Book reviews

ANATOMY, PHYSIOLOGY AND PSYCHOLOGY OF EROSION by E.G.Hallsworth; published 1987 by John Wiley and Sons, Baffins Lane, Chichester, West Sussex PO19 1UD, UK; price £26.70; 176 + x pp.; ISBN 0-471-91212-3.

The title of this slim volume is likely to bring the bookshop browser up sharp if it comes to stand on the shelf next to "Soil Erosion", "Soil Conservation", "Soil and Water Engineering", Field Engineering" and other technical titles in the same field. Inside there are further shocks to the straight-laced physical scientist; the Foreword proclaims that: "the real world does not fit in with the increasingly narrower specialities of the natural and social sciences".

This is a monograph commissioned by the International Federation of Institutes of Advanced Study (IFIAS), a group fired by the environmental reforms proposed at Stockholm in 1972 and focussed, in the exercise written up in this book, on the socio-economic constraints on the application of science to problems of soil degradation. Laboratory devotees of rainsplash experiments, theoretical tinkerers with USLE (Universal Soil Loss Equation) and others may well have learned enough by now to put them off the book, but those with practical experience in the developing world will be lured further to see if wisdom can at last be made part of technology transfer!

In fact, like many well-intentioned, reflective books by very experienced practitioners, the volume fails. It fails to be technical enough in its early chapters to attract the very readership for whom its reforming ideals are intended. I could not recommend this book to students. Morgan (1979), Kirkby & Morgan (1980) and Hudson (1981) are far superior for that market. We get 39 pages in Hallsworth's book before the first definition diagram appears. The anatomy (physical structure) and physiology (processes of formation and destruction) of soil erosion are very superficially treated. The book, however, builds up its message, like a Welsh preacher, to the point where the psychology sections are very dynamic. The key question in developing world soil erosion studies is met full-on: why do traditional local methods of soil conservation which have performed well for over 1000 years become swept away by techniques developed in temperate lands and which are eventually abandoned by local small farmers? The material provided by the IFIAS survey of 10 000 farmers from the Phillipines to Peru is here usefully exploited, mainly as tables. These data sets illustrate the insidious links between erosion and farm size, land tenure,literacy and government subsidies.

Hallsworth concludes with a review of the psychological barriers to progress in soil erosion management. Philosophies of time are important in that perceptions of erosion risk are dependent on the farmer's assessment of the problem in the past, e.g. on the degree to which contemporary erosion may be sid to be "accelerated".

Central views may be that farmers are a feckless, lazy bunch and need some strict discipline in the form of USLE predictions for each field. Farmer perceptions often find it hard to admit that cultivation techniques are to blame.

I enjoyed the book for its wisdom, not for its technical component, illustrations or practical solutions. I am reminded of the devotion shown by some erosion specialists, working in problem areas, such as Hans Hurni in Ethiopia; these people deliberately start their advice at farmer level and with farmers' perceptions and capabilities in mind. The realization that people are the main asset in such lands and that "bottom up" is the best route to environmental conservation of all types is slowly spreading through the agencies. Hallsworth"s book can only speed that realization on its way but not as rapidly as would the same message appended to a more technical vehicle.

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STATISTICAL ASPECTS OF WATER QUALITY MONITORING (Proceedings of the Workshop held at the Canada Centre for Inland Waters, 7-10 October 1985), edited by A.H.El-Shaarawi & R.E.Kwiatkowski; published 1986 as No.27 in the series Developments in Water Science by Elsevier Science Publishers, Sara Burgerhartstraat 25, PO Box 211, 1000 AE Amsterdam, The Netherlands; 502 + ix pp.; price $112(US) or Dfl280; ISBN 0-444-42698-1.

Application of statistical methods in the field of environmental sciences have increased somewhat in scope and extent in the past decade although they have not been prolific and intensive compared to work in the agricultural and medical sciences, initiated by some well known statisticians more than 50 years ago. The likely reasons for the slow start are scarcity of data for purposeful analysis, general uncertainties in the area which do not highlight appropriate methods and a lack of direction in research activities.

The workshop organized at the National Water Research Institute in Birmingham, Ontario, Canada, has come at an opportune time. Contributions include those by environmental scientists, statisticians and applicants of statistical methods in the regulation and control of water quality in streams, rivers, reservoirs, lakes and estuaries, modelling of aquatic environments, network design and limnology.

The organizers were hopeful of useful interactions between different scientists and statisticians and the 37 papers were

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