Groundwater is one of the most valuable resources on earth, which supports socio-economic development and ecological diversity. However, overuse and unabated pollution of groundwater are threatening human life and various ecosystems. The sustainable management of freshwater in general and groundwater in particular, is a major challenge of the 21st century. Use of conventional techniques/tools is often severely limited by the lack of adequate data, particularly in developing nations. As a result, innovative technologies like remote sensing (RS) and geographic information system (GIS) have a big role to play. As we know, the role of RS and GIS techniques in surface water hydrology is well demonstrated and a plethora of research papers have been published in different journals, coupled with several conference proceedings. However, the applications of these promising techniques in groundwater hydrology have received only cursory treatment, mostly focusing on a specific aspect only, and are less documented as rightly pointed out by the authors. The editors of a reputed international journal on groundwater, namely Hydrogeology Journal published by Springer, have published a special issue in 2007 on RS and GIS applications in hydrogeology, which reflects the global importance of the subject. However, in the era of information technology, a suitable book solely dedicated to the applications of RS and GIS techniques in groundwater hydrology or hydrogeology is lacking. The present book by Jha and Pieffer fulfills this gap. The book is indeed a timely and important contribution to the field of groundwater hydrology (or hydrogeology).

At the outset, the consequences of imprudent exploitation of the scarce groundwater sources are brought out. The usefulness of RS and GIS technologies for a succinct study of the problem is explained. The basic concepts, working principles and applicability of the two technologies to groundwater studies are elucidated with a detailed review of the relevant literature. Based on the literature study, the authors have identified six major groups of relevant case studies in the next edition. However, in my opinion, the book brings together, uniquely and lucidly, the various aspects of application of RS and GIS technologies in groundwater hydrology. This book would prove to be equally useful to students, researchers and on-field planners. The figures and tables are of good quality and are presented to the theme. It embodies the Proceedings of the 12th National Symposium on Hydrology held at New Delhi in December 2006. The authors attempt to address almost all aspects of groundwater governance, starting from optimal utilization, overexploitation, and pollution of the resource to institutional and legal reforms, water rights, water pricing and sectoral allocation. The editors have divided the book into five parts devoted to these interrelated themes.

The first part of the book, which is in effect a preamble to the other sections, is devoted to the theme of groundwater management and its emerging challenges. There are eighteen articles in this section. In his lead paper, S. Romani underlines specific strategies in varied hydrogeological terrains for optimal groundwater development and management, and for ensuring equity and sustainability of the resource. According to Stephen Foster and Hector Garduno, management options in hard-rock areas, often hit by over-exploitation, involve cross-sector approaches, including agriculture, energy and trade-policy interventions. They advocate dry land agriculture, development of alternate livelihoods, crop-water planning to maximize farmer’s income and minimize groundwater use, conservation of drinking water sources and groundwater augmentation. In sedimentary tracts, shared utilization and protection of large, inter-state aquifers are of prime concern. Authors have presented interesting case studies like groundwater abstraction systems in varied hydrogeological environments.