Kailash Sacred Landscape Conservation Initiative

Developing a transboundary cooperation framework for conservation and sustainable development in the greater Mt Kailash region of China, India, and Nepal

First Regional Workshop

ICIMOD

FOR MOUNTAINS AND PEOPLE

11-13 April 2010, GB Pant Institute for Himalayan Environment and Development, Almora, India

Convened by

International Centre for Integrated Mountain Development (ICIMOD)

United Nations Environment Programme (UNEP/ROAP)

UNEP

Preface

Environmental issues in the Hindu Kush-Himalayan region (HKH) region have come to the forefront of global concerns, as climate change and endemic poverty contribute to a disturbing loss of biodiversity and raise concerns for water resources and future food security in the region and beyond. The HKH region contains the headwaters of ten major rivers, and provides ecosystem services to more than one-fifth of the world's population. Urbanisation, roads, and in some places tourism, have had substantial impacts on these fragile mountainous areas. As global change sweeps the region, mountain communities are trying to adapt finely tuned agricultural production systems to meet the challenges. However, in all too many cases, migration to faraway places is the most common option for people, with significant impacts on cultural and community integrity and continuity. Conservation-based sustainable development using transboundary landscape approaches, ecosystem management, and community-based management offer an opportunity to improve local livelihoods, while maintaining the essential ecosystem services that this region provides to mountain people, downstream inhabitants, and the global community.

The Kailash Sacred Landscape Conservation Initiative (KSLCI) is a first of a kind cooperation between China, India, and Nepal, seeking to conserve a highly unique and special landscape through the application of transboundary ecosystem management approaches. It was conceived and is being implemented in collaboration with partner institutions with support from ICIMOD and the United Nations Environment Programme (UNEP). The Kailash region is considered sacred to a large number of people in Asia and throughout the world. Like much of the rest of the HKH, it faces many challenges, and is likely to be significantly impacted by changes resulting from global warming and environmental degradation. Its charismatic role serves as an example of the urgent need to preserve both our cultural and biodiversity heritages. In this International Year of Biodiversity, the Kailash Sacred Landscape Initiative directly addresses the challenges laid out in the Convention on Biological Diversity (CBD), and more specifically promotes the goals and approach described in the CBD's Mountain Biodiversity Programme of Work.

This current preparatory phase of the KSLCI will provide the basis for a participatory and transboundary approach for sustainable development, conservation, and regional cooperation. It will lead to the development of a Regional Cooperation Framework based upon a baseline survey and needs and Feasibility Assessment, together with a conservation strategy and comprehensive environmental monitoring plan. All of this will have been developed by the national partners, as part of a consultative and participatory process that is building regional networks and a basis for regional cooperation. National ownership and community-based conservation will be the basis for sustainability. As the KSLCI moves forward, building the implementation frameworks, regional networks, and community-based structures needed to apply an ecosystem management and landscape conservation approach, this participatory process based on shared responsibility and differentiated approaches will be further developed. The KSLCI has developed a highly innovative approach for developing regional cooperation that could provide a model for replication across the region.

The three countries China, India, and Nepal agreed to cooperate in jointly developing a regional cooperation framework in June 2009, during an inception workshop held at ICIMOD, Kathmandu. The first regional workshop was held at Almora, India in April 2010; the discussions, decisions, and plans for the KSLCI made at that workshop are summarised in the present report. The First Regional Workshop was funded by ICIMOD, UNEP, and German Technical Cooperation (GTZ), and supported by all the participating institutions and countries. Special thanks go to the Government of India – Ministry of Environment and Forestry, and GB Pant Institute of Himalayan Environment and Development for hosting this First Regional Workshop of the KSLCI.

Eklabya Sharma, PhD
Programme Manager Environmental Change and Ecosystem Services
ICIMOD

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

Kailash Sacred Landscape Conservation Initiative

Report of the First Regional Workshop

Developing a transboundary framework for conservation and sustainable development in the greater Mt Kailash region of China, India, and Nepal

Contents

Introduction

ICIMOD and its regional partner institutions have been advocating conservation-based sustainable development through transboundary landscape approaches, ecosystem management, and community-based management for about a decade. Building on these existing and earlier efforts, the Kailash Sacred Landscape Conservation Initiative (KSLCI) was conceived and is being implemented in collaboration with partner institutions in China, India, and Nepal with support from ICIMOD and the United Nations Environment Programme (UNEP). The process leading up to the current preparatory phase of the KSLCI included a three-month pre-inception consultation to initiate a participatory process during which ICIMOD met with national partners (in particular nodal and government agencies) in each of the three countries of the Kailash Sacred Landscape (KSL) region (China, India, and Nepal) to discuss and consult with them about the project. Subsequently, the KSLCI Inception Workshop was held from 22 to 24 June 2009 in Kathmandu with the main objective of developing a project document outlining cooperation between the three countries. The main outcome of the Inception Workshop was a fully agreed upon process to take place over the next 18 months to develop a Regional Cooperation Framework supported by a Feasibility Assessment, a Comprehensive Environmental Monitoring Plan (CEMP), and a Conservation Strategy from the three participating countries facilitated and supported by UNEP and ICIMOD. Through this process, the following nodal contact points were identified for China, India, and Nepal.

- **China:** Institute of Geographical Sciences and Natural Resources' Research (IGSNRR), Chinese Academy of Sciences (CAS), Beijing, China
- **India:** GB Pant Institute of Himalayan Environment and Development (GBPIHED), Almora, India
- **Nepal:** Ministry of Environment (MoE) /Ministry of Forests and Soil Conservation (MoFSC), Kathmandu, Nepal

Based on the project document signed after the KSL Inception Workshop, the aim of the KSLCI was determined as to promote transboundary biodiversity and cultural conservation, ecosystem management, sustainable development, and adaptation to climate change within the Kailash Sacred Landscape (KSL) through enhancing cooperation among the regional member countries; and specifically through the agreement on a Regional Cooperation Framework (RCF). This process was to involve development of the core components of the RCF, notably the Feasibility Assessment, the CEMP, a Conservation Strategy for the Kailash Sacred Landscape (KSL) at regional and national levels, and the facilitation of coordination among the various actors and stakeholders within the KSL through enhancing transboundary collaboration and networks information exchange. Support to strengthen local capacities in conservation and sustainable development and enhancement of cultural-socio-ecological resilience were agreed to be important components and central to many of the activities within the KSLCI.

As a first step towards project implementation, the Feasibility Assessment, notably including the delineation of the target landscape, is to be a prime activity. The Feasibility Assessment is intended to bring clarity to the landscape, its description, and area delineation, as well as to provide a needs' analysis for the KSLCI and the development of the RCF. Additionally, it will provide a Policy and Enabling Environment Assessment which will identify gaps in current policy and delineate policy needs to be addressed by the Conservation Strategy and the RCF. Several activities were designed and planned (within the KSLCI Project Document) for implementation during this initial 18-month phase of the KSLCI in order to achieve the prerequisites for development of (and agreement on) the RCF.

National consultation workshops

In the lead up to the First Regional Workshop, each country held national-level consultations, for which the prime objectives included delineation of the target landscape and clarification of institutional roles by the partners. These results were presented at the First Regional Workshop by the respective country partners. Detailed results and proceedings from the National Consultations are included in Annex 3.

Objectives and Workshop Overview

The First Regional Workshop was held from 11th to 13th of April 2010 to assess the status of project implementation, share experiences from countries in the transboundary region about the ongoing work, and discuss the way forward (See Workshop schedule in Annex 1). Partner institutions from China, India, and Nepal and representatives from UNEP and the ICIMOD team participated in the workshop (See Participant List in Annex 2).

Objectives

The broad objective of the workshop was to review the implementation status of the project, discuss the key challenges for project implementation, and agree on the workplan for the next set of activities. The specific objectives of the workshop were to carry out the following.

- Provide an update on the current status and overall progress of the project activities in each country
- Review and share the Feasibility Assessment (FA) and Policy and Enabling Environment Assessment (PEEA) Reports, focusing on progress made and challenges faced
- Discuss and finalise delineation of the boundaries of the target landscapes for each of the countries
- Discuss and plan for the next set of activities to be implemented
- Discuss the draft guidelines and key elements for the preparation of the Comprehensive Environmental Monitoring Plan (CEMP) and agree upon a common approach and timeline
- Discuss the draft guidelines and key elements for the preparation of the Conservation Strategy and agree upon a common approach and timeline
- Revisit the workplan and timelines

Workshop overview

ICIMOD, in collaboration with the KSLCI partner (nodal) institutes and UNEP, convened and organised the workshop which was held in Almora, Uttarakhand, India. The GB Pant Institute for Himalayan Environment and Development (GBPIHED) served as the host institute in India and provided logistical and organisational support. The workshop had participants from 18 institutions representing organisations from all three partner countries as well as from ICIMOD and UNEP. Representatives from focal ministries and nodal agencies of all three member countries participated in the workshop. The total number of participants in the workshop was 33. Participants arrived in Almora on the evening of April 10th and two days of meetings took place. The first day was focused on current progress in the project, and particularly progress that had been made on delineation of the target landscape and towards completion of the Feasibility Assessment Report. The second day was devoted to refinement of the guidelines for the Conservation Strategy and the CEMP and to charting a way forward for accomplishing the various tasks and activities within the KSLCI timeframe. On the last day of the workshop (13th April 2010) a field trip to Kausani was organised. The participants were exposed to various activities of the GBPHIED which were being carried out in collaboration with local farmers and ICIMOD's former People and Resource Dynamics' Project (PARDYP) project. The afternoon was spent visiting the GBPIHED. Parting remarks were given by Dr Palni, and thanks were voiced by many of the participants. The workshop and the KSLCI received a substantial amount of media coverage (Annex 4).

Inaugural Session

(Chaired by Mr Hem Pande, Joint Secretary, MoEF, Govt. of India)

In his welcome address, **Dr LMS Palni**, Director, GBPIHED, explained the vital importance and significance of the KSLCI in developing a platform to share scientific information across borders and to learn from each other's experiences in order to conserve this fragile ecosystem. Dr Palni emphasised the necessity of combining spiritual values with conservation if progress towards ensuring sustainable use of mountain resources in remote areas of the Himalayas was to be actualised. He emphasised the need for eco-sensitive and pro-people development planning and people's participation for sustaining the Himalayan ecosystem. In this context Dr Palni mentioned the progress of Indian national initiatives on sustaining Himalayan ecosystems.

Dr KP Oli, Regional Coordinator, KSLCI, briefed participants on the objectives of the overall project and of the workshop; and he also explained the daily schedule along with the timeframe for accomplishing targets.

In his opening remarks, **Dr Eklabya Sharma**, Programme Manager – Environmental Change and Ecosystem Services Programme, ICIMOD, explained the conceptual framework of the KSLCI. He emphasised the need for this initiative, which follows an ecosystem and transboundary landscape management approach, and elaborated upon attempts to ensure transboundary cooperation for policy framework and development. It was indicated that the initiative would have far-reaching consequences for the region and in particular for the local inhabitants, especially in a scenario of changing climate conditions.

Mr Tim Kasten, Deputy Director, Division of Environmental Policy Implementation, UNEP, said that the project will provide new directions for ecosystem management and biodiversity conservation efforts, and he emphasised the need for more such flagship projects which have strong cultural, spiritual, and social transboundary linkages across the region. He thanked the participants and all the participating countries for undertaking this important project. Appreciation was extended to the Government of Norway for providing funds.

Finally, in his remarks, **Mr Hem Pande**, Joint Secretary MoEF, Government of India, expressed his happiness about the concept and framework of the project. He strongly emphasised the need for strengthening people's participation for long-term sustainability of conservation efforts through participatory planning and implementation processes.

KSLCI Implementation Status Update

An update on the current status of project implementation was presented by Dr Krishna Prasad Oli, KSLCI Regional Coordinator. The targets, goals, and major outcomes of the project, as outlined in the project document, which must be met by the conclusion of the first phase of the KSLCI; that is, by the end of January 2011, include the following.

- A Regional Cooperation Framework (RCF) based on the following.
  - The Feasibility Assessment
  - The Comprehensive Environmental Monitoring Plan (CEMP)
  - The Kailash Sacred Landscape (KSL) Conservation Strategy
- Establishment of a regional knowledge-sharing platform
- Development of long-term environmental, ecological, climatic, and biodiversity datasets for the KSL region to promote regional cooperation in monitoring and networking on environmental and climate change based on the CEMP.
- Identifying community-based climate change adaptation mechanisms and options within the context of the RCF and KSL Conservation Strategy.

Current project status

- Completion of Memoranda of Understanding (MoU) and Letters of Agreement (LoA) as required for KSLCI initiation
  - Finalisation and signing of LoA with lead national partners
- Recruitment of project staff
  - Regional Coordinator
  - National Coordinators
- Terms of Reference (ToR) developed for selected sub-activities
  - Activity 3.2: Traditional Ecological Knowledge (TEK)
- Awareness of the project disseminated to a wide variety of stakeholders
- National consultations held in each of the three countries
- Feasibility assessment in process in each of the three countries
  - Draft guidelines for Feasibility Assessment and the Policy and Enabling Environment Assessment Reports finalised and shared with partners
  - Initiation of baseline data collection from the field and secondary data and information sources
- Delineation of the target landscape based upon the mutually acceptable criteria was in the final stage of harmonisation at the workshop. A separate document will be sent out to nodal partners with the final results of the delineation (for each respective country) and the composite KSL boundary (also in digital format) for their final approval.
- Draft Conservation Strategy Framework and Environmental Monitoring Guidelines developed and discussed at the workshop.
- Training
  - Partner institutions participated in two training sessions specifically targeted to provide capacity building and facilitate regional collaboration in the KSL landscape.
    - Regional training on 'Land-cover Classification and Mapping using a Harmonised Legend based on the FAO – Land Cover Classification System (LCCS) '
    - Regional training on 'Biodiversity Management and Climate Change 23-31 March, 2010'
- Website developed and online
  - KSL web page link: www.icimod.org/ksl
  - Basic information overview of KSLCI for the general public
  - Email list and partners-only section for project-related information exchange and online resources
  - Prototyping of a web-based information system (Environmental Knowledge Hub)

- Reporting guidelines and formats developed with online forms which can be downloaded
- Extensive consultations with government and partner institutions continued leading to significant government and institutional commitments to the KSLCI.

Challenges in project implementation

- Delay in signing of the LoA
- Procedural delays in hiring personnel
- Significant administrative requirements and government procedures which need to be respected
- Field work delayed in some countries due to administrative procedures and delays related to signing of LoA
- Meeting milestones and timelines as laid out in the project document due to the limited project duration.

Delineation of the KSLCI Target Landscape

Over the last decades, the ecoregion concept has become a popular method of understanding and assessing the spatial distribution of biodiversity and other environmental parameters. It has not, however, demonstrated adequately that the environment is spatially distributed in accordance with bounded units. Methods for assessing natural and cultural landscapes have evolved in the last couple of decades to evaluate the importance of natural areas for the purposes of biodiversity conservation, land-use planning, environmental impact assessment, and planning of protected areas. Criteria used for such assessments vary and generally fall into three categories: ecological, i.e., abiotic and biotic; cultural; and planning and management. Generally, however, criteria for the delineation of areas based on the assessment of resources that support transboundary ecosystem services (i.e., beyond water resources) are not available.

For the Feasibility Assessment of the KSL transboundary landscape, as well as for the eventual Regional Cooperation Framework, the technical delineation of the area was an essential and very important first step. This activity was carried out by the lead partners and included a stakeholder consultation process in each of the partner countries. Criteria for delineation were developed and then mutually accepted by the partners through an iterative and consultative process. The criteria fall into three categories:

- ecological, or abiotic and biotic;
- cultural; and
- planning and management

The main points identified for consideration are summarised below.

- Transboundary ecosystem services and ecosystem contiguity
- Key biodiversity areas, including migratory habitats and potential biodiversity corridors
- Endemism (biodiversity and culture)
- Indicator or flagship and rare, endangered, and threatened species (and their habitat ranges)
- Protected areas, wetlands (particularly Ramsar sites) and other prioritised conservation areas
- Cultural heritage sites, pilgrimage routes; and existing and potential ecotourism areas
- Vulnerabilities of the area (globalisation, migration, and other change processes)
- Urbanisation and development of infrastructure (current and planned)
- Watershed and river basin coverage for the headwater areas of major rivers originating from the landscape
- Ecological zones

The process of national-level KSL boundary delineation was carried out by each of the respective countries individually. Each of the three countries identified their own priorities within the set of criteria. In particular, watershed and administrative boundaries were used as a the final criteria for the exact location of the target landscape boundaries and chosen to be inclusive of the areas identified by the other criteria such as ecoregions, transportation and settlements, and contiguity with existing protected areas. Partners each used the publicly available Shuttle Radar Topography Mission's (SRTM) 90 m digital elevation model dataset (available at http://srtm.csi.cgiar.org) as a common base map in order to ensure coherence of the final regional transboundary delineation.

Each country has now finalised its delineation and developed a geospatial dataset delineating its internal boundaries. These have been merged by the Mountain Environment and Natural Resources' Information Systems (MENRIS) programme at ICIMOD to provide the outline of the KSL transboundary landscape. No attempt has been made by ICIMOD or any of the partners to delineate the international boundaries, as these are the prerogative of each of the respective sovereign governments. General characteristics of the target area within each country are given in the country status reports on the progress of the Feasibility Assessment, and these are discussed briefly in the sections below.

Status of the Country Reports on Feasibility Assessment and Policy and Enabling Environment Assessment

The National Coordinator from each of the countries (i.e., Dr Shi Peili from China, Dr Ranabeer Rawal from India, and Dr Ram Chaudhary from Nepal) made presentations on the current status of their reports on the Feasibility Assessment and Policy and Enabling Environment Assessment.

China

Substantial progress has been made in initiating the Feasibility Assessment, as well as on the Policy and Enabling Environment Assessment (PEEA) by the Chinese partners. Secondary sources have been compiled and analysed; spatial data analysed; some fieldwork has been carried out during this period; and a target landscape delineated based on analysis of the data available. The delineated target landscape is approximately 10,843 km^2, and includes two main watersheds: an area draining to Manasarovar of approximately 7,780 km^2 and the Karnali watershed (also known as Peacock Basin) with 3,062 km^2 within the Chinese portion of the KSL. More than 40% of this area is covered by very sparse vegetation or barren land; 37% by sparse to open shrublands; and approximately 11% by grasslands, with lakes and wetlands comprising 8% of the area and about 3% covered by glaciers. The agricultural area is just over 10 sq. km (or about 10% of the total area), 98% of which is located in the Karnali River basin. The dominant cropping system is one crop per year; namely, winter wheat (or barley), peas, potatoes, and rape seed. The area includes both summer and winter pastures throughout the year for nomadic herders. Rangelands account for almost half of the total area, or about 5,350 km^2.

The total glacial area is about 262 km^2, covering 2.42% of the total KSL region within China. The average altitude of the glacier termini is very high, at about 5,200 metres above sea level (masl): Gurla glacier is the largest glacier (182.60 km^2) in the Karnali basin and Kailash glacier (79.72 km^2) is prominent in Manasarovar basin and one of the sources of Lake Rakshastal. The total area of water bodies is about 738 km^2; and this is about 6.82% of total area of the Kailash region

The area is significant for its biodiversity of flora and fauna, both of which are highly vulnerable. The dominant vegetation is mainly north-temperate and global flora species. Dominant communities include:

- alpine steppe or meadow communities,
- alpine shrublands,
- wetland vegetation (notably surrounding the Manasarovar – Rakshastal area), and
- lichens.

The area has eight endemic plants and approximately 268 identified plant species. In addition, more than 100 species of vertebrates, which belong to 77 genera and 40 families, including fish, amphibians, reptiles, birds, and mammals, have been recorded.

At least 18 International Convention on the Trade in Endangered Species (CITES) and nationally listed species are found within the Manasarovar wetland protected area, with at least 30 species of 'high value' recorded in the KSL. The protected animals are concentrated in Manasarovar area (approximately 975 km^2) which is a declared Ramsar site and protected area.

The population of this area in 2008 was 8,839 persons, mainly concentrated in Butang township in the south of Burang County, accounting for 61% of the total population. The population density for this area is approximately 0.63 persons per km^2, mainly distributed in the south Peacock River valley. The population of agriculturalists and pastoralists accounts for 58 and 42% respectively. The population growth rate is 0.41%. The gender ratio between male and female is 0.92:1. From 2000 to 2008, the average growth rate of GDP in Burang County was 17.2%, and this is higher than the average GDP for China. The main income is from livestock husbandry which accounts for almost 50% of the total income sources.

The area has cultural and religious importance and large numbers of tourists visit every year. In 2007, over 70,000 persons visited the area (most of them pilgrims), and nearly 18,000 were foreign tourists. It is expected that the opening of Ngari airport and improved highway access will accelerate the pressure from tourism.

Identification of major issues and priorities for the KSL

- Rapid increase in pilgrims and tourists
  - Production of waste and pollution
  - Inadequate infrastructure for waste treatment and reception capacity
  - Landscape fragmentation caused by tourist activities and busy transportation
  - Planning pilgrimage routes, camp areas, and hotels
  - Regulating tourist flows under carrying capacity
- Fragility of ecosystem
  - Prone to degradation due to overgrazing and vulnerability to climate change
  - Need to protect rangeland and wildlife habitat
  - Establishing a corridor for animal migration
- Involving local stakeholders in sacred landscape and protected area management and sharing of benefits

Gap analysis

- Biological and cultural diversity and resources
  - Lack of information on carrying capacity and assessment of livestock overgrazing
  - Little monitoring of biological, environmental, and socioeconomic data
  - No integrated planning and action guiding environmental protection
  - Role of traditional knowledge of ecosystem management not referenced or used fully
  - No participation and management by local stakeholders
  - Ecosystem fragility indicating that resilience may not be sufficient for adaptation to rapid climate change
- Needs' analysis for target area
  - Monitoring of biological, environmental, and socioeconomic factors for ecosystem management
  - Assessment of carrying capacity of the ecosystem in order to establish policy support and early warning systems
  - Promoting eco-tourism and involving local communities in managing and sharing the profits of eco-tourism
  - Establishing cooperation mechanisms in protection and eco-tourism
  - Adaptation and role of traditional knowledge in ecosystem management
  - Promotion of solar energy and wind power as alternative energy to relieve pressure on firewood and dung

Policy and enabling environment

Existing and currently in effect legislation at several administrative levels and other secondary sources have been used to identify and describe the policies, constraints, and enabling mechanisms relevant to implementation of the KSLCI. These will be described in detail in the report. Important issues related to implementation of the current phase of KSLCI include the following.

- Data collection, sharing, and publication must follow all applicable administrative laws and regulations in China, and be in close communication with related administrative departments.

- Remote-sensing investigation and meteorological observation must be reported to relevant government departments and permission requested in advance.
- Scientific survey and activities must follow 'The Tibetan Autonomous Region Border Management Regulations.'
- Foreign organisations or individuals engaged in any form of surveying and/or mapping in China should report to and be in accordance with all relevant provisions of the interim administration and require its prior approval.
- Meteorological observation and scientific sites must be in accordance with 'The Tibetan Autonomous Region Meteorological Regulations.'
- Data sharing and use of meteorological data must be in accordance with Article V of 'The People's Republic of China Meteorology Law' and 'weather information-sharing management approach.'
- Providing meteorological data sharing, as well as the use of the shared custody of classified weather data should comply with the following regulations.
  - The People's Republic of China 'Guarding State Secrets Law'
  - Conservative State Secrets Meteorological Implementation Rules
  - External weather detection and data management approach
  - Organisations and individuals should not provide meteorological detection locations and weather information to foreign organisations or individuals without the approval of the provision.

The Chinese government encourages international scientific cooperation; however, the KSLCI is subject to further verification, research, communication, and evaluation due to geographical location and international concerns, as well as the complexity involved with implementation of the project in terms of legal, institutional, administrative, and departmental legislation and regulations and other relevant laws.

Guidelines for RCF

As an initial input into the RCF process, the following guidelines, or principles, are suggested.

- 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 counselling and serving the development of local communities

India

Through a consultative process of partners and other stakeholders, the KSL target landscape for the Indian portion has been delineated and mutually accepted. This identification was based upon considerations that included maintaining contiguity of the landscape with other counterparts; representativeness of biophysical and sociocultural diversity; uniqueness (elements and systems) ; vulnerability to both natural and anthropogenic processes; and ecological, environmental, and socioeconomic values, i.e., ecosystem goods and services. Transboundary implications, as well as existing protected areas and potential connectivity corridors, were considered in identifying the area. A partners' consultation (March 2010) identified the following important considerations.

- Natural linkages – transboundary
- Biophysical diversity – representativeness
- Sociocultural affinities – traditional and/or historical
- Ecological and economic values – unique and/or incomparable
- Sacredness – inherent affection and relative approachability to Kailash
- Workability and feasibility of implementation

KSL target landscape (TL) description

The Indian portion of the KSL target landscape is comprised of 4 major hydrological units, i.e., *Panar-Saryu* (350 km^2), *Saryu-Ramganga* (1,500 km^2), Gori-Kali (2,750 km^2), and *Dhauli-Kali* (2,650 km^2), with a total area of approximately 7,120 km^2. A distinct distinct bioclimatic zonation is evident across an elevational gradient ranging

from less 500 to almost 7,000 masl. Total area of the target landscape is approximately 7,440 km^2, and includes portins of Dharcula, Didibat, Musavari and Pithoragarh subdivisions. The total population of this are is more than 460,000 persons (Census 2001). Main languages include Kumaoni (high variability), Beyanse, Bhotia, Hunia (a Tibetan mixed dialect), Hindi and Nepali. Indigenous ethnics groups of this area include Van Rawats and Bhotiya. Literacy rates for men are quite high (90%), and not quite as high for women (63%).

Approximately 50% of the area is forest, with agricultural areas (22%), and including significant portions of uncultivated area (10%). Permanent grazing areas and other pasture lands comprise 13% of the area. The dominant cropping systems centre around paddy, 'jhangora' (millet), 'mandua' (finger millet), pulses, and potatoes in the 'kharif' season (October to May), and wheat, barley, 'masur' (pink lentils), ginger, and pepper in the 'rabi' season (May-November). Vegetables, for example, potatoes, onions, radishes, 'ghuia' (gourd), 'gaderi' (root vegetable found in Kumaon), and 'louki' (bottle gourd), are grown during different times of the year. The livestock population is quite high, with local cow varieties being the most numerous.

Biodiversity and rare and threatened species

The diversity of plant and forest species is high and is distributed along a gradient categorised as four main bioclimatic ecozones ranging from sub-tropical (300-1,800 m), through temperate (1,500-2,800 m), sub-alpine (2,800-3,800 m), and alpine (3,500-5,000 m). Based on data from a case study from the Ashok Wildlife Sanctuary (AWLS), there are at least 1,200 species of plants, representing over 700 genera and 173 families. This area is dominated by west Himalayan forest types (Chir pine and Oaks), and this is the western most limit of Tsuga and Macaranga communities. Species' richness is high, e.g., 120 species of Orchidaceae with particular richness in epiphytic orchids. There are 234 near endemic and 24 endemic species (together 21% of flora). There are 10 species listed in the Red Data Book and 11 species with small populations, a narrow geographic range, and/or high use pressure. There are significant sensitive habitats or areas e.g., TL Zones– Panchchuli basin and Ralam valleys are among recognised priority sites. Over 172 species are used by local communities which have a significant indigenous knowledge base of traditional ecological knowledge. The area is very rich in terms of diversity of medicinal and aromatic plants (MAPs). Several botanical hotspots are recognised in the area, including in the alpine zone (above 3,500 masl).

Faunal diversity

Fauna reported for this area include at least 15 reptiles, 196 aves, and 83 mammals. The number of species listed in the World Conservation Union's (IUCN's) Red List for this area include three which are critically endangered, seven endangered, seven vulnerable, and 18 that are near-threatened.

Cultural diversity and biodiversity conservation

This area is particularly interesting for its cultural diversity, with a rich history and cultural tradition. It was stressed that the different sacredness values within the landscape have contributed to conservation of biodiversity in the area. In addition to the main pilgrimage routes and associated cultural heritage sites, there are many sites regarded as sacred, religious, or otherwise culturally significant; for example, there are at least six sacred lakes: Parvati Sarovar, Anchari Tal, Jolingkong Lake, Chhiplakot Lake, Maheshwari Kund, and Thamri Kund. Additionally, there are many festivals and fairs held in this area throughout the year.

Policy and enabling environment assessment (PEEA)

The PEEA was discussed during the consultation process. The following points and suggestions were received from participants and stakeholders.

- In terms of policy frameworks, the Government of India has implemented various policy initiatives which contribute significantly to conservation and management of ecological and environmental aspects. The policy review should compile all such initiatives to come up with a proper information base on existing policies and the enabling environment.

- Considering the socioeconomic diversity of the area, involvement of experts with a socioeconomic background is required to strengthen the contents of the Feasibility Assessment Report.
- Community consultations and rapid surveys will help to close the gaps with regards to biodiversity and socioeconomic information of relevance to the KSL knowledge base.

Nepal

Progress was made with the signing of the relevant LoA with the Government of Nepal (GoN) and the Central Department of Botany, Tribhuvan University (TU), and the establishment of an Executive Committee to oversee project implementation and delineation of the target landscape.

The process adopted for the Feasibility Assessment included a review of published literature and other secondary information and expert and stakeholder consultations with meetings at national and local levels. The area delineation exercise developed three scenarios, with the final boundaries being selected by the Executive Committee. The main criteria considered included transboundary linkages and ecosystem services, watershed and river basin boundaries, biodiversity areas, endemism, indicator or flagship, rare, endangered and threatened species, protected areas (PAs) and Ramsar sites, cultural heritage sites, and pilgrimage routes

The delineated target area for the KSL-Nepal is 13,289 km^2 and is comprised of portions of four districts; namely, Humla, Bajhang, Baitidi, and Darchula. The altitudinal gradient ranges from 369 to over 7,000 masl. Average annual rainfall ranges from 25 mm in parts of Humla, to 1,344 mm in Bhajang. Major rivers in this region include the Mahakali, Humla Karnali, and Seti. This region also encompasses the major pilgrimage routes and several historical trade routes. In general, the area is remote; however there is an airfield at Simikot with connections to Surkhet and Nepalganj. Land-use patterns for these districts indicate that the amount of arable land is quite low, with less than one per cent of the total land being irrigated. There is a significant amount of forest in this area (24% of the total area), and more than 18% is covered by pasture and rangelands. The main crops include paddy, barley, millet, maize, and wheat. Generally this is a food deficit area, with families typically not growing enough food for the full year; and there is a great deal of variability from year to year, with several drought years recently.

This area is particularly rich in biodiversity and lies at the intersection of several major floristic regions, namely, the Western Himalayan, Eastern Himalayan, and Central Asiatic. This area falls within the Himalayan Biodiversity Hotspot and is comprised of five major eco-regions.

- Himalayan subtropical broad-leaved forest
- Himalayan subtropical pine forest
- Western Himalayan broad-leaved forest
- Western Himalayan subalpine conifer forest
- Western Himalayan alpine shrub and meadows

Within the KSL area in Nepal, it is estimated there are approximately 82 species of mammals, 455 birds, 38 reptiles, and 20 fish species. Of these, 22 mammals, 12 birds, and one reptile are on the IUCN Red List. Eight mammals, seven birds, 22 reptiles, and eight fish are either endemic or have a restricted range. Additionally, there are 35 species of mammals and 73 species of birds that are listed in various CITES categories. Ten mammals, four birds, and one reptile are listed as legally protected by the Government of Nepal. Important fish species include *Schizothorax nepalensis* (endemic) and *Schizothorax raraensis* (restricted range).

Agricultural biodiversity is very high, with globally significant genetic resources and locally important landraces maintained by farmers, as well as many wild relatives of economically important food crops found in this area. Over 200 species of non-timber forest products (NTFP) are used for food and/or medicine in Bajhang district, of which 38 species (or their products) are commonly traded. Eighty-three species of NTFP are found in Darchula district, 73 species of which (products) are used in ethno-medicine.

Forest based industries include Nepali paper factories, furniture industries, fibre-refining factories ('allo-bhangro'[Himalayan nettle and the cloth woven from it] refineries), medicinal herb processing, fruit processing, rattan factory, honeybee refineries, and honey farms. There is a significant amount of trade and revenue from collection of medicinal plants. There are 14 forest types reported in this region. Most of the forest is under government management; however, a significant portion (over 75,000 ha) is under community forest management with many community forestry users' groups (CFUG's) operational in this area.

Socioeconomic, livelihood, poverty, and gender issues

According to the Central Bureau of Statistics (CBS 2001), the total population for this area was approximately 330,000 persons, with close to half found in Bajhang District. Humla, although it is the largest district, has the least number of people and has a low population density. The gender balance shows that there is significant male outmigration. The main ethnic groups or castes include 'Chettri', 'Bahun', 'Thakuri', 'Tamang', 'Bhote', 'Dalit', and 'Lama.' In terms of religion the people are more than 90% Hindu, with Buddhists primarily comprising the remainder. Agriculture is the main occupation for over 75% of the population. Population density ranges from seven per km^2 in Humla, to 49/km^2 in Bahjang. Literacy rates are generally low throughout the three districts. Health indicators are also generally poor reflecting the widespread and deep poverty of this area where there are very few doctors and very few health care facilities. A high rate of chronic malnutrition is found among children under five and the percentage of the population with access to safe drinking water is relatively low. There are almost no roads in this area, although there are several under construction. Darchula and Bajhang districts together have about 140 km of earthen roads, whereas Humla has none (data from 2004).

Key characteristics

- Hunger and famine – This region suffers from food deficit, disease, and unfulfilled basic needs (with low consumption and intense physical labour).
- Food deficit – Supply of food to Karnali had started in 1972.
- Conflict area – Intense conflicts occurred between the Government and Maoists
- Climate variability – There has been a significant impact on agriculture due to uncertain weather.
- Water supply – Drinking water access is perceived to be decreasing in valleys and irrigation channels often lack water.
- Lack of development and Infrastructure – Lack of infrastructure, marginal nature of farming, and lack of social protection
- Geographical isolation and remoteness

Important issues to be addressed:

- Poverty and food insecurity – Poverty compels people to rely intensely on natural resources.
- Overexploitation and illegal hunting of fauna and flora –Himalayan black bear, musk deer, timber, and wood (e,g, *Juglans regia*)
- Hunting and poaching of wildlife – Collective hunting by villagers and commercial poaching (transboundary)
- Overexploitation and illegal collection of flora and fauna – Medicinal plants
- Inadequate data and information
- Lack of source of alternative energy
- Lack of tourism infrastructure – Untapped potential for tourism
- Seasonal and temporary migration
- Sustainable agriculture and transhumance – Enhance sustainable agriculture, livestock, and transportation of goods by sheep, yak, and mule.
- Market promotion of local products – Cottage industry (carpentry), NTFP, value addition
- Preserve local norms and cultures of mountain communities
- Capacity building of institutional and human resources – Social mobilisation, economic activities, community development, tourism promotion, infrastructural development, inclusion of marginalised groups (i.e., women, lower castes, and the poor)

- Related issues
  - Khaptad National Park (NP) – No demarcation of grazing land
  - Rara NP – Compensation to displaced people
  - Api – Nampa Conservation Area (CA) – Area delineation

Major challenges

- Poverty and hunger
- Remoteness (physical Infrastructure)
- Social infrastructure (education, health, gender, and so on)
- Governance (cooperation and coordination)

Opportunities

- Integrating ecosystems and livelihoods
- Biodiversity hotspots
- A landscape comprised of diverse ecosystems
- Water resource management (integrated) : hydropower energy, water supplies and sanitation, and irrigation
- Glaciers and rivers: Api Nampa, Kailash-Mansarovar
- Livestock management and pastoral economy
- Tourism and protection of cultural heritage

Policy and Enabling Environment Assessment

- Relevant policy, laws, guidelines and institutions
  - Nepal Environmental Policy and Action Plan (NEPAP) 1993 – Conservation focused on landscape
  - Ministry of Forest and Soil Conservation (MFSC 1988) – Conservation of ecosystem, species and genetic resources, and meeting people's basic needs
  - Tenth Five Year Plan 2002-2007 – Conservation of biodiversity through a landscape approach
  - The Three Year Interim Plan (TYIP) 2008-2010 – A package programme for development and socioeconomic empowerment of the Karnali region
  - Interim Constitution of Nepal 2007 – Maintain clean environment and protection of rare wildlife, forests, vegetation, and biodiversity; ensure its sustainable use and equitable distribution of the benefits derived from it.
- Relevant legislation
  - Forest Act 1993: community forestry (CF)
  - Environment Protection Act 1996 – Initial Environmental Examination (IEE) and /or Environmental Impact Assessment (EIA) before implementation
  - National Parks and Wildlife Conservation (NPWC) Act – Protection of wildlife
  - Buffer zone regulations – Promote activities that meet people's basic needs and share 30-50% of the revenue for community development
  - Water Resources' Act 1992 – Water User Associations for collective benefits
  - Aquatic Animals' Protection Act, 1961 – Prohibits capture, killing, and harm of *Schizothorax*
  - Land Act 1964 – Abolishes the 'zamindari' system
  - Local Self Governance Act 1999 –District Development Committees (DDCs) and Village Development Committees (VDCs) hold the right to manage specific natural resources
- Relevant strategies and conventions
  - Nepal Biodiversity Strategy 2002, Nepal Biodiversity Strategy Implementation Plan 2006 – Conservation and wise use of biological resources, in situ and ex situ conservation, landscape conservation, cross-sectoral coordination, and people's participation
  - Nepal 4th national report to the Council on Biodiversity (CBD) – proposed goals and targets following CBD 2010 targets
  - ABS: Access to Genetic Resources and Benefit Sharing Bills

- Community forest: Handing over has been relatively slow
- Forest Act 1993 and Local Self Government (LSG) Act 1999 – Overlapping rights
- Customary laws
- Regional countries' legislations – Required for effective transboundary monitoring
- Important conventions: World Heritage Convention (WHC) 1972; CBD 1992; CITES 1975; Ramsar Convention 1971

Conservation Strategy: Draft Framework and Guidelines

The Conservation Strategy will develop a common approach and transboundary framework for conserving, maintaining, and promoting biodiversity and for maintaining and promoting aesthetic and cultural integrity in the KSL through ecosystem and landscape management approaches, Draft guidelines for this framework were presented and then discussed in detail by the partners in break-away sessions and again in plenary sessions; and the resulting suggestions and input were incorporated into a revised, final version of the Conservation Strategy Draft Guidelines (Annex 5).

Development of the Conservation Strategy will include the following sub-activities carried out by partners in each of the three countries.

- Description of the KSL landscape, biodiversity, cultural heritage and important cultural sites, and socioeconomic, institutional, and livelihood dimensions, based upon the Feasibility Assessment Report
- Identification of significant threats to the biophysical environment and cultural landscape, including biodiversity, genetic resources, wetlands, and/or traditional ecological knowledge
- Delineation of a set of priorities and targets for biodiversity and cultural conservation
- Development of guidelines and specific strategies for conserving, maintaining, and promoting biodiversity and ecosystem management, environmental health and ecosystem integrity, and ecosystem function and provisioning services
- Development of general guidelines for maintaining the cultural and aesthetic qualities of the landscape, particularly with reference to tourist infrastructure and infrastructural development in general
- Identification of conservation-friendly sustainable and equitable development options such as pro-poor ecotourism and /or innovative, traditional livelihood approaches based on sustainable use of ecosystem services

A process for completing the Conservation Strategy document was outlined and mutually accepted by the partners, and it is outlined below.

- Each of the Country Partners will develop and outline a country-level Conservation Strategy for their respective areas of the KSL, based upon the set of working guidelines which were mutually accepted through the process initiated at the First KSL Regional Workshop held in Almora, India, in mid-April 2010.
- Country Partners considered, discussed, and tentatively accepted the aim, scope, and basic parameters of the Conservation Strategy during the First Regional Workshop and agreed to a process, timeline, and way forward which will allow for sufficient consultation and facilitate joint and interactive collaborative development.
- A draft Conservation Strategy for each country within the KSL will be presented for discussion at the Second Regional Workshop, to be held from September 4 to 6, 2010, in China. Country partners will agree upon the approach to compiling and harmonising each individual country's Conservation Strategy into a draft Conservation Strategy for the entire KSL, in order to delineate the common framework and identify the mutually acceptable common approaches, actions, policies, standards, protocols, methods, and other specific issues.
- An iterative, participatory and consultative process will be facilitated by ICIMOD to synthesise and develop the final draft of the KSL Conservation Strategy to be presented for mutual acceptance as part of the RCF at the Third Regional Workshop to be held tentatively at the end of January 2011.
- The concurrent CEMP development process focuses on environmental monitoring and ecological research, but it should also be seen within the context of the Conservation Strategy and should be fully integrated with the Conservation Strategy, in terms of both monitoring and evaluation of KSL interventions and in terms of targeting and identifying methods of approach, planning, and implementation of the KSL Conservation Strategy.

- Key elements for moving forward with the Conservation Strategy development process by the partners were detailed, along with a timeline for implementation:
  - A plan for national consultation or other process allowing national partners and other stakeholders to become aware of, review, and provide input into the Conservation Strategy. This is essential, as ownership of various conservation activities will need to be taken by the relevant agencies.
    - This process will be led by each National Coordinator who will also serve as the contact and focal point for discussion and iterative review of the regional synthesis process.
    - A major outcome will be identification of a national institutional framework for implementation of the Conservation Strategy.

  - An interactive online site will be operationalised in order to facilitate discussion and collaboration between partners, and it will include the following.
    - A members only web page, with a facility for uploading and/or downloading documents and other relevant information
    - An email group list

  - Timeline
    - ICIMOD will provide revised guidelines based on input from the Almora Workshop – May 5th.
    - National partners will provide feedback and input revisions – June 5th.
    - ICIMOD will continue to develop Conservation Strategy guidelines together with the partners and to identify and facilitate common approaches.
    - Final draft versions of the national-level Conservation Strategy will be presented by each of the three countries at the Second Regional Workshop in Jiuzaigou, Sichuan, China.

Developing the Comprehensive Environmental Monitoring Plan

The CEMP process will develop a common approach and transboundary framework for environmental monitoring and ecological research with emphasis on biodiversity conservation and management, as well as local livelihoods and adaptation to climate change. This framework will be based on commonly acceptable and (as far as possible) internationally accepted protocols. The implementation and approach will seek to both enhance national capacity for regional cooperation and build local capacity for ongoing environmental and ecological monitoring. Standardised methods and harmonised protocols for sampling, documenting, and analysing ecological, climatic, and other environmental data, as well as socioeconomic drivers of environmental change, will be identified to facilitate transboundary collaboration and knowledge sharing based upon ongoing national efforts and international guidelines. Draft guidelines for this framework were presented and then discussed in detail by the partners in break-away sessions and again in plenary, and the resulting suggestions and input were incorporated into a revised, final version of the CEMP Draft Guidelines (Annex 6).

- Each of the Country Partners will develop and outline a country-level CEMP for their respective areas of the KSL based upon this set of guidelines which were mutually accepted through a process initiated at the First KSL Regional Workshop held in Almora, India, in mid-April 2010.
- Country Partners have considered, discussed, and tentatively accepted the aim, scope, and basic parameters of the CEMP during the First Regional Workshop in Almora, and agreed to a process, timeline, and way forward which will allow for sufficient consultation and facilitate joint and interactive collaborative development.
- A draft CEMP for each country within the KSL will be presented for discussion at the Second Regional Workshop to be held in September 2010. Country Partners will agree upon the approach to compiling and harmonising the individual country CEMPs into a draft CEMP for the entire KSL in order to delineate the common framework and identify the mutually acceptable common standards, protocols, methods, and other specifications.
- An iterative, participatory and consultative process will be facilitated by ICIMOD to synthesise and develop the final draft of the KSL CEMP to be presented for mutual acceptance as part of the RCF at the Third (final) Regional Workshop to be held (tentatively) at the end of January 2011.

- Concurrently, the CEMP process will seek to identify, initiate, and build networks to implement and institutionalise environmental monitoring and ecological research efforts outlined in the CEMP. It is intended that this process will promote scientific participation and institutional engagement and provide sustainability through national ownership and regional cooperation.
- Concurrently ICIMOD will develop a set of guidelines and a manual for community-based environmental monitoring which will seek to include local communities and build local capacities for ongoing long-term monitoring efforts. This will form the basis for including local participation within the CEMP. A draft manual will be ready and available for review, discussion, and comments at the Second Regional Workshop.

Key areas of agreement and basic principles

Hierarchical approach

It was agreed that there is a need for a hierarchical approach to arrive at a holistic picture, similar to a multi-level approach, for example, taking into account nested approaches such as in situ observations within a larger ecosystem context. At the highest level, land use, land cover, and change (LUCC) analysis provides a wider landscape context within which ecosystem-level studies or observation of particular taxa are nested, and through which drivers of external change can be identified and monitored.

Integration with national efforts

The Global Change and Mountain Regions (GLOCHAMORE) Research Strategy was identified as a useful starting point for discussion about the guidelines; however, the need for a regionally-specific approach and development of a set of guidelines appropriate for the conditions of the KSL was highlighted. General points of the Strategy accepted as useful tenets included the strategic framework focusing on the three aspects of environmental change; i.e., drivers of change: impacts on ecosystems and on ecosystem goods and services; regional economies, and health. Ongoing national efforts by the three respective countries were identified as the initial entry points for identifying common approaches and, in particular, common standards and protocols. In particular, it was pointed out that the Chinese Ecological Research Network (CERN) has 30 research stations with various monitoring activities taking place based on a set of common protocols. Monitoring efforts must be linked to national-level efforts and to other government initiatives, e.g., local administration, state forest departments, and so on. The CEMP must harmonise with the national plans of the respective countries.

Transparency of the CEMP process and stakeholder involvement

Stakeholder involvement increases the clarity of research, enhances its relevance and acceptability, and improves the efficiency and impact of the data collected and knowledge developed. Consulting local people and resource managers within the landscape in the planning and implementation phase is therefore central to implementation of the CEMP. Information relevant to policy formulation should be available to local stakeholders as well as local, national, and regional decision makers and the global research community.

Society and environmental change

Monitoring of socioeconomic parameters, cultural change, and the human dimension of adaptation, focusing on mountain communities, is an essential component of the CEMP and should be framed within the context of climate change and adaptation.

Integration of CEMP with the KSL Conservation Strategy

The CEMP must fully integrate with the Conservation Strategy. Further, any interventions by the Conservation Strategy, i.e., by the KSL Conservation Initiative, should be monitored.

Promotion of regional knowledge sharing and open data exchange

The CEMP will promote transboundary knowledge and data sharing and common formats facilitating open data exchange; and it will develop a common framework for data sharing which will form the basis for development of a KSL knowledge exchange platform.

Environmental and ecological indicators

Sets of indicators should be identified early in the process so as to facilitate long-term comparative analysis and allow for overall evaluation of ecosystem health and efficacy of conservation efforts. Indices are needed that are sufficiently robust, representative, and sensitive to monitor environmental and ecological change and also fulfil the requirement to communicate complex environmental, ecological, and biodiversity data to decision makers and the public. Indicators need to be chosen that not only monitor the conservation status of various taxa but which are also relevant to ecosystem functioning and services and can be incorporated easily into various models.

Ecosystem-specific sampling

A sampling frame should be developed that takes into account the spatial and temporal variability of the conditions to be sampled for each set of parameters to be measured. This implies that there should be an a priori landscape-level spatial analysis based on existing geospatial data to stratify the relevant landscape into a reasonable number of strata relevant to the specific set of parameters being sampled. Depending on the sampling, statistical and analytical needs, sampling sites, permanent plots, or weather stations can be sited either to 'represent' the average conditions of those strata or perhaps to be sited along steep ecotones where early indications of change may be more evident. Biases in sampling, e.g., close to roads for accessibility, should be avoided, taking into account the inherent tradeoffs of cost and time requirements.

Permanent environmental monitoring and ecological research sites

Identification of permanent sites for monitoring change is a valuable method for establishing baseline conditions, and especially for understanding change processes related to land use, land degradation, biodiversity, invasive species, and ecosystem functioning. For long-term environmental monitoring, representative sites need to be identified by each participating country along with specific records of location and baseline information. The location map, what is being specifically monitored; for example, geographical information of aspects, altitude, latitude and longitude, and related recording will be the starting point, depending on the purpose of the permanent site. Permanent, long-term monitoring sites can have multipurpose sampling and monitoring uses and should be co-located with other efforts to maximise efficiencies and allow for collaboration and data collection synergies.

Developing institutional networks and networking

Both the Conservation Strategy and the CEMP framework should be drafted with the broad objective of promoting transboundary regional cooperation for long-term environmental monitoring, assessment, and ecological research, in order to provide a platform to facilitate networking of regional, national, and global research efforts and bring focus to research issues in the KSL region. Development of institutional networks for monitoring the climate and biodiversity is a fundamental component of both the Conservation Strategy and the CEMP. The development of institutional networks for coordination of the project was discussed and outlined briefly for each country. In India, the Ministry of Environment and Forest (MoEF) is the nodal institution and the GB Pant Institute of Himalayan Environment and Development (GBPIHED) leads the project activities in coordination with the Wildlife Institute of India (WII) and the Forest Department of Uttarakhand State. In China, the working group consists of team members from the Institute of Geographic Sciences and Natural Resources, China Tibetology Research Centre, Kunming Institute of Botany, and the Institute of Tibetan Plateau Research of the Chinese Academy of Sciences. In Nepal, the working group is comprised of Tribhuvan University and the Ministry of Forest and Soil Conservation, along with other departments such as the Department of Hydrology and Meteorology and the Department of National Parks.

To facilitate coordination and dissemination of information within the project an interactive website for the project has been launched (from 2010) which will share information about the project. It is accessible from the main KSL website (www. icimod.org/ksl). Access to restricted partner-only sections of the website will be provided to the partners in consultation with various national coordinators.

Support to Partners for Geospatial Analysis

Geospatial analysis was identified as an important component of the feasibility analysis and also as a basic and important component of landscape delineation. In particular, it was recognised as essential that partners work on a common base map so that delineations are harmonised and coherent, in the same geographic reference coordinate system, and so on. In this regard, the ICIMOD – MENRIS Division has supplied each of the country partners with a base layer of SRTM 90 m Digital Elevation Data (also available from the Consultative Group on International Agricultural Research-Consortium for Spatial Information (CGIAR-CSI) (http://srtm.sci.cgiar.org) for use as a common reference framework for all KSL geospatial products.

Harmonisation of the land-cover legend

Land-cover mapping is an essential activity for the Feasibility Assessment, as well as for establishing a baseline for monitoring change; and this depends on geospatial analysis, mostly carried out using remote-sensing data. This is particularly important in remote areas such as the KSL where other sources of information may be sparse. In order to facilitate the transboundary coherence of this land-cover mapping exercise, ICIMOD held a training workshop on land-cover mapping for participants from all three KSL member countries. During this workshop, participants developed a harmonised legend for land-cover mapping in the KSL based on the FAO Land Cover Classification System so that a uniform database could be developed at the landscape level based on compatible methodologies and classification and comparable over time. The harmonised legend is given in Annex 7.

Agreements on geospatial technical issues

Other technical issues discussed and decisions taken at this geospatial technical (training) workshop included the following.

- Agreement on the use of a common base map and common geo-referencing system, namely:
  Coordinate System: Universal Transverse Mercator (UTM) Zone 44 R
  Map Datum: World Geodetic System (WGS) 84
- For now, the SRTM 90 m digital elevation model (DEM) data will be used as a common reference base map against which to check our projections. This can be updated in the future once we have more mapping products. The SRTM 90 m (v4 from CGIAR-CSI) was be re-projected and provided to partners on CD-ROM by Friday.
  It was decided that for the feasibility stage the prime geospatial products would be the following.
  a) Current land-cover map
  b) Land-cover change analysis
- Current land-cover map
  a) It was decided that Linear Imaging Self-Scanning 3 (LISS-3) data were the most appropriate and available to all partners.
  b) ICIMOD-MENRIS has procured the data and they have been provided to partners.
- Land-cover change analysis
  a) Historical data (Landsat Thematic Mapper [TM] and Enhanced Thematic Mapper [ETM]) will be identified from the approximate period 1989, 1999 to be compared with 2009 classifications.
  b) ICMOD-MENRIS has procured the data and they have been provided to partners.
- Geospatial data include satellite and other remote-sensing imagery, as well other georeferenced datasets and field data with georeferencing. This may also be extended to geo-textual data. Geospatial data requirements identified for resource assessment with the KSL include the following.

A list of possible geospatial map products (datasets) was identified that could be included in the KSL geo-database currently being developed by collecting existing secondary data sources (based on the Feasibility Assessment Guidelines). The meaning of geospatial data here includes georeferenced datasets, field data with georeferencing

and geo-textual data, as well as analysed or classified satellite and other remote-sensing imagery. These are only suggestions by the team, but it was agreed that this would build a solid information database for KSL based on the following sets.

- Topographic maps – DEM
- Infrastructure, roads, trekking, and pilgrimage routes
- Administrative boundaries (internal, provincial, district, ward, and VDCs)
- Urban areas and settlements, with place names
- Protected areas – (national and/or IUCN categories 1-5)
- Land cover – including vegetation, forest, rangeland, and agricultural areas
- Land use and agricultural production systems
- Hydrology and water resources
- Rivers, lakes, water bodies, and wetlands
- Watershed and river basin boundaries
- Snow and ice
- Ecozones, biomes, life zones
- Climatic data (temp, precipitation, and so on)
- Biological diversity of flora and fauna
- Wildlife and wildlife habitats
- Forest development, use, and management
- Rangelands and rangeland management
- Settlement and demographic patterns
- Socioeconomic, livelihood, poverty, and gender issues
- Cultural and religious heritage sites
- Tourism

Satellite imagery available for KSL

To facilitate the land-cover and/or land-use change analysis required for the Feasibility Assessment, a series of satellite images covering the KSL at two time periods (i.e., from 1990-1992 and from 2009- 2010) were acquired by the KSLCI and provided to the main partners through the lead country institution. The list of images available for use by KSLCI partners to complete project activities is given in Annex 8.

Equipment for Monitoring

As part of the KSLCI 'Activity 2.3 – Installation of bioclimatic and meteorological stations for ecological monitoring,' ICIMOD is finalising the list for procurement of ecological and environmental monitoring equipment (including Automatic Weather Station Equipment, global positioning systems [GPS], and data loggers for the sites in three countries). This equipment is for the initial piloting of environmental and ecological monitoring which will form the basis for long-term monitoring of the target area. It was suggested that the equipment should be purchased in time for the summer field work season, but that this activity would be coordinated with the ongoing CEMP process. A list of the equipment proposed has been sent to all partners for comment and detailed suggestions. It was agreed that we should proceed as quickly as possible with the procurement and logistical arrangements, as other issues needed to be considered; for example, import procedures in the various countries and institutional ownership arrangements.

Naming Conventions for the KSLCI

A discussion was held about whether the KSLCI should use the 'Kailas' spelling or remain with the currently used 'Kailash.' Opinions were expressed by representatives from every country, and quick research showed that these are variants of each other that are both widely in use. Based upon a consensus of opinion, it was decided by the partners that the KSLCI would continue to use 'Kailash' for all documents, maps, and project references. It was acknowledged, however, that since Mt Kailash itself is in China, the official internationally recognised name is Gāngrénbóqí Fēng. Likewise, it was decided that all four relevant names of the mountain, namely, Chinese, English, Sanskrit (referring to Hindi, Nepali, and so on), and Tibetan should be mentioned.

It was queried whether the used of the term 'sacred' should be continued in referring to the KSL and the KSLCI, as all countries involved are secular. It was pointed out that there are many sacred sites, mountains, and even landscapes already recognised officially within the region and throughout the world. Examples were given of the Sacred Himalayan Landscape in Nepal and the many sacred sites and mountains in each of the three countries. Additionally, reference was made to recent efforts by UNESCO to develop guidelines for sacred sites and landscapes, many of which include sacred mountains. After discussion, it was decided by consensus that the term 'sacred' was appropriate, non-controversial, and accurate, and so it would be used. By consensus, the KSLCI will continue to refer to the target landscape as the 'Kailash Sacred Landscape.'

Workplan, Milestones, and Timeline

After revisiting the workplan, the timeline for the various milestones was adjusted to take into account progress to date, input from the partners on constraints associated with the implementation of various activities, and the limited duration of the project. The following plan and timeline were agreed to by all partners. All the regional documents will be finalised after receiving inputs from the various countries and UNEP.

Milestone	Institution	Timeline
KSL map	ICIMOD	30 April
CEMP Guidelines – finalised	ICIMOD	15 May
Conservation Strategy Guidelines – finalised	ICIMOD	15 May
Feasibility Assessment Report – draft	Countries	15 June
Regional Feasibility Report – draft	ICIMOD	15 July
TEK document – draft	ICIMOD and countries	15 August
2nd Regional Workshop – China	ICIMOD and China Team	4-7 Sept
Conservation Strategy – draft	Countries	2nd Regional Workshop
CEMP – draft	Countries	2nd Regional Workshop
Draft outline of RCF content	ICIMOD	2nd Regional Workshop
CEMP – finalised	Countries	30 September
Conservation Strategy – finalised	Countries	30 September
Regional Synthesis CEMP – draft	ICIMOD	15 November
Regional Synthesis Conservation Strategy – draft	ICIMOD	15 November
3rd Regional Workshop – Nepal	ICMOD and Nepal Team	December 2010
Regional Cooperation Framework – finalised	ICIMOD	30 January 2011
Government Consultation on RCF	ICIMOD and countries	Complete by Feb 2011
Signing of RCF	ICIMOD and countries	By March 30, 2011

Closing Remarks

Dr Eklabya Sharma highlighted the innovative and ground-breaking approach and the potential of the project for promoting regional cooperation. In addition, the important accomplishments of the workshop were detailed, in particular the agreement on the timelines for project implementation and the guidelines for the Conservation Strategy and the CEMP. Thanks were offered to all participants on behalf of ICIMOD and the ICIMOD KSL team members, and the need for working cooperatively and especially meeting timelines was reiterated.

Dr LMS Palni emphasised the commitment to work as a team. He stated that the project should be apolitical and science-based and he stressed the importance of local participation. 'Conservation without compensation is only conversation.' The KSLCI was a big challenge with the vital question being how we can make a meaningful effort. He highlighted the symbiotic nature of science and religion and the need to harness the religious feeling of local communities for successful conservation. Younger people should become major participants in the KSLCI. In general, the need for broad participation was highlighted; it should be inclusive of the younger generation and women.

Mr Hem Pande also emphasised the need for more participation, especially for more women in planning and implementation. Getting regional cooperation would be a major challenge, but a gap that needed to be filled. In particular, Mr Pande emphasised the point that the RCF which would come from the 18 month gestation period should be implementable, i.e., practical at various levels. This was essential in order to ensure its implementation.

The South Asian Association for Regional Cooperation (SAARC) countries were a challenge in terms of regional cooperation; and this would be a model for it. Issues of equity should be addressed upfront. Resourcing this project would be very important. The emphasis should now be on national and regional team work.

Mr Surya Joshi highlighted the importance of adopting the landscape approach and mentioned the importance of sharing information and knowledge to finalise the report. Science should be the entry point for the KSLCI. The focus should be on biodiversity conservation, upstream-downstream relations, cultural heritage, and people's livelihoods. Future finances would be important for the project. Bilateral developments and agreements for conservation of biodiversity resources were also concurrent and should be considered.

Dr Dong Qi recalled that these three countries were pillars of the great civilisations of Asia, and that Mt Kailash was especially important for all three countries. This was the first initiative taking place between the three countries for regional cooperation, and this should be taken forward seriously. Action was better than talking. The second regional workshop would be held in China, hosted by the ICIMOD China Network (CNICIMOD). An invitation for participants to attend was extended, and the CNICIMOD and the Chinese partners were looking forward to this event.

Mr RBS Rawat, Principle Chief Conservator of Forests (PCCF) of Uttarakhand (UK), India emphasised the importance of the KSL within the context of the implementation of CBD and CITES. Additionally, he stressed the importance of creating livelihood options to reduce poverty in the area. This would require continuous cooperation and collaboration amongst the partners in three countries. The KSLCI must start innovative work and apply innovative approaches. The Forest Department in Uttarakhand (UK) had introduced a Compensatory Afforestation Fund Management and Planning Authority (CAMPA) – a collaborative research initiative for biodiversity conservation and management – and this could support the RCF process and KSL efforts. The RCF must lead in the management of fundamental issues affecting the landscape. It was suggested that the importance of considering the historical trade, trekking, and pilgrim routes be highlighted within the context of the KSL. He reiterated the common commitment to the project.

Dr RS Rawal, on behalf of the GBPIHED as the official host from India, thanked everyone for their participation and reiterated the importance and commitment of all participants and partner institutions to making a successful effort and accomplishing a meaningful contribution to conservation and the lives of local communities.

Field Trip

On the last day of the workshop (13th April 2010) a field trip to Kausani was organised. The participants were exposed to various conservation and livelihood activities of the GBPHIED carried out in collaboration with local farmers and ICIMOD's former PARDYP project. The group also visited the GBPIHED campus at Kosi-Katarmal. Dr LMS Palni briefed the group on GBPIHED activities and future thrusts. The afternoon was spent visiting the GBPIHED. Parting remarks were given by Dr Palni, and thanks voiced by many of the participants. The participants showed keen interest in and expressed their openness to collaborate with the GBPIHED on areas of mutual interest. An exposure visit to GBPIHED's Nature Interpretation and Learning Centre was organised also.

Annex 1: **Workshop Agenda**

First Regional Workshop

Kailash Sacred Landscape Conservation Initiative (KSLCI)
11-13 April 2010, Almora, India

Day 1 – 11th April 2010

Opening Session Chaired by Mr Hem Pande, Joint Secretary MOEF Govt. of India

08:30 – 09:00	Registration of participants	
09:00 – 09:15	Welcome to the participants	Director, GBPIHED
09:15 – 09:30	Objective of the Workshop	Krishna Oli, ICIMOD
09:30 – 09:45	Opening Remarks	Eklabya Sharma, ICIMOD
09:45 – 10:00	Opening Remarks	Tim Kasten, UNEP
10:15 – 10:30	Remarks	MOE&F, Gov. of India
10:30 –10:45	*Tea /Coffee*	

Technical session 1: Facilitation By Eklabya Sharma

10:45 – 10:55	Brief Introduction of the participants	Participants
10:55 – 11:15	Presentation on the project progress	Krishna Oli, ICIMOD
11:15 – 11:45	• The process of delineation of the landscape area – (criteria) • Land-cover mapping training and progress • Current land-cover maps and data • Identification of geospatial data required – harmonisation of legends – support for spatial analysis available from ICIMOD	Birendra Bajracharya and representatives from participating countries Notes to be taken by Robert Zomer (countries)
11:45 – 12:45	Discussion about the types of maps that need to be produced for the Conservation Strategy and RCF	
12:45 – 13:45	*Lunch*	

Technical Session 2: Facilitation by Subrato Sinha – UNEP

13:45 – 14 :45	Presentation of Feasibility Assessment and Policy and Enabling Environment Assessment Reports, China (Gap analysis)	Shi Peili IGSNRR, CAS, China
14:45 – 15:00	Discussion about the presentation	Notes taken by Nakul Chettri
15:00 – 16:00	Presentation of Feasibility Assessment and Policy and Enabling Environment Assessment Reports, India (Gap analysis)	Ranbeer Singh Rawal, GBPIHED, India
16:00 – 16:15	*Tea/Coffee*	
16:15 – 16:45	Discussion	Notes taken by GBPIHED
16:45 – 17:45	Presentation of Feasibility Assessment and Policy and Enabling Environment Assessment Reports, Nepal (Gap analysis)	Ram Prasad Chaudhary, Tribhuvan University, Nepal
17:45 – 18:00	Discussion	Notes taken by Nakul Chettri
18:30 – 21:00	*Reception Dinner*	

Day 2 – 12th April 2010

Session facilitation: MOEF Hem Pande

Time	Agenda	Responsible person
08:30 – 08:50	Review of the previous day	Subrato Sinha – UNEP
8:40 – 9:10	Presentation of draft framework for developing the Conservation Strategy	Krishna Prasad Oli
9:10 – 9:40	Presentation of draft framework for developing the Comprehensive Environmental Monitoring Plan	Robert Zomer
	Facilitation by Dr Dong Qi, CAS	
9:40 – 10:40	Group work to finalise the draft framework for Conservation Strategy and Environmental Monitoring Plan	
10:40 – 12:00	Continuation of group work to finalise the draft framework for the Conservation Strategy and Environmental Monitoring Plan	
12:00 – 12:15	Tea Break	Facilitation by MoFSC, Nepal – SP Joshi
12:15– 13:15	Group presentation in plenary, discussion and finalisation of frameworks	
13:15 –14:00	*Lunch*	
14:00 – 14:10	Finalising the equipment list	Robert Zomer
14:10 – 14:15	Development of institutional networks for climate and biodiversity monitoring	Krishna Oli
14:15 – 15:30	Revisiting workplan, timelines	E. Sharma
15:30 – 18:00	Closing Remarks	
	ICIMOD	E. Sharma
	UNEP	Tim Kasten
	GBPIHED – India	LMS Palni
	MoEF – India	Hem Pande
	MoFSC – Nepal	SP Joshi
	CAS – China	CAS – Dong Qi
	PCCF, Uttarakhand	RBS Rawat
	Vote of Thanks	Ranabeer Rawal

Day 3 – 13th April 2010

	Field visit Kaushani	GBPIHED

Day 4 – 14th April 2010

	return to Delhi and to respective destinations	

Annex 2: **List of Participants**

CHINA

1. **Dr Yang Yongping**
Professor
Kunming Institute of Botany, Chinese Academy of Sciences
No.132, Lanhei Road, Kunming, Yunnan 650204, China
Tel: 86 871 5223398, 86 13608716810
Fax: 86 871 5223398
Email: yangyp@mail.kib.ac.cn

2. **Dr Shi Peili**
Professor PhD
Institute of Geographic Sciences and Natural Resources Research,
Chinese Academy of Sciences
A 11, Datun Road, Chaoyang District, Beijing 100101, China
Tel: 86 10 64889686; 136 7124 0032 (Mobile)
Fax: 86 10 64854230
Email: shipl@igsnrr.ac.cn

3. **Dr Dong Qi**
Division Director
Bureau of International Cooperation, Chinese Academy of Sciences
52 Sanlihe Road, Xicheng District, Beijing 100864, China
Tel: +86 10 68597246
Fex: +86 10 68511095
Email: dongqi@cashq.ac.cn

INDIA

4. **Mr Hem Pande**
Joint Secretary to the Government of India
Ministry of Environment and Forests,
621 Paryavaran Bhawan, CGO Complex, Lodhi Road,
New Delhi-110003, India
Tel: 91 11 24362551 (O) Mobile 919810132693 (C)
Fax:91 11 24360894
Email: hempande@nic.in

5. **Dr GS Rawat**
Professor/Scientist-G
Wildlife Institute of India, Department of Wildlife Habitat Ecology
Post Box # 18 Chandrabani, Dehradun – 248 001
Uttarakhand, India
Tel: 91 135 2640111 to 115 (O), 09412053542 (C)
Fax: 91 135 2640117
Email: rawatg@wii.gov.in

6. **Dr Gobind Sagar Bhardwaj**
Scientist-E, Wildlife Institute of India
Post Box # 18 Chandrabani, Dehradun – 248 001
Uttarakhand, India
Tel: 91 135-2640111 to 115 (O), 09456118948
Fax: 91 135 2640117
Email: gsbhardwaj@wii.gov.in, gsbifs@yahoo.co.in

7. **Dr Raghubir Singh Rawat**
Principal Chief Conservator of Forests
Forest Department Uttarakhand
85-Rajpur Road, Dehradun 248001, Uttarakhand, India
Mobile: 91 135 2746934, 91 94120 51550
Fax: 91 135 2747630
Email: pccf_uta@yahoo.com, raghubir22@hotmail.com

8. **Mr Suresh Chandra Pant**
Chief Conservator of Forests
Kumaon region, Nainital, Forest Department
Glenthorn Building, Mallita, Nainital, India
Tel: 9412094525 (Mobile), 91 05942 236218
Fax: 91 05942 236218
Email: ccf-kumaon@rediffmail.com

9. **Mr Manoj Chandran**
Indian Forest Service, Deputy Conservator of Forests (Working Plan)
Pithoragarh Forest Division, Uttarakhand Department
Pithoragarh, Uttarakhand 262501, India
Mob: 91 9837351572
Email: chandranmanoj@hotmail.com

10. **Dr Lok Man Singh Palni**
Director, G B Pant Institute of Himalayan Environment and Development (GBPIHED)
Paryavaran Bhavan, Kosi Katarmal, Almora 263643,
Uttaranchal, India
Tel: 91 5962 241015; Mobile: 09412092188
Fax: 91 5962 241014
Email:psdir@gbpihed.nic.in, lmspalni@rediffmail.com

11. **Dr Ranbeer Singh Rawal**
Scientist-E
GB Pant Institute of Himalayan Environment and Development (GBPIHED)
Kosi Katarmal, Almora, 263643
Uttarakhand, India
Tel: 91 9410392114 (M), 91 5962 241041 *36;
91 5962 241038;
Fax: 91 5962 241150
Email: rsrawal@gbpihed.nic.in ; ranbeerrawal4@gmail.com

12. **Dr Subrato Sharma**
Scientist, G B Pant Institute of Himalayan Environment and Development (GBPIHED)
Kosi Katarmal, Almora, 263643, Uttarakhand, India
Tel: 91 5962 241041 *36; 91 5962 241038
Fax: 91 5962 241150
Email: subrats@rediffmail.com, subrats@gbpihed.nic.in;

13. **Dr Shekhar Pathak**
Professor/Editor
People's Association for Himalayan Research/.Nehru Memorial Museum and Library (PAHAR/NMML)
'Parikrama' Talla Danda
Tallital, Nainital- 263002, Uttarakhand, India
Tel: 91 9412085755, 91 5942 236191
Email: birkham@gmail.com, pahar.org@gmail.com;

14. **Dr Ruchi Pant**
c/o Shr. Ajay Rastogi
Village and PO Majkhali, Ranikhet, Pin Code – 263 652
Uttarakhand Himalaya, India
Tel: 91 5966 240338/240223 Mob: 91 9758727196
Email: ruchi.pant@undp.org

15. **Dr J S Rawat**
Coordinator India
IUCN India Office
20 Anand Lok, New Delhi -110049,
Tel: 91 11 26257742
Fax: 91 11 26257742
Email: jsrawat@iucn.org

16. **Mr Nishant Verma**
Division Forest Officer
Pithoragarh Forest Division, Uttarakhand Department
Tel: 9412095665, 05964225234
Fax: 05964 225234
Email: dfo_pith_uta@yahoo.com

17. **Dr Rajesh Joshi**
Scientist-C
G B Pant Institute of Himalayan Environment and Development (GBPIHED)
Paryavaran Bhavan, Kosi Katarmal, Almora 263643, Uttaranchal, India
Tel: 09411159622
Email: Drrajeshjoshi@gmail.com

18. **Dr Indu Dutt Bhatt**
Scientist-C
G B Pant Institute of Himalayan Environment and Development (GBPIHED)
Paryavaran Bhavan, Kosi Katarmal, Almora 263643, Uttaranchal, India
Tel: 91 9411 703802
Fax: 91 5962 24104, 241150
Email: id_bhatt@yahoo.com, idbhatt@gbpihed@nic.in

19. **Prem Kumar**
Divisional Forest Officer
Forest Department, Uttarakhand
D.F.O Civil Soyam, Almora, India
Tel: 9720695584, 05962 230229
Email: csalmdfo@rediffmail.com

20. **Ms. Mallika Menon**
Lawyer – Policy Analyst
ECOSERVE
Secunderbad, India
Tel: 9849433096
Email: emmenon@gmail.com

NEPAL

21. **Professor Dr Ram Prasad Chaudhary**
Professor, Coordinator Nepal, KSLCI
Central Department of Botany, Tribhuvan University,
Kirtipur, Kathmandu, Nepal
Tel: 977 1 4333722 (Off) 4331322, 9841283652 (M)
Fax: 977 1 4333722
Email: ram@cdbtu.wlink.com.np

22. **Dr Krishna Kumar Shrestha**
Professor and Department Head
Department of Botany, Tribhuvan University,
Kirtipur, Kathmandu, Nepal
Tel: 977 1 4331322, 9841221465 (M)
Fax: 977 1 4359184
Email: kk.shestha@cbdtu.edu.np

23. **Mr Surya Prasad Joshi**
Joint Secretary
Ministry of Forests and Soil Conservation (MoFSC)
Singha Durbar, Kathmandu, Nepal
Tel: 977 9841628480, 977 1 4221862
Email: joshi_spj@yahoo.com

24. **Dr Keshav Prasad Sharma**
Deputy Director General
Department of Hydrology and Meteorology,
Ministry of Environment, Babar Mahal
PO Box: 406
Tel: 977 1 4428050, 9802011786 (M)
Fax: 977 1 4262348
Email: kpspoudel@gmail.com, k_p_sharma@hotmail.com

25. **Mr Madhav Prasad Acharya**
Director General
Department of Forests, MoFSC
457/14 Paneku Marg, Kathmandu-7, Nepal
Mobile: 977 9851077058
Email: dgdof@dof.gov.np

26. **Mr Fanindra Raj Kharel**
Planning Officer
Department of National Parks and Wildlife Conservation, Babar Mahal
PO Box: 860, BabarMahal, Kathmandu, Nepal
Tel: 977 1 4227926, 4466981, 9741122875 (M)
Fax: 977 1 4227675
Email: fkharel@live.com

UNEP

27. **Dr Subrato Sinha**
Regional Coordinator for South Asia
United Nations Environment Programme, Bangkok
For Asia and the Pacific (UNEP ROAP)
2nd Floor, Block-A, United Nations Building, Rajdamnern Nok Avenue, Bangkok 10200
Tel: 66 2 2882259
Fax: 66 2 2803829
Email: sinha6@un.org, subrato.sinha@gmail.com

28. **Mr Tim Kasten**
Deputy Director, Division of Environmental Policy Implementation
and Coordinator, Freshwater and Terrestrial Ecosystems Branch
UNEP, P.O. Box 47074, Nairobi, Kenya
Phone: 254 20 762 4749
Fax: 254 20 762 4249
Email: tim.kasten@unep.org

International Centre for Integrated Mountain Development (ICIMOD)
G.P.O. Box 3226, Kathmandu, Nepal
Tel: 977 1 5003222 Fax: 977 1 5003277, 5003299
Email: info@icimod.org; www.icimod.org

Dr Eklabya Sharma
Programme Manager, ECES
Email: esharma@icimod.org

Dr Robert Zomer
Deputy Programme Manager, ECES
Email: rzomer@icimod.org

Dr Krishna Prasad Oli
Regional Coordinator, KSLCI, Biodiversity Conservation and Management, ECES
Email: koli@icimod.org

Dr Nakul Chettri
Action Area Team Leader, Biodiversity Conservation and Management, ECES
Email: nchettri@icimod.org

Mr Birendra Bajracharya
GIS Specialist, Mountain Environment and Natural Resources Information Systems (MENRIS)
Email: bbajracharya@icimod.org

Annex 3: **National Consulation Workshop Reports**

KSLCI National Consultation Workshop: China

On March 26, 2010, the China consultation workshop was held in the nodal institution, the Institute of Geographic Sciences and Natural Resources, Chinese Academy of Sciences. Dr Shi Peili, as project coordinator for China, chaired the workshop. Seven participants from four China partners — the China Tibetology Research Centre, Institute of Geographic Sciences and Natural Resources, Kunming Institute of Biology, and Institute of Tibetan Plateau Research of the Chinese Academy of Sciences participated in the workshop.

All the participants observed that the Kailash Sacred Landscape is important for transboundary biodiversity and cultural conservation. Kailash Sacred Landscape is located in China but it is a common sacred place for Chinese, Indian, and Nepalese religious pilgrims who are Tibetan Buddhists, Hindus, and Sikhs. The people of the transboundary in China, India, and Nepal have similar religious beliefs; and the region in each country shares similar biophysics, biodiversity, and cultural diversity. The transboundary region has a wide environmental gradient with vegetation varying from subtropical forests, subalpine coniferous, to alpine meadow and steppe. The upper and lower reaches of the watershed from the sacred landscape are important for natural resource use and management. Therefore, the Kailash sacred landscape in this transboundary region is important and its biodiversity and culture need to be conserved by means of ecosystem management on a large scale as it is important for sustainable development in China, India, and Nepal. In the climate change scenario foreseen, ecosystem vulnerability and adaptation to climate warming should be taken into account by different levels from governments to local stakeholders.

The participants discussed the feasibility report for the Kailash Sacred Landscape Initiative and the coordination mechanism for this project. The programme for the first regional workshop in Almora, India, was discussed as well as the site for the second regional workshop in China.

With regard to the feasibility report for China, participants suggested introducing the following.

- Kailash landscape delineation, land-cover types and land-use change
- Biodiversity analysis including flora and fauna and endemic and protected species
- Cultural diversity including the most important cultural sites such as temples, scenic spots, sightseeing sites, sacred mountains and lakes, and nomadic sites
- Pilgrimage routes and tourism conditions
- Local livelihoods

Participants also advised the establishment of long-term meteorology and biology monitoring sites for further research and filling the gaps in knowledge of ecological and environmental conditions. In addition to the meteorological observation site in the county town of Purang, establishment of automatic meteorological observatory stations near Mount Kailash and Lake Manasarovar were proposed. Through observing the ice core records of the climate and meteorological observation stations, climate change in the Kailash area in past decades could be detected.

The feasibility of cooperation among China, India, and Nepal was also discussed. Transportation and infrastructure had improved in recent years. Ngari Airport should open in 2010, and improvements were taking place on the highway from Lhasa to Purang. China has an open policy for international cooperation. In the past 30 years the Chinese Academy had carried out routine exploration of natural resources and recently the Chinese Academy of Science launched an environmental monitoring and assessment plan in western Tibet. These activities have

enhanced the feasibility of transboundary cooperation. The key points should be cooperation and establishment of a coordination mechanism among the transboundary countries.

The Chinese partners of this Kailash Conservation Initiative include institutions from the Chinese Academy of Sciences, Tibetan Research Centre, and local governments who are experts in the natural and social sciences. Masters' and doctoral candidates are also involved in this feasibility study. Partnership development would be expanded in the coming years due to the importance given to this key landscape region.

It was strongly advised that equipment for monitoring the environment should be purchased by member countries because of the complicated procedures for shipping and customs. ICIMOD could lead the procurement process if necessary.

Participants at the national consultation workshop

Prof. Dr Shi Peili
Institute of Geographic Science and Natural Resources' Research, Chinese Academy of Sciences

Prof. Yang Yongping
Kunming Institute of Botany, Chinese Academy of Sciences

Prof. Dr Tian Lide
Institute of Tibetan Plateau Research, Chinese Academy of Sciences

Dr Zhou Caiping
Institute of Geographic Science and Natural Resources' Research, Chinese Academy of Sciences

Mr Luorong Zhandui
China Tibetology Research Centre

Prof. Zong Gang
Beijing University of Technology

Mr Fan Libing
Beijing University of Technology

KSLCI National Consultation Workshop: India

As part of the implementation of the Kailash Sacred Landscape Conservation Initiative, a National Consultation Workshop was organised by the GB Pant Institute of Himalayan Environment and Development in collaboration with the collaborating partners on March 27 in Dehradun to launch the Regional Cooperation Framework Process (RCF). The workshop was chaired by Dr RBS Rawat, the Principle Chief Conservator of Forests (PCCF), Government of Uttarakhand State, India. An estimated 25 participants from partner institutions took part. The workshop briefed participants on the progress so far made on the project and established networking among the partners, as well as identifying roles and responsibilities in the implementation of the project.

The meeting was held in the Board Room of the Wildlife Institute of India, Dehradun, and the following were present.

Dr PR Sinha, Director WII
Dr VB Mathur, Dean WII
Dr VP Uniyal, Scientist WII
Mr M Chandran, Dep. Con. FWP
Mr E Theophilus, Pithoragarh
Dr S Sharma, GBPIHED, Almora
Dr LMS Palni, Director GBPIHED
Dr GS Rawat, Professor WII
Mr GS Bharadwaj, Scientist WII
Mr Ajay Rastogi, Director Ecoserve, Almora
Dr RS Rawal, GBPIHED, Almora

1. At the outset, the Director of GBPIHED, Dr LMS Palni, welcomed the participants and briefed them about the project. He informed the house about the genesis and subsequent developments of the project leading up to the signing of an LoA between ICIMOD and GBPIHED. Dr Palni emphasised the fact that this is the first transboundary project of its kind and it would require sincere and transparent efforts from all parties involved. In particular, he mentioned that the three major national partners (i.e. WII, Uttarakhand Forest Department, and GBPIHED) would have to work in close collaboration. It was indicated also that these partners should, depending upon specific needs, identify co-partners for timely execution of the project. Dr Palni thanked the Director of WII and his team for providing the venue, making the arrangements, and for attending the meeting.
2. The Director of WII, Mr PR Sinha, emphasised the importance and wide- ranging implications of the project. He assured participants of the cooperation of WII for successful execution of the project. Mr Sinha, however, stated that, considering the transboundary nature of the project, each organisation participating would need to be careful about reporting.
3. Dr RS Rawal from GBPIHED made a powerpoint presentation detailing the: (i) project objectives, initial concerns of the Government of India, and responses from ICIMOD; (ii) components of the LoA; and (iii) Terms of Reference for the feasibility report and policy review. He also presented the major components, specific work elements, and process proposed for achieving the targets. At the end of the presentation, five scenarios for consideration of possible target areas were presented also.
4. A detailed discussion followed the presentation and the following points were made.
   - Mr Ajay Rastogi suggested that the final outcome of various components needed to be integrated. This would require ensuring compatibility of approaches and/or methods being adopted by different teams. Compatibility of datasets would be the major issue to be considered.
   - Mr E Theophilus suggested that hydrology and water components could be redefined as hydrology and aquatic habitats. The specific elements of work would, thus, include aquatic biota and the ecologically critical aquatic areas in the target landscape. Also, it was suggested that information about snowfall and snow cover be included under a specific workplan of the component.
   - Mr Manoj Chandran was of the opinion that, in view of the ecological and cultural linkages, the relevant portions of Himachal and Jammu and Kashmir should be included in the proposed landscape.
5. It was agreed that point i and ii of point 4 above (4 i-ii) would receive appropriate attention. In view of the practical feasibility, however, it was agreed that the target area should be restricted to Uttarakhand only. The Director of WII indicated that expansion of the target area would lead to administrative and security issues which might hamper progress.
6. Dr GS Rawat suggested that the target area needed to be defined on the basis of its ecological and cultural representativeness. He proposed that scenario 4, which broadly includes the districts of Pithoragarh and Champawat, on account of its altitudinal gradient from 300 to >7500 masl and historical linkages with transhumance migratory routes, could be considered for the target landscape in the Indian part.
7. The group agreed with the above proposal (point 6). It was mentioned that the boundaries needed to be defined on the basis of natural and ecological features.
8. While discussing responsibilities, the Director of WII consented to the following work components of the Feasibility Assessment for which WII will take the lead.
   - Wildlife and wildlife habitats: (i) important wildlife species; habitats, and areas; (ii) habitats for migratory species and migration corridors; (iii) ongoing practices of wildlife management and gaps therein; (iv) rangelands-extent, distribution, and rangeland types and rangeland management; (v) existing local or national and/or sub-national or international conservation and/or management of wildlife; (vi) issues pertaining to illegal trade; and (vii) plan of action for sustainable wildlife management
   - Threatened and/or sensitive components of biodiversity: (i) threatened and sensitive species of flora and fauna (listed and otherwise identified as threatened species) – status and distribution by ecozones, altitudes, and habitats; (ii) trends in population decline and intensity of causative factors; and (iii) plan of action for conservation and management
     - Medicinal and other important species (ecologically and economically) : (i) enumeration, valuation, and potential assessment; (ii) community perception and alternative livelihood options, priorities (ecological and/or economic), and gap areas; and (iii) plan for management and sustainable use

9. It was agreed that the leading institutions and organisation for specified component (s) of work could consider receiving expert help from other organisations or individuals for specific work elements. It was emphasised by the Director of WII that, in view of the short time span (i.e., up to June 2010) for completing the feasibility study, each team should start working at the earliest and should not be bogged down on small issues which could be addressed while carrying out the work.
10. The Director of GBPIHED thanked the participants for their useful suggestions and assured them that GBPIHED, as the lead Institution, would ensure completion of the task within the time stipulated with the active collaboration of all the partners.

The meeting ended with a vote of thanks to the chair.

KSLCI National Consultation Workshop: Nepal

Date: March 12, 2010
Venue: Babar Mahal, Kathmandu
Prepared by: Ram P. Chaudhary, National Consultant for Kailash Sacred Landscape Conservation Initiative (KSLCI) – Nepal, Project Steering Committee

Introduction

The Mount Kailash region is among the most culturally and ecologically significant, diverse, and fragile regions in the world. This vast region contains a rich and diverse array of ecosystems, biomes, indigenous and endemic species, local cultures, and communities. The area also has an important cultural and religious transboundary landscape. Religious and spiritual pilgrims from around the world journey to this sacred mountain, coming primarily through India, Nepal, and other parts of China. Importantly, Mount Kailash is also the source of four of Asia's great rivers; viz., the Indus, the Brahmaputra, the Karnali, and the Sutlej, which together irrigate much of Asia and the Indian subcontinent, including Nepal. They provide essential transboundary ecosystem goods and services which are vitally important to the greater region and to the Regional Member Countries (RMC) involved in the KSLCI. Limited livelihood options for poor communities, particularly in Nepal, have an impact on resource degradation and poverty is widespread and will limit options for adapting to climate change, imperilling biodiversity resources. Population growth, unregulated tourism development, as well as poorly-managed subsistence activities contribute to the stress on the natural environment and the cultural landscape. In addition, ongoing global climate change processes are projected to have a severe impact in this region. These factors produce transboundary impacts on ecosystems and local cultures.

Mechanisms for maintaining and enhancing both essential ecosystem goods and services and cultural integrity of the sacred geography of this region are urgently required. For this, local livelihood subsistence strategies and tourism growth should be balanced with environmental conservation and sustainable development goals, especially in light of ongoing and accelerated processes of global climate and environmental change.

Mount Kailash Sacred Landscape Conservation Initiative, a transboundary landscape management programme, is defined by ecosystems rather than boundaries and implies an integrated landscape management approach in which both the conservation and sustainable use of components of biological diversity are considered and people and their sociocultural resources are placed at the centre of the conservation framework. This science-based approach has been strongly recommended for linking conservation with sustainability, involving communities in decision-making processes, and exploiting biodiversity judiciously to secure effective management.

Mount Kailash Sacred Landscape Conservation Initiative-Nepal

The initiative began formally by signing an agreement on December 9, 2009, between the Ministry of Forests and Soil Conservation (MFSC) and the International Centre for Integrated Mountain Development (ICIMOD). This was followed by formation of a nine-member Project Steering Committee under the Chair of Mr Yub Raj Bhusal, Secretary,

MFSC, on December 15, 2009. The Central Department of Botany, Tribhuvan University (TU), Nepal, and ICIMOD signed a letter of agreement (LoA) to undertake scientific study of the KSLCI-Nepal on December 18, 2009.

The Mount Kailash Sacred Landscape Conservation Initiative engaged national and local partners, experts, and other stakeholders in Nepal in a consultative process aiming at the facilitation of an integrated, transboundary approach to sustainable development and conservation in the KSL. A one-day national consultation workshop was held in Kathmandu with the objectives of (i) reviewing the progress of the project; (ii) receiving suggestions and comments for improving the regional conservation plan; (iii) facilitating coordination and networking among stakeholders in Nepal; and (iii) building a knowledge base.

National Consultation Workshop: Overview and Outcomes

Overview

A national consultation workshop was organised by the Executive Committee of KSLCI-Nepal which was chaired by Mr Surya P. Joshi on behalf of the Secretary to the Ministry of Forests and Soil Conservation (MFSC), Government of Nepal. It was held on March 12, 2010, at Babar Mahal, Kathmandu. The MFSC coordinates the planning and implementation of KSLCI in Nepal. The programme was attended by 30 participants, and they included steering committee members, consultants, representatives of various organisations and stakeholders (see the list of participants at the end of this section). The programme was moderated by Mr Sagar Rimal.

Outcomes

Progress of the project

- Two presentations were made in the national consultation workshop. Dr K.P. Oli, Regional Coordinator, made a presentation about the rationale and importance of the initiative for landscape conservation as well as sustainable development. The deliverables were given as: (i) status of the progress made by regional member countries and (ii) harmonisation of the methodology for data generation by all regional member countries.
- Professor Ram P. Chaudhary, National Coordinator, presented the methodology for data collection, progress so far on the feasibility study, and future plans for preparation of a conservation strategy and regional conservation framework.
- The Feasibility Assessment highlighted (i) delineation of the target landscape in Nepal; (ii) progress in desk research on literature available; (iii) major legal and policy issues; and (iv) needs' assessment for a Regional Conservation Framework. The feasibility study also generated data through secondary sources and made a plan for community consultation in the field.
- The methodology and scope of the Conservation Strategy was discussed.
- Long-term ecological monitoring based on altitudinal gradients along the main Humla-Karnali watershed river basin and the impact of global warming on the shifting of species based on the Global Observation and Research in Alpine Environments (GLORIA) methodology were discussed. The monitoring sites were to be selected for installing stations and generating baseline data by the research team of experts and Masters' students from Tribhuvan University. A community-based environmental monitoring manual was suggested as a means of enhancing the capacity of local communities in adaptation and mitigation of the impacts of climate change on livelihoods. The deliverables were presented as (i) delineation of the KSLCI area in Nepal and (ii) suggestions and comments about the KSLCI project in Nepal.

Delineation of the project area in Nepal

- Five districts in western Nepal (Darchula, Bajhang, Bajura, Mugu, and Humla covering approximately 17,500 km^2) were proposed by the Ministry of Forests and Soil Conservation (MFSC), Government of Nepal, and ICIMOD for the feasibility study. The following criteria were taken into consideration and were applied to delineate the project area for Feasibility Assessment.
  - Transboundary ecosystem services and ecosystem contiguity
  - Key biodiversity areas, including migratory habitats and biodiversity corridors

- Endemism (biodiveristy and culture)
- Indicator or flagship and rare, endangered, and threatened species (and their ranges)
- Protected areas and Ramsar sites and other conservation priority areas
- Cultural heritage sites and pilgrimage routes and existing and potential ecotourism sites
- Linkages of the livelihoods of mountain communities
- Vulnerability of the area (pressure of globalisation) and urbanisation and infrastructural development
- Watershed and river basin coverage for the headwater areas of major rivers originating from the landscape
- Ecological zones

Main comments and suggestions

The main suggestions and comments received from the participants included the following

1. Dr KC Paudel
- Area delineation and linkage – The KSLCI area should be delineated according to an ecosystem and transboundary approach and should have linkages to other landscape conservation approaches.
- Coordination – A linkage is needed to cover vertical and horizontal coordination among all stakeholders.
- Commitment – The Government of Nepal and its appropriate line ministries should commit to and endorse the programme.
- Biodiversity inventory – The biodiversity inventory should cover documentation of flora in Nepal and across the boundary: the Department of Plant Resources would take part in this venture whenever required. Conservation of genetic resources by communities should receive high priority. Issues related to intellectual property rights (IPRs) should be resolved at regional, national, and local levels.

2. Professor PK Jha
- Coordination of NGOs – Local NGOs should be identified during the Feasibility Assessment.

3. Professor KK Shrestha
- Data generation – Biodiversity inventory and climate change should be integrated into research. Generation of the baseline data should be the focus of the project.

4. Batu Krishna Uprety
- Coordination – KSLCI should be the common agenda of three countries; China, India, and Nepal. The project should be coordinated among relevant stakeholders in the country from top to bottom level.
- Adaptation to climate change – Awareness at local level should be enhanced to understand measures for adapting to climate change.
- Transboundary issues – Thorough systematic research is required to understand illegal trafficking in timber, non-timber forest products (NTFPs), and wildlife within Nepal and across the transboundary countries.

5. Dr Keshav Sharma
- Delineation of the area – Landscape conservation should concentrate on watershed and river system approaches. The meteorological station located in Jumla has data for 30 years or more. This station needs strengthening to monitor climate change.

6. Yogeshwor Rai
- Conservation approach – The landscape approach is a new conservation approach in Nepal and it requires coordination among relevant organisations and integration of climate-change issues with livelihoods. Indigenous people's knowledge and their cultural attributes should be protected.

7. Fanindra Kharel
- Protected area and tourism – Tourism in protected areas like Khaptad National Park falling under KSLCI should be promoted to conserve natural and cultural diversity.
- Time constraint – There is a time constraint to finishing the project within the deadline. This requires that milestones be reconsidered.

8. Dr KP Oli
- Role of traditional institutions – Capacity of traditional institutions working at local level should be strengthened and involved in Feasibility Assessment.

9. Harihar Sigdel
- Livelihoods – The programme should focus on the livelihoods of local communities and their participation in conservation. District-level committees need to be activated to operate the programme.

10. Dr Robert Zomer
- Conservation strategy – The Conservation Strategy of the project should comprise implementation in the short-term, medium-term, and long-term phases.

11. Surya Prasad Joshi
- Line ministries – Besides the Ministry of Forests and Soil Conservation, other ministries such as the Ministry of Agriculture and Cooperatives, Ministry of Environment, and Ministry of Water Resources should be playing a key role in the implementation of the project in Nepal.

12. Ram P Chaudhary
- Forthcoming challenges – Consolidation of secondary data and their verification, generation of primary data in the field to close the data gap, access to the region due to remoteness, lack of coordination among the stakeholders, limited budget, and limited time are among the challenges that we should all take into consideration.

Conclusion

The national consultation workshop disseminated the KSLCI project proposal among the stakeholders. All the stakeholders appreciated the initiative taken jointly by the GoN, ICIMOD, and Tribhuvan University in landscape conservation of the Kailash region. Coordination among all stakeholders is needed to undertake the Feasibility Assessment, prepare the Conservation Strategy, and present the Regional Conservation Framework. Science-based, and people-focused conservation at the landscape level are the key principles of the KSLCI project. The suggestions obtained from the participants were important and provided feedback for the First Regional Workshop on KSLCI held in Almora in April 2010.

List of participants

Date: March 12, 2010
Venue: Babar Mahal, Kathmandu

S. No.	Name	Organisation
1	Surya Prasad Joshi	Ministry of Forests and Soil Conservation (MFSC), GoN
2	Harihar Sigdel	Department of Forestry, MFSC
3	Dr KC Poudel	Department of Plant Resources, MFSC
4	Dr Robert Zomer	International Centre for Integrated Mountain Development
5	Rejina Maskey Byanju	Central Department of Environmental Science, Tribhuvan University (TU)
6	Ishana Thapa	Bird Conservation, Nepal
7	Tej Basnet	Central Department of Botany, TU
8	Govinda Basnet	KSLCI Consultatnt
9	Prakash Mathema	Department of Forest Research and Survey, MFSC
10	Dr Keshav P Sharma	Department of Hydrology and Meteorology, GoN
11	Ram Nath Sah	Department of Forests, MFSC
12	Yogeshwar Rai	National Foundation for Development of Indigenous Nationalities
13	Nili Maskey	WWF-Nepal
14	Batu K Uprety	Department of Plant Resources, MFSC
15	Bhawani Prasad Lohorung	Nepal Environmental Coalition of Indigenous Nationalities – Network
16	Sushil Khanal	KSLCI consultant
17	Professor Mohan Siwakoti	Central Department of Botany, TU
18	Fanindra R Kharel	Department of National Parks and Wildlife Conservation, MFSC
19	Dr Suresh K Ghimire	Central Department of Botany, TU
20	Professor Krishna K Shrestha	Central Department of Botany, TU
21	Professor Pramod K Jha	Central Department of Botany, TU
22	Kiran Dangol	Ministry of Forests and Soil Conservation
23	Professor Ram P Chaudhary	Central Department of Botany, TU
24	Sagar K Rimal	Foreign Aid Coordination Division – MFSC
25	Dr Shiva Sapkota	Ministry of Forests and Soil Conservation
26	Poornima Acharya	Central Department of Botany, TU
27	Mahesh Limbu	Central Department of Botany, TU
28	Min Bahadur KC	Central Department of Botany, TU
29	Dr Krishan P Oli	ICIMOD
30	Hari Krishna Silwal	FACD-MFSC

Annex 4: **Media Coverage**

1. Transboundary Initiative for Mt Kailash Landscape Conservation
   http://moef.nic.in/index.php
   MoEF, Govt of India
2. Transboundary Initiative for Mt Kailash Landscape Conservation Launched
   http://pib.nic.in/release/release.asp?relid=60218
   Press Information Bureau, Govt. of India – 9th April 2010
3. China, India and Nepal to work in tandem
   http://thehimalayantimes.com/fullNews.php?headline=China%2C+India%2C+Nepal+to +work+in+tandem&NewsID=239063
   The Himalayan Times – 15th April 2010
4. India, China, Nepal join hands to save Mt Kailash
   http://www.indianexpress.com/news/India–China–Nepal-join-hands-to-save-Mt- Kailash/605025 Indian Express.com – 12th April 2010
5. India, China, Nepal come together for Mt Kailash
   http://economictimes.indiatimes.com/features/the-sunday-et/dateline-india/India-China- Nepal-come-together-for-Mt-Kailash/articleshow/5783219.cms
   The Economic Times – 11th April 2010
6. India, China to jointly preserve Kailash
   http://economictimes.indiatimes.com/news/politics/nation/India-China-to-jointly-preserve- Kailash/articleshow/5830038.cms
   The Economic Times – 19th April 2010
7. Transboundary project for Mt Kailash landscape conservation launched
   http://netindian.in/news/2010/04/10/0006120/trans-boundary-project-mt-kailash- landscape-conservation-launched
   NetIndian.in – 10th April 2010
8. India, China, Nepal launch cross-border conservation project
   http://www.domain-b.com/environment/20100410_Nepal_launch.html
   domain-b.com – 10th April 2010
9. China, India and Nepal join hands to save Mount Kailash
   http://www.mynews.in/News/China,_India_and_Nepal_join_hands_to_save_Mount_Kail ash_N47540.html
10. MyNews.in – 17th April 201010. NOW EVEN CHINA CONCEDES THE SPIRITUAL VALUE OF MOUNT KAILASH
    http://www.reportersnepal.com/newsbase/nid/25119
    Reportersnepal.com – 13th April 2010
11. Regional Workshop on Kailash Sacred Landscape Conservation Initiative
    http://cdbtu.edu.np/news/2010/4/9/regional-workshop-kailash-sacred-landscape- conservation-initiative
    Central Dept. of Botany, TU – 9th April 2010
12. India, China, Nepal launch conservation project of Mt Kailash region
    http://www.netindia123.com/showdetails.asp?id=1481941&cat=India&head=India%2C+China%2 C+Nepal+launch+conservation+project+of+Mt+Kailash+region NetIndia123.com
13. China, India, Nepal Agree to Mount Kailash Preservation Framework
    http://www.2point6billion.com/news/2010/04/19/china-india-nepal-agree-to-mount- kailash-preservation-framework-5379.html 2point6billion.com – 19th April 2010
14. India, Nepal, China to jointly conserve Greater Mt Kailash
    http://www.zeenews.com/news620402.html
    ZeeNews.com – 19th April 2010

15. India, China, Nepal agree on Kailash preservation
http://www.indiablooms.com/EnvironmentDetailsPage/environmentDetails190410b.php
IndiaBlooms.com – 19th April 2010
16. India, China, Nepal agree on Kailash preservation
http://www.newkerala.com/news/fullnews-92824.html
NewKeral.com
17. Conserving Mount Kailash
http://www.centralchronicle.com/viewnews.asp?articleID=33218
CentralChronicle.com – 21st April

Annex 5: **Conservation Strategy – Draft Guidelines**

Background

The Kailash Sacred Landscape Conservation Initiative (KSLCI), during the current 18-month initial preparatory phase (Phase One), will develop a transboundary Conservation Strategy for the Kailash Sacred Landscape (KSL), as part of the process leading up to a Regional Cooperation Framework (RCF), through the coordinated efforts of national partners from China, India, and Nepal and with technical support from ICIMOD and UNEP.

The development of the national-level Conservation Strategy will build on information from the Feasibility Assessment Report, engage in a stakeholder consultation process, and integrate with the Comprehensive Environmental Monitoring Plan (CEMP) concurrently being developed. National Partners in each country will engage to develop the national-level Conservation Strategy through a consultative process involving local and National Partners and other stakeholders. National-level Conservation Strategies will be harmonised and synthesised through a consultative process led by ICIMOD to develop the regional transboundary (i.e., KSL) Conservation Strategy.

The consultative process for developing the Conservation Strategy, to be conducted across different levels of governance, will focus on assessment of available information and data, as compiled during the Feasibility Assessment, and the issues highlighted in the associated gap analysis and needs' assessment. The information and data include biophysical, cultural, and livelihood dimensions (social and institutional) and the identification of conservation threats and priorities. The Conservation Strategy will also include various aspects of environmental monitoring (i.e., integrate with the CEMP), delineation of environmental management needs and approaches, as well as identification of the types of, or change in, current policies required for effective conservation of both biodiversity and the cultural landscape.

Development of the Conservation Strategy will include the following sub-activities jointly carried out by or with the partners in all three countries.

- Description of the KSL landscape, biodiversity, cultural heritage and important cultural sites, and socioeconomic, institutional, and livelihood dimensions based upon the Feasibility Assessment Report
- Identification of significant threats to the biophysical environment and cultural landscape including biodiversity, genetic resources, wetlands, and/or traditional ecological knowledge
- Delineation of a set of priorities and targets for biodiversity and cultural conservation
- 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 and/or aesthetic qualities of the landscape, particularly with reference to tourist infrastructure and infrastructural development in general
- Identification of conservation-friendly sustainable and equitable development options such as pro-poor ecotourism and /or innovative traditional livelihood approaches based on sustainable use of ecosystem services

Purpose of the Conservation Strategy

The purpose of the Conservation Strategy is to initiate a planning process and build regional and national capacities for conservation and sustainable development of the KSL in order to meet the challenges of and provide the capacity to respond to potential adverse environmental impacts associated with various ongoing change processes (including climate change) within the KSL: the purpose is also 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 Conservation Strategy will support landscape and ecosystem management approaches for biodiversity conservation and management, as well as regional cooperation based on better informed decision-making. The development of the Conservation Strategy addresses the expressed concerns of the respective regional member countries for enhanced regional cooperation to improve implementation of CBD and national-level environmental programmes and 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 capacities 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 function and health, and maintaining the aesthetic and cultural integrity of this important cultural landscape.

The Conservation Strategy, at both the national level and 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 short 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 implementation of the Conservation Strategy.

Process for Developing the KSL Conservation Strategy

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

1. Each of the country partners will develop and outline a country-level Conservation Strategy for their respective areas of the KSL, based upon the set of working guidelines which were mutually accepted through a process initiated at the First KSL Regional Workshop held in Almora, India, in mid-April 2010.

2. Country Partners have considered, discussed, and tentatively accepted the aim, scope, and basic parameters of the Conservation Strategy during the First Regional Workshop in Almora and have agreed to a process, timeline, and way forward which will allow for sufficient consultation and facilitate joint and interactive collaborative development.

3. A draft Conservation Strategy for each country within the KSL will be presented for discussion at the Second Regional Workshop, tentatively to be held in August or September 2010. Country partners will agree upon the approach to compiling and harmonising the individual country's Conservation Strategy into a draft Conservation Strategy for the entire KSL, in order to delineate the common framework and identify the common approaches, actions, policies, standards, protocols, methods, and other specific issues which are mutually acceptable.

4. An iterative, participatory, and consultative process will be facilitated by ICIMOD to synthesise and develop the final draft of the KSL Conservation Strategy to be presented for agreement as part of the RCF at the Third Regional Workshop to be held tentatively at the end of January 2011.

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

Thematic Outline for Developing the Conservation Strategy Executive summary

Background

Overview

- Description of the Kailash Sacred Landscape
- within national boundaries
- Biophysical, biodiversity, cultural Importance
- Needs' assessment and gap analysis – main points
- Objectives of the Conservation Strategy
- Basic principles delineated (e.g., wise use, protection, preservation, and restoration)

Overall description of Kailash Sacred Landscape (within national boundaries)

This section should briefly explain the area, location, important characteristics, altitudes, climate, soils, status of snow and ice, water bodies, population, and human development. It should also describe ecosystem diversity including wildlife, forests, rangelands, wetlands, and agro ecosystems. Much of this information will come from the Feasibility Assessment Report.

- Brief description of the target area
- Physical settings and dynamics and processes.
- Ecosystem types and characteristics
- Biodiversity, including rare, threatened and endangered species, and habitats
- Local, regional and global ecosystem services
  - (watersheds, migratory habitats, and corridors)
- Cultural, religious, and historical significance
- Socioeconomic setting
- Institutional settings (formal and non-formal)

Conservation in the Kailash Sacred Landscape

This section should briefly give the historical perspective of conservation in the KSL in each country. Conservation initiatives taken earlier at different time periods; for example, land management, water management, and local community-based biodiversity management; which still may be having great significance should be given. Gradual development of traditional conservation policies and institutions arriving at the present state of policy and institutional arrangements will also be helpful (Summary to be drawn from the Feasibility Assessment Report).

- Historical
- Policy and institutional
- Management practices (modern and indigenous)
- Sectoral analysis – Existing mechanisms or situational analysis

Conservation Imperatives and Priorities

This section should include the main existing and emerging issues and, if known, an assessment of root causes and drivers of change. It should bring out weaknesses, gaps, and other problems related to anthropogenic, natural, and socioeconomic causes. The outline below includes three key areas – challenges, threats, and opportunities – and provides an indicative delineation of topics to be included; however, country partners will modify, add, and delete as required (Summary to be drawn from the Feasibility Assessment Report).

Key challenges

- Boundary conditions and requirements necessary for successful implementation of the Conservation Strategy within each of the countries
- Important considerations that need to be taken into account
- Potential obstacles, hindrances, and risks that will need to be addressed
- Sectoral analysis – situational analysis

Key threats and priority action areas

Major threats to conservation of biocultural resources in the KSL

- Threats to protection of the ecosystem (goods and related services)
- Loss of biological diversity
- Loss of genetic diversity and traditional knowledge
- Threats to medicinal and aromatic plants
- Threats to the conservation of wetlands and water resources.
- Threats to the livelihoods of local people
- Threats to protection of cultural heritage

Causative factors and/or related drivers of change

- Anthropogenic
  - Loss of wildlife, habitat, and other biodiversity
  - Land-use change, land degradation
  - Loss of genetic resources and agrobiodiversity
- Natural
  - Invasive species and pests
  - Disease
  - Environmental change
- Climate change
  - Effects and potential Impacts
  - Socioeconomic change
  - Globalisation
  - Regional perspectives
- Infrastructure and infrastructural development
- Tourism development and impact

Key opportunities

Major opportunities for conservation of biocultural resources in the KSL

- Global and local benefits clearly identified
- Opportunities from protection of cultural heritage
- Opportunities emerging from reduced loss of biological diversity and protection of the ecosystem
- Opportunities in using medicinal and aromatic plants to prevent the loss of genetic diversity and traditional knowledge
- Opportunities emerging from the conservation of wetlands and water resources.
- Opportunities from eco-friendly and heritage-based tourism for the livelihoods of local people
- Opportunities for transboundary and regional cooperation on biodiversity conservation and technology transfer
- Opportunities for sharing experiences and expertise (regional exchange)
- Opportunities from international and regional efforts such as Access and Benefit Sharing mechanisms, carbon finance (reducing emissions from deforestation and degradation[REDD] and/ or agriculture, forestry, and other land uses[AFOLU]), payments for ecosystem services (PES)

Conservation Strategy and Approaches

Sustainable development and conservation needs must be linked and designed on the basis of an integrated approach which seeks to improve the livelihoods of present and future generations in the KSL on an equitable basis while conserving the irreplaceable biodiversity and cultural heritage of the target area. The preservation of the biophysical and cultural landscape will depend on sustainable approaches to land use, water, rangelands, and forests, with livelihoods based on eco-friendly tourism and biodiversity-friendly, local natural resource development for the future.

When delineating the range of activities, required actions and options for conservation, improved management, and application of ecosystem management approaches, the action threshold should be seen within the context of short- (immediate), medium-, and long-term implementation timeframes, as well as similar categorisations in regard to the duration and timeframe of activities. Delineation of conservation strategies should focus on both biophysical and cultural dimensions. Reconciling human needs is only possible if the land is managed in a sustainable manner (sustainable use), and if the essential quality of ecological and life-supporting systems are prevented from degrading (protection), if sites are preserved (preservation), and resources restored to enhance their normal productivity (restoration).These guiding principles need to be taken into consideration in developing the conservation strategy.

Overall goal (long term)

Objectives

A set of objectives is to be identified within the context of three timeframes.

- Short term
- Medium term
- Long term

Each of the three sets of objectives will have different sectors and cross-sectoral areas that need to be addressed. The following points show some of the areas where sectoral and cross-sectoral strategies should be developed. Sectoral strategies (biodiversity is cross cutting within these sectors)

- Rangelands
- Livestock and agro-pastoral resources
- Forests
- Protected areas/conservation/biosphere reserves
- Local biodiversity hotspots – species' richness and priority conservation list
- Wetlands and water bodies
- Opportunities for protection of cultural heritage
- Wild, edible, medicinal and aromatic plants, including NTFPs
- Loss of agricultural genetic diversity and traditional knowledge
- Biosafety issues (e.g., communicable diseases – human and livestock)
- Ecosystem and heritage-based tourism for the livelihoods of local people

Cross-sectoral strategies

- Policy, technology, and institutional innovations, creating an enabling environment (removal of policy and institutional barriers)
- Linking livelihoods with conservation
- Establishing and enhancing the knowledge base
  - Establishing environmental monitoring stations
  - Research and development/ biodiversity conservation
  - Creating a database and knowledge-sharing platform
- Methodological innovations for valuation of environmental services (ES) and payment mechanism (PES)
- Landscape planning

- Governance mechanism
  - Participation of stakeholders at different levels
  - Strengthening of governing institutions
  - Village Panchayat, Village Development Committee, County
  - Governments / institutions as facilitators
  - Ensuring the rights of marginalised people including women
  - Transboundary biological resource management
  - Protection of genetic resources and associated traditional knowledge.
- Cross-sectoral and interagency coordination
- Supporting capacity building needs at different levels
- Addressing legal and illegal transboundary trade issues

Commitments to address the most serious threats to conservation

This section should indicate the commitment of local-level authorities and that of the national government to the conservation and sustainable development of the KSL. The strategy should be able to provide a platform for the development of new policies as well as for addressing existing gaps. Based on this Conservation Strategy, a plan for its implementation should be clearly outlined with the respective commitments. For the effective implementation of the Conservation Strategy, local institutions such as Gram Panchayats (India), Village Development Committees (Nepal), and Counties (China) should be identified and encouraged to buy in and to take ownership at the local level. The national government will then be able to facilitate its implementation successfully. The types of institutional mechanisms and/or stakeholders at the local and higher levels which need to be involved should be well reflected.

Institutional and financial mechanisms for strategy implementation

- National and local administrative institutions
- Indigenous institutions
- Research and other public institutions
- People's participation
- Engaging civil society organisations
- Integrating the Conservation Strategy into related development efforts
- Financing (endowment funds, trust funds, conservation funds/easement funds/taxation, and levies)
- Other funding mechanisms

Monitoring and evaluation

- Integration with CEMP
- CEMP should contain provisions for monitoring Conservation Strategy interventions.

Annex 6: **Comprehensive Environmental Monitoring Plan – Draft Guidelines**

Background

The Kailash Sacred Landscape (KSL) Conservation Initiative has the stated aim to promote the development of long-term environmental, ecological, climatic, and biodiversity datasets. The Hindu Kush-Himalayan (HKH) region in general has been described by the Inter-governmental Panel on Climate Change's (IPCC's) Fourth Assessment (2007) as data deficient, primarily in terms of climate monitoring; however this is similarly true for a range of important environmental parameters. At present the distribution of environmental and /or ecological monitoring activities in the HKH is scattered and has a sparse spatial distribution considering the variability and biological richness in the region. This is similarly true for the remote KSL region where there is a lack of sufficient meteorological stations, ice and glacial monitoring, and other ongoing environmental monitoring.

The Kailash Sacred Landscape Conservation Initiative (KSLCI), during the current 18-month initial preparatory phase (Phase One), will develop a Comprehensive Environmental Monitoring Plan (CEMP) as part of the process leading up to the Regional Cooperation Framework (RCF) through the coordinated efforts of national partners from China, India, and Nepal and with technical support from ICIMOD and UNEP. The CEMP will be prepared based on the Feasibility Assessment Report (which includes a baseline survey within the Feasibility Assessment Report and a Policy and Enabling Environment Analysis) and will complement and contribute to the development of the KSL Conservation Strategy.

As per the KSLCI Project Document (and as elaborated on in Annex 5 of the Project Document), the CEMP will be developed by the country partners and will form the basis for regional cooperation and national strengthening to enhance, focus, and/or develop a comprehensive environmental and ecological monitoring capacity and associated institutional and scientific networks. These networks will interface with ongoing international monitoring initiatives aimed at providing baseline and trend data on global change. Existing monitoring efforts in the region (currently these are very sparse, with minimal coverage within the KSL) will be enhanced to form a geographically and ecologically comprehensive sampling frame. The aim will be to provide adequate sampling intensity and spatial distribution to identify and represent spatial variability within the KSL for a variety of environmentally and ecologically relevant parameters, to establish ecological and climatic baselines, and to identify representative indicators of change.

Purpose of the Comprehensive Environmental Monitoring Plan

The purpose of the CEMP is to build regional and national capacities for environmental monitoring and long-term ecological research, to promote the early identification of and response to potential adverse environmental impacts associated with various ongoing processes (including climate change) within the KSL, and to facilitate and encourage regional knowledge sharing and transboundary cooperation. The CEMP will support landscape conservation and ecosystem management approaches, biodiversity conservation and management, and regional cooperation based on better informed decision-making, The development of the CEMP addresses the expressed concerns of the respective regional member countries (RMC's) about improved environmental data and information to improve implementation of environmental programmes and make progress towards sustainable development of the region. It is likewise intended that the enhancement of long-term environmental monitoring and data collection within the KSL area will contribute to reducing knowledge gaps that are a serious impediment to improved understanding, modelling, and prediction of climate-change impacts and adaptation across scales (locally, regionally, and globally) and to providing valuable input to the understanding of these processes at both the regional and global levels.

The CEMP, at both national and regional levels, is intended to develop a network of institutions and build the capacity to identify and monitor significant changes occurring in the KSL in the short, medium, and long term. The CEMP, as a core component of the KSL Regional Cooperation Framework, is the document that will lay out the strategy for providing sufficient information for applying ecosystem management approaches in the longer term, as well as for addressing critical issues and pressing threats in the short term. Requisite research and monitoring needs will be delineated and described, along with how these information and capacity gaps will be addressed by the implementation of the CEMP.

Process for Developing the Environmental Monitoring Plan

The Comprehensive Environmental Monitoring Plan (CEMP) process will develop a common approach and transboundary framework for environmental monitoring and ecological research with an emphasis on biodiversity conservation and management as well as on local livelihoods and adaptations to climate change. This framework will be based on commonly acceptable and (as far as possible) internationally accepted protocols. The implementation and approach will seek to both enhance national capacity for regional cooperation and build local capacity for ongoing environmental and ecological monitoring. Standardised methods and harmonised protocols for sampling, documenting, and analysing ecological, climatic, and other environmental data, including socioeconomic drivers of environmental change, will be identified to facilitate transboundary collaboration and knowledge sharing based upon ongoing national efforts and international guidelines.

1. Each of the Country Partners will develop and outline a country-level CEMP for their respective areas of the KSL based upon the set of guidelines mutually accepted through a process initiated at the First KSL Regional Workshop held in Almora, India, in mid-April 2010.

2. Country Partners have considered, discussed, and tentatively accepted the aim, scope, and basic parameters of the CEMP during the First Regional Workshop in Almora and agreed to a process and timeline as well as to facilitate it in such a way as to allow for sufficient consultation and engagement in joint and interactive collaborative development.

3. A draft CEMP for each country within the KSL will be presented for discussion at the Second Regional Workshop, tentatively to be held in August 2010. Country Partners will agree upon the approach to compiling and harmonising the individual country CEMPs into a draft CEMP for the entire KSL in order to delineate the common framework and identify the mutually acceptable common standards, protocols, methods, and other specifics.

4. An iterative, participatory and consultative process will be facilitated by ICIMOD to synthesise and develop the final draft of the KSL CEMP to be presented for acceptance as part of the RCF at the Third (final) Regional Workshop, to be held tentatively at the end of January 2011.

5. Concurrently, the CEMP process seeks to identify, initiate, and build networks to implement and institutionalise environmental monitoring and ecological research efforts outlined in the CEMP. It is intended that this process will promote scientific participation and institutional engagement and provide sustainability through national ownership and regional cooperation.

6. Concurrently, ICIMOD will develop a set of guidelines and a manual for community-based environmental monitoring which will seek to include local communities and build local capacities for ongoing long-term monitoring efforts. This will form the basis for including local participation within the CEMP.A draft manual for review will be ready and available for discussion and comment at the Second Regional Workshop.

Key Areas of Agreement and Basic Principles

Hierarchical approach

The need for a hierarchical approach in order to arrive at a holistic picture, similar to a multi-level approach, for example taking into account nested approaches, such as in situ observations within a larger ecosystems' context, was a key area of agreement. At the highest level, land use, land cover, and change (LUCC) analysis provides the larger landscape context within which ecosystem-level studies or observation of particular taxa are nested and through which drivers of external change can be identified and monitored.

Integration with national efforts

The Global Change and Mountain Regions (GLOCHAMORE) Research Strategy was identified as a useful starting point for discussion of the guidelines; however, the need for a regionally-specific approach and development of a set of guidelines appropriate to the conditions of the KSL was highlighted. General points of the Strategy accepted as useful tenets included the strategic framework focusing on three aspects of environmental change, i.e., drivers of change — impacts on ecosystems and impacts on ecosystem goods and services, regional economies, and health. Ongoing national efforts by the three respective countries were identified as the initial entry points for identifying common approaches and, in particular, common standards and protocols. In particular, it was pointed out that the Chinese Ecological Research Network (CERN) has 30 research stations with various ongoing monitoring activities based on a set of common protocols. Monitoring efforts must be linked to national-level efforts and to other government initiatives, e.g., local administration, state forest department, and so on. The CEMP must work in harmony with any national plans of the respective countries.

Transparency of the CEMP process and stakeholder involvement

Stakeholder involvement increases the clarity of the research, enhances its relevance and acceptability, and improves the efficiency and impact of the data collected and knowledge developed. Consulting local people and the managers of resources within the landscape in the planning and implementation phase is therefore central to the implementation of the CEMP. Policy-relevant information should be available to local stakeholders as well as to local, national, and regional decision makers and the global research community.

Society and environmental change

Monitoring of socioeconomic parameters, cultural change, and the human dimension of adaptation, focusing on mountain communities, is an essential component of the CEMP and should be framed within the context of climate change and adaptation.

Integration of CEMP with the KSL Conservation Strategy

The CEMP must fully integrate with the Conservation Strategy. Further, any interventions by the Conservation Strategy, i.e., by KSL Conservation Initiative, should be monitored.

Promotion of regional knowledge sharing and open data exchange

The CEMP will promote transboundary knowledge and data sharing and common formats facilitating open data exchange: it will also develop a common data-sharing framework which will form the basis for development of a KSL knowledge exchange platform.

Environmental and ecological indicators

Sets of indicators should be identified early in the process to facilitate long-term comparative analysis and allow for an overall evaluation of ecosystem health and efficacy of conservation efforts. Indices need to be sufficiently robust, representative, and sensitive in order to monitor environmental and ecological change and also fulfil the requirement to communicate complex data on the environment, ecology, and biodiversity to decision-makers and the public.

Indicators need to be chosen that not only monitor the conservation status of various taxa, but which also are relevant to ecosystem functioning and services and can easily be incorporated into various models.

Ecosystem-specific sampling

A sampling frame should be developed for each set of parameters to be measured that takes into account the spatial and temporal variability of the conditions to be sampled. This implies that there should be an a priori landscape-level spatial analysis based on existing geospatial data to stratify the relevant landscape into a reasonable number of strata relevant to the specific set of parameters being sampled. Depending on the sampling, statistical, and analytical needs, sampling sites, permanent plots, or weather stations can be sited either to 'represent' the average conditions of the strata, or perhaps can be sited along steep ecotones where early indications of change may be more evident. Biases in sampling, e.g., close to roads for accessibility, should be avoided, taking into account the inherent tradeoffs of cost and time requirements.

Permanent Environmental Monitoring and Ecological Research Sites

Identification of permanent sites for monitoring change is a valuable method of establishing baseline conditions; it is especially useful for understanding change processes related to land use, land degradation, biodiversity, invasive species, and ecosystem functions. For long-term environmental monitoring, representative sites need to be identified by each participating country and specific records of their location and baseline information given. The location map, what is being monitored, geographical information of aspects, altitude, latitude and longitude, and related recording will be the starting point, depending on the purpose of the permanent site. Permanent, long-term monitoring sites can have multipurpose sampling and monitoring uses and should be co-located with other efforts to maximise efficiencies and allow for synergy in collaboration and data collection.

Key Thematic Areas to be Included in the CEMP

Using an initial list based upon the GLOCHAMORE Research Strategy, the Working Group identified the following key areas to be included in the guidelines. These key areas are indicative and not exclusive, and they are intended to form the basis for a comprehensive long-term monitoring effort. As such, it was decided that the key areas should be broadly inclusive of a broad range of important parameters, taking a long-term view, even if actual specific monitoring efforts needed to be phased in over a period of time or, perhaps, initiated at a later phase of the project. In the following passages some of these key elements identified by the partners as useful or relevant to long-term environmental monitoring or ecological research within the specific context of the KSLCI are described.

Climate

- Specific parameters will be identified during the CEMP process, but they will be based upon and coherent with international climate monitoring efforts, in particular the World Meteorological Organization (WMO), Global Climate Observing System (GCOS), and in-country efforts, e.g., CERN in China.
- Secondary data sources, e.g., The National Aeronautics and Space Administration's (NASA's) data on snowfall, will be incorporated into the climate data base.

Land-use change

- Quantifying and monitoring land cover and /or land-use change
  - Use of harmonised legends – (land-cover classifications-LCCS)
  - Integrated with existing national efforts
- Historical trend analysis
- Overview and assessment of impacts of land-cover and/or land-use change

The cryosphere

- Glacial extent
- Glacial mass balance

- Melt water yield
- Snow cover
- Snow melt
- Snow gauging
- Permafrost

Water systems

- Water quantity
  - The working group decided that delineation of these parameters, e.g., flow, discharge, and so on needs further discussion during the CEMP development process.
- Water quality and sediment production
- Extent of water bodies (including potential glacial lake outburst floods[GLOFs]), high-altitude wetlands
- Springs – general condition

Ecosystem function and services

- High-altitude lakes and wetlands
- Role of various ecosystems in Nitrogen (N) and water cycles
- Role off forests in Carbon (C) cycle and resource production
- Role of grazing lands in C, N, and water cycles
- Soil systems
- Pollution (indicators to be identified)
- Plant pests and diseases

Biodiversity and ecosystems

- Ecosystem and ecological community change
- Key fauna and flora
- Invasive species
- Forest structure and non-timber forest products
- Culturally dependent species
- Impacts of invasive species
- Agricultural biodiversity and genetic resources

Hazards

- Floods and potential glacial lake outburst floods (GLOF)
- Drought
- Wildland fire
- Mass movements
- Landslides and avalanches

Health determinants and outcomes afflicting humans and livestock

- Indicator disease (s) of climate change and vector borne diseases

Mountain economies

- Agroecosystems and livelihoods
- Natural resource-based employment and income
- Forest products
- Mountain pastures
- Livestock numbers and composition

- Valuation of ecosystem services (needs further thought)
- Cross border trade
- Tourism and recreation economies

Society and environmental change

- Governance institutions
- Rights and access to water resources
- Conflict and peace
- Traditional knowledge and belief systems
- Urbanisation
- Development (dams, roads, and other infrastructure)
- Development trajectory and vulnerability
- Cross border trade and illegal trade

Further Considerations on Key Thematic Areas

Climate

Changes in weather and climate and the frequency of extreme events impact mountain ecosystems both structurally and functionally. Understanding the likely impacts of climate change will be important in the KSL and is dependent on improved climatic information and meteorological data. Climate and weather monitoring sites in the KSL region need to be expanded and developed with specific relevance to developing and improving regional climate models.

Meteorological data are required to assess the potential or actual status of the climate and associated processes. In addition, data collection and monitoring should be consistent with global standards and meet minimum requirements for inclusion into global datasets. Meteorological monitoring will form a key part of the CEMP. There are various sources available and many ongoing efforts describing key climatic parameters. In general, these include basic measurements such as wind speed and wind direction, temperature (ambient air and soil), solar radiation (total and photosynthetically active), humidity, precipitation (rainfall and snowfall), atmospheric pressure, mist, cloudiness and transpiration, and soil temperatures.
Institutional arrangements are required that provide sustainability of data collection efforts based on national ownership and integrated with national monitoring efforts, programmes, institutions, and networks.

Land-use change

Land-cover and land-use change is a major driver and indicator of environmental and other change impacting mountain ecosystems and the economic activities of people in the KSL. Land cover and land use are subject to external factors such as climate and the global market also. In the KSL area, present land cover, land use, and historical trends are not yet available; however, remote sensing approaches can be used to develop this information.

Collecting baseline information is a necessary prerequisite for estimating change, predicting future trends, and identifying areas in need of further research. Monitoring land-cover change over time can give clear indications of past and current trends within various ecosystems and give an overview of ecosystems and their management. This requires (a) preparation of maps based on remote sensing and geospatial analysis for the project sites on different spatial and temporal scales and (b) documenting the typology of land cover and land uses and analysis of the land-cover change dynamics.

Land-use changes can have a big impact on ecosystems and the livelihoods of the people dependent on mountain resources. Methods of modelling land-use change incorporating biophysical parameters, climate change, population growth, and economic change require improved data and baseline information. Understanding the mechanism of land-use change is important, but will be dependent on the development of a substantive information base delineating land-cover and land-use changes and trends.

The cryosphere

Many specialised agencies, within the region and outside, are monitoring various aspects of the cryosphere. It will be especially important to coordinate and integrate KSL cryosphere monitoring efforts with existing national research programmes. Many of the parameters to be measured need intensive effort in terms of time and expertise; however, the importance of improved information about the cryosphere in terms of understanding future trends in water availability, and by extension food and livelihood security, was highlighted by the Working Group. As such, it was decided that the guidelines would include a broad range of essential parameters, even if these parameters were difficult to measure or analyse, might need high-level expertise, or might not be feasible to operationalise in the early stages of the monitoring effort.

Water systems

Mountain areas are repositories of fresh water for human consumption, hydropower generation, and regulation of hydrological cycles in both the mountains and in downstream areas. The impact of climate change could have both positive and negative impacts on water availability. Understanding relationships between precipitation, soil moisture, evapotranspiration, runoff, and land use within the basins and drainages will help to develop management plans for landscapes.

Water quality and sediment transfer downstream, e.g., dams and reservoirs, and in river basins are important for both human health and the health of aquatic and terrestrial ecosystems. This requires determining the key pollutants in the designated study sites, analysing the pollutant loads and developing models to predict pollutant loads, and simulation of future change scenarios.

KSL has important wetland areas that should be included in the environmental monitoring plan. Mountain wetlands and streams are quite sensitive to climate change, atmospheric deposition, and weather patterns. Physical, chemical, and biological characteristics can serve as good indicators of change. Monitoring requires identification of the natural variability of systems and their responses to changes through long-term plans. Monitoring should include the response of the aquatic lives (vertebrate, invertebrates, insects, planktons, and others) to different threats such as global warming, acidification, pollutant loads, nutrients, water withdrawal, and direct pollution.

Ecosystem functions and services

Ecosystem functions are central components to the biogeochemical cycling of elements. The biotic part of alpine and other mountain ecosystems modifies biogeochemical and hydrological process particularly affecting storage and cycling of important nutrients such as nitrogen and phosphorus. Nitrogen fertilizaton can enhance the effects of warming in cold environments. Therefore the changes driven by climate change, land-use changes, and pollution loads have significant impacts on the services provided downstream. This requires understanding of the biogeochemistry changes under different climate-change scenarios, land-use dynamics, and pollution loads and how these changes are affecting ecosystem services.

KSL has important wetland areas that should be included in the environmental monitoring plan. Mountain wetlands and streams are quite sensitive to climate change, atmospheric deposition, and weather patterns. Physical, chemical, and biological characteristics can serve as good indicators of change. Monitoring requires identification of the natural variability of systems and their responses to change through long-term planning. Monitoring should include the response of aquatic organisms (vertebrate, invertebrates, insects, planktons, and so on) to different threats such as climate warming, acidification, pollutant loads, nutrients, water withdrawal, and direct pollution.

Mountain forests are important carbon sinks, therefore understanding the amount of carbon sequestrated by different forest types and other land-use systems will be important for the landscape. This might require setting up experimental plots in rangelands, pasturelands, and forested lands' to investigate the carbon balance in mountain watersheds. This can contribute and provide input to the models which can be applied to investigate both carbon cycling and yields of timber and fuel under scenarios of global change. Forest-related resources, such as timber, firewood, forage, medicinal and aromatic plants, and NTFPs, are of potential relevance and could be monitored.

More than 60% of the HKH region is covered by rangelands where transhumance and nomadic livestock rearing is practised. The KSL, similarly, has a large portion of area under pastoralism and this is most likely among the most important economic activities in the landscape. Alpine meadows and pasture lands are critical to both ecological and economic functions. Climate and land-use change impacting vegetation and use of such lands affect the carbon, nitrogen, and water cycles and stability of steep mountain slopes. In order to predict the future structure and function of mountain grazing areas, it is important to monitor existing rangelands. This requires mapping existing grazing lands and identifying the characteristics of such lands, their carrying capacity, forage species, animal species, and stock density in the areas. Monitoring the dynamics of agropastoralism systems in the landscape is equally important for understanding household economics. Monitoring and prediction of the likely future characteristics of animal grazing driven by climate change, invasive species of plants, alternative use of land, and responses to market demands for different livestock products will be useful information.

Mountain ecosystem functioning and productivity of natural resources depends to a great extent on soil quality and fertility. Climate change and land-use change impact on both the physical and chemical properties of soils. The effects of changes in temperature, precipitation, and associated land-use changes have impacts on evapotranspiration, soil organic matter, microbial biomass, carbon storage, and soil biodiversity. Monitoring of soil-climate dynamics should be considered.

Biodiversity and ecosystems

Biodiversity assessment and monitoring

The Kailash region is rich in biological resources, including many rare, endangered, threatened, and economically important species of flora and fauna. Because of a great degree of altitudinal variation in the area there is a rich diversity of habitats engendering species' richness. Traditional land-use practices have kept the habitats intact. There is a sparseness of information; e.g., there is no inventory on biodiversity and the loss and gain of species. A baseline for the existing biodiversity in both aquatic and terrestrial species and ecosystems needs to be established. In order to assess the current biodiversity and to assess future change, a baseline inventory and regular monitoring of key taxa (plants, insects, birds, and others) are required. Biodiversity assessment should first be stratified based on the ecoregions that have been identified within the landscape and any subsequent spatial analysis of variability. Changes in species' composition and interaction influence ecosystem functions, therefore it is important to define functions and services associated with biodiversity and then develop scenarios on possible effects of climate change also.

Impact on the biota in the region by human activity is critical, and this in turn has impacts on biodiversity, ecosystem goods and services, and resilience of ecological and economic systems. Mountain taxa exist in the fragmented landscape and population; and it requires careful attention to prevent local extension. The role of species' interaction needs to be protected. This warrants innovations in adaptive management practices and experiments to determine appropriate management practices for the conservation of biodiversity.

Biodiversity along ecotones and in transitional zones

Large parts of the KSL area fall above the tree line where ecotones (between sub-alpine and alpine) are still in natural or semi natural states. This area is very sensitive to climate change and can readily be detected. Further, low temperature limits that ecosystem and therefore warming can have rapid and easily evident impacts. Therefore, monitoring is required to detect and understand the shifts in species' abundance and distribution affected by climate change. For this, one option is adoption of the GLORIA approach by establishing permanent monitoring sites. This also includes monitoring the shifting of meadow and forest boundaries. Potential protected areas and possible or existing connectivity between protected areas need identifying to allow for migration or adaptation of species in situations where range shifts are forced by climate change.

Key flora and fauna

The KSL has several protected areas, reserves, and wetlands of international importance which are adjacent or included. These areas are declared to protect certain species of plants or wild animals. These species in turn are influenced by land-use change dynamics in the area, currently and in future, and potential impacts of climate change. Within the context of environmental change, how resilient these important species are is relevant to their management. Making inventories of key species along with the abiotic environmental data and understanding their interaction in terms of management will be crucial. Long-term monitoring is required to assess biotic interaction while specific studies can be undertaken to assess response and risk of common and rare species in the face of climate change.

Culturally dependent species

Many species in alpine areas are the result of repeated selection pressure from both herbivores and people and are based on their economic and cultural values. With the wave of modern infrastructural development and globalisation there is a danger that these species will be threatened. Research into historical and present land-use practices, how these systems determine the landscape and biodiversity components, and how modern agricultural production has influenced the system will be helpful.

Invasive species

Due to global change, alien and invasive plants are becoming an increasing source of change in the mountains. Understanding how these species colonise new environments and learning what conditions encourage their spread are among the key items that need to be understood to develop control and management methods for addressing the issue of invasive species. Invasive species bring about substantial changes in ecosystem structures and functions, therefore it is important to monitor this threat and to develop management strategies for it. For this element of the monitoring plan there is an evident need to develop an improved knowledge base specific to the project area on the pattern, dynamics, and impacts of invasive species.

Hazards

In particular, hazards associated with changes in climate, land use, and environmental conditions should be considered.

Health determinants and outcomes afflicting humans and livestock

Health issues associated with changes in climate, land use, and environmental conditions should be considered.

Mountain economies

Agriculture in the mountains does not operate in isolation but is integrated into comprehensive integrated land-use systems, typically including significant livestock components. Therefore monitoring of forests, rangelands, water, and all the resources of biodiversity have impacts and consequences for agriculture and livelihoods. While keeping in mind the ecological and economic functions of other related topics, agricultural monitoring should be developed. Dynamics of existing agropastoral systems need to be investigated, and monitoring of recent trends in land transformation into agriculture in high-altitude areas should be carried out. Monitoring of value chains on mountain products from the landscape to increase livelihood options of local communities might be important also.

The KSL area is an important destination for religious and nature tourism. In a globalising context and development of infrastructure in the area, tourism and recreation will be a major industry in future. It is important to examine the present trend and to project future development of tourism in the area. This requires analysis of the current state of tourism and assessment of the impacts of global change on different forms of tourism with a view to protecting the future of tourism and the impact of tourism on the landscape. Assessment of both positive and negative impacts needs to be monitored using past and present trends. Tourism linked with conservation incentives and a pro-poor approach should be assessed for long-term benefits.

Society and environmental change

Appropriate methodologies should be identified for monitoring the human dimension of environmental change. In particular, changes associated with livelihood strategies, the integrity of mountain communities and their cultural institutions, changes in demographics, settlements, and migration patterns, and the impact of development and associated infrastructure on mountain society.

Basic approaches considered while developing the CEMP guidelines

There are several global, international, and other regional initiatives that are aimed at improving our understanding of environmental change in the mountains and in other bio-culturally rich areas. It is proposed that the CEMP process should build upon and use these previous and ongoing efforts to provide the basis for a comprehensive approach and to ensure coherence with global standards, efforts, and research networks. In particular, many global organisations and networks such as the World Meteorological Organization (WMO), the Global Climate Observation System (GCOS), the Global Terrestrial Observation System (GTOS), the World Climate Research Program (WCRP), the World Glacier Monitoring Service (WCMS), and Global Biodiversity Information Facility (GBIF) provide guidance and standards for the investigation and monitoring of various environmental parameters as well as networks for information sharing and global databases. The International Programme on Biodiversity Science (DIVERSITAS), GLORIA, Global Mountain Biodiversity Assessment (GMBA), Global Invasive Species Programme (GISP), and others are engaged in assessing, monitoring, and predicting biodiversity change. The Geo Biodiversity Observation Network (GEO-BON) has the goal of creating an internationally coordinated, globally integrated biodiversity monitoring system. For mountains in particular, the GLOCHAMORE Research Strategy (2005) is available to provide a starting point with a basic overview of its approach and an extensive delineation of parameters which can be evaluated for their relevancy to the specifics of the KSLCI. The strategy has been developed within the context of existing international global change research programmes of the Earth System Science Partnership (ESSP), notably the Global Land Project (GLP) of the International Geosphere – Biosphere Project (IGBP) and the International Human Dimensions Project (IHDP).

Among the core concepts of the GLOCHAMORE Research Strategy is the assumption that sustainable management can only be achieved with stakeholder involvement. It is advocated that stakeholder involvement increases the clarity of the research, enhances its relevance and acceptability, and improves the efficiency and impact of the data collected and knowledge developed. Consulting local people and the managers of resources within the landscape in the planning and implementation phase is therefore central to the implementation of the CEMP. Information that is relevant to policy formulation should be made available to local stakeholders as well as to decision makers and the global research community. The research strategy focuses first on drivers of change, then on impacts on ecosystems, then on the subsequent impacts on ecosystem goods and services, regional economies, and health. The human dimension emphasises mountain and lowland people's dependence on mountain goods and services that are affected by both indirect and direct impacts of environmental change.

Annex 7: **KSL Harmonised Land-cover Legend**

LC	LCCCode	LCCLevel	LCCOwnDescr	LCCLabel
Grasslands	20025	A2A10	Alpine meadows in India and Nepal, close grasslands of the Tibetan plateau in China	Herbaceous closed vegetation
Grasslands	20037	A2A11	Open grasslands	Herbaceous open vegetation
Sparse vegetation	20058	A2A14	Areas having sparse grassland	Herbaceous sparse vegetation
Thicket	20017	A4A10	Thick shrubland – Junipers in alpine areas and on the Tibetan plateau; Rhododendrons in India and Nepal	Closed shrubland (thicket)
Shrubland	20021	A4A11	Open shrubland – Junipers in alpine meadows and on the Tibetan plateau; Rhododendrons in India and Nepal	Open shrubs (shrubland)
Sparse vegetation	20055	A4A14	Shrubland having sparse vegetation – mainly on the Tibetan Plateau	Sparse shrubs
Shrubland	20377-15058	A4A11B3XXXXXXF2F4F7G4-F9	Shrubland with open grasses on the Tibetan plateau	Shrubland with open herbaceous
Sparse vegetation	20510	A4A14B3XXXXXXF2F4F10G4	Sparse shrub with sparse grasses on the Tibetan plateau	Sparse shrubs and sparse herbaceous
Forest	20092	A3A10B2XXD2E1	Coniferous forest – *Abies* at high altitude, Pine at low altitude	Needle-leaved evergreen trees
Woodland	20134	A3A11B2XXD2E1	Open forests of *Abies & Cupressus* at high altitudes, and Pine at low altitudes	Needle-leaved evergreen woodland
Forest	20089	A3A10B2XXD1E1	Broad-leaved evergreen, mainly oak	Broad-leaved evergreen trees
Woodland	20131	A3A11B2XXD1E1	Open forests of oaks	broad-leaved evergreen woodland
Forest	20090	A3A10B2XXD1E2	Deciduous broad-leaved forest – *Aesculus, Acer* at high altitude, 'Sal' at low altitude	Broad-leaved deciduous trees
Woodland	20132	A3A11B2XXD1E2	Open forests of *Aesculus & Acer* at high altitudes, and 'Sal' at low altitudes	Broad-leaved deciduous woodland
Mixed class	20089 // 20090	A3A10B2XXD1E1 // A3A10B2XXD1E2	Mixed broad-leaved evergreen with deciduous forest – Brown oak mixed *Aesculus*	Broad-leaved evergreen trees // Broad-leaved deciduous trees
Mixed class	20131 // 20132	A3A11B2XXD1E1 // A3A11B2XXD1E2	Open forests of Oaks mixed with *Aesculus & Acer* at high altitudes	Broad-leaved evergreen woodland // Broad-leaved deciduous woodland
Mixed class	20134 // 20131	A3A11B2XXD2E1 // A3A11B2XXD1E1	Open forests of *Abies & Cupressus* mixed with Oaks	Needle-leaved evergreen woodland // Broad-leaved evergreen woodland
Mixed class	20134 // 20132	A3A11B2XXD2E1 // A3A11B2XXD1E2	Open forests of *Abies & Cupressus* mixed with *Aesculus* in High altitudes; and Pine mixed with 'Sal' at low altitudes	Needle-leaved evergreen woodland // Broad-leaved deciduous woodland
Mixed class	20092 // 20089	A3A10B2XXD2E1 // A3A10B2XXD1E1	Mixed *Abies & Cupresssus* with high- altitude Oaks	Needle-leaved evergreen trees // Broad-leaved evergreen trees
Mixed class	20092 // 20090	A3A10B2XXD2E1 // A3A10B2XXD1E2	Mixed *Abies & Cupresssus* with *Aesculus, Juglans, Acer*	Needle-leaved evergreen trees // Broad-leaved deciduous trees
Herbaceous crops	10696-12626	A3XXB6C2D1-C3C7C17	Rainfed terraced cultivation with multiple cropping in India and Nepal	Scattered clustered field (s) of rainfed herbaceous crop (s) (one additional crop) (Herbaceous terrestrial crop with simultaneous period).
Herbaceous crops	10676	A3XXB6C1D1	Terraced rainfed cultivation in India and Nepal	Scattered clustered field (s) of rainfed herbaceous crop (s)
Herbaceous crops	10680	A3XXB6C1D1D8	Terraced rainfed cultivation in India and Nepal	Scattered clustered field (s) of herbaceous crop (s) with fallow system

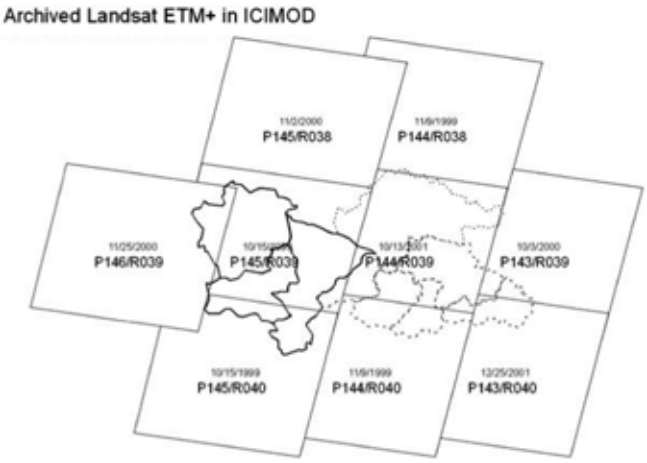
LC	LCCCode	LCCLevel	LCCOwnDescr	LCCLabel
Herbaceous crops	10694-13227	A3XXB6C1D3D9-D4	Valley agriculture in India, China and Nepal	Scattered clustered field (s) of permanently cropped area with surface irrigated herbaceous crop (s)
Herbaceous crops	10103-12602	A3XXB6C2-C3C5C17	Rainfed agriculture with Trees	Scattered clustered field (s) of herbaceous crop (s) (one additional crop) (tree crop with simultaneous period).
Tree crops	11340-W8	A1XXXXC1-W8	Orchards	Monoculture of tree crop (s) Crop cover: Orchard (s)
Shrub crops	11350-W7	A2XXXXC1-W7	Tea plantation in India, (Waiting input from China)	Monoculture Of field (s) of shrub crop (s) Crop cover: plantation (s)
Built-up areas	5003	A4	Urban and settlements	Non-linear built-up area (s)
Artificial water bodies	7010-5	A1B1C1-A5	Dams	Deep to medium artificial perennial water bodies (standing)
Natural water bodies	8002-1	A1B1-A4	Rivers and water streams	Perennial natural water bodies (flowing)
Natural Water bodies	8002-5	A1B1-A5	Lakes	Perennial natural water bodies (standing)
Snow	8006	A2B1	Permanent snow	Perennial snow
Snow	8007	A2B2	Seasonal snow	Seasonal snow
Ice	8009-9	A3B1-A6	Glaciers	Perennial ice (moving)
Ice	8009-9 (1) [Z2]	A3B1-A6Z2	Glaciers covered by debris	Perennial ice (moving)
Consolidated bare areas	6002	A3	Bare rocks	Bare rock and/or coarse fragments
Unconsolidated bare areas	6005	A5	Bare soil at high altitudes of snow- covered areas	Bare soil and/or other unconsolidated material (s)
Natural Water bodies	8003-43	A1B2-A4B6B9	River beds	Non-perennial natural water bodies (flowing) (surface aspect: sand) (water presence 3-1 months)
Unconsolidated bare areas	6005-6	A5-A12	Stony bare soil	Stony bare soil and/or other unconsolidated material (s)
Unconsolidated bare areas	6005-6 (1) [Z1]	A5-A12Z1	Landslides	Stony bare soil and/or other unconsolidated material (s)

KEY:LC-land cover; LCCCode-land-cover classification code;LCClevel-land-cover classification level;LCCowndesc.-land-cover classification own description;LCCLabel- land-cover classification label

Annex 8: **Satellite Imagery Available for the KSL Region**

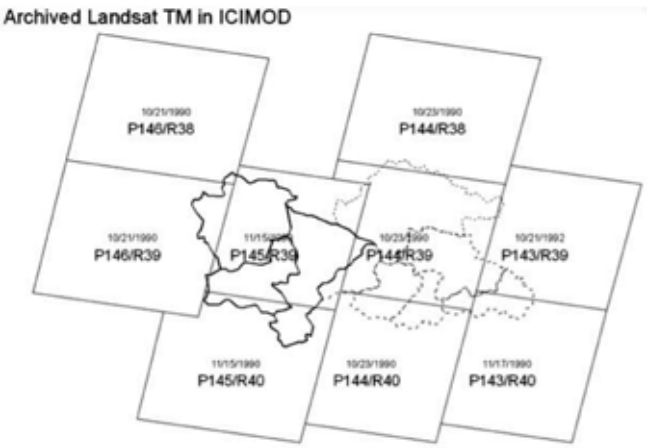
Landsat ETM+

PATH	ROW	DATE
143	39	04-Dec-99
143	40	04-Dec-99
144	40	09-Nov-99
145	40	02-Dec-99
146	39	09-Dec-99
144	38	27-Dec-99
144	39	09-Nov-99
145	38	31-Oct-99
145	39	15-Oct-99
143	39	03-Oct-00
143	40	25-Dec-01
144	38	09-Nov-99
144	39	13-Oct-01
144	40	09-Nov-99
145	38	02-Nov-00
145	39	15-Oct-99
145	40	15-Oct-99
146	39	25-Oct-00



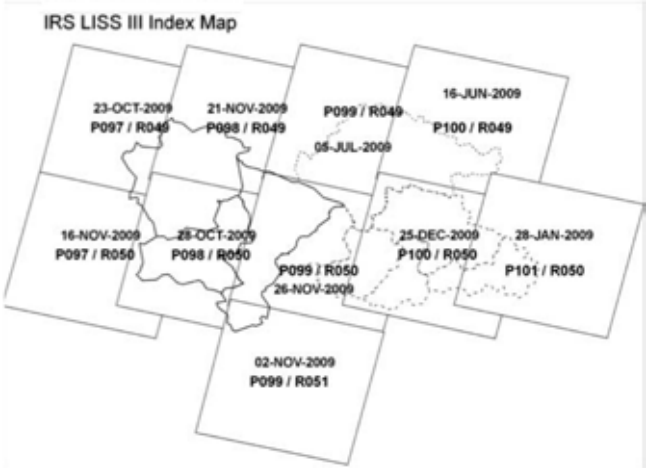
Landsat TM

PATH	ROW	Date
143	39	21-Oct-92
143	40	17-Nov-90
144	38	23-Oct-90
144	39	23-Oct-90
144	40	23-Oct-90
145	39	15-Nov-90
145	40	15-Nov-90
146	38	21-Oct-91
146	39	21-Oct-91



IRS LISS

PATH	ROW	Date
97	49	23-Oct-09
97	50	16-Nov-09
98	49	15-Sep-08
98	49	15-Sep-08
98	50	28-Oct-09
99	49	5-Jul-09
99	50	26-Nov-09
99	51	2-Nov-09
100	49	16-Jun-09
100	50	25-Dec-09
101	50	28-Jan-09



Kailash Sacred Landscape Conservation Initiative
First Regional Workshop Group Photo

Almora, India, 11-13 June 2010

Acronyms and Abbreviations

CAS	Chinese Academy of Sciences
CBD	Convention on Biological Diversity
CEMP	Comprehensive Environmental Monitoring Plan
GBPIHED	GB Pant Institute of Himalayan Environment and Development
HKH	Hindu Kush-Himalayas/Himalayan
ICIMOD	International Centre for Integrated Mountain Development
IGSNRR	Institute of Geographical Sciences and Natural Resources Research
KSL	Kailash Sacred Landscape
KSLCI	Kailash Sacred Landscape Conservation Initiative
LoA	Letter of Agreement
MoEF	Ministry of Environment and Forests (India)
MoFSC	Ministry of Forests and Soil Conservation (Nepal)
RCF	Regional Cooperation Framework
ROAP	Regional Office Asia and the Pacific
TU	Tribhuvan University
UNEP	United Nations Environment Programme
WII	Wildlife Institute of India

About ICIMOD

The International Centre for Integrated Mountain Development, ICIMOD, is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush-Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and based in Kathmandu, Nepal. Globalisation and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream-downstream issues. We support regional transboundary programmes through partnership with regional partner institutions, facilitate the exchange of experience, and serve as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop an economically and environmentally sound mountain ecosystem to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now, and for the future.

About UNEP

The United Nations Environment Programme (UNEP), established in 1972, is the voice for the environment within the United Nations system. UNEP acts as a catalyst, advocate, educator and facilitator to promote the wise use and sustainable development of the global environment. To accomplish this, UNEP works with a wide range of partners, including United Nations entities, international organizations, national governments, non-governmental organizations, the private sector and civil society.

International Centre for Integrated Mountain Development
GPO Box 3226, Kathmandu, Khumaltar, Lalitpur, Nepal
Tel +977-1-5003222 **Fax** +977-1-5003299
Email info@icimod.org **Web** www.icimod.org

Further information contact
Dr Krishna Prashad Oli
KSLCI Regional Coordinator
koli@icimod.org

Dr Robert Zomer
KSLCI Technical Coordinator
rzomer@icimod.org