Sacred
Himalayan
Landscape - Nepal

Strategic
Plan 2006-2016

B R O A D   S T R A T E G Y   D O C U M E N T

Government of Nepal
Ministry of Forests and Soil Conservation

Kathmandu
2006

Sacred Himalayan Landscape - Nepal

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Sacred Himalayan Landscape
Strategic Plan Development Team

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Table of Contents

SHL Maps

ACRONYMS

ADDCN	Association of District Development Committees
ANSAB	Asia Network for Sustainable Agriculture and Biodiversity
DFID/LFP	Department For International Development/ Livelihoods and Forestry Programme
DNPWC	Department of National Parks and Wildlife Conversation
DoF	Department of Forests
ECCA	Environmental Camp for Conservation Awareness
EHEC	Eastern Himalayan Ecoregion Complex
FECOFUN	Federation of Community Forest User Groups, Nepal
FMIS	Farmer Managed Irrigation Systems
GLOFs	Glacial Lake Outburst Floods
GoN	Government of Nepal
HDI	Human Development Index
HIMAWANTI	Himalaya Grassroots Women's Association for Natural Resource Management
HYVs	High Yielding Varieties
ICIMOD	International Center for Integrated Mountain Development
IUCN	The World Conservation Union
KMTNC	King Mahendra Trust for Nature Conservation
MDGs	Millennium Development Goals
MOEST	Ministry of Environment, Science and Technology
MoFSC	Ministry of Forests and Soil Conservation
MSF	Multi-Stakeholder Forum
NARC	National Agriculture Research Council
NBS	National Biodiversity Strategy
NCDC	Namsaling Community Development Centre
NCDM	Nepal Centre for Disaster Management
NCS	National Conservation Strategy
NECIN	Natural Environmental Coalition of indigenous Nationalities
NEFEJ	Nepal Forum for Environmental Journalists
NEFIN	Federation of Indigenous Nationalities
NEFUG	Nepal Federation for Forest User Groups
NFIWUAN	National Federation of Water Users' Association, Nepal
NMA	Nepal Mountaineering Association
NPC	National Planning Commission
NSET-Nepal	National Society for Earthquake Technology, Nepal
NTB	Nepal Tourism Board
NTFPs	Non Timber Forest Products
PMAS	Poverty Monitoring and Analysis System
PRSP	Poverty Reduction Strategy Paper
SAWTEE	South Asia Watch on Trade, Economics and Environment
SDAN	Sustainable Development Agenda for Nepal
SHL	Sacred Himalayan Landscape
SHLSP	Sacred Himalayan Landscape Strategic Planning
SNV	Netherlands Development Organization
TMI	The Mountain Institute
UNDP	United Nations Development Program
WECS	Water and Energy Commission Secretariat
WWF	World Wildlife Fund

Foreword

Over the recent decades, landscape approach to conservation has emerged as dominant conservation model in many countries. From our experience in Nepal, Terai Arc Landscape (TAL) set a trend of moving towards managing landscapes through participatory approach. Landscape level conservation in mountains is expected to offer twin opportunities to ensure secured development contributing toward sustainable development and poverty reduction. Sacred Himalayan Landscape (SHL) constitutes distinctive mountain ecosystems providing uniquely valuable resources. Biologically, the SHL make a unique biome containing high species diversity and endemism. Culturally, people in the SHL have guarded irreplaceable global resources through their reverence and respect for nature. Sacred Himalayan Landscape-Nepal is also significant particularly in that its proposed extension transcends the national boundary of Nepal to form a transboundary conservation landscape extending to Sikkim and Darjeeling in India and to Toorsa Strict Nature Reserve in Bhutan.

The SHL Strategic Plan-Nepal provides for direction and vision of mountain conservation and development in the globally important Eastern Himalayan Eco-region Complex. The vision, outcomes and targets articulated in the SHL Strategic Plan-Nepal are broadly defined so as to coordinate conservation and developmental efforts and activities in the SHL-Nepal. This will enable decision-makers at all levels to make choices that enhance collective abilities to successfully meet the desired vision and future for the SHL-Nepal.

The SHL Strategic Plan-Nepal for 2006-2016 includes input from key sectors engaged in mountain development. The construction of this plan has served as a powerful partnership building mechanism for a variety of stakeholders. We are glad that the Ministry of Forests and Soil Conservation led the design of the SHL Strategic Plan-Nepal along with key partners such as National Planning Commission (NPC), Department of Forests (DoF), Department of National Parks and Wildlife Conservation (DNPWC), WWF, ICIMOD, TMI, IUCN, UNDP, SNV, DFID, and Eco Himal. We would like to thank all organizations and individuals, including the field level stakeholders, the Core Team, Technical Working Team and Multi-Stakeholder Forum member Organizations, who have contributed significantly to the SHL Strategic Plan. Although it is not possible to list names of all individuals and organizations separately, their contributions are greatly acknowledged and appreciated. We also acknowledge with much appreciation the advisory roles of members of the Team for Strategic Direction. We would like to appreciate and thank WWF, ICIMOD, TMI and IUCN for being instrumental in channeling technical and financial support for the preparation of the SHL Strategic Plan-Nepal.

Just recently we have gone through the tragedy of losing visionary leaders and committed conservationists in a helicopter crash on their way back after handing over Kangchenjunga Conservation Area to the community Management Council. The initial sense of kinship, although bound by tragedy, continues to inspire us to our lost conservation leaders' vision and mission. Sacred Himalayan Landscape was one of their missions and dreams. As such, we remain committed to implementing the SHL Strategic Plan-Nepal in partnership and cooperation in future.

Dr Mohan P Wagley

Team Leader, SHL Strategic Plan (Nepal) Development Core Team

and

Chief, Planning and HRD Division

Preamble

1. Introduction

The Sacred Himalayan Landscape (SHL) is a transboundary conservation area covering 39,021 square kilometers, of which about 73.5% falls in Nepal, 24.4% falls in Sikkim and Darjeeling of India and the remaining 2.1% falls in Bhutan. The SHL extends from Langtang National Park in central Nepal through the Kangchenjunga region in India to Toorsa Strict Nature Reserve in western Bhutan. The northern boundary of the landscape coincides with Nepal's international boundary with the Tibet Autonomous Region. The eastern boundary includes a chain of intact, temperate and subtropical habitat in Kangchenjunga complex in India, southwards Toorsa in Bhutan and eastern Nepal. The north-western boundary in Nepal includes all of Langtang National Park.

The SHL is a microcosm representing the unique identity of the Eastern Himalayan Ecoregion Complex. The landscape's environmental and cultural characteristics blended with social, political and economic variance, give it extra diversity and distinctive features.

In terms of the topography, SHL represents elevations ranging from 139m in India to 8,848m in Mount Everest, the highest point on Earth. The high topographic complexity and related climatic variablity give rise to significant ecological gradients, and thus, high ecosystem diversity over a relatively small area. Many of the habitats forming this complex mosaic are unique to this mountain system, being adapted to the harsh and rapidly changing climatic conditions. The landscape includes and retains two globally important contiguous ecoregions in the Eastern Himalayan Alpine Scrub and Meadows and the Eastern

Himalayan Broadleaf and Conifer Forests that harbour numerous important flora such as oaks (*Castanopsis* and *Quercus*), rhododendrons and Himalayan larch (*Larix griffithiana*), and globally threatened fauna, including the charismatic snow leopard (*Uncia uncia*), takin (*Budorcis taxicolor*), musk deer (*Moschus chrysogaster*), red panda (*Ailurus fulgens*), and several pheasants. The landscape significantly hosts a variety of endemic plants and animals, including many wild relatives of commercial species, and important demonstration biodiversity (both crop varieties and livestock races).

SHL is unique and important in terms of socio-economic, artistic, spiritual and recreational aspects. The landscape includes a diverse array of ethnic groups and human cultures. More than 40 languages are spoken throughout the landscape by different ethnic groups who have their own cultural traditions and land management practices. Belief in Buddhism, Hinduism, and a varying blend of both beliefs cuts across all these groups. Their beliefs in 'hidden lands' or '*beyuls*', and 'hidden treasures' or *ters* are often linked to the idea of maintaining conservation areas for both human well being and nature. In addition, mountains in the Himalayan range such as Sagarmatha (Mount Everest), Kanchanjunga, and Jumolhari are held sacred by the indigenous people living near them and many other located far from them.

The landscape also supports ecological services critical for maintaining biodiversity and human lives and livelihoods. For instance, snow caps, glaciers and water towers and the rivers that cascade down the Himalayan slopes are essential to support livelihoods and lives of thousands of people who live within the landscape, and millions beyond its bounds.

Although SHL is presently sparsely populated with about 5 million people, its
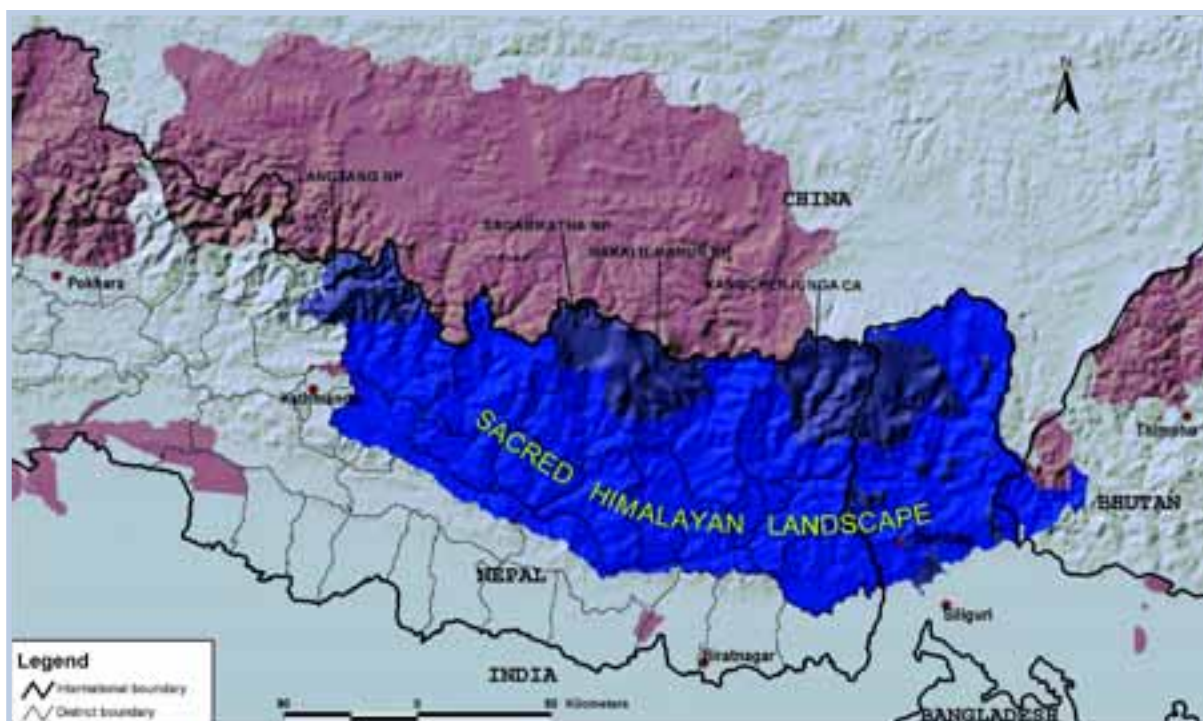
inhabitants face abject poverty. Forestry, agriculture and tourism are dominant livelihood strategies adopted by over 80% people in the SHL. In high altitude regions, *transhumance* is still an important way of life and culture. Much of the landscape is largely left out of development initiatives. Remoteness, poor communications and infrastructure also impede the development of market linkages for forest and agricultural products. Governance is largely weak and benefit sharing from natural resources is marked by conflict and inequities.

2. Strategic Planning for the Sacred Himalayan Landscape

The SHL builds upon a developing but potentially strong base of policies and institutional partnerships. Three factors have primarily contributed to its development.

a) The concept of landscape level approach to conservation has been developing in Nepal since 2000, and was included in the country's 10th plan (2002-2007) as a way to implement biodiversity conservation in a more robust way with cross-sectoral inclusion to also contribute directly towards tackling poverty and ensuring environmental sustainability.

b) The idea of landscape approach in the Eastern Himalayan Ecoregion Complex was instigated by the Terai Arc Landscape in 2004, which was a joint initiative by India and Nepal. TAL-Nepal, currently in its second year of implementation, has in fact successfully instilled ecosystem

thinking into natural resource management. As a result, and in line with TAL, the SHL was conceptualized to merge integrated natural resource management with multi-stakeholder process that governs Nepal's resource management sector.

c) In the overall developmental discourse, landscape level approach is increasingly being recognized and adopted by conservation communities as units of implementation. In addition, given the multi-dimensional nature of biodiversity-poverty links, the strategic approach to conservation at landscape level is to maintain a balance between conservation of natural resources and improvement of livelihoods. A common understanding that landscape level approach can reinforce both conservation and promotion of livelihoods objectives is reflected by wide support and partnerships called in by the SHL Strategic Plan.

3. Significance of the landscape approach

Landscape approach to planning for the SHL aims to develop yet maintaining the landscape integrity taking into account biodiversity conservation, cultural and socioeconomic values, and sustainability of ecological processes.

The landscape approach to planning for the SHL holds significance in several ways such as:

1. SHL is unique in terms of biodiversity, cultures and heritages and water systems.

2. While large upland unproductive mountain areas have been protected in

the SHL, much of the inhabited important and critical ecosystem spaces fall outside the protected areas. Given this, protected areas have become islands where conservation efforts are more of a piecemeal activity. The surrounding lands are generally the areas with the heaviest land use and population pressures and are critical for water management issues and risk of landslides and floods in the lowland.

3. SHL is also important to enhance a spirit of partnerships among transboundary countries to maintain the integrity of natural resources and culture in the landscape. For instance, transboundary cooperation is needed to conserve long range mobile species such as snow leopards and check illegal trade in endangered plant and wildlife species.

4. The SHL Strategic Planning Process

The SHL Strategic Planning in Nepal was a step-wise process which can be summarized as below in the 4 steps:

STEP 1:
National Stakeholders' consultation
Two consultations at the national level have been held in the past two years. One consultation, which was brief and intended to propagate ideas about SHL's scope, was held in October 2004. The other consultation was held in April 2005, jointly organized by MoFSC, WWF, ICIMOD and TMI. The April consultation brought together various stakeholders from Nepal to discuss the SHL. Discussions were also held with other key players such as donor agencies and civil society groups in Nepal.

Core Team	Working Group
Ministry of Forests and Soil Conservation (MoFSC)	Ministry of Forests and Soil Conservation
National Planning Commission (NPC)	ICIMOD
Department of Forests (DoF)	TMI
Department of National Parks and Wildlife Conservation (DNPWC)	IUCN
United Nations Development Program (UNDP)	WWF
Netherlands Development Organization (SNV)	
Department For International Development/ Livelihoods and Forestry Programme (DFID/LFP)	
Eco Himal	
International Center for Integrated Mountain Development (ICIMOD)	
The Mountain Institute (TMI)	
The World Conservation Union (IUCN)	
World Wildlife Fund (WWF)	

SACRED HIMALAYAN LANDSCAPE - NEPAL
STRATEGIC PLAN 2006-2016

STEP 2:
Formation of the SHL Strategic Plan Core Team
Following the Ministerial level decision to design the Strategic Plan for the SHL a 13 member Core Team led and chaired by the MoFSC was formed on 07 September 2005. There were several other teams operating within and alongside the Core Team to facilitate the SHL Strategic Plan process. 1) The working group, consisting of partnering institutions, and 2) a Multi-

Multi stakeholder Form	
Department of Agriculture (Ministry of Agriculture)	Department of Livestock Services (Ministry of Agriculture)
Water and Energy Commission Secretariat (WECS), Ministry of Water Resources	Department for Water Induced Disaster Prevention, Ministry of Water Resources
National Agriculture Research Council (NARC)	Department of Plant Resources, Ministry of Forests and Soil Conservation
Department of Soil Conservation and Watershed Management, Ministry of Forests and Soil Conservation	Department of Forest Research and Survey, Ministry of Forests and Soil Conservation
Monastery Management and Development Committee (Ministry of Local Development)	Remote Area Development Committee (Ministry of Local Development)
Nepal Tourism Board (NTB)	King Mahendra Trust for Nature Conservation (KMTNC)
Federation of Community Forest User Groups, Nepal (FECOFUN)	National Federation of Water Users' Association, Nepal (NFIWUAN)
Nepal Forum for Environmental Journalists (NEFEJ)	Namsaling Community Development Centre, Ilam (NCDC)
Himalaya Grassroots Women's Association for Natural Resource Management (HIMAWANTI)	Nepal Centre for Disaster Management (NCDM)
Trekking Agents Association of Nepal (TAAN)	Nepal Mountaineering Association (NMA)
South Asia Watch on Trade, Economics and Environment (SAWTEE)	Asia Network for Sustainable Agriculture and Biodiversity (ANSAB)
Federation of Indigenous Nationalities (NEFIN)	Association of District Development Committees (ADDCN)
Natural Environmental Condition for Indigenous Nationalities (NECIN)	Pro Public (Forum for Protection of Public Interest)
Environmental Camp for Conservation Awareness (ECCA)	Nepal Nature.com
Resources Himalaya	NEFUG (Nepal Federation for Forest User Groups)
Kangchenjunga Conservation Area Management Council	Ministry of Environment, Science and Technology (MOEST)

Stakeholder Forum (MSF) consisting of cross-sectoral government agencies, civil society groups, and community representatives.

The Core Team provided strategic guidance and focus for developing SHL Strategic Plan and facilitated the process by giving necessary backstop support and technical review for SHLSP. The members in the working group worked closely together to drive forward the process. The MSF facilitated synergy between core team operation and relevant key stakeholders' inputs and feedback into the SHLSP process. The key role of the MSF was to promote stakeholders' consensus on SHL and ensure key stakeholders' views incorporated into the SHL Strategic Plan.

STEP 3:
SHL Information collection and analysis, and community consultation
Information and data on the SHL were collected from various sources including government library, agencies, project and programs, etc. Extended GIS-based maps were prepared and biodiversity and socio-economic assessments in the SHL were done. At a number of regional sites and locations, community consultations were conducted to draft strategies for the SHL.

STEP 4:
Review of SHL Strategic Plan
The SHL Strategic Plan has been reviewed by the members of the Core Team.

5. Timescale of the plan

The SHL Strategic Plan will be for a period of ten years, starting from 2006 to 2016.

While drafting the SHL Strategic Plan, importance has been placed on the current landscape conditions, pressures and drivers of change, but with the awareness of the need to revise parts of the strategy as and when the current political imbroglio begins to dissipate. The plan will be reviewed after the first five years.

6. Vision

A Himalayan landscape where the biological and cultural treasures of the world's highest sacred mountains and deepest valleys are safeguarded while people's rights over resources are ensured and livelihoods are enhanced and sustained.

7. Goals

By 2016, SHL grows and develops in the most sustainable ways such that:

1. SHL's unique characters, especially the ecologically and culturally significant areas are recognized, valued, conserved, and celebrated, both nationally and internationally.
2. SHL's biodiversity, culture and water resources are valued as productive and essential social and economic assets for the people, particularly indigenous, poor and disadvantaged groups of people.
3. SHL inhabitants, including indigenous peoples, are able to act progressively on their own behalf toward betterment of their livelihoods and the protection of their rights, and local environment and resources

8. Principles of the SHL Strategic Plan Formulation

1. ***Make trade-offs clear***: Recognize that landscape level conservation will involve trade-offs, since all environmental conservation and developmental opportunities cannot be maximized at the same time. Make trade-off transparent.

2. ***Recognize indigenous people's rights in the planning and decision making process***: Recognize indigenous people as major stakeholders in SHL development and therefore understand and respect their rights to participate make decisions in SHL planning and implementation process.

3. ***Adaptive learning system offering coherence between strategies***: Strategies drawing on experimentation and uncertainty so as not to favor or suggest miracle solutions to SHL problems and challenges.

4. ***Follow multi-disciplinary decision-making***: Conservation and development decisions in the SHL must reflect ecological, economic, social, cultural and spiritual values of local populations.

5. ***Understanding political change and possible future scenarios***: Change and disequilibrium in economic, social and environmental systems creates instability in small and vulnerable communities during conflict situations. Strategies need to be able to assess vulnerabilities and sources of resilience in relation to uncertain changes.

6. ***Multi-stakeholder partnership approach***: The conservation of biodiversity and the sustainable use of biological resources require local, national and global co-operation and a sharing of knowledge, costs and benefits. Building partnerships with developmental and conservation agencies and organizations will be promoted so that integrated research and planning approach to the SHL Strategic Plan can be undertaken.

7. ***Build up on existing gains:*** Strengthen and build up on existing systems and mechanisms where possible and appropriate rather than creating new ones. Establish a co-ordination mechanism by which institutions and organizations can employ and learn from each other's best practices.

8. ***Promote transboundary cooperation:*** Promote transboundary cooperation and develop strategic mechanisms for the management of the various landscape elements in ways that are consistent with the respective government policies and existing community based initiatives and practices in the landscape.
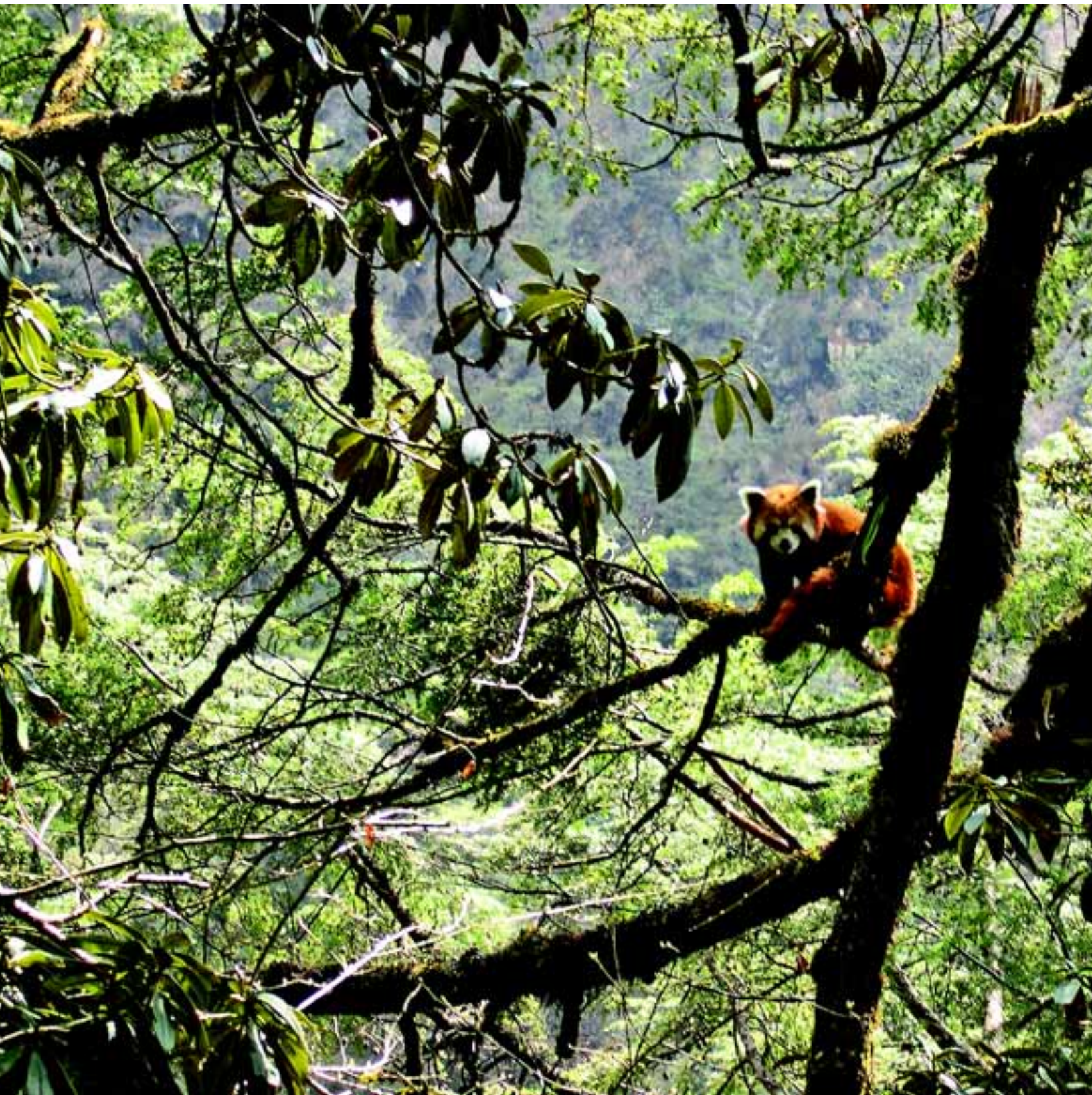
Key contextual factors in the SHL-Nepal

1. Conservation

1.1 Topographic diversity and ecological gradients

The topography of SHL is varied, and characterized by a large number of hills and mountains, with an exceptional degree of relief. These unique ecological and topographic features have created a rich and diverse natural resource base. The high topographic complexity and climatic variablity give rise to significant ecological gradients, and thus high ecosystem diversity over relatively small areas. Many of the habitats forming this complex mosaic are unique to this mountain system, and the SHL includes important centres of origin for many species, hosts many wild relatives of commercial species, and has important domesticated biodiversity for both crop varieties and livestock races.

1.2 Globally important ecoregions

The SHL includes over 347,000 ha of habitat from the Eastern Himalayan Alpine Meadow Ecoregion and over 988,000 ha of habitat from the Temperate Broadleaf and Conifer Forests Ecoregion. Since representation of habitat from these ecoregions is an important contribution to global conservation targets, the SHL contributes significantly towards global conservation targets. Moreover, the considerable length and highly complex topography of the SHL results in a high turn-over in species, known as beta diversity, along the latitudinal axis; i.e., some species drop off and other species are added to the species communities and assemblages along the east-west transect.

1.3 Species diversity

In terms of species diversity, the SHL supports remarkable assemblages of flora and fauna, which include several endemic species.

1.3.1 Animal diversity

A total of 85 mammal species, including charismatic species such as Snow Leopard, are known to occur in the SHL. Other mammals include Red Panda, Musk Deer, Tibetan Wolf, Blue Sheep, and Clouded Leopard. While the Snow Leopard and Red Panda are IUCN Red-listed Endangered species, there are 12 other species listed as Vulnerable.

Over 440 species of birds have been recorded from the SHL. Several of the birds from the SHL are focal species for conservation. There are 13 species of pheasants in the SHL landscape, of which six are endemic. These pheasant such as the Black Francolin *Francolinus francolinus*, Blood Pheasant *Ithaginis cruentus*, Himalayan Monal *Lophophorus impejanus*, Kalij Pheasant *Lophura leucomelanos*, Koklass Pheasant *Pucrasia macrolopha*, Satyr Tragopan *Tragopan satyra* are also Himalayan flagship species. Because they are sensitive to habitat change, the pheasants are also indicators of forest integrity. Since bird habitats are spatially restricted and seasonal in nature, many bird species rely on a few key locations and disperse across the landscape during dry season in winter.
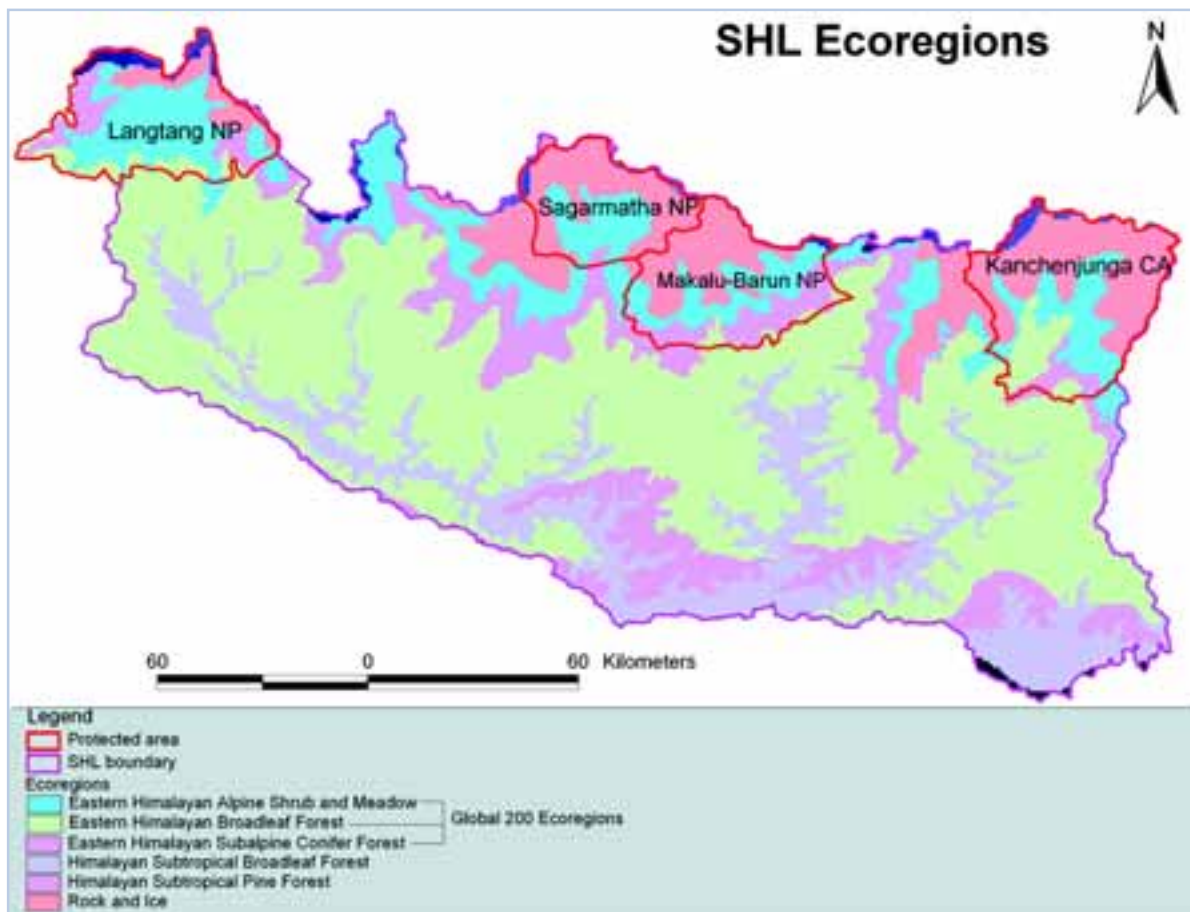
Although there have been no dedicated survey carried out for herpetological fauna of the SHL, records show 41 species of reptiles comprising three turtles, nine lizards, and 29 snakes. Two of the turtles, *Melanochelys (Geomyda) tricarinata* and *Indotestudo (Testudo) elongata* are listed as IUCN Red-listed as Vulnerable and Endangered, respectively. SHL also records endemic species of frogs and salamanders. Despite the incomplete documentation of the insects in this landscape, over 200 species of butterflies have been recorded from various parts of the landscape. Some of these butterflies are endemic to the Himalayan region.

Poaching, illegal trade of endangered wild animals and retaliatory killings are also a growing problem. These pose greater problems mainly to critically endangered species including Snow Leopard and Red Panda. Although the pressure for poaching and illegal trade is mostly generated outside the SHL, usually marginalized SHL people are lured into the business with the serious consequences for them and the landscape which supports them.

1.3.2 Plant diversity
The SHL harbors an unusually wide range of biomes and ecosystems from five of the 19 ecoregions that comprise the Eastern Himalayan Conservation Complex (EHEC). The moist conditions and the complex topography in these ecoregions create localized microclimates that support floral diversity and endemism. The highest altitudinal nival zone includes four mountain peaks that exceed 8,000m in elevation, including the highest and third highest mountain peaks in the world, in Sagarmatha (Mt. Everest) and Kangchenjunga, respectively. Although

these high altitude ecosystems are not as species-rich as the ecosystems lower down, they support a unique flora and fauna representing the ecological communities in the highest ecosystems in the world. The herbs of the Alpine Shrub and Meadows comprise an assemblage dominated by genera such as *Alchemilla, Androsace, Primula, Diapensia, Impatiens, Draba, Anemone, Gentiana, Leontopodium, Meconopsis, Saxifraga, Sedum, Saussurea, Rhododendron, Potentilla, Pedicularis,* and *Viola.* Several of these are prized as medicinal herbs. The sub-alpine conifer forests are dominated by Fir (*Abies spectabilis*), Larch (*Larix griffithii*), Hemlock (*Tsuga dumosa*), and Junipers (*Juniperus spp.*). Several Rhododendrons grow in the understory, along with *Viburnum grandiflorum, Lonicera angustifolia, Betula utilis, Acer* spp., *Sorbus* spp. Yew (*Taxus baccata*) is another important species in this ecoregion and is considered an important conservation target. Other distinct and threatened habitat types in the Sub-alpine Conifer belt that deserve special conservation attention include Juniper woodland, Hemlock forests, and Silver Fir-dominated forests. The temperate forests exhibit two distinct ecological formations. In the moist regions grow temperate evergreen forests dominated by oaks (*Quercus* spp.) In drier slopes the forests are deciduous, and are dominated by *Acer campbellii, Juglans regia, Alnus nepalensis, Betula alnoides, Betula utilis,* and *Echinocarpus dasycarpus.* The subtropical broadleaf forests of the mid-hills are dominated by associations of *Schima wallichii, Castanopsis tribuloides, Castanopsis indica, Terminalia crenulata, Terminalia bellerica, Engelhardtia spicata, Betula* spp., and *Anogeissus* spp., with some oaks, maples, and subtropical

conifers as well as *Engelhardtia spicata, Erythrina* spp., and *Albizia* spp. *Alnus nepalensis* is an early-successional species that invades landslide areas and forms monospecific stands. In the lower hills, where most of this habitat in the landscape occurs, the forests are represented by Sal (*Shorea robusta*) and *Acacia* associations. Many of the plant species in these broadleaf forests such as *Gnetum montanus, Cycas pectinata, Cyathea spinulosa* (tree ferns), *Rauwolfia serpentina, Pandanus nepalensis, Calamus lalifolius, C. leptospadix, Phoenix humilis,* and *Phoenix sylvestris* have become very rare in Nepal. Very little of the subtropical forests are included in the SHL.

A large human population in the SHL has low levels of awareness on the richness of its biodiversity and also about endangered or threatened plant and animal species. Although sustainability of many economically exploited plant species are unknown, many rare and endemic plants suffer exploitation, particularly Non-timber forest products (NTFPs).

1.3.3 Domestic Biodiversity
Agriculture that includes production of cereals, grain legumes, oilseeds, fruits, vegetables and spices; management of cattle, poultry, goat, sheep and pig; and production of agro-forestry along with mixed cropping, mixed farming system and shifting cultivation significantly contributes to food security in the SHL. The SHL has numerous important cultivated and domesticated plant and animal species that are relatives of wild species. There are several varieties of rice, wheat, millet, buckwheat, barley and amaranth grown in mountains. These crops can tolerate

extreme variations in temperature, precipitation, soil conditions and have high nutrition value. However, many of these local crop varieties are threatened. For example, local people in Kangchenjunga Conservation Area report that the *Bhadaiya* variety of local rice is getting threatened and susceptible to local extinction due to the wide practice of using High Yielding Varieties (HYVs) of rice with rampant use of chemical pesticides[1]. Mountainous areas in SHL also have many indigenous breeds of animals and some of these are threatened. *Chwanche* and *Hurrah* are indigenous pig breeds that are threatened by introduction of exotic varieties. The Yak population is also decreasing and its hybrid *Uran* which has more milk yielding capacity and sturdiness to porter bulky good are threatened with extinction.

1.4 Biodiversity complex, corridors and protected areas connectivity
The SHL builds links with the three major transboundary conservation areas in China, India and Bhutan. The landscape is contiguous with one of the largest protected areas in Asia, the vast Quomolongma Nature Preserve in Tibet (China) to the north. In the east, the SHL-Nepal maintains continuity with Kangchenjunga Landscape in India, linking further to the Bhutan Biological Conservation Complex that has the natural connectivity to Toorsa Strict Nature Reserve of eastern Bhutan. In SHL-Nepal, there are four protected areas covering about 22% area.

1.5 Key issues/Challenges
A number of key issues and challenges related to biodiversity conservation and sustainable livelihoods emerged from the SHL consultations as listed below:

1. **Biodiversity Conservation**
   ➤ Inadequate research and documentation (status of endangered and endemic species, traditional knowledge and skills on biodiversity use)
   ➤ Illegal trade (NTFP) and poaching (e.g., snow leopards, musk deer, etc.)
   ➤ Unsustainable harvesting of natural resources
   ➤ Landuse change patterns (temporal and spatial) unknown and unchecked
   ➤ Overgrazing/unregulated grazing practices
   ➤ Inadequate attention given to agro-biodiversity productivity
   ➤ Forest fire/slash and burn practices/ encroachment
   ➤ Security and transboudary biodiversity conservation issues

2. **Awareness on sustainable natural resources management (at all levels and among key stakeholders)**
   ➤ Biodiversity values are not understood and recognized
   ➤ Landscape level approach to conservation not understood
   ➤ Introduction of invasive and hybrid species (cultivation)
   ➤ Overuse of chemical fertilizers and pesticides in pocketed areas

3. **Sustainable use and management**
   ➤ Lack/inadequacy of transportation infrastructure
   ➤ Absence of advocacy/advertising/ poor entrepreneurship/marketing skills of local communities
   ➤ Lack of communication infrastructure

1. Langtang NP
2. Sagarmatha NP
3. Makalu-Barun NP
4. Kangchenjunga CA
5. Kanchendzonga BR
6. Singba Rhododendron S
7. Kyongnosla WS
8. Fambong Lho WS
9. Maenam WS
10. Barsey Rhododendron S
11. Singhalila WS
12. Senchal WS
13. Mahananda WS
14. Neora Valley NP
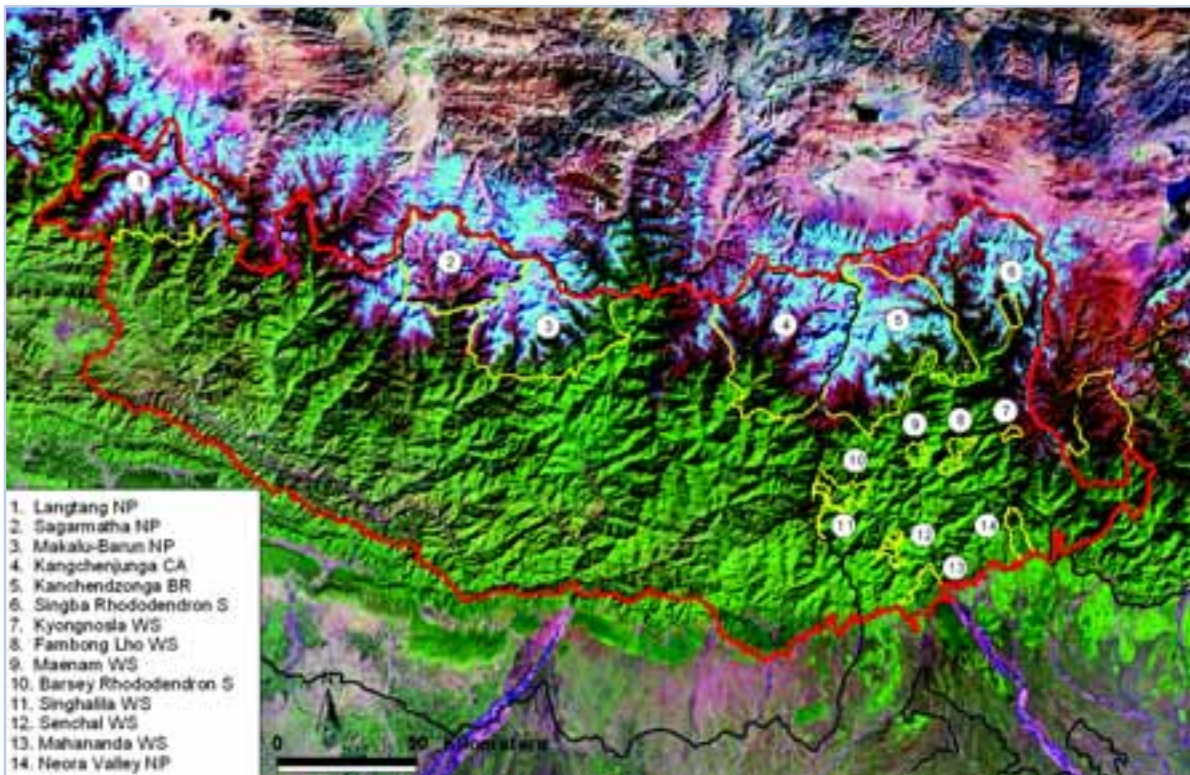
- Landslides/steep slope cultivation/ slash and burn/shifting cultivation
- Lack of technical capacity/skilled human resources at local level
- Inadequate extension services
- Inequitable benefit sharing and access to natural resources/participatory resource management mechanisms and systems not in place
- Pollution (garbage from trekking and mountaineering)

4. Policy Issues
- Discouraging and contradictory legal provisions
- Unclear roles/responsibilities/ jurisdictions of key players (for e.g., sectoral ministries, local governments, civil society groups and communities)
- Inadequate coordination amongst different programs/projects/ orgainizations working in the Natural Resources Management sector
- Unplanned landuse/growth of peripheral mountain towns and urban areas
- Certification for marketing forest products and NTFPs
- Ambiguity in royalty setting (for NTFPs)

2. Culture, Heritages and Indigenous People

2.1 Sacred and Heritage sites
The SHL is a series of complex living cultural and natural landscapes. These are central to the SHL's spirituality, culture, social organization and economic use. The SHL's sacred and heritage sites comprise sacred, natural and cultural places and objects that have special significance and value to the indigenous people because of the historical and religious meanings they ascribe to them. They express people's unity with the natural and spiritual environment (Rama Krishnan 2000). They embody indigenous and traditional knowledge on the management of plants and animals, places, land uses, and environment. Since many of the natural sites are imbued with human associations, stories, myths and traditions, the sites that are inscribed as natural may also have merit as cultural and sacred sites.

Different ethnic groups in the SHL regard many landscapes and objects as sacred. Physically, a sacred place can vary from the size of a small rock to a few square meters to hundreds or thousands of square kilometers. The widespread concepts of 'beyuls' or 'hidden valleys' and 'ters' or 'hidden treasures' are large wilderness areas located in inaccessible or isolated parts, many still wild, unattended and unexplored. Similarly, objects such as religious sculpture, stones, paintings, hierograms, and costumes; living things including animals, individual plants, and forests or groves; and images of the supernatural are held sacred by people. These sacred sites may hold significance for one household, a community, or multiple communities and ethnic groups. Sacred places are considered the source of powerful forces, energy, and wisdom. Sacred landscapes are maintained through the practice of religious rituals, ceremonies, and sanctions within a specific cultural group.

Sacred sites and objects are often the materialistic representation of people's belief systems and culture. They usually have outstanding architectural works, sculpture and painting that exhibit remarkable combinations of history, art and science. Therefore, their importance

emanates from the fact that these are non-renewable and irreplaceable resources, and once these are lost, it brings in the danger that civilizations and traditions associated with them are also lost(Rama Krishnan 2000).

2.2 Scenic and Aesthetic Values

The SHL contributes greatly to the quality of life of the local community and to the tourists' or visitors' experiences. Local and indigenous people have developed a strong appreciation and spiritual connection with the scenic and aesthetic values of the SHL. Places of natural beauty with high aesthetic importance include areas such as Gaurishanker, Kangchenjunga, Makalu Barun and Langtang. The discovered *beyuls* add to the adventures of getting into the fictional 'Shangri-La'. Many mountain areas provide tremendous opportunity for sight-seeing, spiritual healing and meditation, adventure tourism, trekking, hiking and bird watching. In 1997 the government declared Kangchenjunga Conservation Area as 'gift to the earth' considering its rich biodiversity, cultural heritage and pristine Himalayan landscape.

2.3 Caste/Ethnicity and Cultural Mosaic

The proposed SHL districts are inhabited by people belonging to various ethnic, caste and sub-caste groups. The indigenous people including Limbu, Rai and Tamang stand out as the most predominant groups in the whole SHL region. The proportion of disadvantaged caste groups such as Kami, Damai and Sarki are found in significant numbers in all the SHL districts. Some of the caste/ethnic groups have an interesting pattern of their population distribution in the region with pockets of areas dominated by one ethnic group over the other. Similarly, over 40

different languages and dialects are spoken in the landscape, which are important to consider as the knowledge and practices of diverse ethnic groups are memorised by elderly people who cannot speak any other languages or dialects and even if they have be documented, its mostly in their own language or script.

2.4 Cultural History and Significance

The ecosystems of the SHL have evolved over thousands of years through active interaction of its indigenous people with the land and management of its resources. Their cultural knowledge and perspectives of plants, animals and ecological processes have created a special context for conservation and sustainable management of natural resources. Activities such as keeping livestock, farming, and harvesting of materials for food and shelter, ceremonial tools or art and craft are essentially the part of indigenous people's culture and have always been integral to the ecology of the landscape. For example, the local Sherpa communities in Sagarmatha National Park have managed their forest on a sustainable manner through the *Shinginawa* system for centuries *(Singi* and *Nawa* are words meaning 'Forest's Guards', chiefly used by indigenous people such as Tamang and Sherpa). Customary laws and collective resource management are often indigenous normal ways of life. Traditional healers, *Jhankri* and *Amchi*, genealogy tellers, witchcraft practitioners and priests are the ritual specialists in the communities. Their rituals and knowledge are mostly associated with the use of plants and animals or deriving power from the supernatural from the surrounding environment.

The importance of cultural history, traditional knowledge and practices lies in the genesis of indigenous people and farmer's rights in this modern era. In the mountain indigenous communities, it is perhaps the most pressing issue that rights to traditional knowledge, equity in benefit sharing process and participation in the decision making process is lacking and being neglected.

2.5 Key issues/Challenges

1. Endangered languages (for e.g., *Aathpahariya, Majhi, Thami, Magar, Gurung, Rai, Sherpa, Tamang, Bhote*)
2. Cultural assimilation
3. Inadequate recognition given to indigenous skills, knowledge and practices (for e.g., use of medicinal plants, weaving techniques: *Aadi, Allo, Khadi, Kiti Pangta, Mekhala, Bhune, Deli dala, Nangla, Doka, Gundri,* Carving: *Theki, Harpe, Tungva, Dhungro, Aari, Pira, Kathuwa*)
4. Lack of conservation of natural/cultural/touristic sites
5. Untouchability and caste discrimination
6. Pollution and reduced naturalness due to haphazard and unplanned construction and development
7. Unknown and non-assessed impacts of conflict on values and integrity of cultural assets
8. Lack of recognition of local sacred sites
9. Ambiguity in the ownership/property rights of indigenous and individual cultural heritages
10. Stakeholders uninformed/unaware of policies relating to cultural preservation and conservation
11. Conservation and cultural links not understood properly

Koshi River Basin: River System, Watershed and Population Density

3. Ecosystem structures and processes vulnerability

3.1 River systems
The SHL mountain system contributes significantly in terms of ecological processes and services, especially as important repositories for water towers, glaciers, and as the headwaters and sources of major Himalayan rivers. The Koshi Basin includes 779 glaciers with an area of 1409.84 sq. km and has an estimated ice reserve of 152.06 cubic km (Mool *et al.* 2001). Because these rivers are fed by snow and ice, they are perennial rivers with significant discharge even in the dry season including winter. They are, therefore, critical water resource not only for Nepal but also for downstream communities in Nepal and India.

3.2 Wetlands
One of the unique freshwater ecosystems found in the SHL are wetlands. Of the 2323 glacier lakes above 3500m above sea level, the Koshi River Basin contains 1062 (47%) (Mool *et al* 2001) glacier lakes.

Among the prominent wetlands located in the SHL area are Gosaikunda, Gokyo Lake (Dudh Pokhari), Panch Pokhari, Salpha Pokhari, Mai Pokhari and Shinjema Tal. These wetlands provide critical habitat for a number of rare and endemic species of flora and fauna. They are important sites for breeding and resting for trans-Himalayan migratory birds. The wetlands also serve as headwaters for major local and regional river basins as well as excellent indicators of climate change through the melting of their glacier sources. More importantly, the wetlands are key livelihood sources for some ethnic groups. And, they are considered important centres for religious and cultural diversity (Bhandari 2005). For example, Gosaikunda lake is one of the sacred lakes in SHL where around 20,000 Hindus and Buddhists take a holy bath every year. Traditional beliefs and spiritual values are associated with conserving the biodiversity and water of the lakes.

3.3 Energy

SHL's energy supply is overwhelmingly dependent on traditional biomass sources of fuel wood, agricultural residues and animal wastes. Of the total energy consumption, the traditional sources, i.e., firewood constitutes over 90%, which implies the pressure on accessible forests. Commercial sources shared nominal 2% and the renewable sources shared a very nominal 8% in 2001 (HMGN 2003). During the decade from 1990-2000, the consumption trend of the renewable alternative energy such as micro-hydro, improved Ghattas and cooking stoves and peltric sets has increased at a higher growth rate with an average annual rate of 15.5% and 21% respectively as compared to 2% average annual rate for the conventional energy such as kerosene and

LPG (HMGN 2003). This signifies that there is a gradual shift of energy demand from traditional to renewable alternative energy sources.

Since the alternative energy is still minimally developed and despite the increasing trend in the demand of alternative energy, the pressure on accessible forests for meeting household energy demand may continue in the SHL. The hydropower potential of the Koshi River system is estimated to be 22000MW, while presently total installed hydropower is below 75MW. As hydropower development activities such as building large dams would have its own environmental implications, micro-hydropower and solar schemes in many isolated mountain communities have been found to becoming increasingly popular and considered affordable.

3.4 Land Degradation

Degradation of large tracts of agriculture, forest and pasture lands in the hills and mountains of the SHL seem to have increased considerably over the last 2-3 decades. The predominant agro-pastoralist livelihood such as slash and burn or
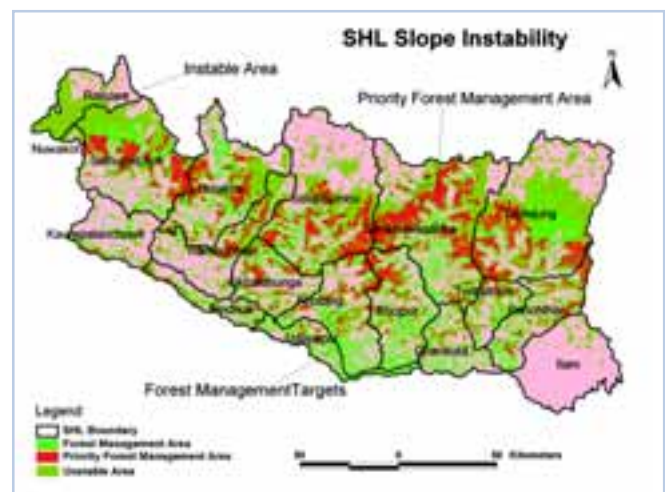
shifting cultivation or 'khoriya' practices in the mountains of SHL are associated with this land degradation. On the contrary, it has also been increasingly debated that khoriya practice could actually become a good option for sustainable agricultural practices, but with right policies in place (Kerkhoff and Sharma 2006).

Croplands are characterized by increasing soil erosion, landslides, slope failure, declining fertility and reduced cropping intensity. About 30% of total land in Nepal classified as pasture is situated in the SHL region (Acharya 2003), providing forage for a large number of livestock especially those of the transhumant herders in high altitude areas. Some of the grazing lands are in such poor condition (for e.g. Sailung area of Ramechhap) that they look almost like wasteland. There have been significant changes in forest areas and conditions especially at high altitudes of SHL. Forest land is not often converted for cultivation, as in middle mountains, but the change of forest cover to shrubland and grassland is conspicuous.

3.5 Natural Disasters
In fragile resource zones, such as the mountains in SHL, the process and factors generating environmental and social vulnerabilities tend to reinforce each other. In the SHL, vulnerability, hazard and risk are omnipresent. The mountains in the SHL are prone to natural disasters due to unstable geology and extreme climate. Landslides are the most common natural disasters in this region, caused by intense seasonal precipitation during monsoons. Landslides are associated with soil erosion, mass wasting, debris flows, sediment deposition and flash floods. The higher elevations in the SHL are predominated by

snow avalanches and glacial lake outburst floods (GLOFs). This landscape is also subject to a powerful hazard-triggering factor, i.e., earthquakes. During the 80 year period from 1911-1991, 71 earthquakes of magnitude 5 and above occurred in Nepal (NSET-Nepal website). Windstorms, hailstorms and thunderbolts also occur frequently particularly during the peak monsoon season. They serve to intensify the impact on the exposed mountain slopes, denuded vegetation and standing crops. Forest fires are known to occur in a number of areas. However, they are not specifically widespread in the mountain region. Further, natural causes like thunderbolts do not seem to be a major factor in forest fires. As described above as the risk and hazard of natural disasters are there in the SHL, it could have tremendous impact on people and their livelihoods.

3.6 Climate change impacts
Climate change is emerging as a major threat to the biodiversity values of the SHL and can exacerbate the impacts of other threatening processes. A recent model scenario (Nelleman et a[3]l 2005) indicates that climate change has the potential to reduce the original abundance of wildlife between 20-40% in mountain areas by 2030. The regional effects of climate change remain uncertain due to unknown parameters such as the rate of temperature increases and fluctuations. However, it is generally predicted that even minimal global warming of one degree may have the potential to decrease the available habitat for many endemic vertebrate species adapted to the cooler climate (Nelleman et al 2005).

Besides, climate change with its potential global warming effect may increase the

viability of arable farming in mountain regions of the SHL. However, the expected increases in climatic variability in combination with ongoing land degradation rate may also bring about more major landslides and flooding events, thereby reducing agricultural potential. Complex terracing and irrigation systems have been developed in many areas of SHL to retain soil and water. Any extreme event such as an earthquake or that associated with climate change cause these systems to fail, and devastating results can be expected that may affect populations both in the SHL and in adjacent lowlands.

3.7 Key issues/Challenges

1. Lack of integrated river basin planning and management
   ‣ lack of Macro-Koshi watershed plan,
   ‣ no plan for rural water supply system
   ‣ improper/unplanned landuse
2. Multiple use of water still not practiced and emphasized
3. Non-specificity of water rights and ownership
4. Inadequate hydro-meteorological, environmental mapping and database
5. Lack of awareness on aquatic biodiversity
6. Imbalanced gender participation in water management sectors
7. Weak institutional capacity, especially water management institutions
8. Soil erosion and landslides
9. Changes in seasonality (e.g., onset of wet and dry seasons, increased frequency of landslides)
10. Overlap of institutional responsibilities and jurisdictions regarding policy formulation and implementation
11. Underutilization of hydro-electricity potential (micro-hydro becoming popular)

4. Human Development in the SHL

4.1 Complexity of poverty-environment linkages

Poverty in SHL is a complex outcome of interacting processes, where population dynamics, social and political marginality, inequitable access to resources, lack of livelihood opportunities and basic services and increased vulnerability, to name some critical factors, combine to create ecologically unsustainable and insufficient living conditions. A large portion of the population in the SHL lives in moderate or extreme poverty and their livelihoods are primarily dependent on environmental resources such as agriculture and forest productivity. Furthermore, poverty in SHL is largely associated with marginalized groups including indigenous people and women. According to estimations, the bulk of its over 60% inhabitants below the poverty line are indigenous mountain people. Women are generally impoverished as they have less access to resources than men, less influence over decision making, but have to carry out the bulk of daily work. All these factors reinforce a poverty structure in SHL where social and economic differences are enhanced and resource use remains unsustainable.

Given the above scenario, the connections between poverty and environment in SHL are many and complex. However, there are some obvious links. For instance, in the SHL it would be wrong to assume that poor people degrade the environment. To the contrary, poor people who do not cause much of the environmental degradation are impacted much more. The people are still poor because they do not have effective access to environmental resources and

other benefits and the means to sustain them. Instead, most environmental degradation is linked to the consumption patterns of non-poor groups and the production structures that serve them. Poor people in the SHL are more vulnerable to risks and hazards flowing from damage to the environment on which they depend for their livelihoods and with which they live so intimately.

4.2 Human Development profile

With the enormous ethnic diversity, high proportion of indigenous people and rural-urban disparities in the SHL, poverty measurements such as poverty line or index would not be culturally appropriate. For example, there are households that live in a secure traditional life in areas with abundant natural resources, but their per capita income level are not commensurate with the money metric approaches to poverty measurement. Poverty line and indices hide most predominant poverty indicators in the SHL such as that of social exclusion, dependence and isolation. Given this, the Human Development Index (HDI), developed by the UNDP, would more appropriately represent the human dimension of development in the SHL districts.

13 out of 18 SHL districts are close to the average National HDI scale of 0.471. Four districts stand a little higher the average National HDI and only one district, Rasuwa stands below the average National HDI.

The socio-economics of SHL are mostly determined by its agriculture-based economy. Rural households in SHL depend heavily on agricultural work or other manual jobs to supplement their own cultivation, and reflects a situation of scarcity of cultivable land, unequal land distribution and a large number of marginal farmers. As many as 70% of the farming households own less than 0.5ha of land and similar low figure accounts for livestock ownership (ICIMOD, CBS/HMG & SNV 2003).

Given the severity of conflict situation in rural and remote SHL districts, agriculture has suffered from an acute labour shortage because of the massive exodus of people migrating to cities and urban areas. Household survival strategies have shifted from agriculture and tourism to participation in informal sectors, including temporary migration for overseas employment and increased participation in local wage labour. If the situation prevails, it might make agriculture less important than remittances and wage work as a source of rural livelihood in the SHL. Besides, poor households may be forced to adopt a range of restrictive strategies such as to avoid the cost of health services or switching to low quality food.

4.3 Market forces

The general trend of agriculture policy implementation in SHL shows that most efforts have been aimed at agricultural growth thereby creating *in situ* agricultural opportunities. The focus has been on increasing farm incomes and supplementing this with efforts to enhance
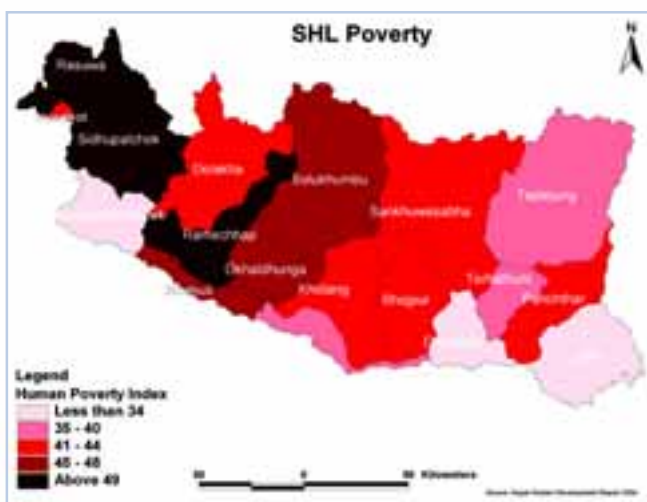
skills, improve access to credit and productive assets, generate NTFP-based income which would enable poor people to diversify into small enterprise, trade and agro-processing. However, the bulk SHL households (46%) with small land holding size of less than 5 ha and poor market prospects apparently shy away from commercial agriculture. Market liberalization has tended to expand choices but small farmers are faced with higher input prices, and, in many areas, higher expenditures on food purchases. Under increasing economic stringency this has led to reallocation of poor households' labour away from commercial agriculture. It is also becoming more visible that many non-farm occupations, especially those pursued by people who live in marginal areas, are actually situated in other locations and, in the absence of prospects for substantial increases in farm incomes locally, are providing an important livelihood source. As reported by the DFID's Livelihoods and Foresty Programme (LFP), in four mountainous districts of SHL, Dhankuta, Bhojpur, Tehrathum and Sankhuwashabha, the income from international remittances accounts for the highest mean percentage of household income. Furthermore, 12% of the economically active population (10 years of age and above) is absent from the districts compared to national average of 7% (LFP/DFID, 2003).

4.4 Resource Governance

Across the SHL, resource tenure is a central social institution that governs people's relationship to land and natural resources and defines property rights systems within families, communities and villages. Over the past two decades, local and community institutions have become far more assertive in the management of local natural resources, including forests

and water. After the promulgation of Government's Master Plan for Forestry Sector (1988), community forestry programs in the mid-hills have been flourishing with the result that large areas of degraded forests are replenishing with new life just within a decade of the implementation of the program. Similarly, indigenous Farmer Managed Irrigation Systems (FMIS) have been more vibrant and successfully evolving compared to large irrigation schemes in hills and mountains of SHL. With this trend shaping both progress and promise in the past few years, indigenous people and disadvantaged groups have been capacitated to press for their rights to access and control natural resources assets and benefits derived from their management. In many resource rich areas of SHL, such as protected areas, even in the absence of full ownership rights, indigenous people have been able to prelude other forms of tenure rights. For example, Sagarmatha National Park recognizes the rights of occupants of its core areas and territories to utilize and manage natural resources that people are accustomed to. As yet another progressive step, communities in the Kangchenjunga

SHL Community Forest

Conservation Area are in the process of getting legally recognized by the Government to manage the area.

Community forestry map shows that communities own or manage a significant percentage of SHL's forests. In middle hills, some 41% of forests are managed by people who live in and around them. However, the fraction of forests managed by people in high hills and mountains are still minimal, the reason being sparse population scattered over large areas and forests are inaccessible in many cases.

4.5 Tourism

Tourism in Nepal is concentrated mostly in protected areas located in mountain areas. Given this, tourism is one of the mainstays of the local economy in SHL as 4 protected areas lie in SHL- Nepal, of which one is enlisted as World Heritage Site. With its spectacular natural landscapes and rich cultural heritage, the SHL has a comparative advantage in terms of ecotourism development. Although formal data on the volume of tourists have not be collected for the SHL, it is apparent that a large number of international tourists visit the SHL for nature walks or trekking, adventure travel, cultural tourism, bird watching or a combination of these. In the recent years, community-based ecotourism is also being promoted in some mountain districts of the SHL such as Rasuwa, Solukhumbu and Taplejung, through which communities get to manage and benefit from tourist flow into their areas. Domestic tourism, although it is difficult to both quantify and qualify, is a major feature in the SHL. A large number of pilgrims visit sacred sites including temples and monasteries year-round from within the country and from neighbouring countries. For instance, approximately 20,000 pilgrims from East Nepal and North India

visit the *Pathibhara* Temple near Kangchenjunga Conservation Area annually (HMGN 2004). However, tourism has its toll on the environment and culture, especially in SHL which has fragile ecosystems. Of many adverse impacts, tourism brings is water and land pollution, and ecological disruption. Littering is a big problem in the SHL as indicated by the collection of 16 tons of plastic litters from atop Mt. Everest (HMGN 2004). Deforestation along tourist trails, primarily to fulfill fuelwood demands of trekkers, is another major problem in some popular tourist destinations in SHL, as evidenced by the fact that less than 10% of the tourist groups bother to carry their own fuel (HMGN 2004). There is no doubt that there are prospects of ecotourism in the already popular and established destinations in the SHL areas but there might be even greater tourism prospects in other marginalized areas which need to be explored and simultaneously developed in accordance with the 'pro-poor tourism philosophy'.

4.6 Management plans for national parks and conservation areas

In the SHL-Nepal there are four protected areas covering an area of 6,393 sq. km which accounts for 22% of the total SHL-Nepal area. For some areas, there already exists comprehensive management plans. The management plans spell out community based strategies to conserve and utilize biodiversity in those areas. Some of the plans, for example, buffer zone management plans for Sagarmatha National Park and Makalu Barun National Park have been approved by the Government and are currently being implemented. The Kangchenjunga Conservation Area management plan is recently approved by the Government. The management plan for Langtang National Park is under preparation.

5. Policy issues

5.1 Evolving nature of developmental policies

SHL's developmental history cannot be separated from the overall national developmental history. Therefore, the following sections summarise how developmental policies have evolved in Nepal and seemingly relate to the SHL's policy environment as well.

Although Nepal's developmental strategies often have intended to reflect the priorities of the poor, issues related to poverty-environment links have been overlooked or received inadequate attention. The National Conservation Strategy (NCS), prepared in 1988, represents perhaps the first acknowledgement of the importance of addressing environmental issues alongside development challenges. Since then, through progressive approaches, Nepal has been incorporating aspects of environmental mainstreaming into its planning process in multiple ways. And, over the past five decades of systematic development planning, Nepal has achieved some notable successes in environmental mainstreaming into the developmental planning process. This includes the area of natural resources management, particularly through increased participation of local communities in forest, water, watershed, and protected area management. These examples prove local ownership and commitment to manage and conserve those resources is high and can be further enhanced if conservation and management aspects are interfaced with benefit sharing.

In 2002, the Nepal Biodiversity Strategy (NBS) was endorsed. NBS provides a comprehensive framework to manage and conserve biodiversity resources for the dual purpose of conservation and sustainable use. Keeping these evolving but progressive policies in mind, the Government of Nepal has promulgated various other supportive policies, which are pro-community, pro-environment and pro-poor, for management and development of these resources, by empowering people to take their own decisions.

The experience gained in conservation and sustainable utilization of natural resources over several years led Nepal to evolve its conservation policy from government-managed and protection-oriented regimes

Name of the area	Area (sq. km)	Management Plan exists?	MP duration	Status
Kanchanjunga Conservation Area	2,035	Yes	2004-2008	Endorsed by the Government
Makalu Barun National Park and Buffer Zone	1500	Yes	2005-2010	Endorsement awaited
Sagarmatha National Park	1148	Buffer zone MP exists; National Park MP under preparation	2004-2008	Endorsed and currently implemented
Langtang National Park	1710	Under preparation/revision		

to participatory and ecosystem approaches. Over the last decade the country has successfully launched community forestry programmes, especially in the Mid-hills, and buffer zone management activities adjacent to the protected areas. However, considerable work still needs to be done to ensure that sectoral plans and budgets contain adequate and properly directed resources for investment in the environmental management concerns of the poor.

5.2 Enabling policy environment

As favoured to the prosperity or preference of environmental protection, the 10th Plan or the Poverty Reduction Strategy Paper (PRSP) has tried to link problems connected with the environment to those connected with poverty. Among others, these include the agro-ecosystem approach for conservation and development of agro-biodiversity; the landscape approach for sustainable management of forests and biodiversity conservation; integrated watershed management; and the incorporation of gender dimension into management of natural resources. Despite the above encouraging signals, and even though community-based natural resource management and disadvantaged sections of society have been made main vehicles for economic growth, sustainable environment management has remained outside the 'four pillars' of development.

In order to develop a more comprehensive framework, GON initiated dialogues on a National Strategy for Sustainable Development (NSSD) which later became the Sustainable Development Agenda for Nepal (SDAN). SDAN (2003-2017) provides a long-term vision for sustainable development. In the following, sustainable

development concepts have been reflected in all major Perspective Plans, Master Plans, Strategies, Acts, Regulations, and guidelines in different areas such as forestry, agriculture, water resources, environmental management and local governance.

Since 2002, Nepal has been reporting on the progress of Millenium Development Goals (MDGs). As the 2005 MDG report shows, Nepal's progress towards MDGs is not very encouraging, the major reason being intensifying violence and political instability. Despite challenges, a Poverty Monitoring and Analysis System (PMAS) has been developed and is being institutionalized at the National Planning Commission Secretariat. In addition, the government has recently completed the MDGs' Needs Assessment, which has estimated that if Nepal is to achieve the MDGs by 2015, Nepal will experience a total financing gap of US$ 7.6 billion for the period between 2005 and 2015 (HMGN/NPC/UN 2005).

One clear underpinning regarding policy environment, however, is that in spite of the formulation of above policies, their implementation and institutional capacity to implement policies are still lacking largely.

5.3 Conservation and livelihood actions by developmental agencies and organizations

A survey of available and accessible information on environment related agencies and organizations in the SHL reveal that the primary activity of most of them is concerned with community forestry in the context of participatory process. The projects also deal prominently with livelihood issues, agriculture and land-use practices. Market information systems have been initiated but in a limited manner.

Biodiversity conservation, including challenges and opportunities provided by NTFPs, is covered by a couple of organizations.

While there is broad coverage of the socio-economic aspects, issues of biodiversity conservation (wildlife and endemic plants) are concentrated only in exclusive pockets of protected areas. Wetlands and watersheds have been somewhat overlooked. Rangelands have not been adequately covered, nor the factor of natural disasters. Neither is there too much activity regarding physical infrastructure like access roads and electricity. There is shortage of information on the cultural and religious aspects of conservation or specifically dealing with ecotourism. Further, review of policy and legislation is also lacking.

Among the challenges confronting the projects includes the question of long-term sustainability of the initiatives. Issue of equity and inclusion along with the gender dimension is another problem. In some cases, local NGOs are weak and collaboration at local level with government bodies is not satisfactory.

Generic Local-scale Drivers with varying degree of change in the SHL

Generic Drivers	Description of Trend Department of Agriculture
Demographic change	*Low change:* small increase in total population size
	High change: rural depopulation (for e.g.,out-migration rate), larger population consisting of old and young people, gender imbalance, economically active population reduced
Policies	*Low change:* some policies continue to be implemented (e.g., community forestry) *High change:* Policies are poorly implemented, with little or no external support
Culture	*Low change:* addressing of indigenous people's rights over resources Awareness on Indigenous Knowledge and Practices *High change:* Implementation of policies on the ground leading to growth of civil societies and community institutions
Value System Change	*Low change:* people oriented to short-term tangible materialistic benefits *High change:* livelihood diversification occurring at higher rates; economically active population entering informal employment sectors
Infrastructural change (Isolation)	*Low change:* Increasing infrastructure pressure from Southern neighboring districts; peripheral development neglected *High change:* Infrastructural stagnation/decline (telephone, electricity, roads, etc)
Biodiversity	*Low change:* work on community forest management second generation issues; community-based biodiversity records; NTFPs marketing *High change:* increased illegal trade and poaching
Glaciers/Water systems	*Low change:* Hydropower development; Climate Change adaptation initiatives *High change:* Alternative energy promotions; variations in seasonality

POTENTIALS OF SHL

WWF Nepal Program, August 2006

Legend:
- Natural Tourism
- Cultural Tourism
- High Value NTFPs
- Forest Based Enterprises Development
- Water Resource Development
- Biodiversity Hotspots Areas

Districts: Taplejung, Ilam, Panchthar, Terhathum, Dhankuta, Sankhuwasabha, Bhojpur, Khotang, Udayapur, Solukhumbu, Okhaldhunga, Sindhuli, Ramechhap, Dolakha, Sindhupalchok, Kavrepalanchowk, Rasuwa, Nuwakot
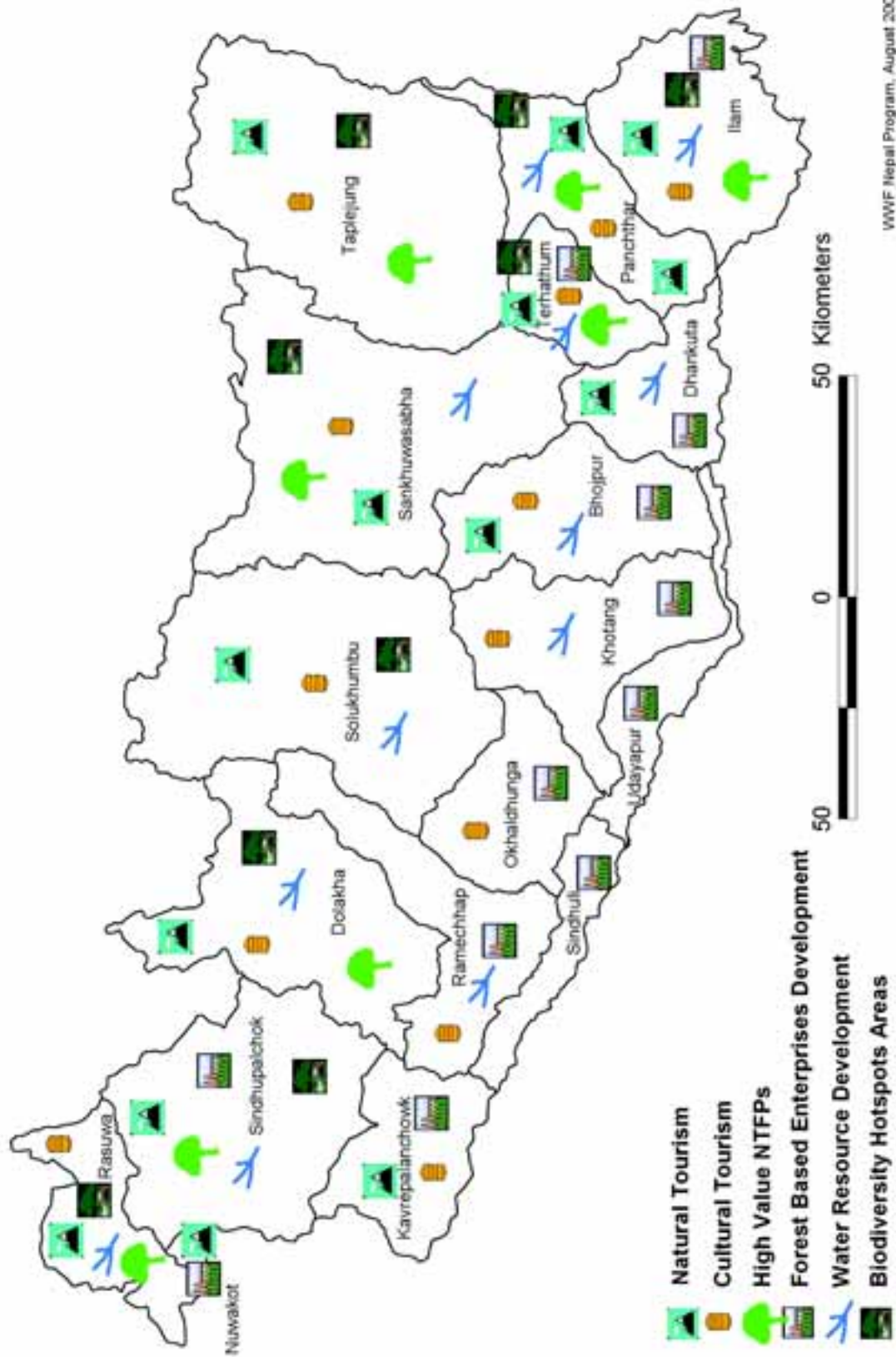
INTEGRATED ASSESSMENT OF PRESSURES IN SHL

WWF Nepal Program, August 2006

N

Taplejung

Ilam

Terhathum

Panchthar

Sankhuwasabha

Dhankuta

Bhojpur

Solukhumbu

Khotang

Udayapur

Okhaldhunga

Ramechhap

Sindhuli

Dolakha

Sindhupalchok

Kavrepalanchowk

Rasuwa

Nuwakot

50   0   50   Kilometers

Problems/Pressures

Unregulated Grazing Practices

Urban Growth

Conflict

Vulnerable to GLOFs

Neglected Cultural Sites/Heritages

High Rate of Habitat Loss

Water Scarce Areas

Unstable Slopes

High Levels of Human Poverty

Agricultural Expansion

Abandoned Garbage

Strategies

3

1. Method of Strategy development

Step 1: Defining vision and goals (Consultative workshops at national and district levels)

Step 2: Analysis of key contextual factors (Desk Analysis)

Step 3: Identification of four Strategic Components: 1. Biodiversity conservation; 2. Cultural integrity; 3. Water resources; 4. Sustainable livelihoods (District and regional level SHL consultations; Desk Analysis of SHL issues)

Step 4: Identification of key issues within the four Strategic Components (Consultations: National level, Multi-Stakeholder Forum, Regional/district consultations)

Step 5: Setting priorities

Step 6: Targets

Step 7: Outcomes and their linkage with vision and goals of the SHL

Figure: Overview of linkages between Goals, Outcomes, Targets and Strategies

Goal 1
SHL's unique characters including ecological and culturally significant areas are conserved, recognized, valued and celebrated, both nationally and internationally

Goal 2
SHL's biodiversity, culture and water resources are valued as productive and essential social and economic assets for the people, particularly indigenous, poor and disadvantaged groups of people

Goal 3
SHL inhabitants, including indigenous people are able to act progressively on their own behalf toward betterment of their livelihoods and the protection of their rights and local environment and resources

3 Goals

1. Recognition to key environmental, economic, social and cultural resources in the SHL

2. Protection and rational use of biodiversity for equitable social and economic development
3. Cultural integrity
4. Community vulnerability reduction and mitigation
5. Community based rural energy development and services
6. Sustainable agriculture management
7. Integrated water resources management

8. Recognition to and promotion of Indigenous people's rights over resources
9. Sustainable Livelihoods
10. Environmental security and risk management

11. Increased levels of awareness and education
12. Systematic research and monitoring
13. Creation of an enabling environment at different levels for conservation and sustainable livelihoods

14. Capacity building and improved institutional coordination
15. Integration and mainstreaming of gender issues into all SHL activities

15 Outcomes

▸ To recognize and value globally important ecoregions at national and regional levels
▸ To promote transboundary biodiversity conservation

▸ To increase awareness and education at all levels (local, national, regional and internation) on the values and significance of biodiversity conservation, cultural integrity and water reources management in the SHL
▸ To establish a systematic and comprehensive approach to research and monitoring in the SHL
▸ To create an enabling environment that supports conservation and sustainable livelihoods
▸ To strengthen capacity of key stakeholders in landscape level conservtion for effective management of the SHL and to improve coordination among the key partners for smooth implementation of strategies
▸ To support strategic integration of gender issues with alignment of gender-responsive resources while implementing SHL

▸ To improve management of protected areas
▸ To improve conservation actions in areas outside protected areas
▸ To control illegal trade and poaching
▸ To manage agriculture sutainably for food security and conserve agricultural biodiversity
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▸ To manage natural, cultural and sacred sites
▸ To recognize and preserve cultural identity of multi-ethnic groups and their relationship to nature conservation
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▸ To reduce vulnerability to natural disasters and impacts of climate change
▸ To plan for integrated management of water resources at Koshi River Basin Level
▸ To promote rural energy services to support sustainable development

▸ To improve resource governance
▸ To ensure access and equity in benefit sharing from management of natural resources
▸ To promote alternative livelihoods options (particularly Non -Timber Forest Products and tourism)
▸ To integrate sustainable livelihood issues into environmental framework
▸ To mainstream conflict sensitivity into natural resource management
▸ To develop and improve basic physical and social infrastructure

22 Targets

56 Strategies

2. Overview of Targets

1. Biodiversity conservation
- ➤ To recognize and value globally important ecoregions at national and regional levels
- ➤ To improve management of protected areas
- ➤ To improve conservation actions in areas outside protected areas
- ➤ To promote transboundary biodiversity conservation
- ➤ To establish a well managed tourism sector contributing to conservation
- ➤ To manage agriculture sustainably for food security and conserve agricultural biodiversity

2. Culture and resource rights
- ➤ To manage natural cultural and sacred sites
- ➤ To recognize and preserve the cultural identity of multi-ethnic groups and their relationship to nature conservation
- ➤ To improve resource governance
- ➤ To ensure access and equity in benefit sharing from management of natural resources

3. Water resources
- ➤ To promote rural energy services to support sustainable development
- ➤ To manage water resources at river basin level

4. Sustainable livelihoods
- ➤ To promote alternative livelihoods options (particularly Non Timber Forest Products and tourism)
- ➤ To integrate sustainable livelihood issues into environmental framework

5. Cross-cutting
- ➤ To increase awareness and education at all levels (local, national, regional and international) on the values and significance of biodiversity conservation, cultural integrity and water resources management in the SHL
- ➤ To establish a systematic and comprehensive approach to research and monitoring in the SHL
- ➤ To create an enabling environment that supports conservation and sustainable livelihoods
- ➤ To strengthen capacity of key stakeholders in landscape level conservation for effective management of the SHL and to improve coordination among the key partners for smooth implementation of strategies
- ➤ To support strategic integration of gender issues with alignment of gender-responsive resources while implementing SHL

3.Strategies

OUTCOME 1

Recognition to key environmental, economic, social and cultural resources in the SHL

TARGET 1: **To recognize and value globally important ecoregions at national and regional level**

Strategy 1.1 Disseminate the significance of the SHL's biodiversity, cultural and water resources at national and international forums

Strategy 1.2 The environmental, economic and cultural resources are assessed for their value to local and regional levels

Strategy 1.3 Seek financial support for conserving the natural resource and cultural integrity in the SHL

TARGET 2: **To promote transboundary biodiversity conservation**

Strategy 2.1 Expedite the process for formulation of SHL strategic plan in India and Bhutan

Strategy 2.2 Work by building strategic alliance and multi-partnerships with agencies and organizations active in biodiversity conservation in adjoining borders of China and India

Strategy 2.3 Promote Kangchenjunga Conservation Complex as Tri-national Peace Park

OUTCOME 2

Protection and rational use of biodiversity for equitable social and economic development

TARGET 3: **To improve management of protected areas**

Strategy 3.1 Maintain the ecological integrity of ecosystems and improve habitats within protected areas and buffer zones that are significant but at the risk of degradation while respecting traditional landuse practices

Strategy 3.2 Provide specific protection to endemic and endangered species in the protected areas and buffer zones

Strategy 3.3 Implement and monitor protected areas management plans and establish mechanisms to periodically evaluate their performance

Strategy 3.4 Improve Stewardship of PAs, buffer zones and CAs

TARGET 4: **To improve conservation actions in areas outside protected areas**
Strategy 4.1   Select, establish and conserve critical areas/habitats/ecosystems where special measures need to be taken for biodiversity conservation
Strategy 4.2   Restore and regenerate critical areas/habitats/ecosystems that are crucial to maintain connectivity for effective conservation of species and ecological processes and services
Strategy 4.3   Develop and implement land use and land management policies and practices, and identify zones for sustainable use of biodiversity
Strategy 4.4   Promote community participation in biodiversity conservation and sustainable use
Strategy 4.5   Establish community based systems for grazing, and fuel resource management

TARGET 5: **To control illegal trade and poaching**
Strategy 5.1   Strengthen capacity for law enforcement to check illegal trade and poaching
Strategy 5.2   Develop mechanisms to prevent retaliatory killing of wildlife

OUTCOME 3

Cultural integrity

TARGET 6: **To manage natural, cultural and sacred sites**
Strategy 6.1   Establish up-to-date record of the condition and features of the natural, cultural and sacred sites
Strategy 6.2   Develop and implement guidelines for the management of heritage and sacred sites
Strategy 6.3   Maintain and promote scenic and aesthetic values of the sacred and heritage sites

TARGET 7: **To recognize and preserve cultural identity of multi-ethnic groups and their relationship to nature conservation**
Strategy 7.1   Identify and locate multicultural groups in the landscape
Strategy 7.2   Promote incorporation of historical, traditional knowledge, spiritual and religious values into biodiversity conservation
Strategy 7.3   Develop fundraising plan and mechanisms for strategies 7.1 & 7.2

OUTCOME 4

Community vulnerability reduction and mitigation

TARGET 8: **To reduce vulnerability to natural disasters and impacts of climate change**
Strategy 8.1   Reduce vulnerability to natural disasters
Strategy 8.2   Reduce impacts of climate change

OUTCOME 5

Community based rural energy development and services

TARGET 9: **To promote rural energy services to support sustainable development**
Strategy 9.1   Promote rural alternative energy technologies to reduce pressure on forests

OUTCOME 6

Sustainable agriculture management

TARGET 10: **To manage agriculture sustainably for food security and conserve agricultural biodiversity**
Strategy 10.2   Increase agriculture productivity and improve income for farmers
Strategy 10.2   Conserve cultivated plant and domestic animal genetic resources in different ecological zones
Strategy 10.3   Develop and enhance farmers' food security
Strategy 10.4   Carry out community appraisal of traditional practices (e.g., shifting cultivation) while implementing sustainable agriculture management projects and programmes

OUTCOME 7

Integrated water resources management

TARGET 11: **To plan for integrated management of water resources at Koshi River Basin Level**
Strategy 11.1   Develop mechanisms for integrated water use and management
Strategy 11.2   Promote water rights and ownership, particularly involving jurisdictional and community issues
Strategy 11.3   Enhance food security through proper irrigation management

OUTCOME 8

Recognition to and promotion of Indigenous people's rights over resources

TARGET 12: **To improve resource governance**
Strategy 12.1   Clarify ambiguities on resource use and management
Strategy 12.2   Enhance indigenous people's capacity to manage natural resources
Strategy 12.3   Raise awareness on indigenous people's rights over resources

TARGET 13: **To ensure access and equity in benefit sharing from management of natural resources**
Strategy 13.1   Utilize the diversity and productivity of the local natural resources for meeting livelihood needs of the indigenous people
Strategy 13.2   Develop mechanisms for fair sharing of resource use benefits and opportunity amongst indigenous people
Strategy 13.3   Support existing community based structures and mechanisms (for e.g., Community Forest User Groups, Leasehold Forest User Groups and Buffer Zone Councils) to manage natural resources

OUTCOME 9

Sustainable Livelihoods

TARGET 14: **To promote alternative livelihoods options (particularly Non Timber Forest Products and tourism)**

Strategy 14.1: Explore and strengthen local livelihoods opportunities provided by NTFPs

Strategy 14.2: Develop and implement appropriate ecotourism strategies for both popular and potential tourist destinations

Strategy 14.3**:** Establish a well managed tourism sector contributing to environmental conservation

TARGET 15: **To integrate sustainable livelihood issues into environmental framework**

Strategy 15.1: Promote awareness on the complex linkages between environmental conservation and poverty

Strategy 15.2: Establish comprehensive assessment framework which is pro-poor and socially inclusive

OUTCOME 10

Environmental security and risk management

TARGET 16: **To mainstream conflict sensitivity into natural resource management**

Strategy 16.1 Strengthen environmental governance

Strategy 16.2 Incorporate conflict sensitive approaches and conflict reduction mechanisms in biodiversity conservation

TARGET 17: **To develop and improve basic physical and social infrastructure**

Strategy 17.1 Undertake basic infrastructure development activities

Strategy 17.2 Control environmental impact of development activities

Note: Strategy 18-21 cross-cut all the above strategies

Cross Cutting Outcomes

OUTCOME 11

Increased levels of awareness and education

TARGET 18: **To increase awareness and education at all levels (local, national, regional and international) on the values and significance of biodiversity conservation, cultural integrity and water resources management in the SHL**

Strategy 18.1 Increase awareness and education on cultural values, sacred and heritage sites, traditional knowledge and practices, and indigenous people's rights to resources

Strategy 18.2 Develop mechanisms and materials for effective communication among different stakeholders and partners for the SHL

OUTCOME 12

Systematic research and monitoring

TARGET 19: **To establish a systematic and comprehensive approach to research and monitoring in the SHL**

Strategy 19.1 Improve data and information bases for habitat and ecosystem management in the landscape

Strategy 19.2 Improve data and information bases on vulnerability of communities and sustainable livelihoods needs and options

OUTCOME 13

Creation of an enabling environment at different levels for conservation and sustainable livelihoods

TARGET 20: **To create an enabling environment that supports conservation and sustainable livelihoods**

Strategy 20.1 Encourage and augment international cooperation for implementing SHL
Strategy 20.2 Analyze policy impacts and adequacy at local and national levels for improved conservation and livelihoods in the SHL

OUTCOME 14

Capacity building and improved institutional coordination

TARGET 21: **To strengthen capacity of key stakeholders in landscape level conservation for effective management of the SHL and to improve coordination among the key partners for smooth implementation of strategies**

Strategy 21.1 Appropriately train national authorities and staff and local communities to effectively develop and manage programs for conservation and sustainable development
Strategy 21.2 Strengthen institutional coordination mechanisms to facilitate integrated biodiversity, cultural and water resources management for sustainable livelihoods.

OUTCOME 15

Integration and mainstreaming of gender issues

TARGET 22: **To support strategic integration of gender issues with alignment of gender-responsive resources while implementing SHL**

Implementation, Monitoring and Evaluation

1. Implementation of SHL Strategic Plan

The SHL Strategic Plan will be an ongoing, continuous and cyclical process, and the strategies are to be implemented along the line of the National Biodiversity Strategy, Nepal's 10th and 11th Plan and also in light of the regional and international Multi-lateral Environment Agreements.

A separate Implementation Plan will be designed for the SHL Nepal. Until the Implementation Plan comes out, the proposed mechanisms for implementing the SHL Strategic Plan include:

➤ build up on existing mechanisms where and when appropriate
➤ measures to allow and encourage active participation by the partners (agencies, organizations and communities) in the implementation of the Strategy;
➤ regular and common reporting on the implementation of the SHL Strategic Plan;
➤ review progress and revision of the strategy after an initial implementation phase of two years.

2. Monitoring and Evaluation

Monitoring and evaluation form the vital link between the implementation of activities, assessment of their success and the subsequent evolution of the plan. The process of monitoring and evaluating the SHL Strategic Plan will use existing structures and readily available information as far as possible rather than creating new structures or collecting new types of information. Monitoring and evaluation needs to be continual and ongoing. The process of evaluating and monitoring the SHL Strategic Plan will involve a

number of different steps:

➤ The implementing organization/agency for a particular activity, project, or program will be responsible for monitoring and evaluating the progress of those activities, projects and programs. This will take place within the existing structures of the implementing organizations and agencies, but be measured against the SHL goals, Targets and Outcomes.

➤ There can be one co-ordination unit established which will be responsible for gathering information and reporting about the implementation of SHL Strategic Plan from the various implementing organizations and agencies. The structure and mechanism of such kind of co-ordination unit will appear in the SHL Implementation Plan.

➤ The results of the monitoring and evaluation will be widely disseminated, especially amongst the implementing organizations and agencies and at local level. Dissemination will be through the reporting system and public awareness activities.

➤ These results will be used as a basis for updating and adapting the SHL Strategic Plan, particularly through the incorporation of identified gaps and lessons learnt.

3. Scenario Analysis

The scenarios presented in this section are not forecasts or predictions or possibilities for the SHL rather these relate to the probable situation aimed at gaining insight into the uncertainties that may affect environmental conservation and development in the future. Because

scenarios converge and potentially exert influence at local, national and global level, various exogenous conditions and challenges such as socio-economic, political and environmental, were also examined.

3.1 Trade-offs

A range of trade-offs between objectives of environmental conservation and development is an inherent part of the developmental decision-making. Choosing between trade-offs often involves diverse actors with different values and competing objectives and therefore, it can be a contentious and sometimes conflict-ridden process. Part of the difficulty surrounding such decisions is not due to the involvement of different actors but to the fact that they are actually a trade-off between values of different stakeholder groups. Given this scenario, one important negotiation tool would be to make trade-offs and their implications transparent to all stakeholders. This can greatly assist the process of choosing between various options and the likely consequences of making alternative choices.

The ways in which one environmental issue is tackled can have significant impacts on others, for instance, while the decision to provide increased subsidies or supply of fertilizers can profoundly help in food security, it might bring several other negative consequences. It may generate spatial competition at local level for getting subsidy benefits and as the ground situation is, it may increase the divide between small landholders and big farmers. Competition may also be temporal, whereby modifications caused by increased use of inputs deteriorates soil quality and aggravates land and even water

quality degradation. Intergenerational equity may be another type of competition generated between present and future generations, such that due to under-functioning of environmental processes caused by pollution. Informed decision-making about these kinds of trade-offs, therefore, requires specificity about the temporal and spatial scales of interests and drivers of change.

3.2 SHL Scenarios

The scenario exercise done for the SHL includes only the qualitative integrated approaches, using storylines, that focus on socio-economic, political and environmental change. The quantitative approaches have not been used due to the limitations imposed by availability of reliable baseline data and information, and also due to difficulty in accumulating scattered information across different sectors.

3.3 Scenario storylines

Environmental degradation is likely to emerge as a major constraint on future economic development and poverty reduction in the SHL. The following storylines have been developed for SHL based on two key uncertainties:

1. What level of political stability will be attained in the period of SHL Strategic Plan implementation?
2. What developmental approach, poverty reduction or environmental sustainability or the combination of both, will be the strategic choice for the country in the future?

While developing the storylines, factors that are beyond direct control, such as climate change impacts or cultural value changes have not been taken into consideration.

Scenario A

The current political instability will prevail. The competition for resources, high level of poorly, lack of opportunities and supply of basic needs and services will further complicate the situation. While, the wealthiest segments of the society will manage to survive in security enclaves or migrate to foreign countries, poor people will become trapped into a vicious circle of poverty. There will be a notable absence of civil society networks or their institutions disrupted. Policies will hardly be implemented. Scarce financial resources and the national budget will be invested to improve the security situation rather than in developmental schemes. Under such conditions the environment will seriously suffer. In the absence of a sustainable natural resource management regime, agricultural production will decline, illegal harvesting of resources and poaching will increase, social institutions will be disrupted and poor people's vulnerability to environmental changes will increase. With further cuts in the supply of basic needs and an inability to demand rights for survival, people will be compelled to out-migrate to cities or urban peripheris. The landscape will thus become impoverished and hostile.

Key features of Scenario A
➤ Political Instability
➤ Community based institutions are disrupted
➤ Economic decline
➤ Financial scarcity to invest in environmental conservation
➤ Poor will suffer the most

Scenario B

Governance will improve. National level resources are directed towards relief operations and poverty reduction. Societal values focus on short-term livelihood benefits and therefore largely favour developmental initiatives over conservation concerns. Agricultural activities will intensify with use of more pesticides and fertilizers. The champions of economic growth put pressure on environmental resources and emphasize exploitation. From this, poor people will benefit marginally from trickle-down effects of the growing economy but they will be the ultimate loosers in the long-term due to undertaking of unsustainable livelihood approaches. This situation will aggravate environmental deterioration and conservation issues will suffer.

Scenario C

A strong commitment to good governance will finally start emerging. A combination of broad based economic growth approaches and community-based developmental

initiatives will give impetus to policy implementation. Environmental conservation will be high on the agenda of implementers. A drive toward more intensive agriculture and production of exportable items will be set up and farmers start to cultivate more marginal and slope areas. Equitable distribution of ecological services and benefits will be emphasized and rights of indigenous people and disadvantaged groups will be asserted. Although economic growth will not be felt, poor people devise mechanisms and adapt to changes, converting their vulnerability to resilience. Civil society groups and community-based institutions will revive their activities.

It is difficult to predict with any certainty, the future direction of different environmental problems in the SHL. Under a status quo scenario, unless revitalized economic activities stimulate environmental investment, it can be generally expected that environmental degradation will accelerate.

4. Risks and Assumptions

1. Priority setting for Targets and outcomes:
A number of key issues emerged from consultative workshops but prioritizing them and setting strategies was challenging. Targets and outcomes have been prioritized as discussed during regional consultation and desk analysis of key contextual issues. There is risk however in the process and method used for setting such priorities because SHL-specific consultations were limited to selected regional sites and while community representatives participated

well in consultation workshops, many core communities could not be accommodated.

2. Monitoring and evaluation

The strategies have been formulated with the assumption that their implementation will be continuously monitored and evaluated, as per the monitoring and evaluation plan for the SHL Strategic Plan. This is required in order to adapt strategies to the changing external environment, giving due consideration to the present conditions and situations at which strategies have been formulated.

3. Coordinated partnerships

Since the whole SHL process has called in and brought together the partnerships of the key players in the landscape, it has been assumed that the strategies spelled out here will be implemented on the grounds of strong coordination, motivation and partnerships with a wide range of stakeholders. One key assumption for the SHL Strategic Plan has been that there will be a common implementation and reporting on the SHL projects and programs.

4. Conflict situation

The SHL Strategic Plan has been formulated under exceptional conditions and security situation in the country. The strategies therefore have tried to address the impacts of conflict while setting outcomes. The strategies for the next ten years are based on the current ground situation, but can be reviewed after five years and revised accordingly.

5. Financial sustainability

It has been assumed that implementation of the SHL strategies will bring in a smooth flow of financial resources as envisioned by the partners who have been involved throughout the SHL Strategic Plan drafting process. This vision would lead to considering seriously the sustainability of funds or finances brought in by all partners.

6. Next steps

1. SHL-Nepal Implementation Plan (will include Partnership and Business Plan)
2. Composite SHL Strategic Plan (Nepal, India and Bhutan)

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