it is useful to have the written version of those talks at hand. The discussion of drinking water standards by Vogt and Cotruvo and the tight review of health implications by Kamrin are excellent reference material. Hornsby's discussion of his teaching model is another useful reference. The book will not be useful to those who want a broad overview of rural groundwater contamination, but will be useful to those interested in the specific topics covered by specific authors. The book is well written and targets an issue of importance to agriculture and rural communities.—ANN T. LEMLEY, College of Human Ecology, Cornell University, Ithaca, NY 14853-4401.

Ground Water Quality and Agricultural Practices


Because the relationships between agricultural practices and groundwater quality have not been addressed as extensively or effectively as have other pollution processes, a national conference, Ground Water Quality and Agricultural Practices, was held at the University of Oklahoma, 1–2 May 1986. This book contains 27 chapters resulting from the presentations made at the 2-day conference. These chapters are arranged under the categories of Introduction (two chapters), Ground Water Usage (seven chapters), Agricultural Chemical Usage (four chapters), Ground Water Pollution Sources and Evaluation (nine chapters), and Protection and Management (five chapters). A very useful index is included. Background of the authors varies widely, including government and university scientists, regulators (USEPA, state agencies, conservancy districts), planning groups, and consultants.

Introductory chapters discuss USDA research on groundwater quality and USEPA water-well-monitoring activities. The chapters on groundwater usage address water development and usage in the Great Plains states, especially as related to use of groundwater from the Ogallala and other aquifers. Efforts to increase water conservation and aquifer recharge are also discussed. Other chapters in this section are concerned with development of computer models of stream-connected phreatic aquifer systems, salt water intrusions (including saline seeps), and land disposal of municipal sewage effluent.

Three of the four chapters on agricultural chemical usage discuss the use of nitrogen fertilizers in agriculture, and the fourth is concerned with subsurface transport of agrochemicals. These papers identify potential sources of nitrates and other chemicals in groundwater and identify best management practices to control agrochemical leaching. The importance of using well calibrated soil tests as a basis for nitrogen fertilizer recommendations is emphasized. Use of conservation tillage (especially no-till) may temporarily immobilize nitrates and some pesticides, but the long-term effects are not known. Chapter 3 presents a very useful index to this section of the book and is more inclusive than that of soil scientists, as it includes the unconsolidated and poorly consolidated materials on the face of the land.

Chapters in the section on protection and management are found on best management practices and other approaches to solving groundwater quality problems. Several chapters discuss legislative and educational approaches. Effective educational programs as a mechanism for alleviating groundwater quality problems in Iowa, Delaware, and the Chesapeake Bay area is documented.

This book provides a very useful overview of groundwater pollution sources and related groundwater quality problems in the USA. More detailed coverage is provided in the chapters on Iowa and the Southern Plains, other regions are represented and the topics discussed are addressed, not only from the scientific, but also from the legal, economic, educational, and other points of view. This book in any of these approaches to this problem will provide viewpoints and information in the book. It should be of interest to a wide audience.—JAMES F. POWER, Research Service, U.S. Department of Agriculture, Hall, East Campus, University of Nebraska-Lincoln, Lincoln, NE 68583.

Hillslope Stability and Land Use
(Water Resources Monograph 11)


The goal of this monograph is to compile research on soil mass movement into a useful reference for scientists and students. The majority of the examples selected come from timber and mine land management, examples coming from the author’s experiences in the USA and New Zealand. The authors caution that their book on soils is more inclusive than that of soil scientists, in the unconsolidated and poorly consolidated materials on the face of the land.

Chapter 1, “Significance of Soil Mass Movement,” begins with a tabulation of major destructive landslides in Oregon and continues with a discussion of the implications of tectonics on landslide occurrence and the economic impacts of soil mass movement. Types of soil mass movement are considered in Chapter 2 (“Major Types of Soil Mass Movement”). The photographic examples in this chapter and in this book generally are of uneven quality. In some, neither the scale nor the phenomenon being illustrated are clear.

Chapter 3, “Slope Stability Analysis,” is a good analytical technique. In addition to the presentation of formulas, there are examples of stability analyses that are the longest in the book. The title of “Hillslope Stability and Land Use” suggests that soil scientists may be interested in the phenomena illustrated.