Chapter 15. Nepal

CHAPTER 15

Nepal

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SUMMARY

Nepal's rich biodiversity is a reflection of its unique geography and varying latitude and climate, contained within a narrow stretch of land only 150 km from south to north. The small kingdom covers only 0.1 per cent of the Earth's land area, but the wide ranges of its bio-climatic conditions support over 2 per cent of all flowering plants, 8 per cent of all birds and 4 per cent of all mammals. In Nepal, species conservation is a fundamental part of the livelihood of local communities. Many species have religious value and are sources of food, fuel, fibre, dyes, oil, gums and medicine.

Nepal signed the Convention on Biological Diversity during the Earth Summit in 1992. It has sought to conserve forest ecosystems, wildlife habitats and other genetic resources through a national protected area system, supported by legislation, which covers almost 18 per cent of the country. Nepal was one of the first countries in Asia to prepare a National Conservation Strategy (1988). It is now preparing a National Biodiversity Action Plan (NBAP) as part of a five-year biodiversity conservation project, funded by GEF, to streamline all conservation efforts in compliance with the CBD. NBAP formulation includes a review of the policy and institutional framework, the status and trends of biodiversity and an analysis of gaps. Five regional and a national level workshops were held, and technical workshops were organized on key themes such as protected areas, plant resources, wetlands, community forestry, and agriculture and livestock to identify issues of national and local concern and set priorities for proposed projects and programs.

The NBAP was recently completed and is in the process of endorsement by government. The plan provides a comprehensive strategy to coordinate the interests shaping biodiversity, such as forestry, wildlife, agriculture, tourism and local communities. The plan is comprised of policies and actions to maintain biodiversity within and outside of protected areas with long- and short-term profile projects to strengthen human resource development and institutional capacities.

These are the critical issues associated with biodiversity conservation and management in Nepal:

- alteration in the composition of ecosystems and in their structure and functions;
- continued clearing of forest lands for agricultural purposes;
- illegal trade, hunting and poaching of species; and
- over-exploitation of bio-resources.

Introduction

Nepal links the Tibetan Plateau with the Indian subcontinent, and forms a bio-geographic corridor between the two largest Asian countries, China and India. Nepal has a wealth of biodiversity out of proportion to its extremely small (0.1) percentage of the global landmass. The country extends from close to sea level in the flat tropical south or Terai to Everest, the highest mountain on earth. This range occurs over just 150 km from south to north, creating extreme variations in ecological zones. A total of 118 ecosystems, with 75 types of vegetation and 35 forest types, are found in this narrow strip. The kingdom supports more than 6,500 species of flowering plants, more than 844 species of birds, 185 species of fish and more than 633 species of butterflies, as well as 1.5 per cent of the world's reptiles and over 4 per cent of its mammals. Nepal ranks 25th in the world in terms of biodiversity wealth.

For generations, Nepalese communities have lived a subsistence agrarian existence. Biodiversity resources provided the foundation for the religious and spiritual values, the socio-economic systems and the traditional knowledge base of the Vedic and Buddhist cultures. Biodiversity determined the aspirations and prosperity of local communities that lived by nature's cycles and limits. This livelihood has been jeopardized because of the depletion of forests. In many areas forests are fragmented and the populations of several wildlife species marginalized.

Nepal has not made significant progress in slowing human population growth. While the growth rate fell to 2.08 per cent in the decade to 1991, recent estimates indicate that the rate has risen to 2.66 per cent (MOPE, 1998). There are more new villages and hamlets, especially in the mountains, leading to further reduction in forest cover. Nepal has around 4.27 million ha of forest land (29 per cent of the country) and 1.56 million ha of shrub land (10.6 per cent; HMG, 1999). Forest area has decreased at an annual rate of 1.7 per cent during 1978/79-1994, while forest and shrub together have decreased at an annual rate of 0.5 per cent. The decrease in forest area varied in different

physiographic zones. In the Terai (lower flat land) the annual depletion of forest was 1.3 per cent from 1978-79 to 1990-91; in the mountains forest and shrub together decreased at an annual rate of 0.2 per cent (HMG 1999).

The 1951 national movement to restore democracy led to many political, social and economic changes. The *Private Forest Nationalization Act* of 1957, for example, returned to government control forest area that had been appropriated by the ruling Rana family (close to 30 per cent of the total). The preamble of the *Act* states that forests are an important part of the national wealth, and should therefore be protected, managed and used rationally.

This notwithstanding, the demands for forest products from a growing population continue to increase the pressure on forests. Further, Nepal's initiative to eradicate malaria from the Tarai was so successful that the area became home to new settlements. Forests were cleared as local communities and immigrants from hills and mountains expanded their agricultural activities. In the absence of technical expertise, trained staff, adequate resources and effective communications the forest nationalization process failed to accomplish its objectives (Parajuli 1997). Government did not have the capacity or expertise to establish an effective management regime.

From the early 1960s, however, with relative political stability, there was an increase in indigenous local management systems and a greater inclination for families and communities to cooperate in maintaining shared forests where it was clearly in their economic interests to do so. This provided the foundation for the later development of community forestry and cooperative management arrangements. There are indications that community forestry management has contributed to restoring the condition of forests, particularly in the hill and mountain areas.

Despite localized success in increasing forest cover, government's taking back of private forests did not lead to better management. In fact, the country's biodiversity resources quickly began to deteriorate. A vicious cycle was set in motion: degrading ecology, leading to worsening local socio-economic conditions and a distressed national economy, creating unstable politics and putting greater pressure on poorly managed natural resources. Natural calamities like forest fire, landslides, flood, pathogens and invasive species aggravated human hazards such as pollution and deforestation.

A selective as well as a general alteration in the structure and function of ecosystems has taken place; consequently, many species have become rare or endangered. The law now protects 13 species of plants and 39 species of animals, and many more have been identified by IUCN as threatened (Table 1).

Table 1. Nepalese flora and fauna listed under CITES

Category	Plants	Animals Mammals	Birds	Reptiles	Amphibians
Appendix 1	1	27	16	7	—
Appendix 2	10	7	9	4	1
Appendix 3	10	17	15	2	—
Total	21	51	40	13	1

Nepal has a very limited technical and financial base. Only through local communities, and an indigenous knowledge base, can its resources be conserved. This must be supplemented, when required, by a reliable local actor and conservation partner with funding. Nepal's experience with protected area management, for instance, has placed it at the forefront of collaborative management.

Institutions for conservation

Organizations with technical expertise and managerial skills are a prerequisite to biodiversity conservation. The Business Allocation Rules (1996) empower various ministries by defining specific responsibilities; for example, the Ministry of Forests and Soil Conservation is a specialized governing institution for in situ and ex situ conservation. Its departments and corporate bodies are mandated to formulate forest policies and plans, implement activities in different forest types, and conserve and utilize forest resources. MOA is involved in agriculture biodiversity through the conservation and use of domesticated biological species. The newly established Ministry of Population and Environment (MOPE) is a focal point for environment-related international conventions and agreements.

Other institutions, such as universities, research organizations, and national and international NGOs, also participate in biodiversity conservation and research. INGOs such as IUCN and WWF, as well as local NGOs, such as the King Mahendra Trust for Nature Conservation (KMTNC), are directly involved in biodiversity conservation. Many community-based organisations, along with over 6000 community forest user groups, participate in conserving natural resources through community forest management.

Conservation policies

Protected areas

Nepal has established national parks, wildlife reserves, botanical and zoological gardens and gene banks to conserve forest ecosystems, wildlife habitats and genetic resources. Several policies and laws for in situ and ex situ conservation have been formulated, amended and implemented. A diversity of forest ecosystems, wildlife habitats, mountain ecosystems and other genetic resources are found within these protected areas, which cover almost 18 per cent of the country.

There are 16 protected areas in Nepal (Annex I). The Department of National Parks and Wildlife Conservation (DNPWC), within the Ministry of Forests and Soil Conservation (MFSC), is the government executive body and is involved in managing 14 of the areas; KMTNC has full management responsibilities for the remaining two (Annapurna and Manasalu conservation areas). DNPWC jointly manages Makalu-Barun National Park with the Mountain Institute, and the Kachanjungha Conservation Area with WWF Nepal. A development board of MFSC manages the Shivapuri watershed and Wildlife Reserve.

National parks cover 38.04 per cent of all protected areas, wildlife reserves 4.10 per cent, hunting reserve 4.97 per cent, conservation areas 42.78 per cent and buffer zones 10.41 per cent. There are still gaps in the system; for example, the ecosystem of the mid hills (the low mountain region running the length of the country) is not sufficiently represented. The midhills comprise only 6.64 per cent of the protected area system, while the lowland region (including the Terai and Siwaliks) comprises 14.84 per cent and high mountain areas comrpise 78.52 per cent (HMG, 1999).

Umbrella conservation policies

Environmental protection is a strong theme in the country's constitution (1990). While the history of government policy in this field goes back many years, the 1990s saw a more systematic approach, as reflected in the past two five-year national development plans. The Eighth Five-Year Plan (1993-1997) emphasized the commercial cultivation of valuable endemic plant resources with the participation of local people. The Ninth, and current, Five-Year Plan (1998-2002) stresses the management of national parks, reserves and conservation areas and places a high priority on ecosystem-based biodiversity conservation, expansion of buffer zones and promotion of ecotourism. Further, it recognises the importance of biodiversity conservation outside protected

areas, particularly in agriculture and animal genetic diversity, wetlands and forest areas. The Ninth Plan stresses the importance of CITES in protecting Nepal's endangered wild animals, and seeks financial and technical assistance from bilateral and multilateral donor agencies, including government agencies and NGOs, to implement its conservation elements.

In 1988, following a three-year formulation process, the government adopted the National Conservation Strategy (NCS). The NCS involved comprehensive consultation in all regions of the country, and established an agenda to facilitate the integration of conservation into socio-economic development initiatives. An NCS implementation program has been in place for ten years and has resulted in major policies and institutional reforms, such as the introduction of a national system of environmental impact assessment and, in September 1995, the establishment of MOPE (NCS implementation was previously coordinated by the National Planning Commission). The NCS was reviewed and revised in 1993. The review, five years into implementation, was timely, although it was carried out in part to satisfy World Bank requirements for a national environment action plan.

The Master Plan for the Forestry Sector was introduced, promoted and supported by the Asian Development Bank (ADB) in 1988. The plan included comprehensive directions for the sustainable management of ecosystems and genetic resources in the national forestry sector. Plan preparation was largely externally driven, however, and it was not incorporated by the sectors in any systematic way. Its objectives and proposals did not match the capacities and commitments of the nation; in addition, its planning processes were not integrated into the NCS.

Nepal is a party to the Ramsar Convention for the Conservation of Wetlands (1971). The country is rich in wetland biodiversity resources, particularly plants, waterfowl, fishes and gharial and mugger (large carnivorous reptiles). IUCN-Nepal has prepared a detail wetland inventory of 163 sites in the Tarai and 79 sites in the hills and mountains. Koshi Tappu in southeast Nepal is considered to have international significance and was listed as a Ramsar site in 1987; an action plan has been prepared for its management. The NBAP (2000) has developed strategies and action plans for the conservation of wetlands, including 11 additional sites for inclusion under Ramsar (Table 2).

Table 2. Wetland sites proposed for Ramsar listing

Name of site	Area (ha)	District	VDC/Municipality
Bishazari Tal	180	Chitwan	Gitanagar
Gaidahawa Tal	11	Rupandehi	Bishnupura
Jagadishpur Reservoir	150	Kapilvastu	Niglihawa
Bidahiya Tal	100	Bardia	Chailahi
Ghodagodi Tal	150	Kailali	Darkh Nidi
Narcrodi Tal	100	Kailali	Sandepani
Rampur Tal	n/a	Kailali	Urma VDC
Deukhuria Tal	n/a	Kailali	Dhangadi Municipality
Partiyani Tal	35	Kanchanpur	Krishnapur
Belkot Tal	4	Kanchanpur	Daiji
Begnas Tal	n/a	Kaski	Lekhanath Municipality

Source NBAP (2000)

Nepal became a party to the Convention on International Trade in Endangered Species (CITES) in 1973. CITES and associated national legislation prohibits or controls trade in endangered and rare species and their products within and outside the country. The government has designated the Natural History Museum under Tribhuvan University and the National Herbarium and Plant Laboratory of the Department of Plant Resources (DPR) as scientific advisory authorities for wild animals and plants. DNPWC and DFO are the management authorities for animals and plants in and outside protected areas.

Illegal poaching and trade in wildlife — plants, mammals and birds — is on the increase. River fish stocks are over-exploited. The endangered Gangatic dolphin is trapped for food and traditional medicines. Pheasants and ungulates are hunted for meat; some carnivores are hunted for pelts and bones. Rhino horn, deer musk, tiger bones and the gall bladder of the Himalyan and sloth bear are smuggled out of the country. In 1993 the highest rhinoceros mortality on record occurred, due to natural causes and poaching. Although 76 rhino and tiger poachers were caught and penalized in the five years to 1997, the long-term conservation of these species remains a great challenge.

There is considerable potential to establish extraction and processing facilities for medicinal and aromatic plants as a way of using rare species sustainably and bringing economic benefits to local communities. Already, for example, extraction of taxol resins from Taxus wallichiana, and volatile oils from *Nardostachys jatamansi*, *Rhododendron anthopogon*, *Gaultheria fragrantissima*, and *Cymbopogan sp* are promising local businesses. Uncontrolled harvest of valuable herbs and increased illegal trade threaten many species, however.

Conservation and sustainable use legislation

Initially, the *Wildlife and Conservation Act* (1958) was the legal means of protecting rhinoceros and their habitat, particularly in Royal Bardia National Park. In 1973, the *Act* was replaced by more comprehensive legislation, the *National Parks and Wildlife Conservation Act*. An important amendment to this *Act* in 1993 provided for the establishment of buffer zones in areas adjoining parks to facilitate people-centred management of forests and to empower local people within the buffer zones by involving them in all phases of planning and management.

Box 1. Environmental Impact Assessment

In 1992, the government endorsed a set of environmental impact assessment (EIA) guidelines to minimize the adverse effects of development projects. According to the guidelines, all projects relating to forestry, industry, hydro power, irrigation, mining, drinking water, tourism, sanitary landfill sites, housing, urban development and transport must be preceded by an environmental assessment. EIA is intended to identify, predict, and evaluate all potential impacts on environmental quality and the sustainable use of resources. Further, it suggests appropriate mitigation measures to minimize any negative effects of development. The *Environment Protection Act* (1996) and the Environment Protection Rule (1997) provided a legal basis for the national system of EIA. The *Act* requires an initial environmental examination or environmental impact assessment study to be conducted for any proposal, which is prescribed in the Environmental Protection Rule (Belbase, 1999). Proposed and existing activities with significant detrimental affects on biodiversity resources cannot proceed. The *Act* makes EIA a key decision-making tool in biodiversity conservation.

The *Forest Act* (1993) and Forest Regulation (1995) promote the conservation, management and sustainable use of forest and forestry resources with the cooperation of the private sector. These legal initiatives were groundbreaking

in their emphasis on the community management of forests and on changing foresters from a police force to a component of community development and technical extension.

A recent legislative initiative has fundamental implications for the way biodiversity is managed, particularly in the role given to local government. The *Local Self Governance Act* (1999) outlines a decentralized form of government and empowers local institutions such as District Development Committees (DDCs), Village Development Committees (VDCs) and municipalities to manage natural resources.

Gaps in biodiversity conservation

A framework of policies and strategies has created opportunities for a range of conservation activities in and outside protected areas. A network of national parks, wildlife reserves, hunting reserves and conservation areas provide for community involvement and various forms of management of the multiple uses of resources. Unfortunately, most conservation initiatives are undertaken without adequate information about species density and habitat status. Action plans have focused on individual species, especially large mammals such as tiger and rhino, and on endemic and endangered species. The ecosystem and habitat needs of many species are still poorly understood.

Existing policies have failed to address species conservation as an element of ecosystem conservation. Threshold requirements for conserving animal populations are either unknown or ignored. Game hunting is a common practice, for example, and is allowed provided a license is issued. Decisions about issuing licences are not made on the basis of population status and trends, however.

In the case of agriculture biodiversity, emphasis has been placed on high-yielding and high-value crops and livestock. Farming systems now rely on a small number of introduced species. A farmer who once may have planted more than six varieties of rice each year — to provide for variations in harvesting times, diet, ceremonies and resistance to disease — now uses one hybrid. The loss of genetic resources from farming and natural systems has been accelerating without its scale or implication being clearly understood.

Under the *Forest Act* (1993) an individual can function as a development facilitator, a policeman and a judge at the same time. District Forest Officers and Rangers are entrusted to work as community forestry facilitators and extension officers to promote development interests, but are also responsible for forest protection and law enforcement. Sometimes problems emerge simply

because the law enforcers do not have sufficient knowledge of the species and ecosystems they are managing (for example, species may be be traded under different local names). Enforcement officers do not have the skills required to rigorously apply the law. On the whole conservation legislation and regulations are more often overlooked than enforced.

The government, academics and NGOs have been working in isolation. Consultation and information sharing among stakeholders and partners has not taken place. In many cases baseline and applied research has been carried out by workers unaware of similar ongoing activities. Research findings are generally technical in nature, and are not well communicated for use in decision-making or policy formulation. Academic courses and teaching methods are obsolete, and fail to engender the critical analytical skills needed in effective conservation and natural resource managers.

Although biodiversity conservation is an integrated process that brings many benefits, substantial resources are required to set up and support effective management regimes. Many government organizations and NGOs are involved in this process. They mobilise their financial and human resources differently, and their costs are not easy to assess. During NBAP preparation, it was estimated that US$ 221.9 million would be required to implement biodiversity programs over five years (1999-2003). Current commitments to biodiversity conservation over this period amount to approximately US$ 96.5 million, leaving a gap of US$ 125.4 million (NBAP 2000). Most of this shortfall relates to the conservation of biodiversity outside protected areas.

The National Biodiversity Action Plan

Box 2. Origin of the NBAP

As a contracting party of the CBD, Nepal has an obligation to prepare and adopt national strategies, and implement plans to meet the requirements of the convention. MFSC initiated formulation of the NBAP in the mid-1990s with support from GEF through UNDP Nepal. DNPWC, as an implementing agency under MFSC, issued calls for proposals to manage the process. Various organizations, including local NGOs and INGOs, were contacted. Resources Nepal, a local NGO, was awarded the contract for the three-year project. Initially, the project was budgeted at US$ 3.61 million, and required the involvement of another NGO. This condition was not met, and the project budget was revised to US$ 2.83 million.

NBAP preparation

An early step in NBAP preparation was a detailed analysis and review of existing conservation plans, policies, legislation, and institutions. The status of and trends in biodiversity conservation were also assessed.

The NBAP included extensive consultation among government representatives from all levels of management, technical experts and international scientists. Five regional workshops were held in 75 districts to identify biodiversity conservation issues. The workshops attracted representatives from DDCs, NGOs, INGOs, sectoral government agencies and CBOs. Participants identified subject areas for the technical papers, such as protected areas, community forests, non-timber forest products, rangeland biodiversity, plant resources, wetland biodiversity and agro-biodiversity.

There were eight national-level expert workshops held to review and discuss the outcomes of the five regional workshops, including those on specific subject areas. Workshop participants included 254 representatives from 75 local governing bodies, representatives from 104 Nepalese NGOs and 25 international NGOs, some 43 technical experts, and 9 international experts.

In addition, key experts and policy makers were consulted individually and 43 technical papers were prepared. Subject area experts (national and international) were extensively involved in preparing the papers. Three field studies were conducted in three different physiographic zones to collect primary information on the status of and trends in biodiversity conservation.

The consultation, although time consuming, proved to be critical in assessing the needs and views of the stakeholders most immediately concerned with the management and use of biodiversity resources. The information and opinions gathered provided the foundation and justification for the actions defined in the NBAP.

Constraints

In the early stage of implementation, the NBAP project faced a number of problems. DNPWC's attempts to provide coordination proved to be ineffective since there was no provision for coordination in the project document. The MFSC spent a good deal of time in trying to resolve this issue, without success. In the absence of a steering committee the progress of the project could not be monitored or improved. This problem should have been addressed when the project proposal was reviewed or during the subcontract negotiation period.

When the NBAP was drafted, a document preparation team (from Resources Nepal and DNPWC) worked in virtual isolation. They emphasised agro-biodiversity and non-forestry areas, downplaying the forestry sector in the conservation of biodiversity. The draft they produced came under fire from many quarters. Comments and criticisms were received from many implementing agencies, and the suggestion was made to focus more on sectoral priorities and actions. The team were required to extend their work and prepare a revised draft.

When the team submitted a final draft to MFSC for endorsement in January 1999, the problems had not been addressed. MFSC commissioned a steering committee to evaluate the document; the committee identified many inconsistencies and shortcomings and approached UNDP for support to make the necessary revisions and improvements. In July 1999, UNDP assigned a consultant under the general guidance of MFSC to rework the NBAP. The consultant did not spend enough time with MFSC or other key agencies in gathering information to fill the gaps in the document. As a result, little was achieved and few changes were made; in some cases the document got worse.

Ultimately, MFSC/UNDP decided to hire a national consultant familiar with biodiversity management in Nepal. The work was carried out under the chairmanship of the Chief of the Foreign Aid Coordination Division, MFSC, with financial assistance from UNDP. In late 1999, a collaborative agreement was finalised between MFSC, UNDP and the Institute of Biodiversity Nepal for this purpose. The amended draft was then distributed to subject experts for peer review. In March, 2000, after their comments were incorporated, the NBAP was finalized and submitted to MFSC for endorsement.

NBAP outputs

The NBAP sets out 64 project concepts to address the highest priority concerns. Priorities were set to conserve taxa under high risk of extinction in the wild. In general, the project concepts include scope, objectives, activities, priority areas, lead agencies, partners, major outputs, schedule and budget. Based on these concepts, the relevant agencies will develop detailed projects for compliance with the 9th Five-Year Plan (up to 2002) and subsequent 10th and 11th plans (2003-2012). Work will commence in one of three phases, depending on urgency. Implementation of “top priority” activities began in 2000, to be followed by “very high priority” and “high priority” activities in successive phases every five years.

There were 29 concepts categorized as being top priority. Many focus on establishing and harmonizing policies and plans, establishing institutional frameworks for effective implementation, extension programs for staff training, strengthening of infrastructure, creating incentives to support biodiversity conservation and generating and gathering information and knowledge. There are 18 projects in the very high priority list that will be developed on the foundation established by the first phase projects. Of the third phase projects, 17 are long-term activities, which can only be implemented once other capacities and arrangements are in place.

Each project is also categorised according to whether it is short-term, mid-term or long-term. Short-term projects will take 1-3 years, mid-term 1-8 years, and long term 1-13 years. In total, there are 19 short-term projects, 33 medium-term projects and 12 long-term projects.

MFSC is obtaining endorsement of the NBAP: relevant stakeholders — ministries (for example, MOPE, MOA, MOLD, and MOF); departments (for example, DNPWC, DOF, DPR, and DOA); NGOs like KMTNC and NEFEJ; CBOs; INGOs including IUCN/N and WWF/N; major bilateral donors like the World Bank and the Asian Development Bank; and bilateral aid agencies (for example, DFID, USAID, DANIDA, FINIDA and SDC) — will be consulted to ensure their views are incorporated in the document before it goes to the cabinet for final endorsement.

Once endorsed, the NBAP will provide a credible and detailed framework for domestic and international investment in biodiversity conservation in Nepal. The document is already influencing the direction of sector budgets and international projects.

Box 3. Nepal Trust Fund for Biodiversity

Nepal is establishing the Nepal Trust Fund for Biodiversity Conservation (NTFB) to provide financial and technical support to government agencies, NGOs, and other institutions involved in conservation of biodiversity. The fund will help give stakeholders a longer term perspective in their conservation for development programs.

The government formed a Design Working Group (DWG) with representation from the MFSC, DNPWC, KMTNC, The Mountain Institute, IUCN and WWF. The DWG will develop the legal instrument, operations manual, asset management strategy and fund-raising strategy. An extensive consultation process,

involving 460 stakeholders, was conducted throughout the country and an advisory group was named to provide technical input to the DWG. The working group has developed the draft legal instrument, operations manual and fund-raising strategy. A consultant is being recruited to assist in the preparation of the asset management strategy.

The initial capital for creation of the NTFB will be provided by government and other agencies (including bilateral and multilateral donors) and the private sector. The fund will give top priority to programs relating to biodiversity of national and global significance that do not have sufficient support. For example, the fund will support conservation education, human resources development, training, applied research, and sustainable income generation activities in accordance with national priorities. The fund will act as grant maker, fundraiser and manager as well as promoter of biodiversity conservation in Nepal.

Lessons learned

The preparation process resulted in an innovative policy framework. A critical assessment of the experience reveals a number of important factors which can help both in NBAP preparation for countries in the process of formulating an action plan and in future revisions of the plan in Nepal.

Defining responsibilities

The roles of all key actors in the NBAP need to be well defined. Similarly, it is crucially important to outline the roles, responsibilities and degree of commitment of the executing and implementing agencies, together with the national project director. The terms of reference prepared for Nepal's NBAP were incomplete in many areas, such as consultant experience, coordination mechanisms and definition of officials accountable for the initiative within government. If information such as this is not spelled out clearly in the TOR, there is a risk of differing interpretations of project time, resources and even the nature and quality of products. In this case the NBAP was not submitted within in the prescribed time and did not have the required format and quality.

Selecting consultant support teams

The qualification, work experience and competency of the consultant team is critical to the success of the document. Arrangements for managing consultants and ensuring their accountability need to be spelled out with the agreement of all key partners. Emphasis should be given to using local expertise.

The consultant failed to involve the key stakeholders in the second draft of the NBAP, produced in July 1999. Although coordination was at that time the responsibility of MFSC, the consultant was solely accountable to UNDP (the employer), and it was difficult for MFSC to influence the process. Much time was spent with less relevant agencies, which resulted in an inappropriate product. The document was improved when MFSC and UNDP employed national consultants experienced in biodiversity conservation and made them directly responsible to the ministry. Entrusting accountability to the right person and institution is essential to completing the NBAP in a timely, appropriate and cost-effective way.

Need for a steering mechanism

Institutional tensions arose because of the lack of a steering mechanism. There was also no specific agency to monitor progress. There was very little coordination or communication between MFSC and UNDP during the preparation of the first and second drafts. No ministerial-level steering committee was in place to coordinate and guide the preparation of the first draft. DNPWC alone did not have the authority to a coordinate among sectoral ministries like MOPE, MOA and MOF. This problem could have been readily resolved through the establishment of a steering or coordinating committee under the chairmanship of a senior official of the executing agency (MFSC).

The importance of consultation

Decentralised and wide-ranging consultation within and outside government was productive. In the early stages of NBAP preparation, when formulating annual programs, extensive consultation — among government representatives from all management levels; subject experts; international scientists; NGOs; INGOs; and CBOs — is a necessity in order to assess the needs of stakeholders. Consulting a wide range of stakeholders early in the process proved to be extremely useful, though more time consuming than expected.

Recommendations

Nepal's experience in NBAP formulation suggests a number of recommendations to guide future revisions of the plan.

Prepare very detailed terms of reference when recruiting consultants and adhere to them. The work experience of the consulting firm and personnel involved in the drafting team should be carefully taken into account. Emphasis should be placed on in-country experience and experience with similar processes in other countries.

Stakeholder consultation should be the starting point in all biodiversity related plans and projects. Such consultation helps incorporate the concerns of those most closely involved in the use of biodiversity resources and increases the chances of engaging their support in implementation.

Establish an effective coordination mechanism, particularly when formulating and implementing cross-sectoral projects. A project coordination or steering committee should be in place from the earliest stages and should be chaired by a senior official from the executive agency. This committee should represent relevant stakeholders.

Monitor and review progress on a regular basis by means of the coordination or steering committee. This will avoid mistakes, overcome difficulties and make the best use of time and resources.

Chronology

1957	*Wildlife (Conservation) Act* enacted
1961	*Aquatic Life Protection Act* enacted
1971	Nepal signs the Ramsar Convention for Wetland Conservation
1972	*Plant Protection Act* enacted
1973	*National Parks and Wildlife Conservation Act* enacted
1973	Signed CITES
1976	Preparation of the National Forestry Plan
1982	*Soil and Water Conservation Act* enacted Establishment of the King Mahendra Trust for Nature Conservation
1983	Preparation of the National Conservation Strategy (prospectus) for Nepal
1987	Preparation of the National Conservation Strategy
1989	Endorsement of the Master Plan for Forestry Sector
1992	Signed the Convention on Biological Diversity
1993	*Forest Act* enacted Endorsement of the Environmental Policy and Action Plan Preparation of the National Environmental Impact Assessment Guidelines Ratification of the CBD Celebration of National Biodiversity Day

1995	Preparation of the Environmental Impact Assessment Guidelines for Forestry and Industry Sector Preparation of the Agriculture Perspective Plan Establishment of the Ministry of Population and Environment
1996	Endorsement of the Buffer Zone Management Rules Preparation of the National Biodiversity Action Plan begins *Environment Protection Act* enacted
1997	Endorsement of the Environment Protection Regulations
1998	Endorsement of the Ninth Plan (1998-2002)
2000	Completion of the National Biodiversity Action Plan preparation

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Annex 1. Protected areas in Nepal

Protected Area	Area (sq. km)	Altitude (m)	Climate	Comment
National Parks (IUCN Category II)				
Royal Chitwan (1973)	932	150-815	Tropical Monsoon	World Heritage Site; Single horn rhinoceros
Sagarmatha (1976)	1148	2845-8848	Temperate to Alpine	World's highest peak; World Heritage Site
Langtang (1976)	1710	720-7245	Sub-Tropical to Alpine	Great variety of vegetation type in short vertical distance
Rara (1976)	106	2800-4048	Temperate to Sub-Alpine	Lake Rara, largest in Nepal
Shey-Phoksundo (1984)	3555	2000-6883	Temperate Alpine	Highest waterfall in Nepal
Khaptad (1984)	225	2800-3300	Temperate	Rich in high altitude medicinal herbs
Royal Bardia (1976 and 1988)	968	152-1441	Tropical Monsoon to Sub-Tropical	Dense Sal forest Gangetic dolphin
Makalu-Barun (1991)	1500	435-8463	Sub-Tropical to Alpine	Snow leopard and red panda
Wildlife Reserves (IUCN Category IV)				
Koshi Tappu (1976)	175	100-150	Tropical Monsoon	Wild Asiatic buffalo
Parsa (1984)	499	100-150	Tropical Monsoon	Corridor habitat for wild elephant
Shivapuri (1984)	144	1366-2732	Sub-Tropical to Temperate	Watershed area for Kathmandu
Royal Suklaphanta (1976)	305	90-270	Tropical Monsoon	Largest herd of swamp deer

Conservation areas (IUCN Category VI)				
Annapurna (1992)	7629	1150-8091	Sub-Tropical to Alpine	World's deepest gorges, the Kalighandaki
Kanchanjungha (1997)	2035	1200-8568	Sub-Tropical to Alpine	Rhododendron forests
Makalu-Barun* (1991)	830	435-8463	Sub-Tropical to Alpine	Snow leopard and red panda
Manasalu (1998)	1663			
Hunting reserves (IUCN Category IV)				
Dhorpatan (1987)	1325	2850-5500	Temperate to Alpine	Blue sheep
Total protected areas	**24,749**	**(16.81 per cent)**		
Buffer zones				
Royal Chitwan (1996)	750			
Royal Bardiaya (1996)	460			
Langtang (1998)	420			
Shey-Phoksundo (1998)	1349			
Total buffer zones	**2,979**			
Total area	**27,728**	**(approximately 18% of the country)**		

Source: Annual Report (2054/55) of DNPWC.
** The status of Makalu-Barun Conservation Area has been changed to Buffer Zone*