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**FORESTS OF
THE
HIMALAYAN-
HENGDUAN
MOUNTAINS OF
CHINA AND
STRATEGIES
FOR THEIR
SUSTAINABLE
DEVELOPMENT**

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(ICIMOD)
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Forests of the Himalayan-Hengduan Mountains of China and Strategies for Their Sustainable Development

Foreword

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Foreword

Forests are the wealth of any country. Besides supplying timber and other products, forests play a vital role in environmental protection and are also of economic and social significance. Forests in mountain areas are particularly important because they protect soil cover on site and protect downstream areas from excessive flooding and other harmful fluctuations in stream flow; thus reducing the silt load of rivers and preventing the clogging of reservoirs, irrigation systems, canals, and docks. This is particularly important when forests are located in heavily populated, fragile mountain areas, such as those of the Himalayan and Hengduan mountains, where high intensity, long-duration rainfall, extreme variations in land formation within short distances, steep stream gradients, earth tremors, mass movements, landslides, and other natural hazards are common. In these areas, accelerated forest degradation causes adverse effects not only in the uplands but also in the adjoining lowlands. Upland erosion is leading to extremely high sediment loads in many of the region's rivers, causing sedimentation and siltation damage to reservoirs, hydro-electric projects, and irrigation and domestic water supply networks. These have caused an increase in the frequency of floods and loss of crops, property, and lives.

Since the 1950s, much work has been carried out, both in terms of integrated survey of the forests and in terms of the improvement in forest management in the Himalayan-Hingduan Region. Unfortunately, because of language and other constraints, very little information has been made available outside China.

This paper was prepared as a Senior Research Fellowship at ICIMOD and was sponsored by the Ford Foundation. The purpose of this paper is to summarise

the findings of research into the Forests of the Himalayan and Hengduan Mountains and to provide recommendations for their sustainable development. Work started in 1989 and the first draft was submitted to ICIMOD in the Spring of 1990.

The author, Professor Li Wenhua, then updated his work during 1991 and 1992. He has done a commendable job, although he never expected to exhaust all the findings in this field. Nevertheless, the work constitutes a valuable preliminary introduction to this extremely interesting region and a sound basis for further study and exploration.

Han Yufeng, Lai Shideng, Cheng Caizhen, Yao Peizhi, In Bingao, and Liao Jungao assisted the author who also received many useful suggestions from ICIMOD professionals in terms of improving and editing the volume. The study will provide a source of reference on the rich bioresources of an area about which, heretofore, little was known.

E.F. Tacke
Director General

Preface and Acknowledgements

The Himalayan-Hengduan Mountains are among the most magnificent mountain ranges in the world. The mean elevation of the central axial ridge is from 4,000 to 6,000masl; this range constitutes the highest mountain system in the world. The mountains are characterised not only by unique physio-geographical conditions but also by rich natural resources, among which forest resources are one of the most important.

Although fragmental studies on the forests of this region can be traced back to the end of the nineteenth century, the intensive investigation of forest vegetation did not commence until the 1950s. The Kunming Institute of Botany, the Yunnan Tropical Institute of Botany, the Chengdu Institute of Botany, the Chengdu Institute of Biology, the Langzhou Institute of Plateau Biology, as well as many universities, such as Yunnan University, Sichuan University, and other forestry colleges, have carried out systematic research in this region. A number of forest surveys has been carried out in the Hengduan Mountains by research institutions and expedition teams from the Yunnan and Sichuan provinces.

In order to explore the causes of upheaval and the environmental changes of the Qinghai-Tibetan Plateau, as well as to put forward a proposal for the rational use of natural resources, a series of eleven large-scale multidisciplinary scientific expeditions were organised by the Chinese Academy of Sciences.

Although there are many publications, including papers, reports, and monographs, that describe specific topics or individual aspects of the region, none of them provide a systematical review and analysis of the forests of the region as a whole. Because of language constraints, very little information has been made available to academic circles outside China.

This book gives a general overview of the existing knowledge regarding forests in the Himalayan-Hengduan Mountain areas, based on first hand information from the author who carried out research in this region from 1973 to 1985. In addition, valuable supplementary information from the above-mentioned institutions and scientific expeditions, as well as recent research achievements, have also been included.

The book describes the topography, climate, soil types, and the floristic compositions in the context of the rich forest resources, both coniferous and deciduous, and the unique rules of their distribution. The productivity of these forests and their role in environmental protection are reviewed. The processes of forest degradation are also discussed as well as strategies for rational sustainable development of forestry in this unique mountainous region.

The author hopes this book will do justice to the contributions of those who have worked in these remote and difficult inaccessible mountain areas. Among others, Professor Han Yufeng worked with the author from 1973 and made a substantial contribution to the study of forests in southwestern China. Professor Laishideng and Lian Zunguo; Mr. Deng Qunmai, from the Commission for the Integrated Survey of Natural Resources of the Chinese Academy of Sciences; and colleagues from the Forest Survey of the Tibetan Autonomous Region assisted in the field survey and in processing the data collected. Among others, Ms Cheng Caizheng, Yau Peizhi, Ying Bingao, and Song Je were particularly helpful. As I wrote this book, I remembered the days and nights spent in this area and all those who accompanied and assisted me in carrying out expeditions and research under extremely difficult conditions. To them I am extremely grateful.

Finally, I am grateful to Professor Colin Rosser, the former Director, Dr. Tacke, the Director General, and Dr. M Banskota, the Director of Programmes of ICIMOD for their encouragement and support in preparing this book. I also wish to extend my sincere thanks to the Ford Foundation for its generous support in providing me with this opportunity through the Senior Fellowship Programme of ICIMOD.

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