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## Book reviews

*Risk Assessment in Environmental Management — a Guide for Managing Chemical Contamination Problems.* D. Kofi Asante-Duah

Risk-based approaches to the management of contaminated land are rapidly gaining acceptance as the only realistic approach to dealing with the problem. This book brings together a wealth of technical information on the principles and practice of environmental risk assessment, that was previously available only in specialist technical journals and reports that were not readily available outside the USA. This meets a long overdue need and for this, the author is to be commended.

After an unnecessarily long (60 pp.) introductory section on environmental contamination, the book takes the reader through the principles and definition of risk assessment, followed by the principle elements of a risk assessment (contaminant fate and transport, hazard identification, the Conceptual Site Model, toxicology and dealing with uncertainty). Both human health and ecological risk assessments are covered. The derivation of risk-based remediation goals is described in some detail. Finally, everything is brought together to illustrate the role of risk assessment in environmental management decisions using a series of case studies.

The book will prove a valuable source of equations underpinning the risk assessment process. In general, they are well presented and reasonably easy to follow for those new to the subject.

An aspect, which would have benefited from expansion, is the inhalation of vapours both indoors and outdoors, particularly those emanating from sub-surface soils and groundwaters contaminated with volatiles.

The book touches only very briefly on risk perception and communication to the general public, but there is no shortage of alternative books on these subjects.

My main criticism of the book is its very heavy bias towards USA approaches to the subject. Thus, the chapter on legislation has only 4 pp. on Europe and one on the rest of the world and most of this information is at least 5 years out of date. Although the basic principles of risk assessment apply equally well across the world, the approaches to their application have to be customised to meet the different socio-economic circumstances of a particular country or region.

When it comes to the review of selected environmental risk assessment tools, all but one originate in the USA. There is no mention of such models as HESP and C-Soil originating from the Netherlands.

Despite the above criticism, the book contains a wealth of very useful information on environmental risk assessment, which will help to demystify the subject. It will be a useful addition to the library of anyone wanting to get to grips with the scientific basis of the subject.

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*Separation Methods for Waste and Environmental Applications*, Jack S. Watson, Marcel Dekker, New York, NY, 1999, US\$195.00, 600 pp., ISBN: 0-8247-9943-7

It is a pleasure to review an environmental book on separation processes written by a chemical engineer and one who references the chemical engineering literature well. Watson discusses virtually all of the methods of separating (i.e. removing) contaminants from solids and water. The removal of pollutants from contaminated air is not discussed; consequently, he might have retitled the text to refer more specifically to water and solids pollutant separation, but this is a minor criticism.

Discussed in detail are the following separation processes:

- adsorption
- ion exchange
- absorption
- air stripping
- membrane processes
- leaching
- extraction
- distillation
- evaporation
- steam stripping
- filtration
- sedimentation
- precipitation
- magnetic separation
- screening

In the preface, Watson writes:

“The purpose of this book is to bring together information and concepts needed by those concerned with selection and/or design of separation process equipment for treating wastes or environmental streams.”

Indeed, to explain the difference between his book and other texts, he notes:

“The strong focus on separation methods for waste and environmental treatment is intentional. The most obvious sign of this focus is probably in the examples given,

which are mostly drawn from environmental or waste problems. However, the most important aspect of the focus is reflected in the selection of the separation methods covered and the space devoted to each separation method. This is most evident when one compares the topics and the space allotted to each topic with the coverage in other separation books. This is important because many separation methods that are important in environmental and waste problems are not covered extensively in standard separations texts, usually texts aimed at chemical engineers working in the process industries; this is especially notable in texts used at the undergraduate level.”

Watson discusses each separate process well, giving the background theory and real world examples of applications. Fair enough. But at the risk of diluting my praise of the book (but I believe improving it), I would suggest he might have added:

1. numerically worked examples using the theoretical equations
2. numerical examples of design aspects of the applications discussed

These criticisms aside, my evaluation is that this is a very good book and that it will serve waste treatment engineers well.

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