 1997 Pages: 125
Publisher: Lagoon Technology International Ltd., Leeds, UK

Design Manual for Waste Stabilization Ponds in India gives a description of waste stabilization ponds, an appropriate method of wastewater treatment in India. Guidance is given on pond monitoring and evaluation.

13. Decentralised Sanitation and Reuse - Concepts, Systems and Implementation

Author: Lens P., Zeeman G., and Lettinga G.
ISBN: 1-900222-477 Year: 2001 Pages: 650
Publisher: IWA Publishing, Alliance House, 12 Caxton Street London SW1H 0QS, UK.

Adopting a multi-disciplinary approach, Decentralised Sanitation and Reuse places public sanitation in a global context and provides a definitive discussion of current state-of-the-art sanitation technologies. It shows how these technologies can be implemented to integrate domestic waste and wastewater treatment in order to maximize resource recycling in domestic practice. Technical solutions for on-site collection and transport of concentrated waste streams are presented, along with a focus on the compromise between reliability and minimal water wastage. A range of available sustainable technologies, both low and high-tech, to treat concentrated (black water) and diluted (grey water) streams are addressed in detail from the fundamental scientific and engineering points of view. Sociological, economic and, particularly, environmental and public health aspects are essential issues within this book. The necessities of new infrastructure implementation and the resulting challenges for a good number of economic branches are illustrated with examples from architecture and town planning.

14. Ecological Sanitation

Author: Esrey S.A., Gough J., Rapaport D., Sawyer R., Simpson-Hébert M., Vargas J. and Winblad U. (ed)
ISBN: 91-586-76-12-0 Year: 1998 Pages: 92
Publisher: Department for Natural Resources and the Environment, Sida, S-105 25 Stockholm, Sweden.

Existing approaches to sanitation in these environments are neither viable nor affordable for the vast majority of people who live there. As cities expand and populations increase, such areas already rank amongst the worst polluted and disease ridden habitats of the world today. Ecological Sanitation is about seeking new solutions, to make urban and peri-urban areas in developing countries more suitable for human habitation. The book discusses what is known about ecological sanitation systems, their strengths and weaknesses and gives advice on how to make such systems work with regard to selection, design and management of technology as well as about the promotion and support aspects so necessary to their success. Available for download in portable document format (.PDF) at <http://www.ecosanres.org/news-publications.htm> in English, Spanish, French, Chinese and Vietnamese.

15. Strategic Planning for Municipal Sanitation - A Guide (1st edition)

Author: Tayler K., Colin J. and Parkinson J.
ISBN: - Year: 2000 Pages: 250
Publisher: GHK Research and Training, 526 Fulham Road, London SW6 5NR, UK

Strategic Planning for Municipal Sanitation is about improving sanitation conditions in the rapidly growing towns and cities of the 'South'. The guide assumes the need to think, plan and act strategically to solve these problems but it emphasises that a strategy will only be successful if it is based on a sound understanding of existing conditions, constraints and opportunities. The guide also assumes that the need is not to provide sanitation facilities alone but to provide sanitation services, which must be competently managed if they are to achieve long-term benefits. Issues of operation and maintenance must therefore be seen as central to sanitation provision. Starting from these basic premises, the guide explores the ways in which the various individuals, organisations and groups with an interest in sanitation can take action to improve sanitation services. It emphasises the need for them to co-ordinate their efforts in order to deal with problems and opportunities in an effective way. The guide is currently available in portable document format (.PDF) at http://www.ghkint.com/pub_pub2.htm.

In early 2003, Intermediate Development Technology Group (ITDG) Publishing will publish a revised version of the guide (ISBN: 1 85339 5587). For further details about this upcoming publication, contact ITDG Publishing. Email: marketing@itdgpubs.org.uk (or refer to page 1 of this document, where full contact details for ITDG are given).

Drinking Water and Environmental Sanitation in Emergencies

16. *Engineering in Emergencies: a Practical Guide for Relief Workers* (2nd edition)

Author: Davis J. and Lambert R.
ISBN: 1-85339-521-8 Year: 2002 Pages: 718
Publisher: IT Publications Ltd., 103-105 Southampton Row, London WC1B 4HH, UK

Armed conflict, drought, famine and other serious disasters create emergencies in which large numbers of people require urgent help. Engineering in Emergencies is a highly popular and practical handbook for all relief workers involved in giving humanitarian assistance at such times, providing critical information needed to implement an effective response in the aftermath of an emergency. Complex topics such as the provision of water, sanitation, and shelter, needs of refugees, managerial skills, and personal effectiveness are dealt with in surprising detail given the wide scope of the book. The second edition has been extensively revised and updated based on feedback from users in the field, and includes experience from cooler climates and European emergencies. It incorporates all the key features of the first edition, but has been revised and updated to reflect developments in humanitarian relief in recent years. This publication is also available in CD-ROM.

17. *Humanitarian Charter and Minimum Standards in Disaster Response* (The Sphere Project)

Author: Walker P. (Project Co-ordinator)
ISBN: 0-85598-445-7 Year: 2000 Pages: 330
Publisher: Oxfam Publishing, 274 Banbury Road, Oxford, OX2 7DZ, UK

The Sphere Project has developed this Humanitarian Charter and a set of universally accepted minimum standards for practitioners and beneficiaries to refer to. Core areas of humanitarian assistance are dealt with: water supply & sanitation, nutrition, food aid, shelter & site planning and health services. The aim of the Project is to improve the quality of assistance provided to people affected by disasters, and to enhance the accountability of the humanitarian system in disaster response. The Humanitarian Charter and Minimum Standards in Disaster Response is a landmark publication, summarising consensus for self-regulation between more than 100 institutions implementing humanitarian relief, including most major NGOs, the Red Cross Movement and the main UN bodies.

The Charter and the standards are available online or for download - as a zipped archive of Rich Text Format (.RTF) files - at www.sphereproject.org/handbook_index.htm

18. Emergency Sanitation: Assessment and Programme Design

Author: Harvey P., Baghri S. and Reed B.
ISBN: 1-84380-005-5 Year: 2002 Pages: 358
Publisher: WEDC, Loughborough University, Leicestershire, LE11 3TU, UK

When discussing water and sanitation initiatives, it is widely recognised that progress in the sanitation sector has lagged behind the water sector. This observation holds true throughout the South, for development co-operation programmes as well as for emergency humanitarian relief responses. *Emergency Sanitation: Assessment and Programme Design* represents a vital step in redressing the balance in the field of emergency response, by focussing solely on key issues of importance to those planning and implementing emergency sanitation programmes. The content is relevant to a wide range of emergency situations, including both natural and man-made disasters, and open and closed settings. The main focus is a systematic and structured approach to assessment and programme design. A comprehensive range of sanitation issues is covered, including; wastewater management; disposal of health care wastes; disposal of the dead; surface drainage; excreta disposal; solid waste management.

Emergency Sanitation: Assessment and Programme Design is available for download in portable document format (.PDF) from www.lboro.ac.uk/wedc/publications/es.htm

19. Vector Control

Author: Rozendaal J. A.
ISBN: 92-4- 154494-5 Year: 1997 Pages: 412
Publisher: WHO, 1211 Geneva 27, Switzerland

Vector Control is a valuable addition to the library of the environmental engineer when called upon to implement a humanitarian relief intervention during an emergency. The book provides a comprehensive guide to immediate and effective measures for vector control that can be applied by individuals and communities in both rural and urban settings. In general, the methods proposed are relatively simple to implement and do not require much training – if properly applied, these methods are safe both for the user and the environment. The manual provides practical information on all major disease vectors and pests; for each group of vectors, information is provided on biology, public health importance and possible control measures. This book provides particularly helpful advice on environmental engineering at community and household level to reduce risk of infection. It also distinguishes itself as being an invaluable source of practical advice for the use of residual insecticides and the safe use of pesticides as forms of vector control.

Operation and Maintenance of Infrastructure

20. Operation & Maintenance of Rural Water Supply & Sanitation Systems

Author: Brikké F., et al.
ISBN: - Year: 2000 Pages: 292
Series: Resource Training Package for Managers & Planners
Publisher: WHO, Geneva, Switzerland

The aim of Operation and Maintenance (O&M) programmes, as described in this training package, is to improve the efficiency, effectiveness and sustainability of water supply and sanitation services. Operation and Maintenance activities, which encompass not only technical issues, but also managerial, social, financial and institutional issues, must be directed towards the elimination or reduction of the major constraints which prevent the achievement of sustainability.

This document and the training activities described in it are intended for managers and planners who are concerned with the challenging problem of how to implement effective operation and maintenance of rural water supply and sanitation services in developing countries. In addition to the traditional management aspects of operation and maintenance, this training package highlights the importance of community participation, with a right gender balance, in order to make more efficient use of local human resources for sustainability.

This publications list is regularly revised and updated. Skat Foundation is therefore interested in receiving your comments, your feedback and your suggestions for new books.

Increasingly, these resources are becoming available either on-line or in downloadable format. Contact Skat Foundation for further information.