

## *Preface*

No region of the world excites the imagination and calls up vision of the exotic more than the Himalaya. Their soaring peaks and fertile valleys have nourished some of the world's most ancient cultures and religions. It is regarded as the largest, youngest, loftiest and most fragile mountain systems in the world that stretches about 2500 km long and 240 to 340 km in breadth, with altitude ranging from 300 to 8598 m asl and occupies an area of 591,000 km<sup>2</sup> in India. There are nearly 15000 glaciers in the Himalaya extending from Kashmir in the west to Sikkim in the east and produces 0.1 cubic kilometer of water during summer season.

The total inland water sources of India is 7.4 million ha of which 0.72 million ha falls in the colder mountain region. India is endowed with 14 major river systems and 4290 large lakes. High mountain lakes and streams are becoming increasingly attractive, both for researchers and for the public, as they are some of remnants of the natural ecosystems in the densely populated world. Besides their natural beauty, they are so valuable because they represent the remote and extreme conditions in many ways. Millions of people of low land depend on the mountain watersheds for supplies of fresh water. But due to their sensitivity to the slightest they have become important paradigms and have sharpened our senses and increased our understanding of various forces and responses that lead to change the habitats of minute organisms and the entire ecosystem. The present thesis deals with hydro-ecology of a sacred lake in relation to the pressures from its drainage basin.

Higher studies have a unique attraction for it not only adds a certain degree to our name but also adds a new dimension to life. This fascination urged me to go ahead with my work, which required me to go to inaccessible remote areas. Initially, I was plagued with various kinds of problems and people from all walks of life have come forward to overcome this hardship to make my work and my dream a reality. The work was initiated with shaky ideas which took the present shape only with the inputs of my supervisors Dr. E. Sharma, FNA.Sc, Scientist 'D' and In-charge of

GBPHIED Sikkim Unit and Dr. Joydev Pal, Reader and Head of Zoology Department, Center for Life Sciences, North Bengal University. I record my heartfelt gratitude and indeptdness for their valuable guidance, without which this piece of work could not have taken this presentable form and this thesis would have been inconceivable. I show my gratitude to Dr L.M.S. Palni, FNA.Sc, Director, GBPHIED for his personal interest and his constant inspiration to construct my vision for deep scientific work in the near future.

This work was started in the west district of Sikkim with the initiation of the project entitled "Sikkim Biodiversity and Ecotourism", a project faciliated by the Mountain Institute USA, G.B. Pant Institute of Himalayan Environment and Development, Travel Agent Association of Sikkim (TAAS) and The Kanchendzonga Conservation Committee.

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The field trips were exhausting and tiring with tough work and with uncountable leeches all over the body but all these experiences really thrilled me in terms of new findings and interesting results. During this period of tough field work help from my friend Mr. H. Birkumar Singh was great who selflessly helped me to make my feet wet. His patience and support behind all those obstacles just can't be forgotten. After each trip sharing our new experiences in the lab and doing the analysis was a part of my job. I took help from a number of persons during this period with best efforts of Mr. J. Dhakal, Mr. P.K. Tamang, Mr. M. Thapa, Mr. A. Tamang, Mr. P.B. Chettri, Mr. Shyambir and Mr. S. Balmiki of GBPHIED.

Computer became a part of my daily routine during the research tenure and by the efforts of Mr. M.V.S. Manian I could learn and optimized the use. Dr. Rodney Jackson guided the computer use on statistical analyses.

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Tadong, Sikkim

Dated:

  
(Alka Jain)