BOOK REVIEWS

Groundwater in Emergency Situations. Jaroslav Vrba and Balthazar Th Verhagen (Eds), IHVP VI, Series on Groundwater no 12, UNESCO 2006, 94p

Super cyclone of Orissa, Kutchh earthquake and Tsunami – occurred in succession not so long ago Faces of hapless people in distress, dazed in bewilderment, without drinking water, food and shelter, are still fresh in our memory Such calamities, climatic or geological, or even catastrophic man-made events wreak havoc in one or the other part of the earth every year The first to affect the livelihood of people is the supply of water A crippling effect on expeditious relief or rehabilitation operations due to critical shortage of water for drinking and sanitation often leads to spread of diseases and epidemics In such situations governments, too, are slow in their response because of utter lack of technical and scientific preparedness to tackle such eventualities, which often occur on a gigantic scale This makes a sad story, that too in this high-tech 21st century So far, number of reports have appeared in print stipulating "dos and don'ts" in emergency situation, but mostly of a generalized nature, and fail to address the most vital aspect of water supply in emergency situations Against this background, we heartily welcome the publication brought out by UNESCO – a notable departure from the routine, a comprehensive and well produced hand document chartering a definite course of action in such critical situations

This framework document is the product of Groundwater for Emergency Situation (GWES) Project, implemented as part of IHP activities by experts of UNESCO, IAH, IGRAC, and representatives of various countries including India It proposes suitable methods of investigating reliable groundwater resources for emergency situations and lays out basic rules for their exploitation

Groundwater has a proven record of sustainability It is pure, occurs in vast subsurface reservoirs, generally not affected by natural disasters, needs little or no treatment before use and easily exploitable Hence, it is a strategic resource in emergent situations Public awareness and alertness of the authorities about this priceless resource is rather poor, which acts as a formidable bottleneck in harnessing this resource at times of necessity

The book is subdivided into eleven chapters The first two chapters are introductory Chapter 3 on groundwater origin, occurrence and movement presents an excellent summary of hydrogeological models in natural settings written in a way easily understandable by one and all Chapter 4 is devoted to event specific risk management of groundwater resources, such as floods, droughts, earthquakes, volcanic activities, landslide disasters and tsunami The narration is supported by good photographs and figures This is perhaps the first publication of its kind outlining approaches to deal with specific crises

Chapter 5 presents a comprehensive account of investigations and analytical procedures involved in planning resource development, and highlights the use of modern tools like geophysics, remote sensing, isotope hydrogeology in presenting hydrogeological features The role of mathematical modeling and GIS application in handling different disaster scenarios have not been overlooked and are dealt in a most competent manner

The crucial input of the document is Chapter 6 detailing ways of building institutional and technical capacity at both local and national levels, as also their respective roles The book rightly stresses the need for legal framework and regulatory status to support disaster reduction, establishment of control mechanisms by governmental authorities dealing with environment and water Training and motivation of human resources and active public participation and the establishment of early warning and monitoring system are specially emphasized

Keeping in view the social, health and economic impacts of catastrophic events, this document in Chapter 7 stipulates activities in specific phases of disaster prevention and mitigation – anticipatory, warning, impact relief and rehabilitation Chapter 8 gives several interesting case studies including Kutchh earthquake and Tsunami which are informative making the book specially relevant in the Indian context It also provides a glossary of technical terms to assist the non-technical reader

This framework document summarizes all aspects of risk reduction and mitigation of calamities with respect to water supply Editors Jaroslav Vrba and Balthazarth Verhagen assisted by the contributing authors have done a commendable job This much awaited document will prove to be a valuable guide for disaster management operations across the globe, particularly in the developing countries

True to the traditions of UNESCO publications, this one also is written in lucid language with plenty of illustrations and photographs, making a very difficult and complicated subject easily understandable by all In real terms, the book charters a course for the empowerment of hapless millions in the under developed parts of the world, who chronically suffer from natural or man-made disasters year after year

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Online Databases and Other Internet Resources for Earth Sciences. P Venkataramana Chandos Publishing, Oxford, 2007, 312p

This volume is a "quick print reference guide" to the volumes of information resources in Earth Sciences available through the Internet As we all know, the internet has created fundamental changes in awareness and access levels of databases across the world, in an "online format" Students are now able to get information in volumes and speeds hitherto unknown with the spread of the internet Sadly, this has also brought about a culture where a majority of students display "awareness (data)" of a vast variety of subjects, but no knowledge Again, limitations on information on where the correct knowledge is available on the internet (driven through a variety of reasons which have no bearing

here) adds to this problem

This book seeks to bridge this gap by providing a ready reference on where in the digital world of the 'world-wide-web' should one look for in various branches of earth sciences On that account, the book is worth recommending to all graduate and undergraduate teaching institutions

The first two chapters of the book give a background of the digital world of data The section on search engines and their structures in the second chapter of the book is an eye-opener for the beginner and I am sure that this will provide an invaluable insight to the users of this book on how to enrich oneself through the vast data available via the internet These details will be rarely if ever available to standard earth sciences students

The ensuing 6 chapters capture the various resource addresses in a classified sequence covering various branches of earth sciences Polar regions, Geochemistry, Geophysics and Environmental studies, Marine sciences, Palaeontology and finally Geology and Geomorphology have been covered in these chapters Under various subheads within each chapter, the catalogue of the "web-site" (its url address), followed by its ownership / host and a summary of its contents has been given This provides a kind of 'ready-reckoner' for various subjects listed in the book The classification of the sub-branches of earth sciences followed by the author may be open to some criticism At the same time, complete absence of coverage of some key branches of earth sciences such as "Stratigraphy" and 'Meteorology / Climate studies' is shocking

The concluding chapter comments on the current state of the art, points out that most (if not all) of the sources of this data are located in select developed countries and that access to earth science information from the rest of the world is still lacking The indexing provided in the book is extensive and deserves to be applauded While the author has maintained neutrality in terms of qualifying various websites in terms of their contents, such studied opinions would have added flavour to this compilation

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Ammonite Biostratigraphy of Middle to Late Jurassic Rocks of Jaisalmer Basin, Rajasthan, India.

Surendra Prasad (2006) *Palaeontologia Indica*, Memoirs of the Geological Survey of India, New Series, 52, xi+146 p , 21 pls , Calcutta ISSN 0970-0258

It is perhaps a truism to claim that the Jurassic is today the best understood of the three Systems that make up the Mesozoic Its geological history is recorded world-wide in unsurpassed detail This happy result owes much to the presence of ammonites as guide-fossils, which have made possible the time-correlations of rocks across distances and at levels of time-resolution having few rivals But even so, bioprovincial endemisms set limits to what can be achieved, in a pay-off between distance and time-resolution

One of the major bioprovincial schisms in Jurassic ammonite distributions lay between the northern and southern shelf-seas of the Neotethys Historically, those of the northern regions as seen in Europe provided the earliest descriptions, going back notably to d'Orbigny and Oppel in the first half of the 19th century But the recognition of the richest development in the southern palaeohemisphere quickly followed It lies in the neritic shelf-sea sediments of the Kutch basin in western India These attracted attention from the earliest days and mapping by the Geological Survey of India, together with detailed biostratigraphy by Ferdinand Stoliczka in the years 1871-72, led to the publication of one of the most important works on ammonites ever to appear The author was Wilhelm Waagen, pupil of Oppel, the model was Oppel's *Die Juraformation*, the work appeared in 1873-75, only a decade and a half later, it was published in *Palaeontologia Indica*, and it remains as fundamental today as it was when published All subsequent work, adding much from new collections, continues to be built upon it

But it had also long been known that besides Kutch there is another region in western India in which marine Jurassic rocks occur It lies to the north-west of Jaisalmer in Rajasthan, about 400 km NNE of 'Mainland' Kutch and it forms the subject of the monograph under review Compared with Kutch, however, there are difficulties The outcrops lie in the desert of western Rajasthan, which is widely covered in shifting sands with little or no rainfall to create new exposures Outcrops are scattered, discontinuous and deeply weathered The total area is also only about a tenth that of Kutch Finally, ammonites are much sparser, samples from a bed or locality rarely exceeding a few specimens The present work sets out to provide a more comprehensive synthesis and is based on the field-work of the author over several years

On the lithostratigraphical side, we are given a survey of localities, sections, Formations and their Members, both in text and in 14 graphical tables The descriptions of lithologies are still rather basic and might leave a sedimentologist wishing for more Nevertheless, in the inevitable comparison with Kutch, the first impression is one of overall similarity, with some striking differences The main body of sediments to have yielded the ammonites described here belong to the Jaisalmer Formation (230 m), which correlates well with the Chari Formation (or Group) of Kutch Notable is the seeming presence in the lower part also in Jaisalmer of one of the great specialities of Kutch, that of the Golden Oolite, made up of genuine ooliths coated with a slightly ferruginous iridescent coating of calcite, found there sometimes in huge banks at various levels of from Upper Bathonian to Lower Callovian ages Near the top of the Jaisalmer Formation occurs also the other speciality of Kutch, the so-called Dhosa Oolite, a thin but sedimentologically very complex marker-bed underlying a major non-sequence

The main body of the work is however concerned with a description of the ammonites The new collections are now described in greater detail, illustrated in 21 plates They are assigned to some 60 or so nominal taxa at specific rank distributed over 34 genera or subgenera But it has to be said at the outset that the taxonomy is strictly in terms of morphotaxa, matching individual specimens with others that have been described under similarly morpho-taxonomic names Of the 60 nominal species cited, 40 are based on types from Kutch Discussions at this level must therefore be