

Biodiversity Conservation in the Kangchenjunga Landscape



About ICIMOD

The International Centre for Integrated Mountain Development (ICIMOD) is an independent regional knowledge, learning and enabling centre serving the eight regional member countries of the Hindu Kush-Himalayas – Afghanistan , Bangladesh , Bhutan , China , India , Myanmar , Nepal , and Pakistan  – and the global mountain community. Founded in 1983, ICIMOD is based in Kathmandu, Nepal, and brings together a partnership of regional member countries, partner institutions, and donors with a commitment for development action to secure a better future for the people and environment of the Hindu Kush-Himalayas. ICIMOD's activities are supported by its sponsors: the Governments of Austria, Denmark, Germany, Netherlands, Norway, Switzerland, and its regional member countries, along with programme co-financing donors. The primary objective of the Centre is to promote the development of an economically and environmentally sound mountain ecosystem and to improve the living standards of mountain populations.

Biodiversity Conservation in the Kangchenjunga Landscape

Compiled by
Nakul Chettri
Bandana Shakya
Eklabya Sharma

International Centre for Integrated Mountain Development
June 2008
Kathmandu, Nepal

Copyright © 2008

International Centre for Integrated Mountain Development (ICIMOD)

All rights reserved

Published by

International Centre for Integrated Mountain Development

G.P.O. Box 3226

Kathmandu, Nepal

ISBN 978 92 9115 088 5 (printed)

978 92 9115 089 2 (electronic)

Production team

Greta Rana (Consultant Editor)

A. Beatrice Murray (Senior Editor)

Dharma R. Maharjan (Layout and Design)

Asha Kaji Thaku (Editorial Assistance)

Cover photo: Shows Darjeeling with Mt. Kangchenjunga and neighbouring peaks in the background

Photos: Unless otherwise stated, all photos by Nakul Chettri,

Printed and bound in Nepal by

Hill Side Press (P.) Ltd.

Kathmandu

Reproduction

This publication may be reproduced in whole or in part and in any form for educational or non-profit purposes without special permission from the copyright holder, provided acknowledgement of the source is made. ICIMOD would appreciate receiving a copy of any publication that uses this publication as a source.

No use of this publication may be made for resale or for any other commercial purpose whatsoever without prior permission in writing from ICIMOD.

Note

The views and interpretations in this publication are those of the author(s). They are not attributable to ICIMOD and do not imply the expression of any opinion concerning the legal status of any country, territory, city or area of its authorities, or concerning the delimitation of its frontiers or boundaries, or the endorsement of any product.

This publication is available in electronic form at <http://books.icimod.org>

Contents

Foreword	
Executive Summary	
Acknowledgements	
Acronyms and Abbreviations	

Section 1 – Introduction

Developing a Transboundary Biodiversity Conservation Landscape and Conservation Corridors in the Kangchenjunga Complex	3
<i>Eklabya Sharma</i>	

Section 2 – Biodiversity Conservation

Protected Areas and Biodiversity Conservation in the Hindu Kush-Himalayan Region with Special Reference to the Kangchenjunga Landscape	13
<i>Bandana Shakya and Rabindra Man Joshi</i>	
Feasibility Assessment for Developing Conservation Corridors in the Kangchenjunga Landscape	21
<i>Nakul Chettri, Birendra Bajracharya and Rajesh Thapa</i>	
Biodiversity Status in the Potential Conservation Corridors of the Kangchenjunga Landscape: a Distribution Model of Flagship and Indicator Species	31
<i>Latika Nath Rana</i>	
Biodiversity of Toorsa Strict Nature Reserve - Jigme Dorji National Park Proposed Conservation Corridor, Western Bhutan	39
<i>Damber Singh Rai, Kelzang Tshering, Kinley Gyeltshen, Ngawang Norbu, Sherub, Raling Ngawang and Sharap Wangchuk</i>	
Plant Resources in the Protected Areas and Proposed Corridors of Darjeeling, India	57
<i>Abhaya Prasad Das, Ram Bahadur Bhujel and Dorje Lama</i>	

Section 3 – Socioeconomic and Livelihoods Aspects

Landscape Elements and Agricultural Issues in the Border Villages of Eastern Nepal	83
<i>Punya Prasad Regmi</i>	
Pasture, Livestock, and Conservation: Challenges in the Transborder Areas of Eastern Nepal	91
<i>Krishna Prasad Oli</i>	
Vegetable Production as Potential Enterprise for Sustainable Livelihoods in the Border Villages of Eastern Nepal	97
<i>Madan Pariyar</i>	
Non-Timber Forest Products as Alternative Livelihood Options in the Transborder Villages of Eastern Nepal	105
<i>Madan Koirala</i>	
Socioeconomic Analysis of the Toorsa Strict Nature Reserve and Jigme Dorji National Park Conservation Corridor in Bhutan	111
<i>Sonam Choden</i>	
Conservation and Income Generation Opportunities from High-Value Species: Cordyceps Policy in Bhutan and its Implication for the Himalayan Region	117
<i>Phuntsho Namgyel</i>	
Ecotourism Development in the Kangchenjunga Landscape: Potentials and Challenges	123
<i>Nakul Chettri, Ester Kruk, and Renzino Lepcha</i>	
Potential Micro-Enterprises and Income Generating Activities in the Kangchenjunga Landscape	133
<i>Dyutiman Choudhary</i>	

Section 4 – The Policy Perspective

Policy Issues of Land-Use and Land-Tenure Systems and Natural Resources Management in the Proposed Conservation Corridors in Darjeeling	143
<i>Subhabrata Palit</i>	
Traditional Practices and Customary Laws of the Kirat People of Eastern Nepal and Comparison with Nepal's Statutory Laws	151
<i>Nrishima Kumar Khatri</i>	
A Landscape Approach to Biodiversity Conservation: an Evolving Scenario and Policy Perspective	159
<i>Karma Phuntsho and Nakul Chettri</i>	

Foreword

In recent years, there has been a paradigm shift in global conservation approaches with a 'people and parks' replacing the earlier 'people or parks' concept. This is exemplified in the current landscape approach to biodiversity conservation, which advocates an integrated approach focusing on local communities so that conservation becomes sustainable. The landscape approach examines the history of human activities in a particular environment and integrates social, cultural, economic, and environmental factors to bring benefits to both the natural world and the people living in the area.

The International Centre for Integrated Mountain Development (ICIMOD) has been involved with several conservation initiatives at the landscape level over the past ten years. The heavy reliance of the local population on the ecosystems for their livelihoods has become increasingly clear, as has the way in which their activities can adversely affect these systems. With support from the MacArthur Foundation, ICIMOD began work in 2002 on a project aimed at developing a sustainable approach to transboundary biodiversity management of the landscape surrounding Mt. Kangchenjunga in the eastern Himalayas – a mountain shared by Bhutan, China, India, and Nepal. The aim was to support development of a transboundary landscape approach to management of the area that would establish a landscape that could sustain diverse ecosystem processes and services so that, at the species' level, extinction and genetic erosion could be checked and, at the ecosystem level, the services enhanced to improve the livelihoods of the communities for generations to come. The approach involved development of unfragmented, contiguous, and extended habitats across the landscape and identification of conservation corridors to connect established protected areas and fill gaps.

Protecting the dynamic and rich biodiversity of the Kangchenjunga landscape and alleviating poverty through conservation measures are formidable challenges. This publication presents a collection of research papers on the key conservation and development issues in the southern half of the landscape. The seventeen papers discuss conservation needs, biodiversity values, socioeconomic conditions, and potential enterprise development through income-generating opportunities and policy perspectives. Emphasis has been given to the sustainable use of forest resources; the prospects of bioprospecting for non-timber forest products (NTFP) and vegetable production as alternative livelihood options; and improvement of agricultural practices and livestock management. From a regional perspective, the key objectives are the identification of transboundary issues and the feasibility assessment for conservation corridors. The publication also discusses conservation measures in an around existing protected areas and the impact of conservation policies on land-use and land-tenure systems, traditional resource use, and customary laws.

The landscape activities have facilitated regional cooperation for conservation and sustainable use of resources throughout the Kangchenjunga landscape. We hope that this publication will help readers to understand the importance of this critical landscape for global conservation and the need to make conservation effective and integrative. It is also intended to bring to a wider audience the realisation that sociocultural and economic issues are crucial elements in the success of transboundary biodiversity conservation, and that the negative impacts of resource conservation on poorer people can be minimised and communities motivated to support equitable and sustainable ecosystem conservation and use.

I am confident that the publication will make a valuable contribution to the collaboration and effective biodiversity conservation in the Kangchenjunga landscape, as well as encouraging similar initiatives in the other important transboundary complexes in the Hindu Kush-Himalayas.

Dr. Andreas Schild
Director General

Executive Summary

The region surrounding Mt. Kanchenjunga is among the richest landscapes in the Hindu Kush-Himalayan mountain system in terms of global biodiversity. It is shared by Bhutan, China, India, and Nepal. Because of its strategic location between the four countries; transboundary cooperation is needed to ensure effective conservation. The three countries in the south of the Kangchenjunga landscape, Bhutan, India, and Nepal have given biodiversity conservation top priority; fourteen protected areas have been established in the landscape. These protected areas are isolated, however, depriving the landscape of crucial linkages. At the same time, worldwide experience has shown that biodiversity conservation requires a comprehensive multiscale approach that includes protection of both reserve and non-reserve areas, and considers human dependence on natural resources for livelihoods.

ICIMOD has adopted the landscape approach to biodiversity conservation as a way of meeting the need for integration of biodiversity conservation with community livelihoods, and using a holistic approach to meet local, national, regional, and global conservation goals. With support from the MacArthur Foundation, and working together with regional and national partners, ICIMOD introduced a project that used a participatory approach to develop conservation corridors linking isolated protected areas in the southern part of the Kangchenjunga landscape; formulate community-based participatory biodiversity conservation strategies and action plans; and enhance regional cooperation for conservation in the three countries. The project also focused on improving the livelihoods of the community living in the landscape through identification, promotion, and adoption of conservation-linked development opportunities.

The strategic process led to identification of six potential conservation corridors linking nine protected areas in the landscape. It was crucial to understand the various sociocultural, economic, and biological elements; but there was a wide gap between the knowledge base available on resources; prevailing challenges for conservation; and national, regional, and global conservation policies. This realisation led to implementation of a number of participatory action research projects to compile information on issues related to conservation challenges, potential options for economic policies, and imperatives for effective conservation of the landscape. This publication provides a summary of seventeen of these action research projects that helped measure the extent to which quantitative or qualitative targets would be met and addressed by conservation planning in the region. The publication also helps identify major conservation issues and development challenges and will support design and formulation of the most appropriate and feasible conservation strategies for sustainable biodiversity conservation in the conservation corridors of the landscape.

Acknowledgements

ICIMOD expresses its sincere thanks to its three regional member countries Bhutan, India and Nepal for their extended support during the conceptualisation and feasibility assessments for developing conservation corridors between the existing protected areas in the Kangchenjunga landscape, and acknowledges with gratitude the support of the MacArthur Foundation which was crucial for the implementation of the initiative.

ICIMOD acknowledges the support of, and thanks, all those who contributed to the research articles and helped strengthen the baseline information for conservation planning in the Kangchenjunga landscape.

The Centre is particularly grateful for the assistance provided by the different communities of the landscape, government line agencies, partners from various community-based organisations, NGOs, and INGOs; all of whom worked together on the priority issues at local, national, and regional levels.

Last but not least, we thank Professor Ram Prasad Chaudhary for his thorough review and critical comments, Greta Rana for her editorial inputs that helped us improve the research contents and bring the publication into its present shape, and the ICIMOD publications team who produced the book in its final form.

Acronyms and Abbreviations

BRS	Barsey Rhododendron Sanctuary
CBD	Convention on Biological Diversity
CBFE	cool broad-leaved forest ecosystem
CFUG	community forest user group
DDC	district development committee
DFO	divisional forest officer
FWWE	freshwater and wetlands ecosystem
GoN	Government of Nepal
HKH	Hindu Kush-Himalayas/n
ICIMOD	International Centre for Integrated Mountain Development
INGO	international non-government organisation
IUCN	International Union for Conservation of Nature
JDNP	Jigme Dorji National Park
JFM	joint forest management
KBR	Khangchendzonga Biosphere Reserve
KCA	Kangchenjunga Conservation Area
MWS	Mahananda Wildlife Sanctuary
NGO	non-government organisation
NTFP	non-timber forest product
NVNP	Neora Valley National Park
PA	protected area
SNP	Singhalila National Park
SNV	Netherlands' Assistance to Developing Countries
SRS	Singba Rhododendron Sanctuary
SWS	Senchel Wildlife Sanctuary
TDCE	temperate dry coniferous ecosystem
TMCE	temperate moist coniferous ecosystem
TSNR	Toorsa Strict Nature Reserve
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
VDC	village development committee
WCMC	World Conservation and Monitoring Centre
WWF	World Wide Fund for Nature