

BOOK REVIEW

RIVER MORPHOLOGY by R. J. Garde, (ISBN 81-224-1864-3), New Age International (P) Limited, Publisher, New Delhi, 2006, 479p. Price: Rs. 495.

Some of the earliest attempts to systematically investigate the complex relationship between water flow, sediment transport and the channel morphologic properties of alluvial rivers were made in India by hydraulic engineers. This research in fluvial hydraulics, carried out between the 1920s and 1940s on the basis of field data from rivers and canals in Punjab, Sindh and Madras, as well as model experiments, has immensely contributed in improving our understanding of the morphologic and behavioural characteristics of the alluvial rivers. However, in spite of this fundamental and pioneering research on alluvial rivers in India, dearth of textbooks on river morphology, with examples from India has been felt for a long time.

The recently published book on "River Morphology" by Professor R. J. Garde, former Professor of Hydraulic Engineering at the University of Roorkee (now IIT, Roorkee), will surely fill this gap in the literature to some extent, because of its emphasis on alluvial rivers and their hydraulics, and inclusion of a chapter on the morphology of some Indian rivers. The book is cast in a mould different from other available books on Indian rivers that provide only a descriptive account and/or statistical information about the Indian rivers.

The book under review gives a systematic approach to the science of rivers. The book comprises 15 chapters. Beginning with the major problems in river morphology and history of fluvial hydraulics and geomorphology, the book covers virtually every aspect of fluvial geomorphology, namely, drainage basin characteristics, fluvial morphology, principles of sediment transport, hydraulics of alluvial and gravel-bed rivers and fluvial dynamics. The author has ably integrated geoscientific studies and hydraulic engineering

experience to help develop the understanding of alluvial rivers, and their forms and processes.

Two chapters on modeling deal with problems in alluvial stream transients and basically address the needs of students of hydraulic engineering and hydrology. Non-engineering students may find these chapters and a few other chapters with series of empirical equations and formulae rather intimidating. Nevertheless, the best part of the book focuses on topics that are of interest to the students of earth sciences.

Apart from discussing the basic principles and concepts in fluvial geomorphology, this book includes a discussion on the effects that human activities and hydraulic structures have had on rivers. The text is profusely illustrated with diagrams and figures. At the end of every chapter, important references to the scientific literature on the science of rivers are given. Inclusion of latest references would have further enhanced the value of the book. Though the focus of the book is primarily on modern fluvial forms and processes, historical aspects have not been neglected. There is a full chapter devoted to palaeohydrology.

Although the book under review is more appropriate for engineering students, students and researchers in the field of geography, geology, geomorphology, geoarchaeology and environmental sciences in general, and students of fluvial geomorphology and fluvial sedimentology in particular would find it useful as it adopts a different approach to explain the morphological and behavioural characteristics of alluvial rivers.

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HYDROGEOLOGY OF CHHATTISGARH. North Central Chhattisgarh Region, Central Ground Water Board, Raipur, 2006, 184p., Price: Not indicated.

Groundwater, though is a natural replenishable resource, its assessment is complex, specially in hard rock areas. Large volume of accurate and scientific data is required for proper assessment of groundwater resources. But unfortunately, long term, precise measurement of hydrological, hydrometeorological and hydrogeological

data of a region, at one place is not available. In this direction, the present work on Chhattisgarh region is commendable.

The book contains 14 chapters running to 184 pages. Each chapter is written by different authors and contains well prepared maps, tables and charts. It is a compilation of