MINI- AND MICRO-HYDROPOWER IN NEPAL

Jean-Marion Aitken
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Foreword

Energy plays a significant role in the economic development and technological advancement of societies and, concomitant with these, it plays a crucial role in human welfare. These aspects of energy were focussed upon during the Inaugural Symposium of ICIMOD in December 1983 and in the subsequent consultations, held in the countries of the Hindu Kush-Himalayan Region, where the question of energy supply and demand ranked high on the list of urgent priorities for sustainable mountain development.

Increased energy demand has not only exerted substantial pressure on Nepal's limited forest resources but also has a negative effect on its environment and economy. Nepal has no fossil fuel of its own and all requirements have to be imported. The search for other options, such as biogas, indicates that they have limited application in the more isolated and high altitude mountain areas. Renewable options, such as wind and solar power, are not technologically ready for mass dissemination. The use of mini-and micro-hydroelectricity is, therefore, the most promising option for the remote hill communities in Nepal for the foreseeable future.

Nepal's experience in the use of mini-and micro-hydro plants (MHP) is derived partly from government programmes for rural development and partly from private and community commercial ventures. In the context of public sector enterprises, MHP were seen as a means to stimulate industrial growth, bring about social benefits, and improve communications and the well-being of people in the remote areas. The lack of productive commercial end uses has been seen as one of the main drawbacks resulting in the low profitability of these installations. Private sector installations, on the other hand, initially sought to fulfill the existing need for agro-processing and electricity generation was added on subsequently. This resulted in better integration of the technology with the local economy and fuller utilisation of the advantages offered by micro-hydro technology.

This report has made a comprehensive study of the development of MHP in Nepal. This has been supplemented by examples from other countries. In the context of Nepal, the decentralised approach, as inherent in MHP programmes, is in line with the government policies for rural development through the decentralisation of the administration. The report has highlighted some of the principal issues to be addressed in order to ensure that MHP fulfills its crucial role in meeting the energy needs of rural communities. These issues include lack of clear-cut, overall government objectives, debate over types of subsidies, and the problems of scale.

ICIMOD is publishing this report on Mini-and Micro-hydropower in Nepal as a part of its Occasional Paper Series. There is no doubt that the knowledge and expertise acquired by ITDG from over more than a decade's experience in the development and transfer of MHP technology, for the purpose of rural development in the mountain regions of Nepal, will be useful to those involved in MHP development in the Hindu Kush-Himalayan Region and to others associated with such activities in mountain regions elsewhere. Special thanks are due to Jean-Marion Aitken, Godfrey Cromwell, and Gregory Wishart for their work in preparing this account of Nepal's experiences in the exploitation of its hydropower resources.

Dr. E. F. Tacke
Director General

Preface

Nepal has a long history of water management including a very large number of village water mills for corn grinding. The harnessing of water power on a small-scale has recently become an increasingly important aspect of rural energy supply, particularly in remote mountain areas of the country.

ICIMOD has identified mini- and micro-hydropower as an important area of interest in its search for integrated approaches to the institutional, environmental, and economic development of the Himalayan Region.

ITDG has been involved for more than a decade in assisting the development and transfer of micro-hydro technology as a tool for rural development in the hill and mountain areas of Nepal.

This paper is a synthesis of knowledge and experience in Nepal's mini- and micro-hydro sectors. We hope that it will be an important contribution to current debates concerning the use of the resources of the Himalayan Region to promote sustainable rural development.

Ray Holland
Operations Director
ITDG

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FAR WESTERN MID WESTERN