

Developing a Transboundary Biodiversity Conservation Landscape and Conservation Corridors in the Kangchenjunga Complex

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Transboundary landscapes provide benefits beyond the political boundaries of nations and states and across societies, gender, and generations.



Bandana Shakya

Introduction

The Convention on Biological Diversity (CBD) defines biodiversity as variability among living organisms from all sources including terrestrial, and marine and other aquatic ecosystems; it includes not only diversity between species but also between and within ecosystems and genes. Biodiversity is an important resource because it supplies food, medicines, fibres, fuel, building materials, and other needs. The commitment made by world leaders to ‘sustainable development’ during the Earth Summit reflects the significance of biological diversity for the health of people and the planet. The delicate balance between human needs and availability of resources is imbalanced because to provide abundant food, improved shelter, and sound health, we

overlook environmental degradation, over-harvest and exploit our resources, and reshape and modify the natural landscape (WSSD 2002a,b). Pressure from human population growth, poverty, and inappropriate agricultural and industrial practices has caused degradation of the habitat, displacement of species and wildlife, and erosion of genetic diversity. The loss of biodiversity now threatens our food supplies, opportunities for recreation, and economic growth. Our usual efforts to protect biodiversity through establishment of parks and reserves, which have increased significantly in number and extent over the last two decades (Chape et al. 2005; IUCN 2005), look inadequate as many of the critical biomes and species are still outside protected area regimes (Rodrigues et al. 2004; Chape et al. 2005). Moreover, the areas in which people live, work, forage, and worship have been ignored; and that too plays an important role in biodiversity conservation (Hamilton 1993). Biodiversity conservation is, therefore, a matter of global concern for safeguarding this valuable resource upon which the health and well-being of the entire planet depends; and needs multifaceted activities that involve understanding of a variety of social, economic, cultural, and conservation issues (UNDP 2004).

The Hindu Kush-Himalayan (HKH) region is considered to be the most complex mountain system in the world. The region contains all or part of four of the world's 34 'Biodiversity Hotspots': the Himalaya, Indo-Burma, Mountains of Southwest China, and Mountains of Central Asia hotspots (Figure 1). These hotspots have a rich variety of gene pools, species, and

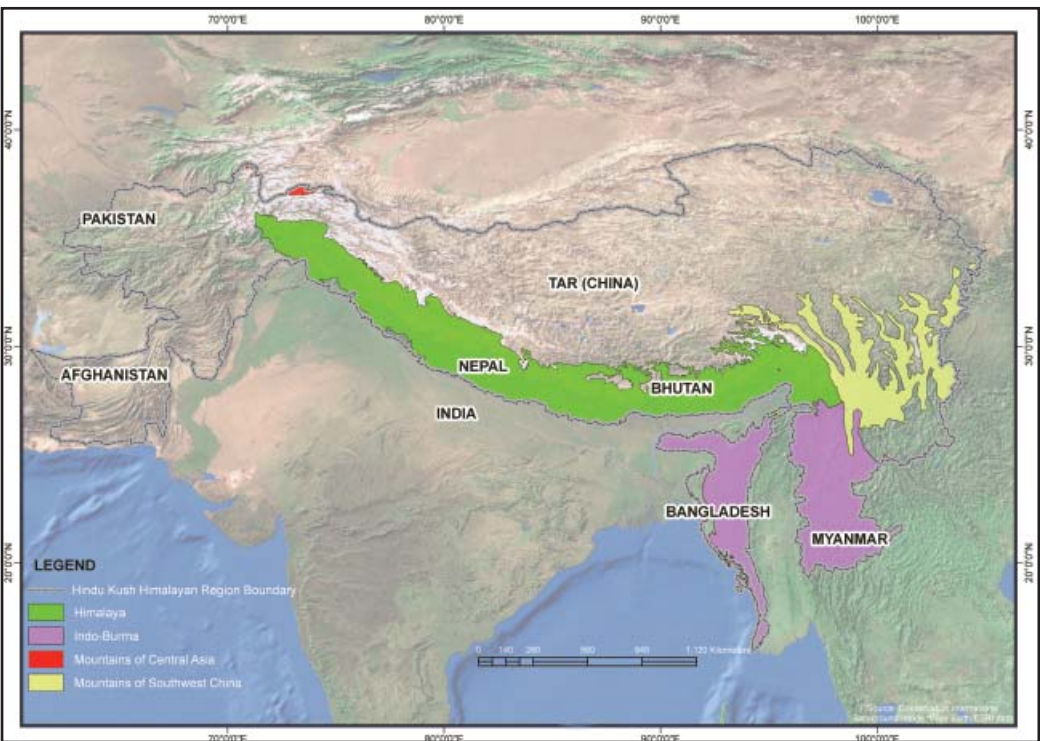


Figure 1: Map showing the four global biodiversity hotspots that lie partially or wholly within the Hindu Kush-Himalayan Region

ecosystems of global importance, many of them found only in the region: all are under a high degree of threat (Mittermeier et al. 2004). The ICIMOD member countries in the HKH region have shown their commitment to conservation by establishing 488 protected areas covering 39% of the area, which is much more than the 11.5% global standard. A recent gap analysis in the HKH region, however, revealed that these initiatives are still far short of conservation targets and many of the species, ecosystems, and forest types have still to be covered by current protected areas systems (Chettri et al. 2006). Moreover, the effectiveness of protected areas for biodiversity conservation has been questioned because of the lack of community participation, continuous habitat fragmentation within and outside the protected areas, poor management systems, and limited monitoring (Sharma and Yonzon 2005). The analysis also revealed that conservation measures taken to safeguard global biodiversity and render it sustainable are ineffective and insufficient.

Ecosystems and species found in the HKH region are not confined by geographical or political boundaries. Birds, mammals, insects, and other animals travel across local and national borders, and migration routes may even cross continents. They need special techniques for their conservation. The need for regional cooperation from the countries sharing such transboundary areas was felt as early as the 1980s as there are many transboundary protected areas in the HKH region which are fragile, located on distant borders, and critical for their conservation value.

Over the last decade, ICIMOD has been addressing transboundary cooperation actively with support from its partners. During this time, transboundary protected areas were identified and cooperation facilitated (WWF and ICIMOD 2001; Sherpa et al. 2003; Sharma and Chettri 2005; Chettri and Sharma 2006). In this publication, we present the knowledge developed through a series of research activities commissioned through numerous scientists and experts from three of its member countries (Bhutan, India, and Nepal) while working to develop corridors and advocate a landscape approach to biodiversity conservation in the Kangchenjunga complex. The publication is concerned only with the southern part shared by Bhutan, India, and Nepal where efforts have so far been focused. It is expected that the part in People's Republic (PR) of China will soon be included in these activities. This introductory section summarises the analytical findings of the various contributions and the recommendations made by the researchers and experts.

The publication has been divided into three thematic sections: biodiversity and conservation; socioeconomics and livelihoods, and policy perspectives. The first section deals with the biodiversity values of the landscape and conservation measures taken so far, and it brings a number of conservation challenges to the forefront. This is followed by a section on socioeconomics and livelihoods which argues for a community-based approach to conservation and transboundary cooperation for effective conservation linked to sustainable development of the landscape. The last section highlights the policy development processes in the three countries sharing the southern area of the Kangchenjunga landscape and their compatibility in regional and global conservation planning and measures to address conservation effectively.

Biodiversity Conservation

The Kangchenjunga complex, shared by Bhutan, PR China, India, and Nepal is an important transboundary landscape (CEPF 2005). The diversity of habitat types found in the landscape ranges from seasonally dry, deciduous woodlands in the lower foothills, through rich subtropical and temperate broad-leaved forests in the middle hills, to subalpine coniferous forests and highland meadows, all within a hundred kilometres distance. The extreme topographic relief of the world's third highest mountain constrains the dispersal of plant and animal species and affects microclimatic conditions. The designation of 42% of the southern part of the area as protected area network with an additional 11% as proposed corridors makes the landscape an important biodiversity repository. Our review and research revealed that the landscape is rich in biodiversity and a great proportion of species are threatened or endemic to the region. The flagship species of the landscape include the snow leopard (*Uncia uncia*), Asiatic black bear (*Ursus thibetanus*), red panda (*Ailurus fulgens*), Himalayan musk deer (*Moschus chrysogaster*), tiger (*Panthera tigris*), and takin (*Budorcas taxicolor*). Of the existing 14 protected areas, six are transboundary in nature: the Kangchenjunga Conservation Area (KCA) (Nepal-India), Khangchendzonga Biosphere Reserve (KBR) (India-Nepal), Barsey Rhododendron Sanctuary (BRS) (India-Nepal), Singhalila National Park (SNP) (India-Nepal), Pangolakha Wildlife Sanctuary (PWS) (India-China-Bhutan), and Toorsa Strict Nature Reserve (TSNR) (Bhutan-India). Many of these protected areas are still unexplored and there is limited information on the biodiversity they harbour. Moreover, the landscape connects the Bhutan Biological Conservation Complex (B2C2) (Sherpa et al. 2004) with the Sacred Himalayan Landscape (SHL) (GoN/MoFSC 2006) forming an important corridor in the eastern Himalayas. Thus, this landscape is an important transboundary complex for biodiversity conservation. The protected areas in this landscape, however, are scattered as 'conservation islands' without the connectivity needed for species to thrive and sustain themselves. The natural corridors that were once intact are now facing degradation.

ICIMOD has been working in the southern half of the Kangchenjunga landscape to develop conservation corridors and address transboundary issues at the landscape level since 2002. During the last six years, a series of consultations, baseline surveys, and feasibility assessments were carried out on developing corridors and facilitating regional cooperation in the landscape. Six potential conservation corridors were identified.

The first section of the book gives an outline of the importance of the landscape in terms of biodiversity; the strategic processes followed and methods applied for developing the landscape and the corridors by systematic niche modelling for key mammals and rhododendrons to examine the potentials; and evidence of the presence of many globally significant species in the proposed corridors that are outside the protected area.

Socioeconomics and Livelihoods

Humans are an integral part of the landscape. There are more than 1.5 million people living within the landscape and 70% of them are fully or partially dependent on the services provided by the biodiversity of the landscape. The protected areas and corridors, and the landscape as

a whole, are the main source of ecosystem services to the local people and contribute to the livelihoods of three times as many people living downstream. Traditional agriculture is the main economic activity. Large cardamom is the most popular cash crop and play an important role in uplifting the economic status of the people. The people living in the corridors have adopted promising agroforestry systems consisting of mixed farming of large cardamom with nitrogen-fixing alder, and mixed forests with broom grass and a variety of fodder, fuelwood, and timber species within the system. Cultivation of tea, especially the world famous Darjeeling tea, accounts for large areas. Potatoes, ginger, chillies, mandarin oranges, and varieties of local vegetables are also cultivated as cash crops. Livestock farming supplements crop cultivation by providing compost and additional income from products such as milk, meat, butter, curd, and cheese to many of the households. Some of the areas, however, are remote and inaccessible lacking steady markets and infrastructure, depriving local people of economic development.

Livestock rearing and open grazing are traditional practices that provide livelihoods to people living in high altitude areas. Substantial numbers of livestock use transborder open pastures as the main source of forage. Transhumance with seasonal movements of livestock is a traditional practice. Such practices are now constrained by policy changes such as notifying pasture lands as protected areas, banning traditional transborder movements of herders, and conversion of pastures into forests. These changes are bringing challenges to the people dependent on livestock-based livelihoods, especially those living in high-altitude areas.

There is great potential for strengthening community-linked conservation activities based on the available biodiversity by enhancing agroforestry, organic farming, beekeeping, and medicinal and aromatic plant cultivation to minimise pressure on forest resources while providing opportunities for economic development. Such potentials need further exploration, especially on technologies and market support with, of course, policy backing. The example of *Cordyceps* from Bhutan is a successful model that demonstrates how local communities can be involved in conservation while practising sustainable resource use for economic development. Similarly, co-management of pastures and use of available resources through proper land-use planning with available land and forest resources by involving local communities could open new livelihood avenues that would improve the economy and reduce pressure on natural resources.

The landscape also has a great potential for tourism. The ever-increasing inflow of tourists concentrated in the towns and cities of Darjeeling, Gangtok, Kalimpong, Ilam, and Paro make the region susceptible to negative impacts of tourism in their surrounding environments. Based on the potentials of diversifying tourism to transboundary areas and corridors in the form of ecotourism (homestays, mountain tourism, village tourism, and adventure tourism), such negative impacts could be minimised and the people living in the corridors and the landscape could benefit. To promote such tourism at the transboundary level, however, the member countries sharing this landscape need a cooperative understanding, infrastructure, and policies. The initiatives taken by SNV (Government of the Netherlands' Assistance) and ICIMOD with regards to developing a Great Himalayan Trail through South Asian Sub-Regional Economic Cooperation (SASEC) has shown the potential for regional tourism and its benefit to the countries in the region (SNV and ICIMOD 2006). Such initiatives have opened up avenues for tapping the potentials of transboundary ecotourism.

In the second section of this publication, readers are given an overview of the challenges and opportunities for socioeconomic development in the landscape corridors. The communities living in the inaccessible area face numerous challenges to sustaining their livelihoods. There is great potential, however, to tap into the rich biodiversity and promote community-based approaches linking livelihoods with conservation. Facilitation of interventions by development communities through identification of niche products, market analysis, technology transfer, and capacity building is critical. All are dealt with in this section.

Policy Perspectives

Conservation initiatives in the landscape started as early as 1940 when Sanchel Wildlife Sanctuary with an area of 39 sq.km was declared a game reserve for the protection of indigenous plants and animals. This was followed by establishment of a number of other protected areas in the 1970s and 1980s. These protected areas were governed by stringent rules and regulations with a 'protectionist' approach such as the National Park Act, 1934 (India); Wildlife (Protection) Act, 1972 (India); Forest Conservation Act, 1980 (India); National Parks and Wildlife Conservation Act, 1973 (Nepal); and Bhutan Forest Act, 1969 (Bhutan). These stringent protectionist approaches were not compatible with the many traditional practices in land use governed by customary laws. Examples are given in the contribution in this volume by Nrishima Khatri of how customary laws have been overshadowed by statutory laws. Over the last 20 years, however, these practices have seen devolutionary changes in which concepts of buffer-zone management and community-based forest management were promoted in the landscape by the Governments of Bhutan, India, and Nepal (Chettri et al. 2006).

As environmental consciousness grew about the importance of conservation for human well-being; the countries sharing this critical landscape began to realise why it was necessary to view biodiversity conservation from a broad perspective (Rastogi et al. 1997) and efforts have been made to make conservation as 'people inclusive' as proposed by the CBD (Secretariat of the CBD 2004, 2005). Such an approach has led to a 'paradigm shift' from a concept of species' focused conservation to a landscape approach (Chettri et al. 2007). The provisions for joint forest management through eco-development committees in India; the concept of community forestry, buffer zone management, and conservation areas and landscapes in Nepal; and the community-based natural resource management and landscape approach in Bhutan are bringing these 'paradigm shifts' into policies (Sharma et al. 2006). These 'shifts' were strengthened when the concept of a landscape approach to conservation was nationalised and implementation began (MoA 2002; NCD 2004; GoN/MoFSC 2006).

In the third section of this publication, readers are given an overview of the land tenure and conservation policies and practices from India and Nepal, and an analytical review of the conservation and development policies in all three countries, along with future prospects and recommendations.

Conclusion

The Kangchenjunga landscape has rich forest resources with diverse land-use types, rich traditions, and cultures. The landscape provides various forms of conservation from community-managed systems to strictly government-managed protected areas. The economic opportunities from tea, tourism, and large cardamom cultivation are enormous in terms of linking conservation and development among local communities. From the very beginning, the participatory and consultative processes adopted by ICIMOD were found to be important strategies for promoting need-based development and multi-stakeholder partnerships. Support from government agencies was one of the key pillars in the process of developing the landscape approach. The heavy dependency of local communities on landscape resources is the most important driver of habitat degradation; however, it is well-known that the solution will not be found by depriving the communities and introducing stricter regulations on access to the resources they rely on. This publication presents information about landscape ecology, including the human dimensions, to show how conservation of protected areas would be more effective if people-inclusive landscape approaches were practised.

To conclude, the efforts of ICIMOD and its partners are gradually bringing about a paradigm shift from a conventional 'people exclusionary' approach to 'integrative conservation' of transboundary landscapes and from a strictly 'protectionist' approach to 'livelihood-linked' conservation. This initiative is gradually making positive strides by applying many global conservation and development targets in the form of CBD objectives and the Millennium Development Goals. In other words, restoring forested connectivity to create a broader cultural landscape linking conservation with livelihoods is becoming acceptable to all three participating countries in the southern Kangchenjunga landscape.

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