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Water Storage: Tanks, Cisterns, Aquifers and Ponds For Domestic Supply, Fire and Emergency Use

Art Ludwig

2005 Oasis Design, 125 pages
ISBN 0-99643433-6-3; \$19.95

Water Storage is a concise, accessible and well-illustrated introduction to this topic. It provides the reader with the key information needed for making good decisions with respect to the selection and design of appropriate water storage systems in a variety of situations.

Water engineers and others responsible for public health are naturally concerned that the highest possible water quality is maintained, especially for potable water supplies. A key message from this book is that 'the water coming out of properly designed storage can be of significantly higher quality than the water that goes into it. Conversely, poorly designed storage can degrade water quality'. This is primarily because in a 'cold, nearly nutrient free, dark water tank' harmful pathogens will gradually die off.

Ludwig covers a lot of ground in this wide-ranging treatment of the subject, which includes general principles for design and construction, common mistakes and how to avoid them, storage system shape and size, plumbing details, storage accessories and gadgets, how to build a high-quality ferrocement tank and a number of original design innovations. The innovations described are aimed to

improve water quality and security of supply, ease of maintenance and reduce environmental impacts.

The book's seven chapters cover all the basics from 'Thinking about Water' in Chapter 1, 'Ways to Store Water' and 'Water and Design' in Chapters 2 and 3, respectively, 'Common Features of Water Tanks' in Chapter 4 and 'Optional Water Tank Features' in Chapter 5. 'Emergency Storage', including systems specifically designed for firefighting, is covered in Chapter 6. The final chapter gives 'Examples of Storage Systems in Different Contexts' from a 'Simple Jungle Eden' to a 'Swank Suburban House'.

The book concludes with four Appendices. The first appendix 'Measurements and Conversions' alludes to the book's American origin. Throughout the text, Imperial units are used and while, in most cases, the metric equivalent is shown in brackets, this is not always the case. This, along with the use of American vernacular, might be distracting at times for non-American readers. The final appendix (25 pages long) covers 'How to Make Ferrocement Tanks' in significant detail. While of interest, much of this material is published elsewhere.

While the author clearly knows his subject well and has carried out extensive research, there are a few minor inaccuracies. For example, in reference to ferrocement tanks the author states on p41 that a downside of these is that they cannot be moved. This in fact is not the case, and while they do need to be transported with care, tanks as large as 25 cubic metres have been transported by road in many parts of New Zealand. In Thailand literally millions of 1-2 cubic metre ferrocement Thai jars have also been manufactured centrally and delivered to households using small trucks.

This book is full of interesting ideas and examples and will appeal to those with an interest in the use of appropriate technology for water provision. It is based primarily on experience and examples from North America but most of the perspectives and useful advice it contains have universal applications.

*John Gould, Projects Coordinator,
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Toilets that make compost: low-cost, sanitary toilets that produce valuable compost for crops in an African context

Peter Morgan

2007, EcoSanRes Programme, Swedish Environmental Institute, Stockholm, Sweden, 100 pages; 238 fig. - Bibliography: p. 97-99. ISBN 9789197602228

Toilets That Make Compost
Low-cost, sanitary toilets that produce valuable compost for crops in an African context



by
Peter Morgan

This book is a shortened, simplified version of *An ecological approach to sanitation in Africa* (Morgan, 2005; updated 2006). It provides practical information which allows those living in rural, peri-urban and even in some urban areas of Africa, to build and practise the art of recycling nutrients from their own excreta in order to gain better crops and vegetables in their backyards and gardens.

The book describes three types of toilets: a single shallow-pit toilet or Arborloo, a toilet with two alternately used shallow pits or Fossa alterna, and a toilet built on a vault above the ground which uses a urine-diverting principle where the urine and faeces are separated. The book includes chapters on constructing and upgrading toilets, odour and fly control, hygiene, and the use of compost and urine in the garden. Plentiful illustrations show how these toilets can be constructed at low cost using simple techniques and with readily available materials.

This book may be downloaded for free from:
[\[http://www.ecosanres.org/toilets_that_make_compost.htm\]](http://www.ecosanres.org/toilets_that_make_compost.htm)