MENRIS CASE STUDY SERIES

Applications of GIS for Natural Resource Management in DHADING DISTRICT, NEPAL

Mountain Environment and Natural Resources' Information System (MENRIS)

INTERNATIONAL CENTRE FOR INTEGRATED MOUNTAIN DEVELOPMENT (ICIMOD)

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Front Cover

Administrative map of Nepal. Inset Dhading District. Source: Nepal (Administrative) Topographical Survey Branch, Survey Dept. HMG, Nepal 1985.

Back Cover

Boundaries of Hindu Kush-Himalayan Region . Source: Map of Nepal 1982, Atlas of Pakistan 1986, Social and Economic Atlas of India 1987, India and adjacent countries 1979, Atlas of China 1989, and American Geographical Society of New York, 1964.

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FOREWORD

The starting point for sustaining life is the land and its resources - relevant and precise information is the key to managing the land and its resources wisely. In the past our resources were managed quite simply in relation to the availability of other resources. Information needs were correspondingly simple and separate. But our population increases, and the demand for a diversity of resources grows. Our understanding of the intricacies of ecosystems evolves. In this complex environment, especially in the mountain areas, we must have the means to collect, store, and utilise the information that will support quality decisions.

Information technologies utilised thus far have a critical deficiency - the inability to spatially reference and manage resource data. This deficiency is a serious impediment to managing resources on an ecosystemic level. A powerful tool is now available to overcome that deficiency - a computerised geographic information system (GIS). The strength of GIS is its ability to integrate data from a variety of resource disciplines, using a common geographical frame of reference. The advancement of hardware/software technologies (as well as the relative reductions in cost) has brought GIS within our reach. GIS applications will support complex, spatial decision-making. We expect better decisions to arise from these capabilities. GIS can place this capability at the fingertips of decision-makers at every level of an organisation - from field workers to policy-makers.

ICIMOD decided to establish a GIS capability in 1989 through a Programme entitled Mountain Environment and Natural Resources' Information Systems (MENRIS). The objectives were to disseminate GIS technology to member countries, and these were defined and approved by the Board. ICIMOD successfully completed the Establishment Phase of recruiting and training staff, procuring and installing hardware/software and developing a training programme over a two year period from 1990-1991. The Implementation Phase of dissemination commenced in early 1992. Dissemination activities include human resource development, through training, and institution building through carrying out collaborative GIS case studies with appropriate hardware/software. The Programme is being implemented in Bangladesh, Nepal, and China. Formal arrangements are already being made to include India, Pakistan, Myanmar, and Bhutan in the Network.

ICIMOD has received funds and technical support from many agencies and individuals. The Asian Development Bank has provided two Technical Assistance Grants and is the founding sponsor for the Programme. UNEP-GRID and UNITAR have provided both direct funds and technical support for the Programme. Other agencies that have provided complementary support include SEADD/ODA, GTZ, UNDP, DANIDA, FINNIDA, and the USAID.

The case studies recorded in this publication are aimed at Non-GIS professionals. The illustrations present basic concepts and the use of GIS, through case examples, to demonstrate how data integration enables decision-makers, project design officers, and development practitioners to improve the management of natural resources. Each case study has been undertaken by a staff member: Agro-ecological Zonation - Ma Sein Mya; Carrying Capacity Assessment and Land Use Changes - Rainer Schmidt; Small Hydropower Potential - Zafar Karim. Other staff members in the team who have assisted with the case studies include: Pramod Pradhan, P.K. Kotta, Basanta Shrestha, Eric Bournay, Susan Ranger, Anirudra Shrestha, Govinda Joshi, Tika L. Gurung, and Mona Thapa. Technical and methodological details will be published in a separate volume. As GIS is a new strategy for resource managers, we welcome information relating to the ways in which users have been able to solve problems or to increase their effectiveness in planning natural resource management through GIS.

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