



ICIMOD's Transboundary Biodiversity Management Initiative in the Hindu Kush–Himalayas

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Source: Mountain Research and Development, 25(3) : 278-281

Published By: International Mountain Society

URL: [https://doi.org/10.1659/0276-4741\(2005\)025\[0278:ITBMII\]2.0.CO;2](https://doi.org/10.1659/0276-4741(2005)025[0278:ITBMII]2.0.CO;2)

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The International Centre for Integrated Mountain Development

Together with its partners and regional member countries, the International Centre for Integrated Mountain Development (ICIMOD) is committed to a shared vision of prosperous and secure mountain communities committed to peace, equity, and environmental sustainability. This vision statement defines ICIMOD's overall goal: secure and sustainable livelihoods for mountain peoples. Building on achievements, competencies, and lessons that the Centre and its partners have learned over the two preceding decades, ICIMOD's contribution is based on its role as a regional "Mountain Learning and Knowledge Centre." ICIMOD is mandated to work in the Hindu Kush–Himalayan (HKH) region, including the countries of Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan.

ICIMOD's mission is to develop and provide integrated and innovative solutions—in cooperation with national, regional, and international partners—which foster action and change to overcome mountain peoples' economic, social, and physical vulnerability. Solutions are found by identifying, testing, and disseminating options. This mission is translated into outcomes by analyzing the causes of poverty and vulnerability in the mountains. These differ in significant ways from those found in the plains surrounding the HKH. They are also based on experience with mountain development to date, especially in the areas of greatest opportunity for achieving measurable impact. In overall congruence with the relevant portion of the World Summit on Sustainable Development and the Bishkek Global Mountain Summit Declaration, ICIMOD's strategy has identified 5 long-term outcomes that it is committed to help achieve. These are:

1. Productive and sustainable community-based management of vulnerable mountain natural resources;
2. Decreased physical vulnerability within watershed and regional river basins;
3. Improved and diversified incomes for vulnerable rural and marginalized mountain peoples;
4. Increased regional and local conservation of mountain biological and cultural heritages; and
5. Greater voice, influence, social security, and equity for mountain people.

Integrated programs

To achieve its mission and objectives, ICIMOD implements the following integrated programs with a specific focus:

- **Natural Resource Management:** Institutional, technological and policy innovations for community-based management to increase mountain productivity, food security, and biological sustainability.
- **Agricultural and Income Diversification:** Specialized mountain agricultural and non-farm products with market linkages that enhance economic security.
- **Water, Hazards, and Environment Management:** Less physical vulnerability and greater environmental security for mountain people and the downstream poor.
- **Culture, Equity, Gender and Governance:** Promotion of equality and empowerment of vulnerable mountain peoples for enhanced social security and reduction of conflict.
- **Policy and Partnership Development:** Providing policy support and strengthening partnerships and ICIMOD's capacity for collaboration in planning, achieving, and monitoring program activities.
- **Information and Knowledge Management:** Making mountain information and knowledge

accessible and usable to partners, policy-makers and advocates, and development practitioners.

- ICIMOD also hosts the **Global Mountain Forum** and runs the **Asia Pacific Mountain Forum** regional node, as information-sharing networks at the global level and in Asia.

The Hindu Kush–Himalayan (HKH) region is one of the 10 mega-centers and part of one of the 34 biodiversity hotspots in the world. It is endowed with a rich variety of gene pools, species, and ecosystems of global importance. Approximately 39% of the HKH consists of pasture, 21% of forest, and 5% of agricultural land, while about 11% has been managed under a protected area (PA) network. Although designated PAs in the HKH region have increased in number, their effectiveness in terms of conservation has been questioned. In addition, PAs are managed as isolated islands without a larger landscape approach, to provide ongoing movement of animals and genetic traits necessary for long-term survival. Despite the ecological and economic importance of the HKH region, these ecosystems have been subjected to great stress, and continue to face multiple threats. Deforestation and forest degradation continue unabated. Even the PAs such as national parks and wildlife sanctuaries face tremendous pressures from communities living inside and outside. There is an inextricable link between the mutually reinforcing factors of poverty and environmental degradation. Thus the most pressing challenge in the HKH and elsewhere is to conserve biodiversity and at the same time improve the livelihoods of communities dependent on forests.

Transboundary biodiversity management

Conventional PA management, dominant in the past 100–150 years,

Criteria for biodiversity management in transboundary landscapes

has tended to see people and nature as separate entities, often requiring the exclusion of human communities from areas of interest, prohibiting their use of natural resources, and seeing their concerns as incompatible with conservation. However, during the past two decades of conservation services to the region, ICIMOD realized that most PAs in the HKH region are scattered conservation “islands.” Connectivity amongst these protected “islands,” and regional understanding and cooperation between two or more countries, are necessary for biodiversity management.

ICIMOD’s regional collaboration initiative for biodiversity management in the HKH region started in 1995. The concept was taken further and experimented within transboundary landscapes such as the Mount Everest ecosystem and the Hkakaborazi mountain complex. From these experiences, ICIMOD realized that to achieve a global conservation goal, PAs alone could not meet the demands of conservation, and that a holistic approach taking account of landscape/ecosystem, and including human beings as part of the system, was needed for effective conservation. To address biodiversity conservation through participatory processes at landscape levels, a separate sub-program on ‘Transboundary Biodiversity Management’ was initiated in 2003 within ICIMOD’s Natural Resources Management integrated program. A strong thrust was given to community development at the local level, regional cooperation, partnership, and biodiversity-based micro-enterprises, in order to meet mountain challenges such as inaccessibility, fragility, low productivity, and limitations on livelihood options. Since then, ICIMOD has played a pivotal role in forming partnerships, developing community-based management of natural resources in and around the PAs and corridors along the

- Identify transboundary candidate priority landscapes that are critical for biodiversity management. Countries sharing the areas should be committed to develop and manage such landscapes.
- Apply participatory management of biodiversity in the PAs of candidate priority landscapes and their surroundings that will enhance conservation of globally significant, unique biodiversity which is otherwise at risk because of transboundary problems.
- Restore and increase connectivity by establishing biological corridors between the PAs within and between landscapes that fall in different countries.
- Increase conservation attention and efforts on focal species that operate in areas across political boundaries.
- Identify keystone plant species and promote their restoration and conservation in transboundary landscapes.
- Address transboundary issues such as grazing, poaching, unsustainable harvesting of NTFPs, control of forest fires, and spread of livestock disease; promote new connectivity within transboundary landscapes for overall conservation, to be achieved by regional and country-to-country cooperation.
- Adopt policies and incentives conducive to participatory biodiversity conservation, and establish complementarities within landscapes between the participating countries.

international borders, developing databases for the PAs of the HKH, building the capacities of partners in participatory biodiversity management, and facilitating policy imperatives for the participating member countries.

Why biological corridors and a landscape approach?

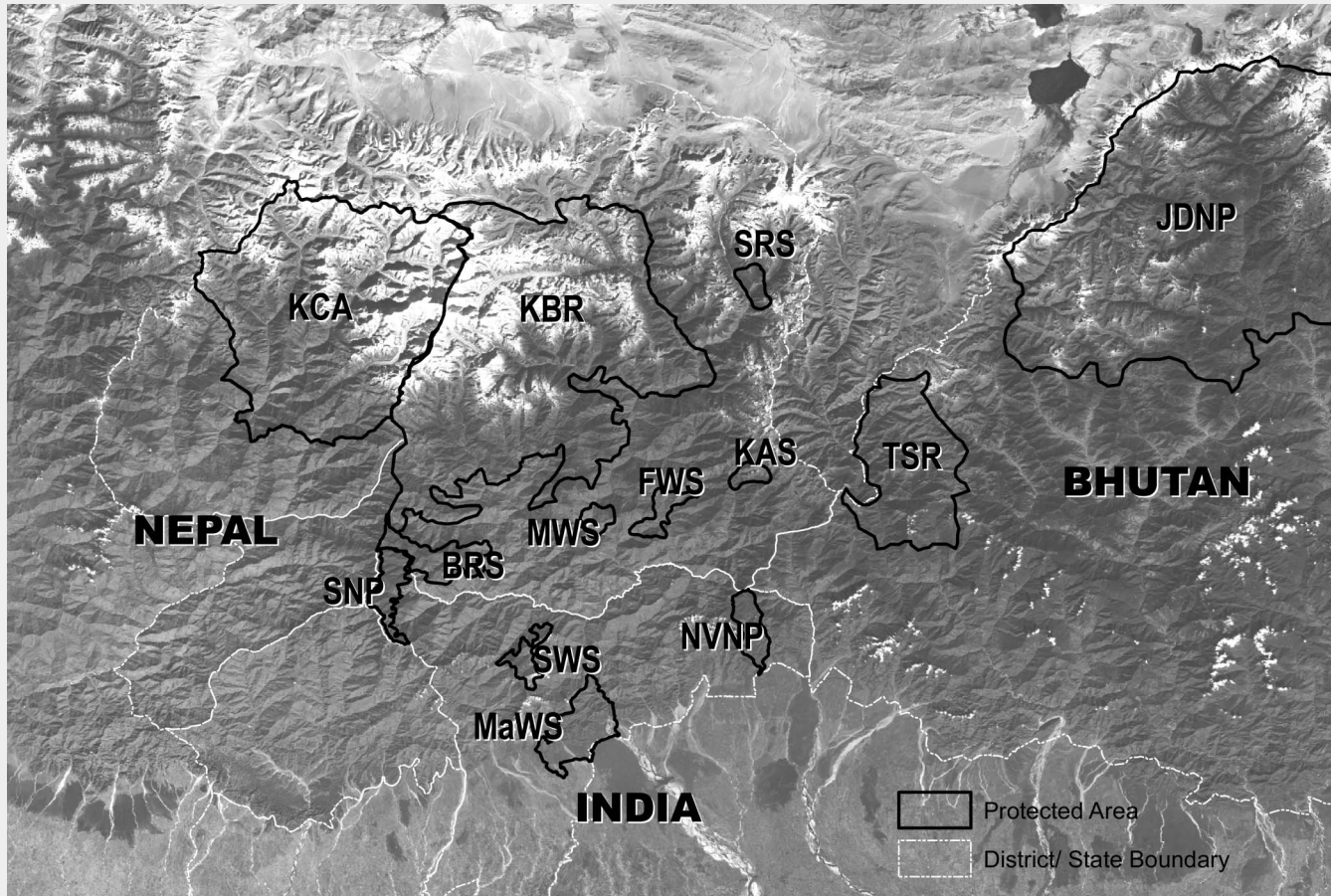
Most efforts to promote biodiversity conservation have focused primarily on PAs and reserves. The Kangchenjunga landscape in the HKH region is an example, where 12 PAs now exist, ranging from as small as 31 km² to 2620 km² in area. There are missing links between these PAs that are otherwise necessary in terms of environmental services, and that need to be connected within wider existing habitats for flagship species. These include tigers and elephants in the tropical, and red panda, takin, musk deer, snow leopard, and many threatened species of both plants and animals in the temperate and alpine areas in the Kangchenjunga landscape. It has been realized that the existing

parcs and PAs ‘cannot exist in isolation as islands,’ either within countries or across national borders, if speciation and evolutionary processes are to be naturally continued. Connecting PAs by biological corridors and addressing conservation measures at a landscape level provides an opportunity for both vertical (altitudinal) and horizontal coverage of habitats, ensuring environmental goods and services in the Kangchenjunga landscape.

Criteria adopted for regional biodiversity management

ICIMOD builds on community-based natural resource management to achieve regional conservation goals. Community-based biodiversity management in the context of the HKH region is complex, resulting from diverse culture, ecological variations, differences in climatic regimes, and difficult terrain. Watersheds and landscapes in many areas fall within different political boundaries that could be best addressed by regional cooperation.

FIGURE 1 Satellite map showing protected areas of the Kangchenjunga landscape covering eastern Nepal, Sikkim and Darjeeling of India, and western Bhutan: KCA: Kangchenjunga Conservation Area; KBR: Kangchenjunga Biosphere Reserve; BRS: Barsey Rhododendron Sanctuary; MWS: Mainam Wildlife Sanctuary; FWS: Fambong Lho Wildlife Sanctuary; SRS: Singha Rhododendron Sanctuary; KAS: Kyongnosla Alpine Sanctuary; SNP: Singhalila National Park; SWS: Senchel Wildlife Sanctuary; MaWS: Mahananda Wildlife Sanctuary; NVNP: Neora Valley National Park; TSR: Toorsa Strict Nature Reserve; JDNP: Jigme Dorji National Park



Many other issues need to be addressed at different levels within a nation. Criteria promoted by ICIMOD for successful community-based biodiversity management at the country level address policy and legal measures to facilitate community-based management; strengthen institutions, management, and processes; empower communities for equity; and maintain ecological sustainability. ICIMOD has adopted criteria for successfully addressing regional issues in the HKH region (see Box 1).

Kangchenjunga landscape initiative

ICIMOD has identified 5 very important transboundary complexes in the HKH region; Kangchenjunga landscape is one such complex in the eastern Himalayas where ICIMOD is implementing trans-

boundary biodiversity management. The Kangchenjunga complex is a rich landscape shared by Nepal, Bhutan, India, and China, that is part of the Himalayan 'Biodiversity Hotspots'. To address global commitments—such as those in the Convention on Biological Diversity (CBD)—to conservation, sustainable use, and fair and equitable sharing of benefits arising from use of genetic resources, India has already brought the Kangchenjunga area under a protected network by managing it as Kangchenjunga Biosphere Reserve in Sikkim. Singhalila National Park, Neora Valley National Park, Senchal Wildlife Sanctuary, and Mahananda Wildlife Sanctuary are managed as PAs within Darjeeling Gorkha Hill Council. Adjacent to these, Kangchenjunga Conservation Area is an important part of the PA network in Nepal. Some parts of western Bhutan also fall into the wider Kangchenjunga

landscape covering Toorsa Strict Nature Reserve, which is connected by a natural corridor to Jigme Dorji National Park under protection (Figure 1).

In this initiative, an extensive consensus-building process was undertaken with communities, conservation authorities, conservation experts, and organizations working in the landscape. Three national level consultative workshops were organized in Nepal, India, and Bhutan, where participation by policymakers, government officials, academic and research institutions, NGOs, CBOs, and communities was ensured. During these consultations, 6 potential biological corridors were identified as feasible:

1. The buffer area on the Nepal side of Kangchenjunga Biosphere Reserve and Barsey Rhododendron Sanctuary in India,

FIGURE 2 Women group working on a corridor development plan in eastern Nepal. (Photo by Nakul Chettri)

2. The buffer area on the Nepal side of Singhalila National Park in India,
3. The corridor between Singhalila National Park and Senchel Wildlife Sanctuary in India,
4. The corridor between Senchel Wildlife Sanctuary and Mahananda Wildlife Sanctuary in India,
5. The corridor between Mahananda Wildlife Sanctuary and Neora Valley National Park in India, and
6. The corridor between Neora Valley National Park in India and Toorsa Strict Nature Reserve in Bhutan that links to Jigme Dorji National Park.

During the consultations, it was argued that conservation without community development is impossible. To address the conservation issues and conservation-linked developmental activities, comprehensive action-oriented strategies and action plans were developed for each of these identified corridors. Feasibility assessments on corridor development and research on landscape elements, the socioeconomic conditions of local communities, options for micro-enterprise development, and capacity building among the associated stakeholders were prioritized. Potential areas of intervention such as medicinal and aromatic plants, floriculture, organic farming, and bee keeping in the agricultural sector, and ecotourism in the non-agricultural sector, were identified as developmental options and incorporated in corridor action plans.

For the first time, conservation and developmental issues were traced from the community perspective and put together in a regional forum during the regional technical workshop. This process brought out the importance of regional cooperation among the member countries for long-term conservation activities in the landscape. As an outcome,



India, Nepal, and Bhutan agreed on the landscape approach to biodiversity conservation through corridor development in this landscape, where corridor-planning processes have been initiated by each of these countries. Stakeholders responsible for management, including communities, are trained in participatory approaches (Figure 2). Corridor development and management plans have been developed for each connectivity between PAs, following participatory approaches. Research results on natural resource use patterns, potential micro-enterprises, and policy issues on land tenure systems from the identified corridors of the 3 countries are used in corridor planning. Case studies and analyses of high-value medicinal plants such as *Cordyceps* and related policy in Bhutan; potential micro-enterprise options and market channels; inventories of biodiversity within the identified corridors; land use practices and land tenure systems and traditional practices; and customary laws and their comparison with existing statutory laws are supporting the initiative.

This pioneering initiative revealed that the conservation of biodiversity in ecosystem-straddling international border areas not only renders services to nature, but also constitutes an opportunity to

strengthen processes of socioeconomic development of border areas in the cooperating countries. Transboundary cooperation also helps countries to meet their obligations under international agreements such as the Convention on Migratory Species and the Convention on Biological Diversity. Hence, landscape-level conservation fulfils the objective of protecting biodiversity in shared ecosystems and combining resources and expertise among regional countries to achieve a common goal.

A transboundary biodiversity management program is also complemented by other projects at ICIMOD, such as access and benefit-sharing of biodiversity resources by marginalized peoples, biodiversity-related farmers' innovations in shifting cultivation, and agrobiodiversity conservation practices in various farming systems of the Eastern Himalayas. Funding from ICIMOD, the MacArthur Foundation, and German Technical Cooperation supports the biodiversity management initiatives at the Centre.

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