

Mainstreaming Community-Based Conservation in a Transboundary Mountain Landscape

Lessons from Kangchenjunga

FOR MOUNTAINS AND PEOPLE



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Preface

This paper draws recommendations for transboundary and participatory biodiversity conservation from ICIMOD's pioneering Kangchenjunga Conservation Landscape Initiative. The Kangchenjunga landscape, shared by Bhutan, India, and Nepal, is one of the seven transboundary landscapes identified by ICIMOD for development of regional cooperation for effective conservation and management of natural resources. During the past ten years, ICIMOD has been engaged in developing baseline information and policy dialogue towards this end. One aspect of this work has been a review of evolving policy and practices in biodiversity conservation.

The Kangchenjunga landscape includes 15 protected areas (PAs). The conservation and management practices in these PAs differ, as do the conservation-related policies of the three countries. Past and present conservation policies and practices in the landscape are analysed and recommendations are drawn for enhancing participatory landscape-level biodiversity conservation and management in the landscape.

The Kangchenjunga range



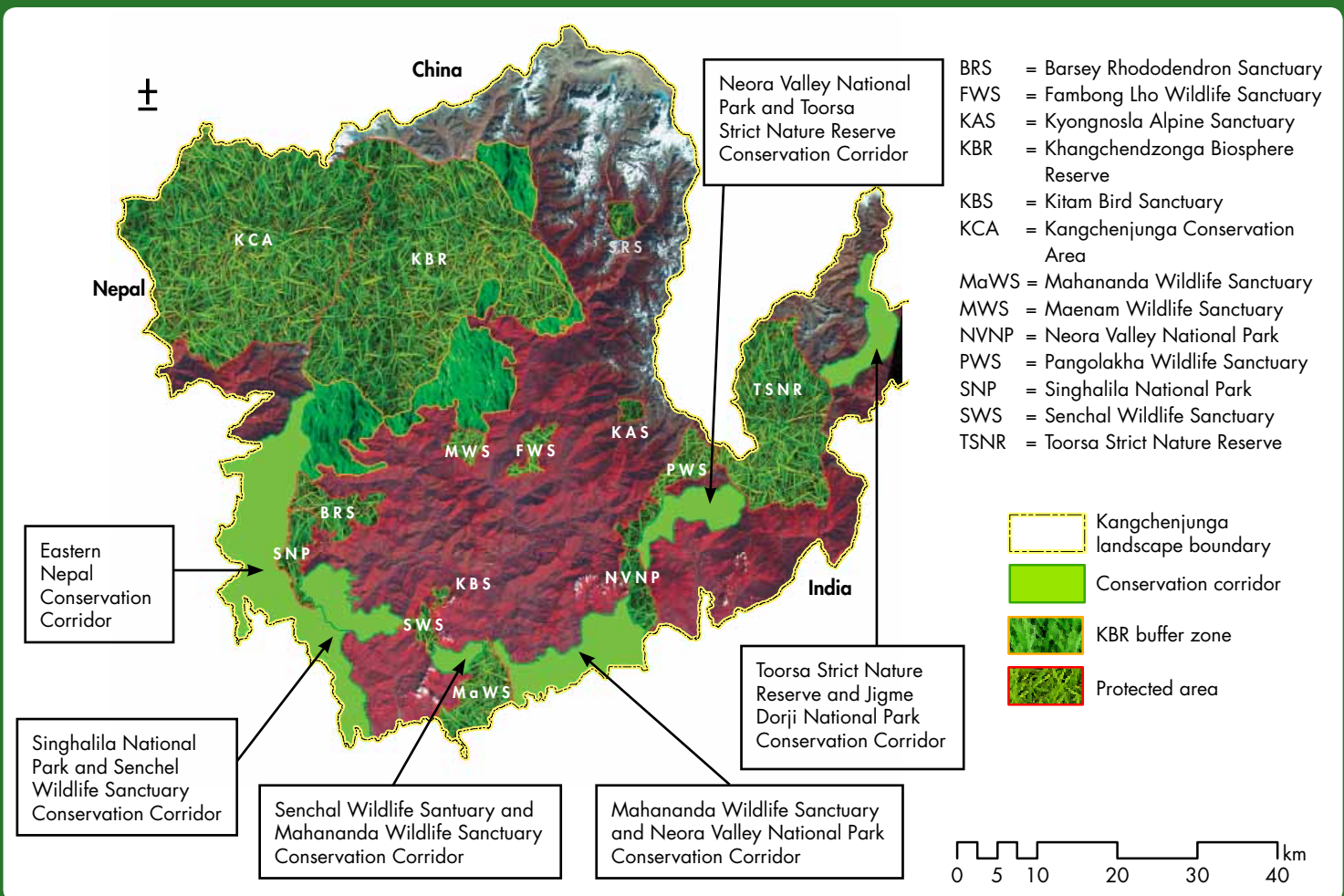
Kangchenjunga Landscape

The Kangchenjunga landscape refers to the southern half of the area surrounding Mount Kangchenjunga, which is spread across eastern Nepal, Darjeeling and Sikkim in India, and western Bhutan (Figure 1). The Kangchenjunga landscape is one of the richest of the Himalayan 'biodiversity hotspots' and one of the most critical centres of biodiversity in the world (Mittermeier et al. 2004; WWF and ICIMOD 2001). It is an important transboundary area for biodiversity conservation (Chettri et al. 2009). The landscape, including its PAs and proposed conservation corridors, provides a host of ecosystem services – supporting, provisioning, regulating, and cultural services – which support the wellbeing of the people living in the landscape and the millions downstream.

The people living in the Kangchenjunga landscape are economically, physically, and socially vulnerable. The majority of the rural population living in the landscape depend on forest resources for their subsistence livelihoods, as commercial resources remain beyond their reach because of difficulties in access, high prices, and limited supplies. The level of poverty among the populations residing in and around PAs is generally high, and livelihood options are limited. Economic returns from the use of natural resources are low, and people residing near the PAs have lower incomes than those living in nearby urban areas. The most vulnerable are those who have no land; their livelihood strategies include temporary migration, the collection of non-timber forest resources or medicinal plants, portering, and wildlife hunting (Chettri et al. 2008a). Limited access to education, health care, and development opportunities creates an inexorable link between poverty and environmental degradation.

The three countries sharing the southern half of the Kangchenjunga landscape – Bhutan, India, and Nepal – are signatories to the Convention on Biological Diversity. As signatories, these countries have committed themselves to establishing a system of natural PAs and encouraging a community-based landscape approach to conservation.

Figure 1: Kangchenjunga landscape with protected areas and proposed corridors



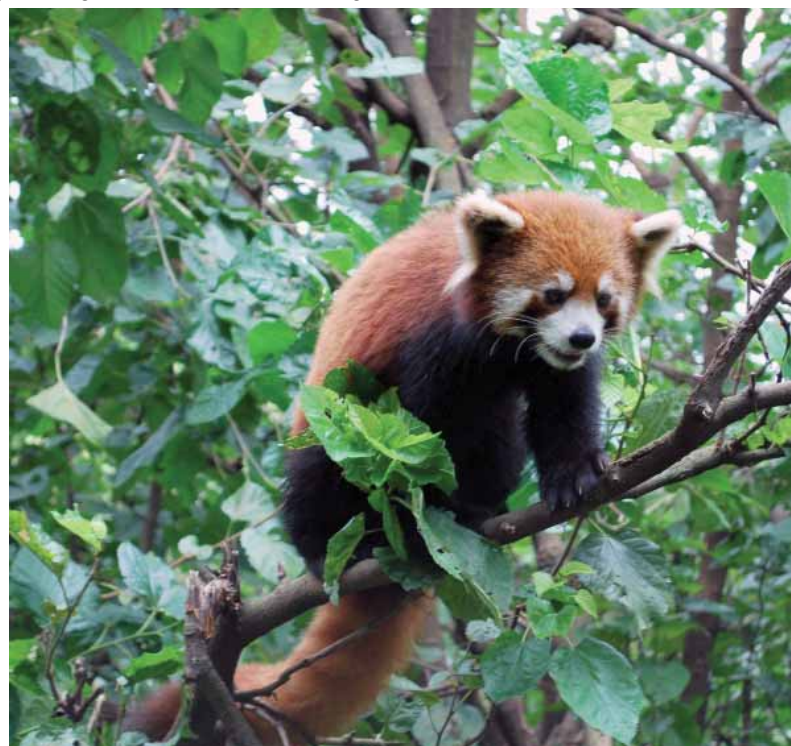


Protected area landscape in Bhutan

Protected Areas and Conservation Corridors

Until the mid-1990s, conservation efforts in the Kangchenjunga landscape were focused primarily on the establishment of PAs. The countries sharing this landscape set aside 15 PAs with different management regimes ranging from strict nature reserves to national parks and conservation areas (Chettri et al. 2008a). In size, these PAs range from as small as 0.04 km² (Jore Pokhari Salamander Reserve) to as large as 2,620 km² (Kangchenjunga Biosphere Reserve). However, they are scattered and isolated 'conservation islands', and the rich biodiversity of the Kangchenjunga landscape has continued to decline. Many of the flagship species, such as the snow leopard (*Uncia uncia*), tiger (*Panthera tigris*), elephant (*Elephas maxima*), red panda (*Ailurus fulgens*), takin (*Budorcas taxicolor*), and musk deer (*Moschus*

Flagship species of the Kangchenjunga landscape such as red panda (*Ailurus fulgens*) face challenges due to habitat destruction, poaching, and environmental change



chrysogaster), face challenges due to habitat destruction, poaching, and environmental change. The most pervasive threats to conservation in the landscape are habitat loss and fragmentation, which has narrowed the habitat range of the already small populations of these species, isolating them and making them vulnerable to extinction (Rastogi et al. 1997; Yonzon et al. 2000).

To address this concern, ICIMOD has initiated conservation efforts in the Kangchenjunga landscape to increase habitat contiguity by connecting isolated PAs through conservation corridors and assisting the countries in managing this transboundary landscape with the ecosystem approach advocated by the Convention on Biological Diversity (see Box 1) – thereby addressing conservation problems at the landscape level.

ICIMOD's Kangchenjunga Conservation Landscape Initiative has proposed six conservation corridors in the landscape – four in India and one each in Bhutan and Nepal (Figure 1). Pre-feasibility studies have been completed which confirm that these corridors are exposed to uncontrolled grazing, unsustainable harvesting of medicinal plants and other non-timber forest products, poaching of wildlife, slash and burn agriculture, forest fires, land degradation, indiscriminate felling of trees, and the depredation of agriculture and livestock by wildlife (Chettri et al. 2008a). Land uses in the proposed corridors include forestry, grazing, agriculture, tea gardens, orchards, and infrastructure development. In some places, major development infrastructure runs through the corridors (e.g., dams, highways, and railways). Demand for natural resources is relatively high, putting pressure on forests and grazing resources. In some areas, the migration routes of megafauna of significance for conservation cross settlement areas and tourism infrastructure. The vegetative cover of some corridors is degraded and requires improvement. Much of the alpine and subalpine pasturelands and common property resources used for grazing by transhumant and settled communities are overgrazed (Chettri et al. 2008a; Tambe and Rawat 2009). Subtropical rangelands are grazed extensively in winter by transhumant herders and sedentary farming communities. At lower elevations, conversion of open pastures to community forests conflicts with traditional pasture management practices (Khatri 2008). In some areas, community forest user groups prohibit the use of traditional migratory routes by animal herders. With the abolition of some communal land tenure and customary arrangements, ownership of traditional community pastures and inherited pasture resources has weakened, which has led to haphazard grazing and mismanagement (Oli 2008).

With global climate change expected to present practical challenges to local ecosystems through more extreme weather events such as longer than usual droughts, higher than usual temperatures (and milder winters), and heat waves (IPCC 2007), agriculture, forestry, water resources, human health, and natural ecosystems will need to adapt or face diminished functioning (Xu et al. 2009). Species inhabiting PAs will need to change their behaviour or migrate in response to climate change (Thomas et al. 2004). Corridors and landscapes are now being promoted in biodiversity conservation to minimize the consequences of climate change and assist adaptation (CBD 2003; Worboys et al. 2010).

Box 1: Ecosystem Approach to Conservation

Since 1995, the ecosystem approach has been recognized and adopted as a tool for integrated management of biodiversity to reach a balance between ecological, social, and economic needs (CBD 1995). It provides a framework that can be used to implement the objectives of the Convention on Biological Diversity (CBD), including the work on, inter alia, protected areas and ecological networks. There is no single correct way to apply the ecosystem approach to management of land, water, and living resources. The principles that underlie the ecosystem approach can be translated flexibly to address management issues in different social, economic, and environmental contexts (Smith and Maltby 2003). The seventh Conference of the Parties (COP 7) of the CBD in 2004 promoted this approach as a way of achieving the 2010 biodiversity targets and advocated integration of PAs into more extensive and linked ecological networks to enhance their effectiveness. As a result, many countries began to set up ecological networks beyond political boundaries – connecting core PAs with the PAs of neighbouring countries through corridors and buffer zones – to improve ecological coherence and conserve biodiversity at the landscape level (see Worboys et al. 2010).



The transboundary area between Nepal (left side of the ridge) and India (right side of the ridge) in the Singhalila Range; increasing economic and environmental interdependence between the countries offers opportunities for cooperation

Transboundary Landscape Approach

As ecosystems and habitats are contiguous beyond political boundaries, biodiversity conservation needs to be addressed over a wide range of areas and across borders at the landscape level. Promoting transboundary biodiversity conservation initiatives for the development of networks of corridors linking PAs has been an important strategy for conservation in the Kangchenjunga landscape. Connecting PAs through corridors provides opportunities for both vertical (altitudinal) and horizontal (cross-border) habitat connectivity, ensuring environmental goods and services for the future (Bennett and Mulongoy 2006). However, the conservation and management practices employed by the 15 PAs in the landscape differ, as do the policies of the countries involved; this creates a challenge in making landscape-level management compatible with existing practices and policies.

International boundaries play an important role in conservation because of their multifaceted functions as filter zones for illicit activities, gateways for people and goods, and zones of socioeconomic, cultural, and environmental integration. A host of transboundary challenges exist, such as the illegal trading of products of protected species, poaching, and transboundary grazing and extraction of natural resources. An additional challenge to transboundary biodiversity management is the prevalence of persistent poverty among communities located in remote and inaccessible areas along or close to international boundaries (Chettri et al. 2008a).

At the national level, each country has its own legal system for regulating the transfer and trade of biological commodities, but to date, there is no formal legal framework for addressing transboundary issues at the regional and sub-regional level. The increasing economic and environmental interdependence among the countries in the region offers opportunities for cooperation.

Towards Participatory Conservation

Mirroring wider evolution of the conservation approaches (see Box 2), efforts to conserve biodiversity in the Kangchenjunga landscape have advanced over the years from a protectionist approach with use restrictions towards participatory approaches that emphasize the equitable and sustainable use of natural resources (Chettri and Sharma 2006; Gurung 2006). Conservation policy and institutional initiatives in the three countries have advanced substantially towards community-based conservation (see Figure 2). However, there is still a long way to go in establishing community-based conservation. Of the 15 PAs and 6 proposed conservation corridors in the landscape, only 19.6% are classified as conservation areas, i.e., IUCN Category VI – the only category recognizing people's need to use natural resources for their livelihoods (Figure 3). In such a regime the scope for community-based conservation in the landscape is limited.

Figure 2. Advancement of conservation policies towards people-oriented biodiversity conservation in Bhutan, India, and Nepal



Box 2: Changing Paradigm in Biodiversity Conservation: From protectionist to people-centred approaches

Systematic biodiversity conservation began in the late 1870s when supposedly wild or pristine regions were set aside as national parks and other types of protected areas (PA). Since the notification of the first PAs in northeast India in 1928 (Manas and Sonai Rupai wildlife sanctuaries) (IUCN 1990), 488 PAs have been established in the Hindu Kush Himalayan region (Chettri et al. 2008b).

Traditionally, PA management considered the consumptive use of biodiversity resources as incompatible with maintaining nature's inherent wilderness. As a result, while humans have coexisted with nature for centuries, they were excluded from PAs (Ghimire and Pimbert 1997). In some areas, indigenous and local people were even evicted from their homelands in order to establish a PA (McLean and Straede 2003). This model of biodiversity conservation is referred to as the 'protectionist' model.

The protectionist model focused on the conservation of flagship species, i.e., those that occupied the tip of the pyramid in the ecosystem's food web, such as the elephant, tiger, and rhinoceros. It assumed that if the flagship species flourished, then the whole ecosystem was healthy. Under this model, local people had very little role in managing the natural resources in PAs. To them, biodiversity conservation became a source of suffering (Alcorn 1993). As a consequence, many PAs became fragmented and degraded. It became clear that conservationists who fail to involve local people in establishing and managing PAs will face difficulties.

Today, with social responsibility coming to the fore, space is being created for the participation of local people in conservation work and platforms are emerging for constructive dialogue between park authorities and local people. Buffer zones are being created to provide livelihood opportunities to local people just outside the PAs (Chettri et al. 2007; Wangchuk 2007). An era of participatory biodiversity conservation has thus begun.

People-oriented conservation approaches focus on balancing nature conservation with human consumptive needs. The basic needs of people residing in and around biodiversity-rich areas must be met and negative impacts on biodiversity minimized. Benefit-sharing mechanisms (including mechanisms ensuring access/rights to biodiversity resources) need to be established to harness meaningful community participation in natural resource management (Oli and Dhakal 2009). Integrating people and livelihood dimensions into nature conservation (also known as integrating conservation with development) is now seen as a necessity, not a choice (Scherl et al. 2004).

Although globally conservation has evolved from a protectionist to a people-oriented approach, the International Union for Conservation of Nature (IUCN) has not revised its definition and classification system for PAs since 1994. Of the six IUCN categories, Categories I and II strictly limit human consumptive use. Categories III and IV also emphasize conservation, while Category V envisages conservation along with recreational use. Only Category VI recognizes the aspirations and needs of local people and the importance of protected areas to the sustainable livelihoods of the local inhabitants. Category VI represents only about 2.6% of PAs worldwide (Jenkins and Joppa 2009). This system limits the scope of the sustainable use of natural resources by local inhabitants beyond the subsistence level. The relevance of PAs in providing ecosystem services and conserving biodiversity remains questionable unless they are relevant to local needs and the aspirations of the people inhabiting the area.

Challenges of participatory conservation

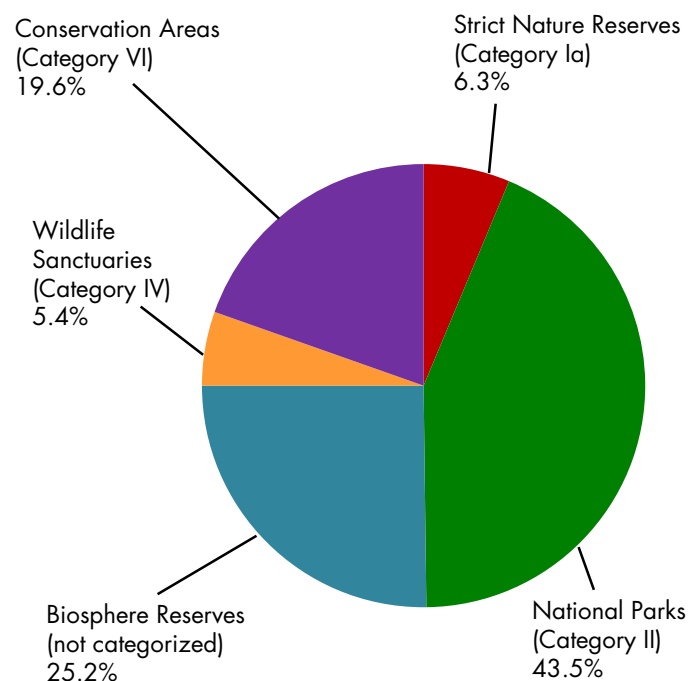
Demonstrable success stories showing the effective reconciliation of people's development needs with PA management are still lacking (Salafsky and Wollenberg 2000). Many community-based conservation projects lack rigorous monitoring and evaluation; without analysis of baseline data, the impacts of conservation efforts mostly remain unproven (Hughes and Flintan 2001).

Furthermore, many community-based conservation programmes have had inherent problems in their design. Local communities are often perceived as homogenous actors rather than heterogeneous groups with different interests and power relations influencing access to, and control over, natural resources. Such programmes fail to consider who bears the costs and who reaps the benefits of PAs. Difficulties have also been encountered in developing institutions for legitimate, accountable, and inclusive decision making that takes into account the interests of different stakeholders.

In recent years, community-based participatory biodiversity conservation approaches have been adopted in some of the PAs of the Kangchenjunga landscape, premised on the assumption that local people will participate in conservation endeavours if they perceive and/or receive benefits from conservation interventions, and that biodiversity loss can be minimized through community participation (Rai and Sundriyal 1997; Sharma et al. 2002; Gurung 2006).

For example, the Government of Nepal in collaboration with WWF implemented an integrated conservation and development project from 1999 to 2009 in the Kangchenjunga Conservation Area, Nepal, which is managed in a participatory way by the local community. While it is too early to reach conclusions about the project's success, as early as 2006 there were indications that forest condition and wildlife numbers had increased, the livelihood of communities in the area had been enhanced, and the attitude of local inhabitants towards conservation had become more positive (Gurung 2006). The project went beyond involving local people, to institutionalize participatory conservation and development. A

Figure 3: Categories of the protected areas and proposed conservation corridors in the Kangchenjunga landscape



community-based institution was created and the capacities of the local people, both men and women, were strengthened to run it. Legal restoration of local ownership of resources improved community participation in natural resource management (Gurung 2006). The knowledge, views, and interests of diverse stakeholders were considered in the design and implementation of the project. Participatory tools were employed to reconcile the conflicting interests, needs, and priorities of the various stakeholders/communities.

The effectiveness of existing PAs in achieving conservation targets needs to be assessed. This is a challenge, as the systematic monitoring of biodiversity, PA governance mechanisms, and the impacts of PA governance on biodiversity is completely lacking in most of the PAs in the Hindu Kush Himalayan region, including those in the Kangchenjunga landscape

Community-based participatory biodiversity conservation approaches are based on the assumption that local people will participate in conservation if they receive benefits from conservation interventions – for example, livelihood improvement through support to sustainable tourism activities

Influence of National Policy in People-Centred Conservation in the Kanchenjunga Landscape

Nepal

In some parts of the Kanchenjunga landscape in Nepal, communities traditionally managed biodiversity, agricultural productivity, and human health and nutrition through customary laws and ancient practices contributing to a legacy of indigenous knowledge relevant to biodiversity conservation (Shrestha 1997; Khatri 2008). The social, cultural, and economic systems of the Kirat communities, for example, involved community norms for governing forest, rangeland, and aquatic resources. Their traditional practices and customary laws were implemented through a bottom-up approach. Issues were presented orally before community members and witnesses. Discussions, the verification of facts, arbitration of disputes, vows, and oaths were part of the decision-making process. The conservation of biodiversity was deeply embedded in their tradition, for example through the prohibition of hunting during the breeding season. Transparency, morality, and a strong belief in the socio-cultural fabric of the society made this governance system participatory and effective.

The implementation of the Land Registration Act 1962 and the Land Reform Act 1964, in principle, seized the customary rights and transferred them to the revenue office, creating conflict over land ownership (Oli 2008). Statutory laws were introduced to govern the utilization and development of natural resources. These laws, whose scope has been broadened to include national and global interests, were formulated and enforced in a top-down way, largely ignoring local communities (Khatri 2008). As the statutory laws offered little incentive for the Kirat communities to conserve biodiversity, the communities became unresponsive to the need to conserve natural resources (Basnet 1990).

The Constitution of Nepal 1990 offered support to the sustainable management of the country's natural resources, providing for the establishment of a Natural Resources and Environment Committee in the House of Representatives. This committee is responsible for evaluating policies and programmes on natural resource management. The Local Self-Governance Act of 1999 empowers district development committees to formulate and implement soil and biodiversity conservation plans. The National Parks and Wildlife Conservation Act (NPWCA) of 1973 provides a legal basis for the management of protected areas.

Over the years, some statutory laws have begun to recognize the role and rights of communities in the conservation and development of natural resources. From 1973 to 2000, the NPWCA 1973 was amended six times to minimize park-people conflict and promote effective participatory biodiversity conservation. These amendments have transformed Nepal into a country with more progressive nature conservation policies (Keiter 1995; Mishra 1982), where the conservation focus is no longer on species alone, but on ecosystem protection (GoN/MoFSC 2006). Since the 1970s Nepal has successfully integrated local people's needs into PA management by promulgating practical buffer zone legislation and implementing innovative conservation projects.

Other progressive legislation includes the Buffer Zone Management Regulations (1996) and the Buffer Zone Management Guidelines (1999), which provide legislative support to address the needs of local communities and resolve conflicts between parks and people. The Aquatic Animal Protection Act (1961) protects the habitats of aquatic species. The Himalayan National Park Regulations (1979) contain provisions for local communities to use natural resources for their daily requirements.

Nepal has also been an innovator in community-based forestry. The Forest Act of 1993 and the Forest Regulations of 1995 recognize community forest user groups (CFUGs) as self-sustaining independent entities. The legislation gives usufruct rights to CFUGs to manage, develop, and use community forest areas as per approved operational plans. Each CFUG prepares its own constitution with technical support from the district forest officer. CFUGs also

prepare forest management plans in collaboration with, and approved by, the district forest officer. The CFUG has the legal right to collect and sustainably use forest products from its community forest. CFUGs make decisions on the management, marketing, and distribution of benefits (Kanel 2006). They also have the authority to impose sanctions on anyone who violates their rules.

The evolving emphasis on the decentralized governance of natural resources, under which local communities are empowered to manage resources within their area of jurisdiction, signifies a quantum leap from the protectionist conservation paradigm to participatory conservation. At the same time, the emphasis has shifted from protecting limited areas to looking at the whole landscape (Figure 2). All of these progressive improvements in conservation-related legislation are supported in the Interim Constitution of Nepal 2007.

At present, the Kangchenjunga Conservation Area is the only protected area within the Kangchenjunga landscape being managed based on the principles of community-based conservation. Since 1999, conservation efforts in the Kangchenjunga landscape have been geared towards linking PAs through a landscape approach, rather than creating additional protected areas (WWF and ICIMOD 2001; GoN/MoFSC 2006). ICIMOD has proposed a corridor through Taplejung, Panchthar, and Ilam districts in Nepal to link the Kangchenjunga Conservation Area of eastern Nepal to the Khangchendzonga Biosphere Reserve, Barsey Rhododendron Sanctuary, and Singhalila National Park of Sikkim and Darjeeling in India, and has completed a pre-feasibility study for the corridor in collaboration with partners. A strategic document for the management of the Sacred Himalayan Landscape has highlighted this corridor as one of high conservation significance owing to its transboundary nature (GoN/MoFSC 2006).

India

In India, people's participation in the sustainable management of natural resources has been emphasized in successive policy iterations (Figure 2). Joint forest management (JFM) has been the cornerstone of forest management in India since 1990, when the Government of India issued enabling guidelines. These guidelines were widely seen as an attempt to implement the changing perspective on the role of communities in protecting, using, and managing forests, as articulated in the National Forest Policy 1988. They direct forest corridors to be established and linked to PAs to maintain genetic contiguity between artificially separated sub-populations of migratory wildlife species.

Other laws have been revised to regulate the implementation of the 1988 policy. In addition, the Government of India issued a circular promulgating the involvement of local people in forest conservation and management through village level organizations. Forest protection committees (FPCs) and eco-development committees (EDCs) have been established as community institutions. An independent evaluation of JFM in West Bengal showed an improved relationship between the Forest Department and the people; a significant improvement in the health of forests under the FPCs (while other forests continued to deteriorate as a result of unregulated extraction); and an increased availability of forest products, particularly fuelwood, because of the improved forest conditions (Pai and Datta 2006).

Similarly, the Wildlife Protection Act (2002) makes community consultation mandatory when any area adjacent to a national park or wildlife sanctuary is declared as a conservation area. This policy also enables the establishment of eco-development committees, which implement eco-development programmes aimed at overcoming unsustainable and incompatible resource use by dependent communities in and around PAs (Palit 2008). Community funds have been set up to finance community development programmes using the revenue generated from the sale of forest products. Many self-help groups have also been formed by women.



A conservation corridor has been proposed to link protected areas in Nepal and India, including the Barsey Rhododendron Sanctuary in Sikkim, India

The most progressive piece of forest legislation in India is the Biological Diversity Act (2002), which has been in force since 2004. This legislation focuses on the protection of genetic resources and associated traditional knowledge under local community regulation. People are involved at all levels in decision making on bio-prospecting and the sharing of benefits from it. This legislation has enabled the establishment of biodiversity management committees and local-level trust funds for the purpose of keeping inventories of local biodiversity resources and traditional knowledge and maintaining a biodiversity register. The Biological Diversity Act is supported by the National Environmental Policy 2006, which provides a legal basis for protecting the biodiversity-related knowledge of local people.

Similarly, the Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2008 ensures legal recognition of the rights of forest-dwelling tribal communities and other traditional forest dwellers on their ancestral lands. It also provides them secure tenure and access rights and entrusts them with the responsibility and authority for the sustainable use of forest resources, conservation of biodiversity, and maintenance of the ecological balance as they enhance their livelihoods and food security.

However, although many progressive efforts towards participatory forest management have been initiated in India, implementation results are mixed. For example, JFM and eco-development programmes are governed by the Government Administrative Orders of 1990 and 2000, but their legal basis remains unclear in many states (Pai and Datta 2006). Joint forest management committees are not independent institutions or legal bodies and barely have full decision-making power or legal authority to claim a share of benefits or produce. The Forest Department of each state plays a major role in preparing management plans (Behera and Engel 2006), and communities have a limited role in deciding on management objectives and formulating plans to achieve them. Micro plans tend to reflect the Forest Department's agenda rather than community's needs (Conroy et al. 2002, p 236). A study (TERI 2004) found that in 9 of 22 states, the Forest Department retained the right to frame rules, with communities either having no rights (in 5 states) or only the right to assist the Forest Department (in 4 states). Withdrawal rights are not granted to communities for all non-timber forest products. From the above review, it can be seen that progressive legislation has not yet been fully implemented in India, signifying that challenges remain for participatory conservation in PAs, including in the Kangchenjunga landscape.

However, participatory landscape-based conservation practices have been initiated in the Kangchenjunga landscape area. For example, the Khangchendzonga National Park was re-designated in 2000 as the Khangchendzonga Biosphere Reserve, with additional buffer areas and cultivation system. To address habitat fragmentation, ICIMOD (in consultation with partners) has proposed four corridors to improve connectivity among Singhalila National Park, Senchal Wildlife Sanctuary, Mahananda Wildlife Sanctuary, and Neora Valley National Park in India and the Toorsa Strict Nature Reserve in Bhutan (Sharma et al. 2007). Pre-feasibility studies have been completed for three of the corridors: between Singhalila National Park and Senchal Wildlife Sanctuary; between Senchal Wildlife Sanctuary and Mahananda Wildlife Sanctuary; and between Mahananda Wildlife Sanctuary and Neora Valley National Park (Chettri et al. 2008a; Sharma et al. 2007). Most of these corridor areas are owned by the government, and JFM is already practised in many of them, although the corridors have not yet been developed. Recently, the Government of India acknowledged the importance of the Kangchenjunga landscape as a transboundary area and the need for corridor development and for regional cooperation in the implementation of the detailed management plans developed by the initiative's Steering Committee under the leadership of the Forest Department of West Bengal.

Bhutan

The Forest Policy of Bhutan (1974) requires 60% of the country's land area to be maintained under forest cover. Bhutan has moved from species protection to ecosystem conservation. The Forest and Nature Conservation Act 1995 requires the establishment of a national system of PAs. To include representative ecosystems in the PA system, Bhutan has revised its old system and adopted the Bhutan Biological Conservation Complex covering 49% of the country's geographical area (protected areas, 40%; and corridors, 9%) (NCD 2004). All of the PAs are governed by core and buffer zone management plans.

The Forest and Nature Conservation Act 1995 requires community-based management of natural resources. The Forest and Nature Conservation Rules of Bhutan 2006 recognize forest user groups (FUGs) as legal entities. The act and its rules give full legal authority to FUGs to manage, develop, and use community forests as per the operational



In Bhutan, the National Biodiversity Act (2002) and Environmental Assessment Act (2000) represent a positive move towards the empowerment of local people and community-oriented conservation in the landscape mosaic

plan approved by the Department of Forest. Each FUG prepares its own constitution with technical support from the local staff of the Department of Forest; makes decisions on the management, marketing, and distribution of benefits; and exercises a formal right to forest products from its community forest. FUGs have the authority to impose sanctions on anyone who violates FUG rules.

The National Biodiversity Act (2002) provides for the protection of genetic resources and associated traditional knowledge and the sharing of fair and equitable benefits with the local communities when bio-prospecting takes place. Rules to this Act are being developed for its implementation. The Environmental Assessment Act (2000) provides legal measures to safeguard the environment and ecosystems from the negative impacts of development programmes. This is a positive move towards the empowerment of local people and community-oriented conservation in Bhutan.

In the Kangchenjunga landscape, the Government of Bhutan has already delineated a corridor linking the Toorsa Strict Nature Reserve and Jigme Dorji National Park, for which a management plan has been prepared and is being implemented (NCD and ICIMOD 2008). However, the Toorsa Strict Nature Reserve, which connects protected areas in Bhutan and India, is yet to be brought under scientific management.

Recommendations

The last decades have seen a notable move towards linking conservation in PAs (and conservation generally) with the traditions and practices, livelihoods, and aspirations of indigenous peoples and local communities. The governments of the three countries sharing the Kangchenjunga landscape have demonstrated their commitment to involve communities in the management of natural resources in PAs, buffer zones, and corridors. Their policies and practices are evolving towards community-based conservation (Figure 2).

As these countries have different socioeconomic conditions and governance systems, they cannot be expected to adopt exactly the same policies. In addition, PA governance mechanisms and the impacts of such mechanisms on biodiversity have not been systematically monitored in most of the PAs in the Hindu Kush Himalayan region, including those in the Kangchenjunga landscape. With these caveats in mind, the following observations may be worth considering for improving participatory conservation in the Kangchenjunga landscape.

Remodelling policy

Currently, only 19.6% of the PAs in the Kangchenjunga landscape, all within Nepal, fall within IUCN Category VI, the only IUCN protected area category that recognizes the needs and role of local people in conservation and thus the only category eligible for participatory conservation programmes. Since the fifth World Parks Congress in 2003 (held in Durban, South Africa), community conserved areas have been gaining legitimacy as another category. The creation of this category was agreed by the Conference of the Parties to CBD in 2010, but it has not yet been put into practice. This has to be brought forward by the countries in their legislation concerning protected areas or forests.

Recommendation 1: Countries should consider including potential community conserved areas within their system of protected areas.

Upholding the principles of good governance

Institutional conditions and governance determine the ability of natural resource users to manage the resources (Colding et al. 2003). A global survey on management effectiveness in protected areas showed that “PA managers recognise that community support is a precondition to ‘good governance’ and more effort is being directed at involving various stakeholder groups” (Leverington et al. 2008). The general perception is that increased participation has resulted in more effective decision making (Chape et al. 2008). Building an effective and self-sustaining governance system is a prerequisite for successful participatory conservation. For community-based governance to function successfully, local community-based institutions should be given legitimate rights. A decentralized system of local governance would increase people’s participation and contribute to improving the balance between conservation and livelihoods. Equity and fairness in the management and sharing of common property resources requires the inclusion and representation in decision-making bodies of those who are poor and socially marginalized (Oli and Dhakal 2009). It is critical to ensure the rights of communities to access and benefits, particularly communities that are poor and socially marginalized.

Recommendation 2: Enact national legislation to give community-based institutions legitimate rights over natural resources and ensure the participation of poor and socially marginalized groups in biodiversity management.

Improving connectivity

While biological systems might accommodate minor (or slowly occurring) perturbations in a smooth, continuous fashion, even a minor change in climate can be disruptive for many ecosystems and individual species. Many of the species inhabiting the Kangchenjunga landscape are under stress because of habitat fragmentation and high consumptive use of natural resources (Chettri et al. 2008a) Furthermore, a relatively rapid rate of climate change is anticipated in this landscape. Together, these stresses are likely to challenge the resilience of many species and their chances for successful adaptation. Overcoming such challenges will require improving the effectiveness of

entire ecosystems and their components. The connectivity of habitats for endangered and rare species of plants and animals is essential. Sustaining ecosystem services will also require structural improvements in ecosystems.

All three countries sharing the Kangchenjunga landscape are supportive of making PAs effective in attaining conservation goals by connecting them to each other by conservation corridors (Sharma et al. 2007). Many strategic and detailed conservation and development plans are already in place (GoN/MoFSC 2006; NCD and ICIMOD 2008). However, institutions and programmes to manage the corridors must be developed and put in place to ensure the benefit of the corridors. With the mounting population pressure, the risk of accelerated degradation is high if action is not taken now.

Recommendation 3: Identify and establish corridors between the PAs in the Kangchenjunga landscape and develop institutions and programmes to manage them.

Improving participatory conservation

Community-based conservation has to be improved to further conservation goals and meet livelihood needs. Local communities must be perceived as heterogeneous groups with different interests and power relations influencing access to, and control over, natural resources. They must be considered equal partners in conservation and development – as part of the solution, not the source of the problem. Local people must be perceived as assets, not liabilities. Community-based institutions need to be empowered to function legitimately, accountably, autonomously, and transparently and to govern more inclusively. Their capacity to deal with dynamic ecological processes and socioeconomic trends must be developed. It is also important to capitalize on traditional and indigenous knowledge and institutions and to transform them for the benefit of conservation and development. Local communities must be empowered to negotiate with powerful vested commercial interests and key government agencies.

Clear criteria are needed for judging sustainability or success in meeting conservation and development objectives.

Recommendation 4: Empower community-based institutions to participate fully in natural resource management.

Strengthening transboundary cooperation

The success of conservation at the landscape level depends on the commitment of countries to cooperate, share information, and give access to genetic resources and technology transfer at the regional level (Sharma et al. 2007). The increasing economic and environmental interdependence among countries in the region offers opportunities for cooperation (Chettri and Sharma 2006). However, a formal framework within which to address transboundary issues is currently lacking. Laws and policies, which vary across countries, affect resource use and conservation mechanisms (including community rights in relation to the use of, and tenure over, resources) differently in each country sharing the landscape. There is an immediate need for the three countries to adopt a formal framework for dealing with such transboundary issues.

Recommendation 5: Bhutan, India, and Nepal should adopt a formal framework for dealing with transboundary issues in the Kangchenjunga landscape.

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