Kang Rinpoche གངས་རིན་པོ་ཆེ - Gāngrénbōqí Fēng 冈仁波齐峰 - Kailāśā Parvata कैलाश पर्वत

KAILASH SACRED LANDSCAPE CONSERVATION INITIATIVE

DRAFT

KSL REGIONAL CONSERVATION STRATEGY

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Executive Summary

The Kailash Sacred Landscape Conservation Initiative (KSLCI) aims to promote transboundary biodiversity and cultural conservation, ecosystem management, sustainable development, and climate change adaptation within the Kailash Sacred Landscape (KSL). The KSLCI is envisioned as a long-term conservation initiative and has been designed according to a programme cycle of phased implementation and a long-term strategic approach for attaining sustainability and effective conservation. The KSL Conservation Strategy (KSL-CS) is the central component and core document outlining the goals and aims of the KSLCI for biodiversity and cultural conservation, and the sustainable development of the KSL region. Based upon this strategy document, the KSLCI will move forward to implement a set of recommendations for applying transboundary ecosystem management approaches in the KSL.

The **purpose and overall goal** of the KSL-CS is to achieve sustainable development through conservation of biodiversity and cultural heritage on the basis of integrated ecosystem management and regional cooperation within the KSL transboundary region, which covers portions of China, India, and Nepal, and the sustainable use of bio-resources, in order to improve the livelihoods of present and future generations.

Each of the respective countries within the KSL have developed their own KSL Conservation Strategies, and set their own goals and objectives. Within that set of basic overall goals, which form the basis for the regional KSL–CS,, are included these regionally relevant **inherent principles**:

- Reconciling human needs and environmental imperatives, in order to enhance ecological, economic and socio-cultural resilience and sustainability within the context of global warming and other ongoing change, taking into account the unique cultural and biophysical heritage of the KSL region;

- Conserving biodiversity and cultural heritage through applying an integrated ecosystem management approach that incorporates the traditional knowledge and cultural institutions of local communities;

- Balancing biodiversity conservation and livelihood improvement of local communities through enhancing biodiversity through conservation and management, improving ecosystem goods and services, and developing alternative livelihood strategies, to maintain and enhance the flow and provision of environmental services having local, national, regional or global significance;

- Promoting sustainable and equitable development through eco-tourism, sustainable use, and environmental protection while conserving the cultural integrity and heritage of the landscape;

Recognising climate change vulnerabilities of, and implications for, biodiversity, ecosystem functioning, mountain and pastoral herder communities, downstream beneficiaries of ecosystem services, and regional and global public goods and services, while enhancing and building capacity to adapt, cope with, minimise, and mitigate environmental change, and to benefit from new opportunities.

Specific objectives supporting the overall goal include:

- To protect, restore and otherwise conserve and manage biodiversity and other valuable ecosystem goods and services within the KSL transboundary region.
- To conserve the bio-cultural heritage of the KSL, recognising the need for sustainable development and human wellbeing, and maintaining the unique spiritual and cultural identity of this landscape for the benefit of current and future generations.
- To promote regional collaboration and harmonised conservation policies to enable transboundary ecosystem management in the KSL region.
- To strengthen participatory and collaborative capacities for transboundary ecosystem management, heritage protection, biological diversity conservation, protection of culture and heritage.
- To recognise, respect, and support the protection of sacred and cultural sites, traditional knowledge of the local communities, and customary institutions governing natural resources in the landscape, ensuring that access to knowledge, expertise and collaborative research is equitably shared
- To promote and enable sustainable and eco-friendly tourism in the KSL providing benefits to local communities.
- To promote scientific and technical cooperation; environmental, ecological, economic and socio-cultural monitoring and research; and knowledge sharing for biodiversity conservation and sustainable development among the countries in the KSL

To promote and enhance ecological, socioeconomic and socio-cultural sustainability, and to conserve and maintain the flow and provision of local, regional and global environmental and cultural services emanating from the KSL target landscape, the following regionally relevant **outcomes** for the KSL Regional Conservation Strategy have been defined:

- *Regional Cooperation for Ecosystem Management:* Regional cooperation is essential to effectively apply ecosystem management approaches, for conservation of threatened species, for regulation of the use and extraction of bio-resources, such as medicinal plants and timber harvesting, and for regional environmental monitoring and adaptive management of ecosystems goods and services.

- *Regional Cooperation for the Preservation of Cultural Heritage*: As this region represents a cultural and sacred landscape of immense importance to many peoples throughout Asia and the world, and as pilgrims arrive here from all three of the respective KSL countries, cooperation to maintain the integrity of the cultural landscape will ensure harmony among efforts and help safeguard this sacred landscape and its cultural heritage for generations to come.

- *Regional Cooperation for Climate Change Adaptation and Mitigation*: Climate change is predicted to have a large impact within the KSL, with regional connotations. Improved regional cooperation will necessarily be an essential component of the regional response to global warming and other environmental change within the KSL, and will form a key action area for facilitating effective adaptation and mitigation strategies.

- *Regional Cooperation for Sustainable Development and Ecotourism:* The KSL region has much to gain from improved regional cooperation for development and ecotourism, coupled with local participation and community-based initiatives, the opportunity for equitable benefits to flow to local, mountain and pastoral communities within the KSL.

- *Regional Cooperation for Long-Term Environmental Monitoring and Ecological Research:* Ensuring the availability of systematic and reliable datasets and analyses to support decision-making on conservation, adaptation and development issues in the KSL is an essential component for applying an ecosystem approach.

- *Regional Knowledge Sharing:* Developing and improving the regional knowledge base, including traditional knowledge, is essential for facilitating informed decision-making and understanding the nature and direction of change in the region. Analysis of best practice and sharing of lessons for the conservation of biological resources, rangelands, agro-biodiversity, and other resources leading subsequently to cross-learning between the regional countries, and sharing information with other parts of the world involved in conservation can help tackle issues related to sustainable growth and biodiversity conservation.

To achieve the goals and objectives of the KSL Conservation Strategy, the following **specific strategies** will be implemented:

i Develop a forum for consensus building in each of the respective countries for cooperation and coordination to enable ecosystem management approaches, incorporating traditional knowledge and cultural institutions of local communities.

ii Establish a regional forum for transboundary cooperation, knowledge sharing, and promoting and facilitating ecosystem management and landscape approaches.

iii Improve understanding of regional transboundary and conservation and sustainable development issues, and global climate change, by implementing comprehensive environmental monitoring (i.e. as per the KSL-CEMP), conducting specific conservation and development analyzes and assessments, including analysis of biodiversity and culturally linked livelihood needs, opportunities and threats, policy and capacity gap analysis, and assessments of data and research needs.

iv Develop and institutionalise knowledge, data and information sharing amongst the respective KSL countries, and conservation and development organisations, as per national legislation and prerogatives, for the purpose of enhanced regional cooperation for biodiversity conservation and environmental management, and for applying ecosystem management approaches within the transboundary KSL region.

v Conduct policy review and develop policy recommendations for facilitating enhanced regional cooperation through an open consultative process involving a range of stakeholders.

vi Identify opportunities and promote capacity building at national to local level, for enhanced regional cooperation, and applying ecosystem management and landscape approaches within the KSL.

vii Strengthen and promote capacity building at national to local level for supporting and enabling community-based approaches to effectively institute participatory ecosystem management at the landscape level within the KSL

viii Institutionalise and mainstream national participation in regionally cooperative approaches, and encourage institutional ownership, including participation of national and community-based organisations, through facilitation and mobilization, to support the sustainability of KSLCI goals and achievements in the long-term.

The following **mechanisms** will be established, to achieve the goals and objectives of the KSL-Conservation Strategy, as facilitated by the KSLCI and ICIMOD as a regional node for transboundary and regional cooperation, through a consultative and participatory process:

i A regional forum will be convened, for the discussion, facilitation, and implementation of the KSL Conservation Strategy (within the context of the KSL-

RCF), facilitating enhanced regional cooperation, in support of the KSLCI and its goals and objectives. A nodal institute will be identified by each country, and participation will include stakeholders relevant to transboundary ecosystem management, as per discussion and consensus of the Parties. This process will be supported by a internet-based knowledge sharing and discussion platform.

ii A regional network will be established for the facilitation, and implementation of the KSL Conservation Strategy(within the context of the KSL-RCF), and the associated goals and objectives of the KSL-CEMP, facilitating enhanced regional cooperation for environmental monitoring and long-term ecological [and sustainable development] research.

iii A regional knowledge, information, and data exchange platform will be established for the facilitation, and implementation of the KSL Conservation Strategy (within the context of the KSL-RCF), and the associated goals and objectives of the KSL-CEMP, facilitating enhanced regional cooperation for environmental monitoring and long-term ecological research.

iv Regional capacity for transboundary biodiversity conservation, environmental monitoring, and ecosystem management will be enhanced as appropriate, as regional, to national and local levels, as facilitated and implemented by the KSLCI and other similar efforts.

v Regional collaborations for ecosystem management will be encouraged through awareness and fund raising activities, at the local, national, regional, and international level, as facilitated by KSLCI, ICIMOD, UNEP, and the respective Country Partners, within the context of the KSLCI and KSL-RCF process.

The KSL-CS is the central component and core document outlining the goals and aims of the KSLCI. The KSLCI is envisioned as a long-term conservation initiative and has been designed according to a programme cycle of phased implementation and a long-term strategic approach for attaining sustainability and effective conservation. Based upon this strategy document, the KSLCI will move forward to implement a set of recommendations for applying transboundary ecosystem management approaches in the KSL. In order to move forward with full implementation, the next phase of the KSLCI will develop Implementation Frameworks identifying and developing the institutional networks and policy structures required for implementation, and will develop detailed workplans for implementation, at both the national and regional level. This will be done through a participatory and consultative process that facilitates the development of institutional networks at the national and regional level, within the context and policy enabled environment of the KSLCI and the KSL-RCF. The capacity of national and local partners for planning and implementation of KSLCI activities will be enhanced and regional networks developed.

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Introduction

Background

The Kailash Sacred Landscape Conservation Initiative (KSLCI) aims to promote transboundary biodiversity and cultural conservation, ecosystem management, sustainable development, and climate change adaptation within the Kailash Sacred Landscape (KSL). The KSL complex covers an area of 31,175 sq. km, of which about 10,843 sq. km (34.7% of total area) is in China, 13,289 sq. km (42.5%) is in Nepal, and 7120 sq. km (22.8%) is in India. The KSL transboundary landscape spreads across a vast region that includes an area of the remote southwestern portion of the Tibetan Autonomous Region (TAR-China) in China that is the source of four of Asia's most important rivers - the Indus, Karnali, Bhramaputra and Sutlej - and encompasses contiguous areas of northwestern Nepal, and India which have been historically linked and are ecologically and culturally inter-connected. At the heart of this landscape lies the sacred Mt. Kailash, revered by millions of people in Asia and throughout the world.

Mt. Kailash (a.k.a Mt. Kailas) is known, and officially referred to, as *Gāngrénbōqí Fēng (*冈仁波齐峰) in Chinese. It is also referred to as *Kailāśā Parvata* (kEelaz pvRt) in Sanskrit (with similar names in Hindi and Nepali, and other related South Asian languages), and revered as *Khang Rinpoche* (□□□□□□□□□□□□□□□) among Tibetans.

The KSL target area is comprised of a wide range of biophysical and sociocultural conditions, and is considered to be amongst the most revered sacred landscapes of the world. The spiritual and sacred values of this landscape attract tens of thousands of pilgrims every year. It is also amongst the world's most biologically rich, diverse and fragile environments. The region and its people are highly vulnerable to climate change and environmental degradation, as well as threats associated with on-going globalisation processes and accelerating development. As a result, the rich and unique biological diversity, the many ecosystem goods and services, and the value-based cultural heritage of this landscape are severely threatened.

The KSLCI is a collaboration between partner institutions in China, India, and Nepal, with facilitation and support from the International Centre for Integrated Mountain Development (ICIMOD), the United Nations Environment Programme (UNEP), and German Technical Cooperation (GTZ). In consultation with the three countries (China, India and Nepal), the following broad objectives for the KSLCI were formulated:

- Enhance cooperation among the regional member countries through the establishment of a Regional Cooperation Framework (RCF), development of a

strategy for the conservation of KSL, and developing a transboundary regional knowledge base;

- Increase collection of climate change data in the KSL and facilitate coordination among the various actors and stakeholders within the KSL landscape through enhancing transboundary collaboration in ecological and climate change monitoring and information exchange networks; and
- Recognise, and strengthen local capacity efforts for community-based participation in conservation and sustainable development, and enhance cultural-socio-ecological resilience.

The KSLCI, during the current eighteen–month initial preparatory phase (Phase One) has convened a consultative and participatory process to develop a transboundary Regional Conservation Strategy (KSL-CS) for the Kailash Sacred Landscape (KSL), as part of the process leading up to a Regional Cooperation Framework (RCF) for enhanced regional cooperation, through the coordinated efforts of national partners from China, India and Nepal, with technical support from ICIMOD and UNEP.

The development of this KSL-CS is based, and builds upon, the information developed in the KSL Country Feasibility Assessment Reports, and stakeholder consultation, and the KSL Regional Feasbility Assessment Report. The KSL-CS integrates with the Comprehensive Environmental Monitoring Plan (CEMP) which has been developed concurrently. National partners in each of the respective countries developed national-level KSL-Conservation Strategies through a consultative process involving local and national partners and other stakeholders. These three national-level Conservation Strategies have been summarised and compiled, with regional elements harmonised and synthesised through a consultative process led by ICIMOD to develop the regional transboundary KSL-CS.

The implementation of the KSL-CS will be based on the following four components:

- Transboundary biodiversity, environmental, and community-based conservation;
- Scientific and technical cooperation;
- Information exchange and sharing;
- Regional guidelines and policy mechanisms.

The consultative process for developing the KSL-CS was conducted across different levels of governance, focussing on the assessment of available information and data, as compiled during the Feasibility Assessment, and the issues highlighted in the associated

gap analysis and needs assessment. This includes biophysical, cultural, and livelihood dimensions (social and institutional) and identified conservation threats and priorities. The KSL-CS includes various aspects relating to environmental monitoring (i.e it integrates with the CEMP), the delineation of environmental management needs and approaches, as well as identifying the types of, or change in, current policies required for effective conservation of both biodiversity and the cultural landscape.

Considering the above, the development of the KSL-CS for the target landscape broadly includes:

- Analysis of the existing state of the target landscape (i.e., biophysical, sociocultural, governance, institutional mechanisms, and policy dimensions).
- Assessing threats and identifying priorities.
- Developing guidelines and specific strategies for conserving, maintaining, and promoting (i) biodiversity; (ii) cultural values; and (iii) eco-friendly sustainable and equitable development options.

Development of the Conservation Strategy included the following sub-activities jointly implemented by the partners in all of the three respective countries.

- Description of the KSL landscape, biodiversity, cultural heritage sites, and socioeconomic and livelihood dimensions, with precise delineation of boundaries based upon the KSL Feasibility Assessment
- Identification of significant threats to the biophysical and cultural landscape, biodiversity, genetic resources, and/or traditional ecological knowledge.
- Delineation of a set of conservation priorities and targets for biodiversity and cultural conservation
- Identification of conservation-friendly sustainable development options and ecotourism approaches.
- Development of guidelines and specific strategies for conserving, maintaining, and promoting biodiversity and ecosystem management, environmental health and ecosystem integrity, and maintaining healthy ecosystem functioning and provisioning services

- Development of general guidelines for maintaining the cultural/aesthetic qualities of the landscape, particularly with reference to tourist infrastructure, and infrastructure development in general.

The regional KSL-CS document synthesises the national-level Conservation Strategy documents developed by the respective national partners, as per the guidelines provided by the KSLCI, and as agreed upon by the partners.

Overview of the KSL Regional Conservation Strategy

The purpose of the KSL-CS is to initiate a planning process and build regional and national capacity for the conservation and sustainable development of the KSL, to meet the challenges of and provide capacity to respond to potential adverse environmental impacts associated with various on-going change processes (including climate change) within the KSL, and to facilitate and encourage regional knowledge sharing and transboundary cooperation for environmental conservation, with a focus on the conservation of biodiversity and cultural heritage. The KSL-CS will support landscape and ecosystem management approaches for biodiversity conservation and management, and regional cooperation based on better informed decision making, The development of the KSL-CS addresses the expressed concerns of the respective regional member countries for enhanced regional cooperation to better implement the CBD, UNFCCC, and UNCCD, as well as national-level environmental programmes, and to make progress toward sustainable development of the region. It is likewise intended that the adoption of ecosystem management approaches and long-term environmental planning within the KSL area, based on an improved knowledge base (as developed through the CEMP) will build capacity at local, national, and regional levels to respond to climate change impacts and provide a mechanism for the development and implementation of adaptation strategies that enhance the socio-ecological resilience of mountain communities while maintaining the integrity of the environment, conserving biodiversity, preserving ecosystem functioning and services, and maintaining the aesthetic and cultural integrity of this important cultural landscape.

The Conservation Strategy, both at the national-level and at the regional level, is intended to develop a network of institutions and build capacity to address significant changes occurring in the KSL, in the short, medium, and long-term. The Conservation Strategy, as a core component of the KSL Regional Cooperation Framework, is the document that will lay out the strategy and approach for applying ecosystem and landscape management approaches within the KSL in the longer term, that is, using a ten-year frame of reference with recurring review and adjustment, as well as addressing critical issues and pressing threats in the near and shorter term. Requisite policy and capacity building needs will be

delineated and described, along with a description of how these approaches will address imminent threats and priority needs through the implementation of the Conservation Strategy.

Among the major objectives of the KSL-CS, specific issues to be addressed include:

- To initiate regional and national-level planning processes, based on the data and information generated through the KSL Feasibility Assessment and stakeholder consultations, to build capacity and harness potential for the conservation and sustainable development of the KSL with the context of on-going and future change. The participatory and community based approach of the KSL-CI will seek to:
    i. Effectively accommodate emerging economic and environmental (including climate change) realities into conservation planning;
    ii. Provide research-based evidences for incorporation into policies and climate change adaptation strategies at local, national and regional levels.
- To maintain conservation goals in the landscape while giving due care to understanding dynamic interactions with human needs and cultural factors, so as to use development in the service of conservation.
- The adoption of ecosystem management approaches and long-term environmental planning within the KSL area, based on an improved knowledge base (as developed through the CEMP) and to build capacity at local, national, and regional levels to respond to climate change impacts and provide a mechanism for the development and implementation of adaptation strategies that enhance the socio-ecological resilience of mountain communities.
- To develop a transboundary network of institutions in order to build capacity to address issues associated with ongoing changes in the KSL, and to facilitate regional monitoring in particular.

Basic Guiding Principles

During the initial stages of the KSL-CS development process, and within the KSL Feasibility Assessment, it was noted that the KSL-CI should take note of the pertinent provisions of, and the principles enshrined in the relevant global, regional and national and sub-national environmental and developmental legal instruments, strategies and programmes. Since portions of the area delineated for the KSL are remote and / or in a legally pluralistic area, and predominantly inhabited by local, rural, tribal and indigenous communities, it is likewise pertinent to take into consideration the local and customary laws of the communities, whose lives are governed in many aspects by these laws and local institutions.

It was further noted in the KSL Feasibility Study that the KSL-CS process, specifically being developed to enhance transboundary cooperation for conservation and sustainable development within the framework of the KSL RCF, should learn from similar initiatives and other models of regional cooperation established in the past. In this light, the following basic principles, enshrined in earlier transboundary efforts was considered as a basis for discussion:

- The precautionary and prevention principles
- The 'polluter pays' principle
- Public participation and stakeholder involvement
- Transboundary cooperation
- Integrated and spatial planning, and management of land and water resources
- Programmatic approach
- Ecosystem management and transboundary landscape approach

While undertaking spatial planning and programming special attention should be paid to:

- Transboundary transport, energy and telecommunications infrastructure and services
- Conservation and sustainable use of natural resources
- Coherent town and country planning in border areas
- Preventing cross-border impact of pollution
- Integrated land use planning, and environmental impact assessments

Additionally, as initial input into the KSL-CI process, the following guidelines, or principles, were identified by partners during the *KSL First Regional Workshop* held in Almora, India in mid-April 2010.

- The principle of respecting sovereignty
- The principle of following the laws and regulations of the respective member country
- The principle of equality and mutual benefit
- The principle of sustainable development
- The principle of supporting and serving development of local communities

Transboundary Ecosystem Management Approach

Enabling the application of a ecosystem management is the basis for regional and transboundary approaches to conservation. The ecosystem approach is 'a strategy for the

integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way.' It places 'human needs at the centre of biodiversity management' (CBD). Furthermore, 'it aims to manage the ecosystem, based on the multiple functions that ecosystems perform and the multiple uses that are made of these functions.' The ecosystem approach does not aim for short-term economic gains, but aims to optimise the use of an ecosystem without damaging it. UNEP defines ecosystems management as, 'an approach to natural resource management that focuses on sustaining ecosystems to meet both ecological and human needs in the future.' It further states that, 'ecosystem management is adaptive to changing needs and new information. It promotes shared vision of a desired future by integrating social, environmental and economic perspectives to managing geographically defined natural ecological systems.' Another definition commonly used by UNEP for Ecosystem Management is that it is 'an approach to maintaining or restoring the composition, structure, function and delivery of services of natural and modified ecosystems for the goal of achieving sustainability.' It is based on an adaptive, collaboratively developed vision of desired future conditions that integrates ecological, socioeconomic, and institutional perspectives, applied within a geographic framework, and defined primarily by natural ecological boundaries.'

Process for Developing the KSL Conservation Strategy

The overall Conservation Strategy development process followed a common approach to develop a transboundary framework for conserving, maintaining, and promoting biodiversity through ecosystem and landscape management approaches, and maintaining and promoting the aesthetic and cultural integrity in the KSL.

- Each of the country partners developed and outlined a country-level Conservation Strategy for their respective areas of the KSL, based upon the set of working guidelines which were agreed upon through a process initiated at the First KSL Regional Workshop held in Almora, India in mid-April 2010.
- Country partners considered, discussed and tentatively agreed upon the aim, scope and basic parameters of the Conservation Strategy during the First Regional Workshop at Almora, and agreed to a process, timeline, and way forward to facilitate joint and interactive collaborative development.
- A draft Conservation Strategy for the each country within the KSL was presented for discussion at the Second Regional Workshop, held in September 2010 in

Juizhaigou, China. Country partners agreed upon the approach to compile and harmonise the individual country's Conservation Strategy into a draft KSL-CS.

- A iterative, participatory and consultative process was facilitated by ICIMOD to synthesise and develop the final draft of the KSL Conservation Strategy, presented for agreement at the Third Regional Workshop, held in Kathmandu, Dec 2010.

- The concurrent CEMP development process focuses on environmental monitoring and ecological research, but should also be seen within the context of the KSL-CS, and should be fully integrated with the KSL-CS, both in terms of monitoring and evaluation of KSL interventions, but also in terms of targeting and identification of approaches, planning, and implementation of the KSL-CS.

Implementing organisations:

- In China, the KSL-China Conservation Strategy was prepared by the Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences as lead institute, in collaboration with the China Tibetology Research Center, the Kunming Institute of Botany, Chinese Academy of Sciences, and the Institute of Tibetan Plateau Research, Chinese Academy of Sciences.

- In India, the nodal ministry, the Ministry of Environment and Forests (MoEF), Government of India (GoI), having agreed with the project objectives, designated the G. B. Pant Institute of Himalayan Environment and Development (GBPIHED) as the Lead Institute. The Wildlife Institute of India (WII) and Uttarakhand Forest Department (UKFD) were identified as major national partners.

- In Nepal, the Ministry of Forest and Soil Conservation, and the Nepal KSL Executive Steering Committee commissioned Tribuhvan University as the Lead Institute to coordinate and prepare the Feasibility Assessment, in collaboration with the GOI Ministry of Environment, Dept. of Forest, Dept. of National Parks and Wildlife, Dept. of Plant Resources, Dept. of Hydrology and Meteorology, and the National Agricultural Research Council.

- The individual country Conservation Strategy reports were summarised and synthesised by ICIMOD to prepare this current summary document, i.e. the KSL Regional Conservation Strategy, which, among others, also includes identification of gaps and future priorities for action in the KSL. The document refers to and is wholly based upon the Country Conservation Strategy Reports, and associated studies, submitted by each of the three countries. This Regional Conservation Strategy is not all-inclusive or comprehensive in reporting national Conservation Strategies, but instead is focused on the regional aspects and transboundary, dimensions, and opportunities for enhanced regional cooperation which will strengthen national efforts. All references to secondary and original data and information is based on the Country Conservation Strategy Reports, plus the KSL Country and Regional Feasibility Reports which have been freely used to compile,

summarise, synthesise, and report. The reader is referred to these documents for the description of the respective Country Conservation Strategies, which are the source of information reported here.

Description of KSL and Current Status

Delineation of the KSL Target Landscape

A primary objective of the first phase of the KSLCI, and in particular, the Feasibility Assessment, was the delineation of the KSL target landscape by the partners. The delineation of the KSL target landscape is described within the KSLCI Target Area Delineation Report. This was based upon a participatory and iterative process by the national partners in consultation with all major stakeholders, and was based upon conservation priorities, existing constraints, ecosystem management criteria and relying on a detailed geospatial analysis of the region. The final delineation, provided by the three country lead partners, was merged to provide the final regional (i.e., transboundary) KSL boundary. The KSL boundary outlines the KSLCI target area, and is the geographic focus of the Country and Regional Conservation Strategies.

The KSLCI target area (i.e. the KSL) spreads across a transboundary area at the tri-juncture of China, India and Nepal, covering 31,175 km2 of highly diverse and rugged terrain. The region extends from 79° 49′ 26″ E longitudes to 82° 26′ 54″ E and from 29° 18′ 23″ N to 31° 12′ 42″ N latitudes. The KSL spans a steep altitudinal range, from approximately 369 m to 7678 m, with more than 63 % of the total area above 4000 m, and 74 % above 5000 m. Likewise, almost 16% of the area is below 2000 m and more than 25% is below 3000 m. The area includes portions of Pithoragarh District (most of the district) and Bageshwar District (a small part) in India; almost all of Burang (Pulan) County in TAR-China; and portions of Humla, Bhajang, Darchula, and Baitidi Districts in northwestern Nepal. Over a million people are estimated to live within this area, although most of this population is in India and Nepal, with very low population densities at high elevations on the Tibetan Plateau (i.e. within KSL-China).

Overview of the KSL

The KSL exhibits great variability and heterogeneity geographically, and culturally, covering at least four major geological and physiographic zones, from the Lesser Himalayan zone in the south (most inhabited), through the Greater Himalayan Zone, the Trans-Himalayan zone, and onto the Tibetan Plateau (least inhabited). The terrain comprises a complex physiography which includes steep river valleys and lesser Himalayan Ranges leading up to the Tibetan Plateau. The KSL includes, among other bio-climatic zones, hot and semi-arid regions (in the southwest); lush green and humid valleys in the mid-hills and mountain subsistence farming; extensive mountain forests; moist alpine

meadows; remote and arid trans-Himalayan valleys with irrigated highland agriculture; high altitude grasslands and steppes; and extensive areas of permanent snow and ice. Almost 20 % of the KSL area is estimated to be under some form of forest cover, with more than 27 % classified as rangeland, i.e., various types of grasslands and open shrub, and an additional 18 % as bare or uncultivated fallow. Almost 15 % of the area has been classified as under permanent snow or ice. The landscape contains a highly diverse array of ecozones, ecosystems and biomes, endangered and endemic species of flora and fauna, and local cultures and ethnic communities. There are several protected areas of various categories with the circumscribed area of the KSL, including the newly-gazetted Api Nampa Conservation Area in far western Nepal, the Askot Wildlife Sanctuary in India, and the Lake Manasarovar Ramsar Wetland Complex in China.

The Kailash Sacred Landscape is situated within the Hindu Kush-Himalaya which is recognised as a global 'biodiversity hotspot' with large numbers of endemic and endangered species under acute pressure from environmental change and human activities. The KSL comprises a highly diverse array of mountain biomes and rich biodiversity. It includes many regionally and globally significant sites, as well as locally important protected areas which are home to many endangered and endemic species of flora and fauna. The prevailing physiographic diversity and unique biogeographic location of the landscape at the juncture of Eastern and Western Himalaya, and with substantial representation of Trans-Himalayan and Central Asian-Tibetan Plateau conditions, provides ample opportunities to exhibit richness, representativeness, and uniqueness of biodiversity components at different levels (i.e., genetic to ecosystem). While the landscape, by virtue of its special position in east to west (longitudinal) Himalayan transition, shares biodiversity elements of both east and west Himalaya, it represents diversity of communities/ assemblages across the wide vertical transition (<400 to >6000 masl). Broadly, the landscape falls in two ecozones (Indomalayan and Palearctic) and represents seven major ecoregions: (i) Himalayan Sub-tropical pine forests; (ii) West Himalayan broadleaf forests; (iii) West Himalayan sub-alpine conifer forests; (iv) West Himalayan alpine shrubs and meadows; (v) Trans-Himalaya alpine shrub and meadows; (vi) Western Tibetan Plateau alpine steppe; and (vii) Gandise Mountains alpine tundra. However, a good representation of the elements from the Himalayan sub-tropical broadleaf forest ecoregion is also reflected along the valleys towards the southern extreme of the landscape.

As in biodiversity, the KSL is extremely rich in sociocultural milieu and transboundary historical linkages. The people of this landscape share several commonalities including the worship of Mt Kailash as a sacred mountain. The KSL, spread across the three countries (India, China and Nepal) at this tri-junction, provides contiguous habitat to threatened high altitude fauna such as snow leopard (*Panthera uncia / Uncia uncia*) and its major

prey, the blue sheep (*Pseudois nayaur*). The proposed KSLCI aims to provide an impetus to conserve this rich and unique landscape along with its key elements including vulnerable ethnic communities and cultural heritage. These attributes, and many more, have identified the KSL as a high-priority 'Transboundary Landscape' area requiring an ecosystems management approach, and have highlighted the urgent need to promote transboundary biodiversity and cultural conservation, ecosystem management, sustainable development, and climate change adaptation in this biologically and culturally rich, highly revered, and extremely vulnerable region.

The KSL Country and Regional Feasibility Assessment Reports provide a detailed and in-depth summary of the physical, biological, socioeconomic, and cultural characteristics of the KSL.

Resource Status, Environmental Degradation and Cultural Integrity

Among the major drivers of environmental degradation and cultural disintegration in the KSL are climate change, globalisation, on-going developmental activities, particularly as pertaining to transport and other infra-structure, population growth, and unsustainable natural resource extraction. The major existing and emerging environmental degradation issues are primarily associated with ecological fragility, deforestation, unsustainable resource extraction, poor management of natural resources, and poverty. The cumulative impacts of these threats result in accelerated loss of biodiversity and/or environmental degradation. Other important issues include changing cultural norms and out-migration from these mountainous areas.

It is worth emphasising that despite significant threats to the cultural integrity and ecosystems of the KSL target area, the loss of cryosphere, degradation of rangelands and forests, and threats to biodiversity, a significant portion of this landscape is intact. So is the case with sociocultural harmony, although recent civil conflict in KSL-Nepal has had a significant impact in that region. Therefore, with careful planning following an integrated landscape approach, it seems quite feasible, if not imperative, to restore the degraded ecosystems and revive, reinforce or improve traditional knowledge systems, promote trans-boundary cooperation and generate awareness among local communities for biodiversity conservation, sustainable development and adaptation to future climatic changes.

Major Degradation Trends In Land, Water and Human Environment

Climate Change, and Cyrosphere: As elsewhere in the Himalaya, the glaciers of the KSL appear to be retreating at a rapid rate, with larger glaciers fragmenting into smaller glaciers. Gurla Mandhata (in KSL-China) is the highest glacier (6050 masl.) documented to be losing mass annually. On-going climate change related processes of glacial fragmentation and retreat will have a profound effect on downstream availability of water

resources in the target landscape and beyond. The natural vegetation of this high altitude cold arid region is extremely sensitive to climate change, especially to change in annual precipitation. During the last 20 years, the annual air temperature of the KSL-China region has increased by 1.2 C°, while the annual precipitation decreased by about 50 mm (average annual precipitation is 200 mm), with increasingly erratic variability. Both decreasing precipitation and increased evapotranspiration has exacerbated drought in the region and grassland degradation. While some lakes are shrinking, some glacial lakes maybe increasing in size with potential for catastrophic outbursts. Barren lands are increasing on the Tibetan Plateau portion of the KSL. Melting of permafrost in these regions may have uncertain effects on water resources and carbon cycles.

Water Shortages: Throughout the KSL there can be seasonally severe shortages of water (both drinking and irrigation). How far this shortage of water in the landscape can be attributed to being a consequence of extensive deforestation or climate change is uncertain. In particular in KSL-India, it appears that the discharge of springs, which are a primary source of drinking water in rural areas, is decreasing and by general perception some have even disappeared or become seasonal.

Deforestation, Degradation, and Landuse Change: Deforestation, even more so, forest degradation, is observed very frequently in all districts in KSL-Nepal, and in KSL-India. Habitat loss in the midwestern and farwestern Himalayan subalpine conifer forest is severe, with over 70% of the natural vegetation estimated as lost. Broadleaf and sub-tropical vegetation is also severely affected and subject to high resource use pressure. Reduction in precipitation, droughts, and forest fires have added to the problem of deforestation and degradation.

Farming Systems: The following trends of degradation are apparent with respect to mountain farming systems in KSL-India and KSL-Nepal: (i) decreasing net sown area; (ii) predominance of wasteland; (iii) declining agricultural production; (iv) declining soil fertility, and erosion and nutrient leaching through run-off; (v) increasing scattered and small land holdings; (vi) crop damage by wild animals; (vii) declining number of land races and traditional varieties; (viii) change in land use of agricultural land, particularly to residential areas; and (ix) the abandoning of agricultural fields by out-migrated farmers.

Livestock Production: For livestock production and diversity, the landscape shows the following trends of degradation: (i) increasing number of less productive livestock; (ii) increasing demand for fodder and consequent seasonal shortage of green fodder; (iii) declining number of land race/breeds, the introduction of exotic breeds; and (iv) a decrease in available grazing lands. Over-grazing, and increased productivity and population, have caused grassland degradation, desertification, soil erosion, water loss, loss of arable lands to landslides and soil movement, and the loss of biodiversity.

Increased goat-rearing for cashmere production poses a severe threat to the alpine ecosystem, especially for steppe and sparse meadow types.

Water Pollution and Waste: Household discharge and effluents are a major cause of water pollution in and around settlements. Lack of wastewater treatment results in direct discharge of such wastes into freshwater systems. Overcrowding of houses in the few towns and cities have contributed to the degradation of aesthetics, land and environment in the landscape. Among the associated problems, the increasing issues of safe disposal of garbage (non-biodegradable in particular), sewerage systems and safe drinking water are notable.

Climate Change Vulnerability: The existing poverty of local communities, and the mountain specific attributes, such as remoteness, poor infrastructure, difficult transportation, poor educational and health facilities, lack of livelihood options, and the influence of modern lifestyle changes have made the indigenous communities of the landscape extremely vulnerable. In the face of global climate change, the landscape, people, and biodiversity are likely to face acute threats towards their sustenance and sustainability.

Degradation of Natural Vegetation and Habitat

Conversion of Forest Land for Development Activities: There is pressure on forest land for development activities such as rural infrastructure (roads, electricity, water supply, hospitals, schools, etc.) and also for heavy development activities like hydro power projects, and mining and irrigation projects. These projects, although required for the development of the community, take a heavy toll on some forest areas and the associated biodiversity, and can fragment the contiguous forests and habitat areas.

Unsustainable Timber Extraction: In KSL-Nepal, the forests are rapidly being destroyed for various purposes in all districts, and timber harvesting for export is of major of concern. A large amount of this timber is cut in high altitude slow growing sub-alpine forests along the northern frontier of KSL-Nepal, and is supplied mainly to TAR-China, where there is considerable demand, and also to India. The high demand timber species are Abies spectabilis and Taxus wallichiana; both species are government protected species.

Unsustainable Collection of Non-Timber Forest Products: The unsustainable extraction of non-timber forest products (NTFP's), medicinal and aromatic plants (MAP's) and other bio-resources, is of major concern. Although NTFPs are collected in small quantities for household use, a large quantity of NTFPs and MAP's are harvested for trade. The collection of Yartsa Gumbu (Cordyceps sinensis) has recently become a main economic activity for local communities. The large scale collection activity and high density of

collectors in alpine meadows result in heavy demand for fuelwood in addition to destruction of habitat.

Invasive Alien Species: Invasive species out-compete native species causing habitat degradation and ecosystem disturbances. The invasion of alien species particularly Lantana and Ageratina (*Eupatorium*), is found both on uncultivated waste lands and in the forest areas up to the lower-temperate zones, with significant impact on ecology and habitat value. Grazing lands in alpine and subalpine zones are being increasingly populated by non-palatable invasive species which is causing greater pressure on available land area.

Human – Wildlife Conflicts: Crop predation and other human-wildlife conflicts are frequent and pervasive issues. In particular, domestic livestock compete for rangeland resources used by wildlife. Livestock grazing and anthropogenic pressures in natural habitats has resulted in the depletion of various threatened species, notably musk deer, which are now restricted to a few isolated pockets. The status of mountain ungulates such as the blue sheep, Himalayan thar and goral is also of serious concern in the landscape. Resource use pressure on habitat and fragmentation of wild areas due to fencing, road construction and other development activities has resulted in leopards, bears and other wildlife frequenting villages and increasing the incidences of predation on domestic animals. Villagers often propose eliminating these animals rather than conserving them.

Tourism Impacts: Alpine areas, rangelands, and cultural heritage sites in the KSL are important tourism destinations. Tourism is contributing to degradation of in some sites through solid waste pollution, soil and vegetation trampling, and resource extraction. In addition, tourist infrastructure although generally currently lacking, may negatively affect aesthetic and cultural values. Many tourists, particularly pilgrims, harvest juniper and other woody shrubs to cook food at high altitude. In particular, the Mt. Kailash and Masasarovar areas show significant impact from the 70,000 or more visitors per year. There are issues of waste disposal, sanitation, and water pollution, and adverse impacts on the wetlands, as well as inappropriate and unaesthetic infrastructural development.

Forest Fires: Forest fires are a regular phenomenon in both KSL-India and KSL-Nepal especially in Chir and Blue pine forests, and take place due to the accidental or deliberate setting of fire. Fire can be a serious problem during drought years.

Encroachment of Chir Pine in Oak Areas: Over exploitation of oaks and other broadleafs for firewood and fodder, and grazing of understory, has promoted the degradation of these broadleaf forests and the invasion of Chir pines into previously oak forest areas.

Problems Due to Illegal Trade and Over-Exploitation of Natural Resources

Illegal Timber Trade: Illegal timber harvesting and export is wide-spread throughout KSL-Nepal, where more than 100,000 cu.ft. of timber is illegally supplied to TAR-China and India annually. There is weak enforcement of forest management in KSL-Nepal. This facilitates illegal and unsustainable resource extraction.

Cross-border Trade in Cordyceps and Other MAP's: Emergence of Yartsa Gombu (*Cordyceps sinensis*) and other MAP;s as lucrative resources from alpine and forest areas of the landscape has contributed to the disturbance of pristine habitats. Large scale camping and the subsequent impacts of human activities during the early growth season are negatively impacting the alpine ecology and threatening the survival of rare species, as well as occasionally resulting in clashes with the local communities.

Illegal Wildlife and Endangered Plant Trade: Poaching of wildlife and forest products has been fairly common in the landscape. Important sensitive faunal components, such as Himalayan musk deer, are declining in this region. Poaching of Himalayan musk deer, Asiatic black bear, snow leopard and the trade in medicinal plants such as Yartsa Gombu (*Cordyceps sinensis*), Salampanja / Pants Aule (*Dactylorhiza hatagirea*), and Atis (*Aconitum heterophyllum*) is reported to be particularly high.

Illegal Fishing: Prevalence of illegal methods of capture/poaching of fishes has resulted in the depletion of fish fauna. Common illegal fishing methods include the use of bleaching powder, poisoning by agave, blasting using gelatin sticks and use of electric current. These activities are quite dangerous as they not only kill large fishes but also damage all aquatic life (i.e, small fishes and other aquatic animals). Of the various species of fishes, deep-bodied Mahseer (*Tor tor)* and Golden Mahseer (*Tor putitora)* are threatened and vulnerable due to intensive dynamiting and may be further impacted due to upcoming hydropower projects unless adequate conservation measures are taken.

Socioeconomic Change and Cultural Heritage

Population Increase and Socioeconomic Change: Changes in population and livelihoods have been observed within the KSL in all the countries. The region is generally inhabited by poor subsistence farmers, transhumance and nomadic livestock herders, traders, with a few towns and small cities. In general, the region has poor infrastructure and is lacking in services, and has a high level of vulnerability caused by extreme remoteness, difficult terrain, high climatic variability, and adverse and/or harsh conditions. There is significant out-migration from this region, and remittances are an important livelihood source for local communities. In KSL-China, the population is very low, but more than doubled from 4000 in 1960. However, only 8839 persons were reported to be residing within KSL-China in 2008. Socioeconomic conditions also improved dramatically in KSL-China. From 2000 to

2008, gross domestic product (GDP) increased by an average growth rate of 15.4%. Net income per capita also increased almost 1.6 times. In KSL-India, the population increased 2.7 times from 168,477 in 1901 to 462,289 in 2001. In KSL-Nepal, population change between 2001 and 2009 revealed an annual population growth rate of 1.8%. In all, it is estimated that there are approximately one million inhabitants currently residing within the boundaries of the KSL.

Food Security: The KSL-Nepal region, although self-sufficient up until the 1960s, is a food deficit area and famines are common episodes. These areas receive regular and large amounts of food subsidies. The region has a high level of vulnerability caused by high climatic variability and poor infrastructure. Migration, primarily to India and other parts of Nepal for work, as well as also to China is a major and increasing trend. The overall health index (rank) of these districts is poor compared to other districts in Nepal. This area is comprised of the poorest districts in Nepal.

Cultural and Historical Linkages: The closing, or restriction, of the trade link between KSL-India and KSL-China, and socioeconomic changes and restrictions on border trade between India and Nepal, has adversely affected the traditional system of trade, migration and livelihood of the people of this region. In recent years the fast-changing political and economic environment has severely impacted upon the cross-border cultural integrity.

Traditional Cultural Values: Although in most parts of the landscape traditional cultural values still prevail and act as a guiding force for environmental protection, this system is fast deteriorating particularly in areas/communities having access to modern infrastructure and lifestyles. The traditional beliefs and rituals, which were so intimately related with the management of the ecosystems, now only exist in remote villages. The institutions of sacred groves, forests, pastures and sacred water bodies, along with the strict norms and taboos that relate to resource utilisation and to sustainable resource management concepts, are rapidly losing ground.

Outmigration and Cultural Change: While migration from higher Himalayan villages has been prevalent for the last four to five decades, in recent years the landscape has experienced migration even from valley areas with good agriculture, to smaller towns - particularly for the education of children. This trend is contributing to the decline in agriculture in some of the valleys, and is increasing pressure on small towns were never planned to accommodate large populations. The cultural landscape has experienced significant change in sociocultural values. The changing lifestyles and priorities of the younger generations has resulted in a declining interest in traditional value systems and pre-existing cultural norms.

Conservation Imperatives and Priorities

Key Challenges

Defining conservation targets

Given that the target landscape is remote, highly heterogeneous both topographically as well as biologically, and has a high degree of uncertainty about the status of its natural resources (including biodiversity, land, and water) because complete inventories are yet to be made, defining conservation targets is a fundamental challenge.

Considering the heterogeneity in biophysical conditions and strong variations in the relationship between people and nature, particularly along the wide altitude/climate range of the landscape, social and ecological values manifest at different scales. Therefore, the successful negotiations of conservation trade-offs will come with reasonable attention to political, social, economic and ecological dynamics at multiple spatial and temporal scales, and are critically dependent on interaction across these scales. A in-depth understanding of resources and their linkages with human needs and aspirations within the KSL context is still to be developed, and the lack thereof poses a major challenge to be considered while defining conservation targets at the regional scale. Especially within the regional, transboundary context, it is important to understand and take into consideration the nature of variations in institutional and socio-ecological settings.

Understanding conservation and development trade-offs and synergies

A key challenge is to effectively implement a sustainable and biodiversity-friendly approach to development in the service of conservation. This implies including human welfare targets in the planning and evaluation of conservation efforts. Human activities play an important role within the KSL, and cannot be ignored or marginalised. For the effective implementation of a sustainable development approach, there needs to be an improved understanding of how human activities affect the ecosystem (i.e, goods and services), and how those activities can be implemented in a sustainable manner for the long-term conservation of biodiversity, and the welfare and improved livelihood of local communities.

Within this context, amongst the most daunting challenges to understand and address is the ongoing process of rural transformation within the region, which includes rapidly disintegrating (i) socio-cultural value systems; (ii) indigenous knowledge and practices; and (iii) local institutions. This has led to: (a) extensive migration from remote rural areas to urban centres within and outside the landscape, and resulting in growing social and

environmental issues ranging from changes in landuse to health and hygiene; (b) a loosening of linkages of inhabitants with natural resources resulting in a deteriorating state of resource protection; and (c) the erosion of genetic resources, especially from traditional farming systems.

Building participatory conservation alternatives

In view of the above and considering more inclusive notions of conservation and sustainable use, finding new or strengthening existing forms of community participation and local governance of natural resources has emerged as a key challenge. While not delaying or neglecting the urgency of conservation and the protecting of resources, this implies exploring alternative and more participatory ways to reach conservation objectives in order to seek sustainability. Both across the globe and regionally, participatory approaches have been found to represent a reliable and widely accepted complementary modality to operationalise conservation efforts.

Incorporating climate change adaptation and mitigation dimensions

Climate change is of great concern within the KSL. Considering that global warming and climate change is of considerable concern within the region, with impacts projected to be substantial within mountain ecosystems, it is imperative to fully integrate climate change into the conservation framework. Given our current understanding of the impacts of climate change on biodiversity, habitat distribution and mountain agriculture, such an integration requires an improved knowledge base to allow for scientific management approaches and the development of appropriate adaptation approaches. Future biodiversity research and conservation strategies face the challenge of integrating spatially and conceptually these increasingly more dynamic aspects of the environment at the landscape level. Likewise, climate change adaptations strategies should fully incorporate priorities for biodiversity and the recognition of the rights and opportunities for the involvement of indigenous peoples and local communities.

Maintaining the integrity and sacredness of the landscape while promoting livelihood diversification and ecotourism

Tourism has great potential for alternative livelihood and livelihood diversification in the KSL However, increasing numbers of tourists in this fragile and remote region can have significant impact on both the biophysical as well as cultural integrity of the landscape. Maintaining the sacred and aesthetic values of the area while promoting a environmentally and cultural sustainable development approach will require active participation by local communities, and sensitivity to these intrinsic values by conservation, landuse and development planners.

Conservation of traditional knowledge

Local culture, traditional knowledge and indigenous religious belief play a key role in bio-resource utilisation, biodiversity and culture conservation and socioeconomic development. The KSL is a culturally diverse area of comprised of a variety of ethnic and religious traditions. Religion is a deep-rooted belief among the people binding them together to perform community activities and in the preservation of cultural identity and resources. However, traditional knowledge is highly threatened by the impacts of globalisation and modernisation. Traditional knowledge on ethnobotany and ethnomedicine has eroded, and genetic diversity is likewise threatened. It is important to document and conserve local indigenous and traditional knowledge.

Recovery of degraded ecosystems and threatened biodiversity

Substantial areas of forest, agricultural land, rangelands, and various ecosystems within the KSL are degraded, due primarily to over-grazing and/or other overexploitation of resources. Likewise, human activities have impacted biodiversity and wildlife habitats. For effective KSL conservation, the rehabilitation of degraded ecosystems as a basis for biodiversity conservation are imperative for the long-term sustainability (and recovery) of the landscape.

Development of a functional regional network of institutions

Realising the immediate and urgent need to address the challenges outlined above, synergising resources of various organisations to establish a functional regional network of institutions in the landscape will be a challenge, but is required to implement a tranboundary ecosystems management approach.

Key Threats

Threats to Ecosystems

Climate Change: Mountains and mountain ecosystems are fragile, and especially sensitive and vulnerable to climate change. Impacts on ecosystems from rapid and accelerating warming, changes in precipitation and seasonal timings, and increased climatic variability are uncertain, but can include the melting of glaciers and snowpack, with large and significant downstream impacts. Further, these changes are likely to have significant impacts on biodiversity, farming systems, and ecosystem productivity.

Forest Loss and Degradation. Among the main threats to ecosystems in the KSL region is habitat loss. Forests are under increasing pressure from human population for fuelwood,

illegal harvesting of timber and other forest resources, livestock grazing, and poaching of animals for high value products for regional and international markets.

Rangeland Degradation. There are enormous pressures on rangeland ecosystem due to high grazing pressure, and overharvesting of medicinal herbs. Most rangeland ecosystems are located in high mountains and arid, cold regions which are fragile, highly vulnerable to climate change and susceptible to degradation. Rangeland degradation, desertification and subsequent reduction of rangeland capacity is evident, especially upon the Tibetan Plateau portion of the KSL.

Wetlands and Riverine Habitats. Wetland ecosystems in the KSL include rivers, lakes, and substantial areas of high altitude and seasonal wetlands. Rivers are under threat from siltation and poor watershed management. Lakes and other wetland areas in high mountains are under pressure from grazing and other uses, as well as climate change. Water pollution and solid waste are affecting the environment of some district headquarters and municipalities, as well as being an emerging issue for the Manasarovar Ramsar Wetland Complex in particular. In the recent years, wetlands are facing the increasingly severe effects of grazing, with associated declines in biodiversity and productivity.

Protected Areas. There are conflicts and threats that affect the PAs in the KSL region. Khaptad National Park and Api-Nampa Conservation Area have been facing threats due to year-round grazing inside the park; the poaching of musk deer for musk glands, black beer for bile and red panda for fur; as well as illegal timber and fuelwood harvesting. There is inadequate management of the protected areas and their buffer zones due to limited resources (human and financial).

Tourism Development: Each year, thousands make the pilgrimage to Mt. Kailash. Visitors to this region exceeded 70,000 persons in 2007. Increasing tourist numbers will impact on the natural environment in the KSL region, especially around Mt. Kailash and the fragile Manasarovar Wetland Complex, which is the destination for most pilgrims and visitors to the area.

Loss of Biological Diversity

Over-exploitation of Plant and other Bio-Resources: Biological resources are over-exploited particularly those from national forests, common grazing areas, and highland pastures. Protected areas are also under pressure from adjoining communities as well as traders from outside. The KSL region provides a large amount of medicinal and aromatic plants, mainly from subalpine and alpine areas, fibre yielding plants from mid-altitudes, and other NTFPs from lower altitudes. Timber harvesting has been high to meet the

demand of locals as well as the people living in the adjoining areas of neighbouring countries. On-going harvesting in the KSL of both non-timber forest products such as *Cordyceps sinensis, Dactylorhiza hatagirea*, *Nardostachys grandiflora, Neopicrorhiza scrophulariiflora, Connamomum tamala, Morchella* species, and timber tree species (*Taxus wallichiana*, *Juglans regia*) is currently not sustainable. However, the collection and trade of high value NTFPs provides livelihoods for a large number of rural communities, and their over-exploitation is likely to continue in lieu of alternatives.

Threats to Faunal Biodiversity: The most critical threat to faunal biodiversity is habitat destruction, hunting and poaching. Threats to endangered animals are increasing due to the high commercial value in the local as well as international markets for specific animal parts. Several animal species occurring in the KSL region, such as musk deer (*Moschus chrysogaster*), snow leopard (*Uncia uncia*), Wild Yak (*Bos mutus*), and Himalayan black bear (*Selenarctos thibetanus*) are threatened.

Wildlife and Natural Habitat Loss: Wildlife and natural habitat loss is widespread and is largely due to landuse change, and forest and grassland degradation, and is exacerbated in some cases (notably on the Tibetan Plateau) by climate warming and decreased precipitation over the past five decades. Overgrazing, deforestation, illegal timber harvesting, and over-exploitation of bio-resources, as well as poaching, illegal hunting and increasing tourist numbers have accelerated biodiversity loss and on-going trends of ecosystem degradation in the KSL. Extension of noxious and toxic herbs into rangeland is common. Threats to the integrity of lakes and wetlands are mainly from human disturbance, grazing of livestock, conversion to agriculture, and climate change (and associated melting of glaciers and permafrost).

Loss of Genetic Diversity and Traditional Knowledge: Traditional agroecosystems and agrobiodiversity found within the KSL region are threatened by uncertain but predicted high rates of climate change. Loss of genetic resources, agrobiodiversity, and traditional knowledge has been accelerated by extensive migration from the various parts of the KSL, and by the adoption of modern cultivars and farming techniques. Other sources of pressure on genetic resources include ecosystem degradation, population increases, land use change, and climate change. Among processes driving the loss of genetic diversity is the transition from traditional agriculture into intensive agriculture in some portions of the KSL, with the introduction of improved cultivars and livestock breeds, while local landraces and traditional breeds, along with their associated traditional farming knowledge, are being abandoned. Given current socioeconomic pressures, it is impossible for ordinary farmers to conserve or preserve traditional landraces of plants (buckwheat, beans), or breeds, strains, and populations of domesticated animals.

Key socioeconomic, livelihood and cultural threats

Change in Economic Relations in the KSL: In the last few decades, the region has witnessed some unprecedented changes, especially in the form of livelihood strategies. After the drastic decline of the salt-grain trade, the social relations between the north-south people in terms of production that have supported these societies for centuries have started breaking down. Communities at different elevation zones were linked in the overall barter economic system. In the past, the relationship among communities extended beyond current international borders. People from both sides of the border would take their herds to pasturelands in both sides in different seasons. However, with the change in political system, access to such pasturelands has ceased as political boundaries overruled the centuries old ecological boundaries of resource-base and social boundaries of resource use.

External Linkages and Globalisation: Influences of globalisation and other external forces have impacted on the regional economy, including improved access (in some parts), imports of food into region, monetarisation of trade, high demand for bio-resources, and high levels of out-migration.

Poverty and Food Security: Widespread poverty remains a threat to the welfare, socioeconomic well-being, and cultural fabric of mountain communities within the region, especially in more remote parts. Within the KSL-Nepal region, food insecurity, associated with frequent drought and poor farming conditions, is a major issue

Climate Change: Impacts of climate change on farming and livestock systems is likely to have large and significant impacts on the livelihoods of mountain farming and pastoral communities. In particular, changes in the quantity and timing of precipitation and glacial melt runoff may impact on water resources for both agricultural, livestock, and household use and may be exacerbated by other landuse change, such as deforestation or desertification.

Threats to the Protection of Cultural Heritage

Outmigration and Socioeconomic/Cultural Change: On-going processes of outmigration, induced by poverty and lack of local opportunities, and other signs of cultural and social disintegration, undermine the integrity and sustainability of local cultural institutions. The cultural landscape has experienced significant change in socio-cultural values. The changing lifestyles and priorities of younger generations has resulted into declining interest in traditional value systems and pre-existing cultural norms.

Institutional and Administrative Contexts: Need for greater recognition of the important role of local and traditional institutions, and/or cultural norms, by national, provincial, or

local administrative or legal structures and arrangement in order to strengthen the role of mountain communities in the protection of their heritage, religious sites, and sacred landscapes.

Infrastructure Development: Inadequate infrastructure development is an impediment to economic development in the region, and is also required to meet the demands of increasing tourist numbers in the region. However, inappropriate, unplanned and unregulated development can threaten both the biophysical and cultural integrity of the landscape.

Tourism Development: Increasing tourism and tourism development may impact on the aesthetic and cultural integrity of this sacred landscape. Appropriate and culturally sensitive development is required to develop the potential for sustainable tourism, and to maintain the aesthetic and cultural values of the landscape.

Key Opportunities

Defining conservation targets: Conservation of the KSL through the KSLCI framework can provide the region with opportunities for managing the landscape and applying ecosystem management approaches for the betterment of mountain communities and the long-term sustainability of the KSL environment. The KSLCI process creates the opportunity for countries to define their conservation targets for the KSL, and to collaboratively identify important regional conservation targets.

Conservation of biological resources and livelihood improvement though wise use: Conservation and improved management of biological resources will promote greater choices, opportunities and options for local livelihoods. This may contribute to achievement of the MDGs, particularly poverty reduction, hunger, health and education and environmental related goals and targets, and the targets adopted by the CBD to conserve biodiversity.

Protection and promotion of unique and diverse cultural identity and heritage: The implementation of the conservation strategy will enhance the scope and enable the protection and promotion of the unique and diverse cultural heritage of the region. This may provide opportunities to identify and help develop mechanisms and institutions for the safeguarding of monasteries, temples, and other cultural monuments and artifacts. Likewise, local culture and traditional heritage is an asset of the region that can provide both stability and opportunities for sustainable livelihood diversification.

Protection of traditional knowledge: Traditional knowledge represents a valuable heritage for communities, and in some case for the region and the global community. The

traditional knowledge and practices developed and maintained by the inhabitants of the KSL region can be a strong community-oriented conservation tool in rangeland and forest management, for anti-poaching activities, NTFP harvesting, tourism regulation, and so on, as well as a important resource for climate change and agroecosystem adaptation.

Access and Benefit Sharing Mechanism: The global commitment towards the conservation of biodiversity as well as its importance is no longer questioned. However, there is a continuing controversy over the impact of IPR systems on the traditional knowledge of indigenous and local communities. A regionally acceptable regime for access and benefit sharing for the safeguarding of traditional knowledge has been developed covering all the regional countries which is applicable within the context of the KSLCI and the KSL-CS. Access to genetic resources and benefits sharing can be an important example in: (i) conservation of the knowledge, innovations, and practices of the indigenous communities who possess in-depth knowledge about the ecology and economy of plant species; (ii) emergence of network of institutions and governance structures that are essential for sustainable use of biological resources; and (iii) technology transfer including climate change adaptation and monitoring at the landscape level. Policies regarding the fair and equitable sharing of benefits from genetic resources have been only weakly addressed by countries in the region. This process in the KSL region will remain incomplete unless the social and economic wellbeing of people and governance issues related to the same are addressed at the landscape level among the regional countries.

Community-Based Eco-Tourism Development: Mt Kailash and itsenvirons, holy to five major religions and considered sacred by hundreds of millions of people in Asia, has been an important destination for religious pilgrims for hundreds of years. The opportunities for developing biodiversity- and eco-friendly, appropriate, and sustainable tourism in the region can be harnessed to develop alternative livelihood options for local communities. Tourism based on nature and culture is becoming increasingly popular among the three neighboring countries of Nepal, China and India. The KSL, with its remote, spectacular, unexplored pristine natural environments, and a diverse and colorful cultural heritage, has great potential to benefit from tourism. Ecotourism incomes should be used to support the conservation of bio-cultural diversity and enhance the socioeconomic status of local communities through social equity.

Tourism promotion and restoration of historical and cultural heritage trails: The tourism sector may develop as a major industry in the future. Demands for home stay in the villages and variety of hotels, lodges and restaurants are likely to increase. The potential also exists for developing opportunities such as mountaineering, rafting, wildlife viewing, bird watching, etc. International, regional and domestic visitors are likely to increase once the services and facilities are developed in the routes to Kailash-Mansarovar from Nepal

(Humla), and also from India if international crossings can be increased. Routes from other areas, such as Api Nampa, Khaptad and Rara National Parks in Nepal, and the *Nanda Devi Biosphere Reserve* in India could also be developed In particular, the restoration and development of historical heritage trails is a unique opportunity to conserve cultural heritage as well as aesthetic values in the landscape, and provide opportunities for eco-friendly tourism.

Regional cooperation: Regional cooperation for the conservation and sustainable development of the KSL region will provide opportunities to apply ecosystem management and transboundary landscape approaches to address issues that require regional or transboundary responses and solutions.

Regional knowledge sharing: Regional collaboration is essential to effective apply ecosystem management approaches, for the conservation of threatened species, and to regulate the use and extraction of bio-resources, such as medicinal plants. Analysis of best practice, the sharing of lessons in the conservation of biological resources, rangelands, agro-biodiversity, and other resources could lead to cross-learning between the regional countries. Sharing information with other parts of the world involved in conservation can help tackle issues related to sustainable growth.

Key Action and Priority Areas

The earlier KSLCI baseline documentation efforts and the Gap Analysis within the Feasibility Assessment have provided the base for outlining the matrix of key threats, factors/drivers, and priority actions needed for identified major sectors of the KSL region An overview of major threats and priority action areas from a regional standpoint was given in the Regional Feasibility Assessment, and is presented below. Priorities on biodiversity and environment, sustainable livelihood and transboundary issues were identified by each of the three respective countries in the KSL.

Biodiversity and Environment

Enhanced Biodiversity / Environmental Knowledge Base: There is a lack of data information on biodiversity, ecology, environmental conditions, and other important information required for conservation and science-based ecosystem management in the KSL. The development of an improved knowledge base for the KSL is a high priority. High priority areas include the establishment of climatic, environmental, and ecological monitoring (including permanent long-term ecological research sites), and in-depth information on threatened and flagship species of flora and fauna, including their abundance, distribution, auto-ecology and life history.

Biodiversity Conservation and Management: Species-specific conservation plans are important conservation tools that must be implemented on a high priority basis for the threatened and endangered species in the KSL. Threatened species of plants, besides *in situ* efforts for conservation of existing populations, require *ex situ* back-up for multiplication of individuals and subsequent introduction into natural habitats. The conservation of *Biologically Important Areas*, e.g. sites that support rare, threatened and endemic plants; *Key Bird Areas*; *Key Plant Areas*; and other type localities such as sacred groves need to be given the highest priority for conservation.

Rangeland Ecosystems: Improved understanding of rangeland ecosystems and their sustainable management is another high priority. This KSL environmental and ecological knowledge base should also function as the baseline for monitoring on-going changes in the landscape, as well as monitoring and evaluation of KSLCI activities and other interventions in the landscape.

Riparian Zones and Wetlands: Riverine and wetland habitats in the KSL landscape are threatened and vulnerable due to increased anthropogenic pressures. These habitats harbour a large number of species, particularly epiphytic orchids in the case of riparian zones, and also serve as important habitat and corridors for migratory birds.

Invasive Alien Species and Ecosystem Restoration: Control of invasive species, restoration of degraded habitats, stabilisation of landslide and eroded slopes, soil and moisture conservation works, especially on either side of newly constructed motor roads, restoration of mining sites and sites of upcoming hydropower projects, need to be undertaken on an urgent basis in order to conserve native flora and fauna.

Improving Productivity, Resilience and Adaptive Capacity of Mountain Agriculture: Support should be provided to enhance the resilience and adaptive capacity of agricultural production. To address the major threats to sustainability and agricultural biodiversity the following priorities were identified: (i) ensure the long-term sustenance of traditional forms of agriculture so as to maintain diversity of genetic resources and diverse practices of their cultivation; (ii) undertake the documentation of agrobiodiversity and the associated indigenous knowledge practices of the different community groups; (iii) communicate and transfer the benefits of modern techniques and tools to indigenous communities; (iv) retain agricultural land by reducing its conversion to other uses. The involvement of people in traditional agriculture to maintain their agricultural heritage and agro-biodiversity needs to be made rewarding both economically and ecologically.

Improving Management, Resilience and Adaptive Capacity of Forests and Rangelands: Increasing forest ecosystem resilience to perturbations (anthropogenic and natural) is a major priority. Programmes are required to increase diversity, to make appropriate

changes in silvicultural and rangeland management practices, and to incorporate effective soil and water management practices is required. Carrying capacity assessment, economic valuation and sustainable harvesting strategies for goods and services emanating from the forests and rangelands would help reduce pressure on natural ecosystems and would improve the quality of life for dependent communities. The development of a culture of continuous training and capacity building, experience sharing, and effective use of modern tools and techniques for increased participation of skilled human resources (including local communities) in vulnerability reduction is important. It is important to encourage landscape-level forest and rangeland restoration programmes to contribute to maintaining natural ecosystem processes and biodiversity values.

Ecosystem Restoration: Deforested areas, degraded rangelands, and drained wetlands evident throughout the KSL are in immediate need of improved management, and restoration. Strategies include addressing threats to ecosystem degradation, revising and upgrading protected area plans, preparing species-specific conservation plans, declaring and protecting *Biologically Important Areas* or *Conservation Areas,* and introducing improved rangeland and forest management.

Monitoring and Protecting Water Resources: Water resources, including glaciers, upper catchments, natural springs and groundwater need to be investigated, monitored, and where appropriate, included in effective protected area networks to restrict anthropogenic activities. Protection measures include maintaining springs and canals in a participatory manner; addressing personal and household sanitation issues including the safe disposal of domestic liquid and solid wastes; encouraging rainwater harvesting and aquifer recharge; catchment area management. Analysis of carrying capacity for watershed planning in the Himalaya for development interventions is imperative for the region. Small-scale hill irrigation systems should be developed and can be successfully managed and operated through the active role of farmers.

Recognising the Role of Ecosystem Services: There is an urgent need to incorporate ecosystem service values into development and conservation plans and programmes.

Sustainable Resource Extraction and Illegal Cross-Border Trade: Wildlife poaching, unsustainable harvesting of timber, NTFPs, MAPs, other bio-resources, and illegal cross-border trade, are significant threats that urgently need to be addressed as a high priority for conserving biodiversity and maintaining the integrity and ecosystem health of this landscape.

Strengthening Indigenous Systems of Natural Resource Management and Protecting Sacred Sites: Sacred value systems are an integral component in indigenous systems of

natural resource management. As such, the preservation and revival of existing socio-cultural value systems is considered a fundamental and essential component of resource conservation, and the need to protect, empower and/or revive such systems is considered a high priority. Guidelines are required to safeguard the sacred areas, groves and other conserved elements in the landscape, and promote traditional knowledge and conservation practices. Documentation of traditional systems of conservation and sustainable use should receive immediate priority.

Managing People-Park Conflict: Establishment of protected areas restricts traditional rights and the use of natural resources by local communities and invariably results in people-park conflict. Cases of human-wildlife conflict are also high in such instances. Such conflicts need to be addressed through significant and meaningful community participation and should be considered *a priori* when planning or executing conservation or development interventions.

Addressing Climate Change Impacts and Adaptation: Given the worrisome trends, and the many implications and broad array of impacts that climate change can have on biodiversity, ecosystems, the environment, and livelihoods for mountain communities and downstream users, planning for adaptation is amongst the highest priorities for this landscape. In particular, both sustainable development and environmental conservation should take into account the implications of climate change on biodiversity, agricultural production, and natural systems.

High Priority Action Points For Biodiversity and Environment

- Development and implementation of scientific management plans (landscape to community) with the participation of local communities. Coordination between different stakeholder and actors is essential to ensure long-term conservation goals in this landscape.

- Regular monitoring of endangered or indicator species/taxa and their habitats by the forest department, scientific institutions/universities, and local communities, to be carried out in a coordinated manner. Ensuring the integrity of the core zones / PAs / critical wildlife habitats for biodiversity conservation is crucial.

- The policy guidelines for sustainable livestock grazing need to be developed and adopted for this landscape, after appropriate consultation with the local communities.

- Management of wildlife-human conflicts to ensure local community support for conservation and help in protecting endangered large carnivores that suffer due to retaliatory killings.

- There is an urgent need to increase transboundary cooperation between India, Nepal and China to ensure habitat connectivity and protection of species populations from poaching due to illegal trade in wildlife.

Sustainable Livelihoods

Poverty Alleviation and Providing Alternative Livelihood Options: Communities throughout the KSL are economically poor and marginalised, so that poverty alleviation, enhancing social welfare, improving physical infrastructure, and developing income-generating skills and opportunities are required. Sustainable community-based tourism is one proposed alternative livelihood option. Other potential income generating schemes include the cultivation of high-value MAPs; off-season vegetable production in greenhouses; fish-farming; apiculture; and employment opportunities in development projects. Opportunities provided by the rich heritage of traditional farming systems, and the diversity of high-value medicinal plants and wild edibles need to be harnessed for optimal benefits.

Minimising Out-Migration: The historical migration from the higher hills and recent increasing trends of migration, even from agriculturally rich valleys, has long-lasting negative socio-cultural and environmental consequences. Improved rural infrastructure, educational facilities, skill building, vocational education and employment opportunities should be promoted through sustainable development of the landscape to curb this trend. Technological interventions for providing alternate livelihoods and income opportunities would help in retaining the able bodied youth in the landscape.

Food Security: The districts of KSL-Nepal face an acute food deficiency every year. Providing support for maintaining and/or developing agricultural production and agro-biodiversity is a major strategy for achieving food security in the landscape. Supporting technological interventions for agriculture and livestock production, including irrigation improvements, is a high priority for achieving food security; however interventions in the agricultural sector should not conflict with other ecosystem management priorities, such as conserving agro-biodiversity.

Improving Infrastructure Support: Road network, educational infrastructure and health services are on the priority agenda of indigenous communities. However, there is a need to keep the ecological and aesthetic considerations at the fore while framing such developments in the landscape. The KSL, through the KSLCI, provides an opportunity to become a prototype for ecologically sound infrastructure development initiatives in the Himalaya or elsewhere in mountains.

Traditional Knowledge and Heritage: The KSL is rich in traditional knowledge and heritage with reference to agriculture, natural resource use and conservation. It is essential that such traditional knowledge and heritage be conserved in the landscape. Ensuring Intellectual Property Rights (IPR) and Access and Benefit Sharing to genetic resources is an important priority among communities in the KSL. Traditional systems need to be strengthened and enhanced to provide continuing opportunities to poor farming communities to adapt to changing climate patterns and related ecological consequences.

Community-Based Sustainable Tourism: Tourism is considered a significant tool for alleviating poverty in the landscape. There are numerous opportunities for adventure tourism, nature tourism and cultural tourism in the landscape. These need to be developed and promoted for livelihood enhancement of local communities. Other priority issues related to tourism include tourism infrastructure, waste management, sanitation and hygiene, and capacity building. Appropriate protection, maintenance and restoration of religious, sacred and cultural sites is also a high priority to maintain the both cultural integrity and economic potential of cultural tourism in the KSL.

Climate Change Adaptation and Risk Mitigation: Communities in the KSL are vulnerable to climate risks and hazards, so that climate change adaptation and disaster mitigation are high priorities important for ensuring sustainable livelihoods. The proven adaptive capacity and risk reduction strategies of traditional agriculture and transhumance pastoralism needs to be strengthened and enhanced to provide continuing opportunities for poor mountain communities to adapt to changing climate patterns and related ecological consequences.

High Priority Action Points for Sustainable Livelihoods

- Poverty alleviation efforts, alternative livelihood options, value addition to products/services, and economic development of local communities living in this landscape, by various government agencies and NGOs is required to strengthen conservation, reduce natural resource dependency and restore degraded environments.

- Traditional agricultural and livestock production systems need to be strengthened and enhanced to provide continuing opportunities to poor farming communities to adapt to changing climate patterns and related ecological consequences.

- Appropriate community-based eco-tourism initiatives need to be initiated and supported by capacity and skill building, awareness raising, infrastructural development and organisation for community participation.

- Improving infrastructure support, road and/or improved trail networks, communications, educational infrastructure and health services are on the priority

agenda of indigenous communities. The KSL provides an opportunity to become a prototype for ecologically sound infrastructure and sustainable development initiatives in the Himalaya.

Cross-Cutting Issues

Awareness Raising: Raising awareness on biodiversity, livelihood issues, and the KSLCI goals and aims, from communities to the policy level, is necessary and an important part of facilitating the participatory process. Building community and national trust is an essential prerequisite to implementation of the KSLCI goals and activities, and thus a high priority.

Capacity Building: Capacity building of individuals, local authorities, CBOs and government line agencies in the KSL is an identified cross-cutting priority across a variety of sectors. Broad areas for capacity building include biodiversity use and management, agriculture, income generation, and community-based tourism, among others. The capacity of community user groups, local panchayats, 'van-panchayats' and local institutions should be increased for the conservation of biodiversity and cultural heritage at the community and local level. Training and capacity building, experience sharing, and effective use of modern tools and techniques for increased participation of skilled local manpower in conservation, sustainable development, and vulnerability reduction is required to create opportunities for alternative livelihood options.

Coordination: In order to achieve landscape level conservation and ecosystem management in the KSL, coordination is vital among government line agencies, non-government agencies, CBOs and communities both within and between the KSL member countries.

Policies: Policies and an enabling environment that promote conservation and sustainable livelihoods, ranging from site-level to transboundary are essential for implementation of meaningful conservation and sustainable development goals. These include, but are not limited to the establishment of protected areas, the designation of *Important Biological Areas* and *Conservation Areas*, the promotion and facilitation of legal transboundary tourism and trade, guidelines for natural resource management, sustainable rangeland management, and so on.

Integrated Planning: Integrated ecosystem management planning approaches that integrate conservation and sustainable livelihoods goals is essential to promote ecologically sound and sustainable development.

Transboundary Cooperation

Landscape-Level Conservation and Ecosystem Management: A wide range of issues identified in the Feasibility Assessment were found to be common amongst the three countries, and transboundary in nature. Transboundary ecosystem management was identified as essential for both conservation of biodiversity, and sustainable resource use and management. Issues of transboundary species protection, habitat loss and protection, as well as illegal logging, wildlife trade, and trade in endangered medicinal plants, can only be addressed regionally through transboundary cooperation. In all three country reports, transboundary cooperation for landscape-level conservation was found to be of vital importance for the conservation and sustainable development of the KSL.

Tourism Development: Transboundary cooperation for sustainable tourism in the KSL was identified as a priority issue by all three countries. Tourism, particularly religious tourism, flows from Nepal and India to KSL-China (Mt Kailash and Lake Mansarovar) within the landscape. Currently tourism does not benefit local communities to any great extent. A transboundary ecosystem approach is required to ensure that the outcomes of tourism development enhance conservation and sustainable development throughout the KSL. Once this is ensured, and a transboundary cooperation is developed to encourage and facilitate community based ecotourism, it is considered that there are large opportunities for fusing transboundary tourism with transboundary cooperation for conservation, and similarly that there is an urgent need for promoting community based tourism as alternative livelihood strategies in the landscape.

Transboundary Historical and Cultural Routes: Historical transboundary and cultural routes throughout the region, especially those associated with religious pilgrimage and the salt trade provide potential tourist routes that can be developed and can be of great value as ecotourism destinations. These have increasingly have become obsolete in KSL-India and KSL-China, and are under threat from road construction in KSL-Nepal. It is important to preserve these potentially high-value assets when building new roads or other types of infrastructure. Developing these routes for ecotourism requires transboundary cooperation for promoting transboundary tourism in the region in the future.

Trade Regulation and Improvement: Both formal as well as informal cross-border trade occur throughout the KSL, including trade in wildlife and wildlife parts, threatened plant species, and large amounts of illegally harvested timber. Illegal trade occurs particularly as a result of porous borders in the region. Transboundary cooperation is essential to deal with both legal and illegal trade issues. These issues, extremely pertinent to conservation and ecosystem management, can only be addressed through transboundary cooperation.

KSL Regional Conservation Strategy

The development of this Regional Conservation Strategy (KSL-CS), is based on the principle that sustainable development and conservation must be linked and implemented based on a integrated ecosystem approach seeking to improve the livelihoods of present and future generations in the KSL, while conserving the irreplaceable biodiversity and cultural heritage of this unique and sacred landscape. The preservation of the biophysical and cultural landscape will depend on sustainable approaches to land use, water, rangelands and forests, with eco-friendly tourism and biodiversity-friendly local natural resource-based livelihood development for the future.

The conservation strategy focuses both on biophysical and cultural dimensions. Reconciling human needs is only possible if natural resources are managed on a sustainable basis (sustainable and wise use), and if the essential quality of ecological and life supporting systems are prevented from degrading (protection); if important biodiversity and cultural sites are preserved (preservation); and ecosystems and resources restored to enhance their normal productivity (restoration).

Overall Goal

The Kailash Sacred Landscape Conservation Initiative (KSLCI) aims to promote transboundary biodiversity and cultural conservation, ecosystem management, sustainable development, and climate change adaptation within the Kailash Sacred Landscape (KSL). The KSLCI is envisioned as a long-term conservation initiative and has been designed according to a programme cycle of phased implementation and a long-term strategic approach for attaining sustainability and effective conservation. The KSL Conservation Strategy (KSL-CS) is the central component and core document outlining the goals and aims of the KSLCI for biodiversity and cultural conservation, and the sustainable development of the KSL region. Based upon this strategy document, the KSLCI will move forward to implement a set of recommendations for applying transboundary ecosystem management approaches in the KSL.

The **purpose and overall goal** of the KSL-CS is to achieve sustainable development through conservation of biodiversity and cultural heritage on the basis of integrated ecosystem management and regional cooperation within the KSL transboundary region, which covers portions of China, India, and Nepal, and the sustainable use of bio-resources, in order to improve the livelihoods of present and future generations.

Each of the respective countries within the KSL have developed their own KSL Conservation Strategies, and set their own goals and objectives. Within that set of basic

overall goals, which form the basis for the regional KSL–CS, are included these regionally relevant **inherent principles**:

- Reconciling human needs and environmental imperatives, in order to enhance ecological, economic and socio-cultural resilience and sustainability within the context of global warming and other ongoing change, taking into account the unique cultural and biophysical heritage of the KSL region;

- Conserving biodiversity and culture heritage through applying an integrated ecosystem management approach that incorporates the traditional knowledge and cultural institutions of local communities;

- Balancing biodiversity conservation and livelihood improvement of local communities through enhancing biodiversity through conservation and management, improving ecosystem goods and services, and developing alternative livelihood strategies, to maintain and enhance the flow and provision of environmental services having local, national, regional or global significance;

- Promoting sustainable and equitable development through eco-tourism, sustainable use, and environmental protection while conserving the cultural integrity and heritage of the landscape;

- Recognising climate change vulnerabilities of, and implications for, biodiversity, ecosystem functioning, mountain and pastoral herder communities, downstream beneficiaries of ecosystem services, and regional and global public goods and services, while enhancing and building capacity to adapt, cope with, minimise, and mitigate environmental change, and to benefit from new opportunities.

Objectives

Specific objectives supporting the overall goal include:

- To protect, restore and otherwise conserve and manage biodiversity and other valuable ecosystem goods and services within the KSL transboundary region.

- To conserve the bio-cultural heritage of the KSL, recognising the need for sustainable development and human wellbeing, and maintaining the unique spiritual and cultural identity of this landscape for the benefit of current and future generations.

- To promote regional collaboration and harmonised conservation policies to enable transboundary ecosystem management in the KSL region.

- To strengthen participatory and collaborative capacities for transboundary ecosystem management, heritage protection, biological diversity conservation, protection of culture and heritage.

- To recognise, respect, and support the protection of sacred and cultural sites, traditional knowledge of the local communities, and customary institutions governing natural resources in the landscape, ensuring that access to knowledge, expertise and collaborative research is equitably shared

- To promote and enable sustainable and eco-friendly tourism in the KSL providing benefits to local communities.

- To promote scientific and technical cooperation; environmental, ecological, economic and socio-cultural monitoring and research; and knowledge sharing for biodiversity conservation and sustainable development among the countries in the KSL

Outcomes - Enhancing Regional Cooperation

To promote and enhance ecological, socioeconomic and socio-cultural sustainability, and to conserve and maintain the flow and provision of local, regional and global environmental and cultural services emanating from the KSL target landscape, the following regionally relevant **outcomes** for the KSL Regional Conservation Strategy have been defined:

- *Regional Cooperation for Ecosystem Management:* Regional cooperation is essential to effectively apply ecosystem management approaches, for conservation of threatened species, for regulation of the use and extraction of bio-resources, such as medicinal plants and timber harvesting, and for regional environmental monitoring and adaptive management of ecosystems goods and services.

- *Regional Cooperation for the Preservation of Cultural Heritage*: As this region represents a cultural and sacred landscape of immense importance to many peoples throughout Asia and the world, and as pilgrims arrive here from all three of the respective KSL countries, cooperation to maintain the integrity of the cultural landscape will ensure harmony among efforts and help safeguard this sacred landscape and its cultural heritage for generations to come.

- *Regional Cooperation for Climate Change Adaptation and Mitigation*: Climate change is predicted to have a large impact within the KSL, with regional connotations. Improved regional cooperation will necessarily be an essential component of the regional response to global warming and other environmental change within the KSL, and form a key action area for facilitating effective adaptation and mitigation strategies.

- *Regional Cooperation for Sustainable Development and Ecotourism:* The KSL region has much to gain from improved regional cooperation for development and ecotourism, coupled with local participation and community based initiatives, the

opportunity for equitable benefits to flow to local, mountain and pastoral communities within the KSL.

- *Regional Cooperation for Long-Term Environmental Monitoring and Ecological Research:* Ensuring the availability of systematic and reliable datasets and analyses to support decision-making on conservation, adaptation and development issues in the KSL is an essential component for applying an ecosystem approach.

- *Regional Knowledge Sharing:* Developing and improving the regional knowledge base, including traditional knowledge, is essential for facilitating informed decision making and understanding the nature and direction of change in the region. Analysis of best practice and sharing of lessons for the conservation of biological resources, rangelands, agro-biodiversity, and other resources leading subsequently to cross-learning between the regional countries, and sharing information with other parts of the world involved in conservation can help tackle issues related to sustainable growth and biodiversity conservation.

Implementation Strategies and Mechanisms

To achieve the goals and objectives of the KSL Conservation Strategy, the following **specific strategies** will be implemented:

i Develop a forum for consensus building in each of the respective countries for cooperation and coordination to enable ecosystem management approaches, incorporating traditional knowledge and cultural institutions of local communities.

ii Establish a regional forum for transboundary cooperation, knowledge sharing, and promoting and facilitating ecosystem management and landscape approaches.

iii Improve understanding of regional transboundary and conservation and sustainable development issues, and global climate change, by implementing the CEMP, conducting specific conservation and development analyzes and assessments, including analysis of biodiversity and culturally linked livelihood needs, opportunities and threats, policy and capacity gap analysis, and assessments of data and research needs. ¡

iv Develop and institutionalise knowledge, data and information sharing amongst the respective KSL countries, and conservation and development organisations, as per national legislation and prerogatives, for the purpose of enhanced regional cooperation for biodiversity conservation and environmental management, and for applying ecosystem management approaches within the transboundary KSL region.

v Conduct policy review and develop policy recommendations for facilitating enhanced regional cooperation through an open consultative process involving a range of stakeholders.

vi Identify opportunities and promote capacity building at national to local level, for enhanced regional cooperation, and applying ecosystem management and landscape approaches within the KSL.

vii Strengthen and promote capacity building at national to local level for supporting and enabling community-based approaches to effectively institute participatory ecosystem management at the landscape level within the KSL

viii Institutionalise and mainstream national participation in regionally cooperative approaches, and encourage institutional ownership, including participation of national and community-based organisations, through facilitation and mobilisation, to support the sustainability of KSLCI goals and achievements in the long-term.

The following **mechanisms** will be established, to achieve the goals and objectives of the KSL-Conservation Strategy, as facilitated by the KSLCI and ICIMOD as a regional node for transboundary and regional cooperation, through a consultative and participatory process:

i A regional forum will be convened, for the discussion of, facilitation, and implementation of the KSL Conservation Strategy (within the context of the KSL-RCF), facilitating enhanced regional cooperation, in support of the KSLCI and its goals and objectives. A nodal institute will be identified by each country, and participation will include stakeholders relevant to transboundary ecosystem management, as per discussion and consensus of the Parties. This process will be supported by a internet-based knowledge sharing and discussion platform.

ii A regional network will be established for the facilitation, and implementation of the KSL Conservation Strategy(within the context of the KSL-RCF), and the associated goals and objectives of the KSL-CEMP, facilitating enhanced regional cooperation for environmental monitoring and long-term ecological [and sustainable development] research.

iii A regional knowledge, information, and data exchange platform will be established for the facilitation, and implementation of the KSL Conservation Strategy (within the context of the KSL-RCF), and the associated goals and objectives of the KSL-CEMP, facilitating enhanced regional cooperation for environmental monitoring and long-term ecological research.

iv Regional capacity for transboundary biodiversity conservation, environmental monitoring, and ecosystem management will be enhanced as appropriate, as regional, to national and local levels, as facilitated and implemented by the KSLCI and other similar efforts.

- v Regional collaborations for ecosystem management will be encouraged through awareness and fund raising activities, at local, national, regional, and international level, as facilitated by the KSLCI, ICIMOD, UNEP, and the respective Country Partners, within the context of the KSLCI and KSL-RCF process.

Commitments to Implement the Conservation Strategy

The Conservation Strategy of the KSL, while promoting and facilitating a transboundary ecosystems management approach, recognises firstly the principle of national sovereignty, and that, in general, implementation of the Conservation Strategy will depend upon national-level efforts. However, all national laws and regulations are, and will remain applicable to the respective country's territories within the proposed KSL transboundary landscape.

The implementation of the various aspects of the Conservation Strategy will necessarily require integration with the conservation and development plans of the respective governments, at various levels, and within various sectors. Similarly, implementation ensuring the meaningful participation of local authorities and government bodies, as well as community-based organisations, is required for effective conservation, sustainable use of biodiversity, and equitable benefit sharing. Enhanced capacity for participation and governance, at various levels, is a vital first step for the sustainability of this approach.

Each of the respective countries within the KSL have significant and substantial commitments in place to address and meet the goals and objectives of this Conservation Strategy. While all these reflect local and national-level commitment for conservation and sustainable use of resources, the KSL-Conservation Strategy seeks to facilitate convergence amongst various initiatives and resources of different agencies and stakeholders – the government, non-government, multilateral and bilateral donors, international non-governmental agencies and the private sector, to bring focus to the needs of the KSL, and to ensure synergies in achieving the goals of conservation and inclusive growth. Each of the respective countries has completed a KSL Country Policy and Enabling Environment Assessment Report as a sub-set of the KSL Country Feasibility Assessment, and a summarised overview of relevant national strategies, plans and commitments has been given within the respective KSL Country Conservation Strategies. Each of these details national-level commitments relevant to the KSL Conservation Strategy.

International and Regional Obligations

International cooperation and the development of international law is a central and an essential part of the domestic policy and law in each of the countries of the KSL region, specifically to protect rare and endangered species subject to international trade; to

protect and wisely use wetlands, especially those shared by one or more countries; and to conserve migratory species and species of global concern. At the international level, the concept of 'Transboundary Protection' or 'Regional Cooperation in Conservation' is accepted, prevalent, and not of recent origin. This concept is prominent and has found place in different conventions, bilateral agreements, charters and principles. Transboundary dimensions and the need for regional cooperation are evident in threats to endangered species due to trade, conversion of wetland habitats, capture during migrations, and in threats to species of global concern whose protection necessitates international cooperation and development of international law. Impetuous was initially provided by serious international concern over the over-exploitation of wildlife and widespread loss of biodiversity. This transboundary concern and active facilitation for regional approaches has been enshrined in a series of international agreements signed since the early 1970s.

Global Conventions, Regional and Bilateral Agreements

A wide array of treaties and agreements exist at the global, regional and bilateral levels implementing the aforementioned principles in conservation. Some deal with species protection, while others with habitat protection and cultural preservation. International recognition was accorded to the concept of transboundary landscape management as an ecosystem management approach to conservation in the Seventh Conference of Parties (CoP) to the Convention on Biological Diversity (CBD) where the significance of regional cooperation among signatory countries to the convention was emphasised. Below are listed some of the major relevant international conventions.

- The Conference of the Parties (COP) to the Convention on Biological Diversity (CBD), to which all countries in the Himalayan region are signatories, adopted Mountain Biodiversity as a top priority at COP 7 (Decision VII/27, 2004), with an emphasis on regional cooperation. It noted that Parties should implement the Program of Work (PoW) on Mountain Biodiversity in the context of national priorities and incorporate this into national biodiversity strategies and action plans, based on ecosystem management approaches that contribute to poverty reduction, and benefit indigenous and local communities. Transboundary landscape management was endorsed within the context of the 'ecosystem approach' adopted by CBD COP 7, highlighting the significance of regional cooperation in critical ecosystems. This approach includes both natural, and managed components of biodiversity, including agro-biodiversity, wildlife and wildlife habitat, and the cultural diversity that maintains these biological resources within landscapes. The PoW on Mountain biodiversity was re-emphasised by CoP-10 in Nagoya, Japan, in 2010.

- The CBD at COP 7 further agreed that the knowledge, innovations and practices of indigenous and local communities should be taken into account and their

participation in conservation and sustainable use of mountain biological diversity ensured, in accordance with Article 8 on *in-situ* conservation and also Article 8(j) specifically on cultural diversity and related provisions of the CBD.

- The United Nations Framework Convention for Climate Change (UNFCCC) and its Kyoto Protocol, the fundamental legal framework for the international community to combat climate change promotes regional cooperation and active engagement in regional dialogue and practical cooperation on climate change mitigation and adaptation.

- United Nations General Assembly Resolution (UNGA 62/196) on Sustainable Development of Mountains (2008) encourages governments, the scientific community, and intergovernmental organisations (e.g., ICIMOD) to elaborate sustainable adaptation strategies to cope with the adverse effects of climate change.

- The United Nations Conference on Environment and Development (UNCED) produced a major strategic outlook for the 21st century in Agenda 21. Chapter 40 on Information for Decision Making underlines the importance of improved availability of information on all aspects of environment and development for decision making towards sustainable development. Agenda 21 emphasises the need for improved collection as well as presentation of data and information. Chapter 13 of Agenda 21 identifies mountains as fragile ecosystems and a resource to be protected. The proposed project will help implementing Agenda 21 and UNGA 62/196, to which UNEP is fully committed.

- The UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, the Convention Concerning The Protection Of The World Cultural And Natural Heritage, the UN Framework Convention On Climate Change, Convention to Combat Desertification, all support the need for regional approaches and transboundary cooperation, and provide relevant provisions bearing upon regional cooperation for biodiversity and/or cultural conservation, and ecosystem management.

Bilateral Agreements within the Region

Although few binding agreements for the conservation and development of transboundary landscapes have developed in the past, recent bilateral agreements in the region are emerging. There have been two recent agreements in the field of biodiversity conservation between Nepal and China, and between Nepal and India. These two bilateral cooperation initiatives provide a basis for more elaborate regional cooperation in the future:

The *Memorandum of Understanding on Cooperation in the Field of Forestry and Biodiversity Conservation* between Ministry of Forests and Soil Conservation, GoN, and the State Forestry Administration, People's Republic of China (PRC), signed on 3 June 2010, expresses the commitment to implement the obligations of multilateral agreements and conventions to protect the environment and conserve biodiversity. Major areas of cooperation are formulating forestry policies and strategies including forest management and addressing the adverse effects on forests; wildlife conservation including the illegal hunting of animals and associated illegal trade; scientific research; and public awareness.

Similarly, a resolution was signed between Nepal's Department of National Parks and Wildlife Conservation and the National Tiger Conservation Authority, and the Ministry of Environment and Forests, GoI, on 29 July 2010, on transboundary conservation, as an outcome of the Fourth Nepal-India Consultative Meeting. The resolution focused on areas of, *inter alia*, conservation of endangered species including tiger, rhino and elephant, capacity building, joint monitoring arrangements, and cooperation on recognised priority landscapes.

National Policies and Legal Instruments

International laws become effecive only when these have been incorporated into national law, or else these do not have the force of law unless they are accompanied with their own enforcement mechanisms. Some Conventions explicitly enjoin member states to take legal implementation measures by amending their existing laws or legislating new ones to incorporate provisions of the agreements. For example, in many countries, signing of an international agreement is not sufficient to make it enforceable in the country; it has to be ratified after receiving approval from the Cabinet, and/or after making appropriate changes in the existing laws, which requires parliamentary and/or legislative action. The national and sub-national policies and laws summarised in the Policy and Enabling Environment Assessment of the KSL Regional Feasibility Assessment, and reviewed in the respective KSL Country Conservation Strategies are discussed in further detail in the respective KSL *Country Policy and Enabling Environment Assessment* contained within the *KSL Country Feasibility Assessment Reports.*

Policy Needs, Gaps and Priorities

In spite of the plethora of national legislation and state/local policies and programmes available in the KSL target area for conservation, development and improved livelihoods, there are several gaps which need to be filled in order to attain the objectives of the KSLCI, and to build a coherent implementation and enforcement strategy. In each of the countries there are specific international and national obligations for conserving the environment, forest and water resources; additionally there are schemes and programmes for meeting employment, livelihoods and development.

While considering the policy and enabling environment dimensions of the transboundary KSLCI, a significant number of issues for each of the countries have been delineated by the respective national partners. Prominent among these were policies pertaining to:

- Transboundary Landscape Management
- Improved Knowledge Base
- Data Collection and Data Sharing
- Forests and Rangelands
- Conservation and Maintenance of Sacred Sites
- Construction, Mining, and Quarrying Industries
- Energy Policies
- Balancing Sustainable Development and Conservation
- Poaching of Wildlife and Wildlife Trade
- Unsustainable Extraction of Bio-Resources
- Community and Indigenous Rights
- Safeguarding Local Genetic Diversity
- Fisheries and Livelihood Improvement
- Stakeholder Involvement

Monitoring and Evaluation

The KSL CEMP provides a framework for enhancing regional cooperation for environmental monitoring and long-term ecological research, and for monitoring and evaluation of the KSLCI, and the implementation of the KSL-Conservation Strategy. The CEMP was developed by the regional member countries, in accordance with, and coordinated with on-going international monitoring initiatives. Transboundary and regionally relevant approaches include development of regional networks with clearly articulated institutional commitments encouraging national and institutional ownership and sustainability of long-term ecological monitoring efforts. Based upon the CEMP, existing monitoring efforts will be enhanced and maintained to form a environmental monitoring network focused on providing the knowledge required for the conservation, sustainable development, and adaptation to climate change of the KSL, but compatible with other international monitoring efforts.

In order to effectively progress towards the goals and objectives of the KSL-Conservation Strategy, and achieve sustainability, it is essential that the impact, response to, and result

of policies, regulations, initiatives, efforts, and other KSLCI interventions be monitored and assessed, so that these actions and activities can be adjusted and corrected if required, and to allow for the application of an adaptive, flexible, and responsive management approach. As such, it is recognised that monitoring and evaluation is an integral component of each of the respective countries' Conservation Strategies, and that role is reflected in both the KSL-Country Conservations Strategies, and the KSL-Country CEMP's. At the regional level, i.e. the level of the KSL-Conservation Strategy, this core component gains particular relevance as a supportive, but integral, function facilitating the application of transboundary ecosystems management and regional cooperation.

To evaluate and assess the progress of the implementation of the KSL-Conservation Strategy towards achieving the set objectives, an effective monitoring and evaluation system is required, based on realistic and measurable indicators that are produced in a transparent and accountable manner. Thematic areas to be monitored are detailed in the KSL CEMP, and include:

- Climate system and change
- Land use change
- Cryosphere
- Wetlands and water systems
- Ecosystem functioning, properties and threats
- Biodiversity priorities and change
- Hazards
- Health determinants and outcomes afflicting humans and livestock
- Mountain economies and ecosystem services
- Society, cultural heritage, and environmental change

The monitoring process will be undertaken by the respective country partners, scientific institutions and other KSL core partners, and local communities, within the context of the KSL-CEMP, and with the meaningful participation of national and local-level authorities, local organisations and community-based organisations. Facilitation of regional cooperation, regional collaboration, regional coordination, and regional knowledge sharing will be the key roles played by the KSL-Conservation Strategy framework i.e. at the regional level. In order to effectively monitor and evaluate KSLCI and other interventions, an integrated multi-sectoral assessment and evaluation is necessary for the KSL target area. Monitoring indicators include environmental and biophysical indicators of ecosystem functioning and services, status of bio-resources and biodiversity, wildlife and wildlife habitat, and riverine systems, as well as socioeconomic and cultural indicators of

impacts on communities and livelihoods, and local society. Detailed work plans for the full implementation of both the Conservation Strategy and the CEMP, to be developed in the next stage of the KSLCI, will identify the specific thematic areas, parameters, variables, and will specify common protocols and sampling approaches.

A multi-scale and multi-level participatory processes for design, development and detailed planning for implementation of community-based conservation initiatives within each of the countries will initiate a process of awareness raising, consultation and capacity building for community participation, ownership, and co-management through community-based conservation initiatives, and specifically to participate within the monitoring and evaluation of the KSLCI and the KSL-Conservation Strategy. The regional KSL-CEMP component will be facilitated and implemented through coordination of the KSLCI and the KSL-RCF process, as a subset of activities within the context of the KSL-Conservation Strategy.

Timeframe

The KSLCI is envisioned as a long-term conservation initiative and has been designed according to a programme cycle of phased implementation and a long-term strategic approach for attaining sustainability and effective conservation. The KSL-CS is the central component and core document outlining the goals and aims of the KSLCI for biodiversity and cultural conservation, and the sustainable development of the KSL region. Based upon this strategy document, the KSLCI will move forward to implement a set of recommendations for applying transboundary ecosystem management approaches in the KSL. In order to move forward with full implementation, a 'Startup Phase' will build the Implementation Frameworks (i.e. identifying and developing the institutional structures required for implementation), and will develop detailed workplans for implementation, at both the national and regional level. This will be done through a participatory and consultative process that facilitates the development of institutional networks at the national and regional level, within the context and policy enabled environment of the KSLCI and the KSL-RCF. The capacity of national partners for planning and implementation of KSLCI activities will be enhanced and regional networks developed.