

assessment of rare and threatened species, and their monitoring and management. The core of the studies lies in the systematic treatment of each level of taxa which are well documented with rich and neatly drawn illustrations and good quality photographs depicting important taxonomic characters in each species. The systematic treatment begins with key characters to segregate the orders of two distinct evolutionary lines, the Hepaticae and Anthocerotae followed by families, genera and species of the study area culminating in description of individual species. The most impressive and noteworthy feature of the book is the precise and consistently structured species diagnoses and completeness of description with all possible details including reference to specimens examined and characteristics of the species.

The book is a comprehensive treatment of 104 species and infraspecific taxa belonging to 45 genera and 27 families of liverworts and hornworts supported by a geographical map of the area, 111 test figures, 105 plates of coloured and black and white photographs. Most importantly, this morpho-taxonomic treatment has added 49 taxa including three species and a variety described as new to science and four species and one subspecies recorded as new to Indian bryoflora. This contribution has undoubtedly brought to light the rich diversity of these plants in Kullu and its neighbouring areas, and thus constitutes a standard reference for identification of Indian liverworts and hornworts in general and Himalayan plants in particular. The conservative approach of the authors towards delimitation of various taxa at all levels of classification appears to be reasonable in view of the fact that the taxonomic concepts developed earlier have been accepted as far as possible.

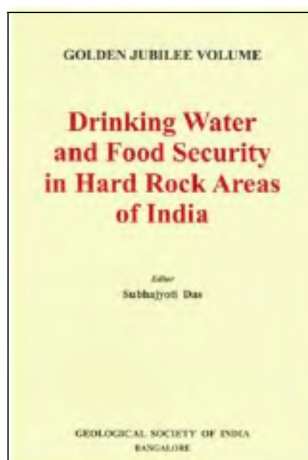
It may be mentioned that the usability of the book would have been improved by describing the species according to the sequence observed under, key to species instead of describing them alphabetically, which appear to be inconvenient to the users. Secondly, the taxonomic description of each species should have been appended with notes uniformly rather than selecting only few species. The description of oil-bodies, which is lacking in many species of liverworts, would have been helpful in taxonomic delimitation of leafy taxa, although the study of oil-bodies is limited to living

plants only as they disintegrate in due course of time, or soon after preservation or death of the plant.

The book is extremely useful and an indispensable reference in current taxonomic literature and would prove to be a helpful guide for students and researchers in bryology in India and elsewhere.

S. C. SRIVASTAVA

*National Botanical Research Institute,
Rana Pratap Marg,
Lucknow 226 001, India
e-mail: sri_scs@rediffmail.com*



Drinking Water and Food Security in Hard Rock Areas of India. Subhajyoti Das (ed.). Geological Society of India, Bangalore. 2008. 264 pp. Price: Rs 600.

This book is a compilation of several articles relating to water and agriculture in the hard rock terrain of south India, particularly in Karnataka. The articles have been broadly classified into Groundwater resource and monitoring; Water, soil and crop management; Water quality and drinking water, and Mass mobilization and role of financial institutions in water management. Since water and food security are most important for our country, the timely publication of this volume is relevant and thoughtful.

The book starts with an article on water management with reference to recent studies and experiences dealing with some command areas of Karnataka showing their inadequacy in planning or in management strategies adopted along with the competition among several sectors. This has given a good beginning by clearly bringing out the salient features of these projects for the matters that are to follow.



Typical water pond in villages

Tools to address the groundwater resource in a hard rock terrain and classification of the different geological zones in terms of groundwater availability and its limitations have been discussed. Variation of groundwater levels in a typical hard rock terrain has been discussed in detail. One more important topic covered is the network design options for monitoring a hard rock aquifer. With several articles discussing about the soil, water and crop management; topics such as soil fertility for sustainable agriculture; integrated watershed development for a particular type of watershed; land evaluation in a microwatershed in a dry zone as well as in an irrigated zone; groundwater use in a tank command area; role of drip irrigation and rain water harvesting, and artificial recharge techniques, to name a few, have been covered. The legislation aspect of the groundwater development has also been discussed. Under water quality and drinking water related issues, case studies with success stories have been presented for rural drinking water systems. Fluoride impact and its mitigation through dilution technique has been tried out successfully. In the last section, emphasis on rain water harvesting as a mass movement has been clearly indicated along with the role of financial institutions, and watershed development.

The book consists of very varied and wide topics with most of the articles dealing with field applications instead of routine theoretical approaches. With the type of subject matter discussed, the book will be useful for people interested in the area of water resources assessment and management especially in a hard rock terrain. It will definitely serve as a reference manual in this area of activity.

M. S. MOHAN KUMAR

*Department of Civil Engineering,
Indian Institute of Science,
Bangalore 560 012, India
e-mail: msmk@civil.iisc.ernet.in*