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BOOK REVIEW

HIMALAYAN GLACIERS: HYDROLOGY AND HYDROCHEMISTRY

by Syed Iqbal Hasnain, Allied Publishers, Mumbai, 1999, 234p., Rs.450/-

Himalayan glaciers are fascinating. They have attracted sages and scientists alike from time immemorial. Himalayan glaciers assume importance from the fact that all the north Indian rivers originate from these glaciers and have supported civilization through the ages. These glaciers have influenced the hydrology of north Indian rivers, thereby having impact on ecology and climatic changes not only in the Himalayan region but also globally. During the twenty first century, supply of high quality water will form a critical issue because of population pressure and industrialization. Effective management of water resources, therefore, assumes utmost importance not only for

sustainable development, but also for understanding climate variability and effects on environment. A thorough understanding of water availability and movement is important for rational water management. In 1965, the first world-wide programme of study of hydrological cycle was launched as the International Hydrological Decade. In 1975, the International Hydrological Programme expanded the objectives of IHD, and under IHP not only the hydrological process in interrelationship with environment and human activity was considered, but also the scientific aspects of multipurpose utilization and conservation of water resources to meet needs of economic and social development was taken care of. Hydrology of Himalayan glaciers assumes importance in the above context.

The book under review is perhaps the first attempt to bring this topical subject in book form. Study of Himalayan glaciers is over a century old. Geological Survey of India, in the late nineteenth century and early twentieth century, monitored Himalayan glacier snouts and moraine-dammed lakes, besides bringing out the geomorphology of glaciated regions. Glacier studies in a well coordinated manner and on scientific lines were, however, started by GSI only in 1974. The hydrology of glaciers formed one of the main themes of study. However, most of the data and understanding of the hydrology of about ten glaciers studied by GSI have been presented in form of unpublished reports only.

A textbook should not be a mere collection of information. Instead, it should be presented in a manner that kindles the inquisitiveness of the reader. In the book, under review, the topics of process of solute acquisition in glacier melt stream, mixing models, and investigation of flow routing of meltwaters in glaciers have not been addressed in totality. The views contrary to the one enumerated in the book should also have been dealt with adequately. In this connection, it is pertinent to recall the views of Sharp and others (Journal of Glaciology, v.41, no.138, 1995) that "at present it is not clear that these requirements can actually be met and we therefore advocate restraint in the application of mixing models in glacier hydrology. We also believe that conclusions drawn from past applications are unreliable and that they do not provide a satisfactory basis for discussion of the functioning of the glacier drainage systems".

A good subject does not necessarily ensure the success of a publication. Cohesiveness, factual accuracies and lucid style of dealing with even the serious subjects are essential elements. Perhaps the book has not gone through the rigours of editorial reviews. Otherwise the factual misinformation from page one of the introductory chapter would not have found a place. I am tempted to cite few examples: (i) The documentation of glacier lengths for Kedarnath, Milam, Barashigri glaciers are inaccurate. (ii) Table 1.2 should be 1.3 and vice-versa. (iii) Table 1.1 gives misrepresentation of data as regards cumulative area vacated since 1935 (in %). (iv) The statement that "it takes about 1000 years for snow to turn to glacial ice" is not convincing and incorrect. Similarly care should have been taken in citing some of the references in their proper format (page 228). Editorial lacunae and factual inaccuracies, however, can be rectified in the second edition of the book. Nevertheless, the book brings out at one place the whole gamut of theory as well as the results obtained by author on glaciers for the Himalaya and this will be very useful to the students and researchers.

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