

water, both from surface run-off and waste; some will inevitably be required to degrade or retain spilled toxic contaminants; some will be desired to grow flowers, fruit and vegetables and some will be wanted for parks and sports grounds. This book mentions all of these. After a short general description of soil as a material mantling the earth, it looks at the particular demands individually and at the soil conditions that enable the soil to cope with them. It warns of the consequences when the soil is unfit for purpose: flooding, erosion, corrosion and pollution, among them. It guides the reader to anticipate failure, and it suggests ways in which the soil can be managed or modified to cope by reclamation, drainage, earth work and tree planting. It cites numerous examples, mainly from Australia, of what can happen for good or ill when land is urbanized and what has been done there. The book contains a lot of fact but not much understanding. It rarely penetrates beyond qualitative and general guidance. The fundamental mechanisms within the soil are not explained, and the practitioner could not work out from first principles what to do. The style is somewhat academic, with many references to the literature. The level seems to be that of a first undergraduate introductory course in environmental science.

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Expl Agric. (2011), volume 47 (4), © Cambridge University Press 2011
doi:10.1017/S001447971100072X

Soil and Environmental Chemistry. By W. F. Bleam. Amsterdam: Academic Press (2011), pp. 478, US\$89.95. ISBN 978-0-12-384980-9.

Soil is a living medium containing a complex mixture of mineral and organic matter, gases and liquids, which together act to provide a range of functions on which our lives depend. Knowledge of the chemical processes occurring in soil is key to protecting the soil resource and understanding many of the important environmental issues which we face today. This book has several chapters dealing with important chemical processes occurring in soils including ion exchange, redox and adsorption. I particularly liked the novel opening chapter 'Elements: their Origin and Abundance' which provides a rationale for the relative abundances of the elements which make up the Earth, and an insight into the cycling of rocks and soil formation. The chapter 'Water Chemistry' provides an introduction to chemical modelling using 'ChemEQL' and highlights the need for interpretative skills and validation procedures. Although focused on US regulatory frameworks, the final chapter 'Risk Assessment' is welcome and broadens the appeal of the book.

Soil and environmental chemistry is a wide field and boundaries need to be set. The content of the book is well balanced and has moved the traditional soil and environmental chemistry boundaries. Although a little weak on microbiological process this does not detract from an otherwise excellent book. With chapters dealing with soil hydrology, clays, natural organic matter and acid base chemistry, and a wealth of worked examples and illustrations, the book will appeal to students of the environmental sciences and provide an excellent *aide-mémoire* for professional soil and environmental scientists.

Charlie Shand

Expl Agric. (2011), volume 47 (4), © Cambridge University Press 2011
doi:10.1017/S0014479711000731

Nourishing the Land, Nourishing the People: A Madagascar Success Story. By B. Shapiro, A. Woldeyes, H. Ramilison and A. Rakotondratsima. Under the coordination of B. Thierry. Rome and Wallingford, UK: IFAD and CABI (2010), pp. 202, £65.00. ISBN-13:978-1-84593-739-3.

A success story is always welcome. This is an account of a 13-year programme in the Mandrare River Basin, one of the driest and most famine haunted regions of Madagascar. Success takes time!

There are well-documented chapters on the history of Madagascar and the project, development of irrigation and other infrastructure, rice production, community engagement, diversification into horticulture, livestock enterprises, credit and savings, the role of women, restoring forest cover, partnerships, communications and 'when the project ends'. There are personal stories scattered through the text, which illustrate the impact of the project on the lives of individuals.

Success is built on the adoption of 'sustainable rice intensification (SRI)' – a novel combination of agronomic and water management practices, developed in Madagascar. Raising water use efficiency and better, more