

## **Book Review: Energy Use in Mountain Areas: Trends and Patterns in China, India, Nepal and Pakistan**

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### Energy Use in Mountain Areas: Trends and Patterns in China, India, Nepal and Pakistan.

Edited by Kamal Rijal, The International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal, 1999. 282 pp. US\$15 (developed countries, agencies); US\$10 (developing countries). ISBN 92-9115-872-0.

The current world development process is based on the concept of globalization as the immanent and natural process leading to the harmonization of human efforts for sustainable development. In this respect, it is of great importance to focus attention on understanding regional patterns of development because these are the basic structures for the further democratization of the process on our planet. Consequently, any effort to enlighten our regional knowledge is of paramount importance for the future strategy of globalization. Since energy development is a driving force for regional economic and social development, this book is a substantial contribution to increased understanding of problems in mountain areas and also provides a good example of a regional energy concept.

The mountains of the Hindu Kush-Himalaya (HKH) are rural, an example of a region with common features reflecting specific needs for local planning and management programs. For the rest of the world, there is a need to disseminate findings from this region, presenting it as a model to be followed in other parts of the world with similar constraints. The dissemination of information to the public at large also opens a new venue for possibilities to assist in organizational efforts and envisaged assistance for the region's further development. In particular, the rural energy develop-

ment pattern provides an important paradigm for the development of energy strategies in different areas in the world, particularly other low-income regions. Since the HKH is a multiethnic environment with different state administrations, the solution and joint effort for a future energy strategy may lead to economically justified incentives for international support for its development.

The effort of the authors to present a clear picture of the present and future state of the energy situation in different countries of the region provides many lessons about the problems of mountain areas. The material in the book comprises data that are systematically presented and will serve as a knowledge base for many who will actively participate in the development of sustainability concepts. The 7 chapters contain summaries of country review studies together with accounts of the main policy and institutional issues identified and descriptions of approaches and strategies proposed for sustainable energy development in the mountains.

Chapter 1 summarizes and compares the present pattern of energy use and resource availability, factors influencing energy use patterns, and constraints to the development of the energy sector in the countries of the HKH region as a whole since these influence the development of the energy sector in the HKH region in each country. Chapter 2 summarizes the main findings of the studies carried out in China, India, Nepal, and Pakistan, covering the HKH region of each country exclusively. This is a first attempt to analyze and present the energy use pattern, the status of renewable energy technologies, energy policies, programs, and institutions within the HKH region of these countries. Chapters 3–6 summarize the energy consumption pattern, energy resource base, energy use, renewable energy technologies, energy planning, and program

implementation in the HKH regions of each of the 4 countries. Each chapter also examines the environmental impact of energy use. These chapters provide a strategic framework and broad policy guidelines for the development of the energy sector in the HKH region of each country.

The final chapter summarizes the energy issue in mountain areas. Seven critical areas are discussed. The first area is the prevailing unsustainability of energy supply and demand and the inharmonious energy transitions on the one hand toward nonmonetized, low-energy forms and on the other toward non-renewable fossil fuels. The second area presented regards the wrong choice of energy resources and technologies due to a lack of perspective regarding quality and a lack of community participation in energy program design. The lack of a long-term vision for the development of energy in the mountains is the third area discussed. Fourth to be presented is ignorance of the biophysical aspects of mountain areas. The lack of institutional, financing, and investment policies is the fifth area presented. Sixth is the insufficient focus on research and development of new energy systems suitable for the mountains. Finally, the methodological dilemma of having to internalize environmental costs is presented. The chapter also discusses an approach toward sustainable energy development, which examines the specific characteristics of the mountain situation and their implications for the energy sector and the sustainability of energy resources in the mountains. The chapter concludes by proposing various components of an energy development and implementation strategy for mountains and by providing guidance for designing and implementing energy programs for mountain communities.

The book also contains 2 annexes. Annex A provides a set of methodological guidelines for

preparing a database, which will be instrumental for carrying out area-based energy planning and for program implementation. Annex B comprises energy balance tables for all mountain areas investigated. This set of tables is the first of its kind for this region.

I would like to express high appreciation to the study team, in particular Mr Wang Mengjie, Mr Wang Gehue, Mr Xiao Mingsong, and Mr Ding Yi from the Chinese Academy of Agricultural Engineering, Research, and Planning, Beijing; Prof N. K. Bansal of the Center for Energy Studies, Indian Institute of Technologies, New Delhi, India; Dr Kamal Banskota and Mr Bikash Sharma of the Center for Resources and Environmental Study, Kathmandu, Nepal; and Prof M. Abdullah of the University of Engineering and Technology, Peshavar, Pakistan. Their effort led to the collection of information that is of paramount importance for all interested in energy development. Any human endeavor, such as writing a book, is of high cultural importance for our heritage and comprises information of interest for our knowledge base. In this respect, I would like to congratulate Dr Kamal Rijal, the project coordinator and the book's editor, who has been responsible for bringing the material to public attention.

This publication will be of use to energy planners and development specialists in national institutions as well as to NGOs and donor agencies engaged in meeting the energy needs of mountain communities as part of the development of mountain areas. I would recommend it to all engineers specializing in energy planning, engineers and scientists actively participating in ecological assessment, and those willing to learn about energy and environmental problems in mountain areas.

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