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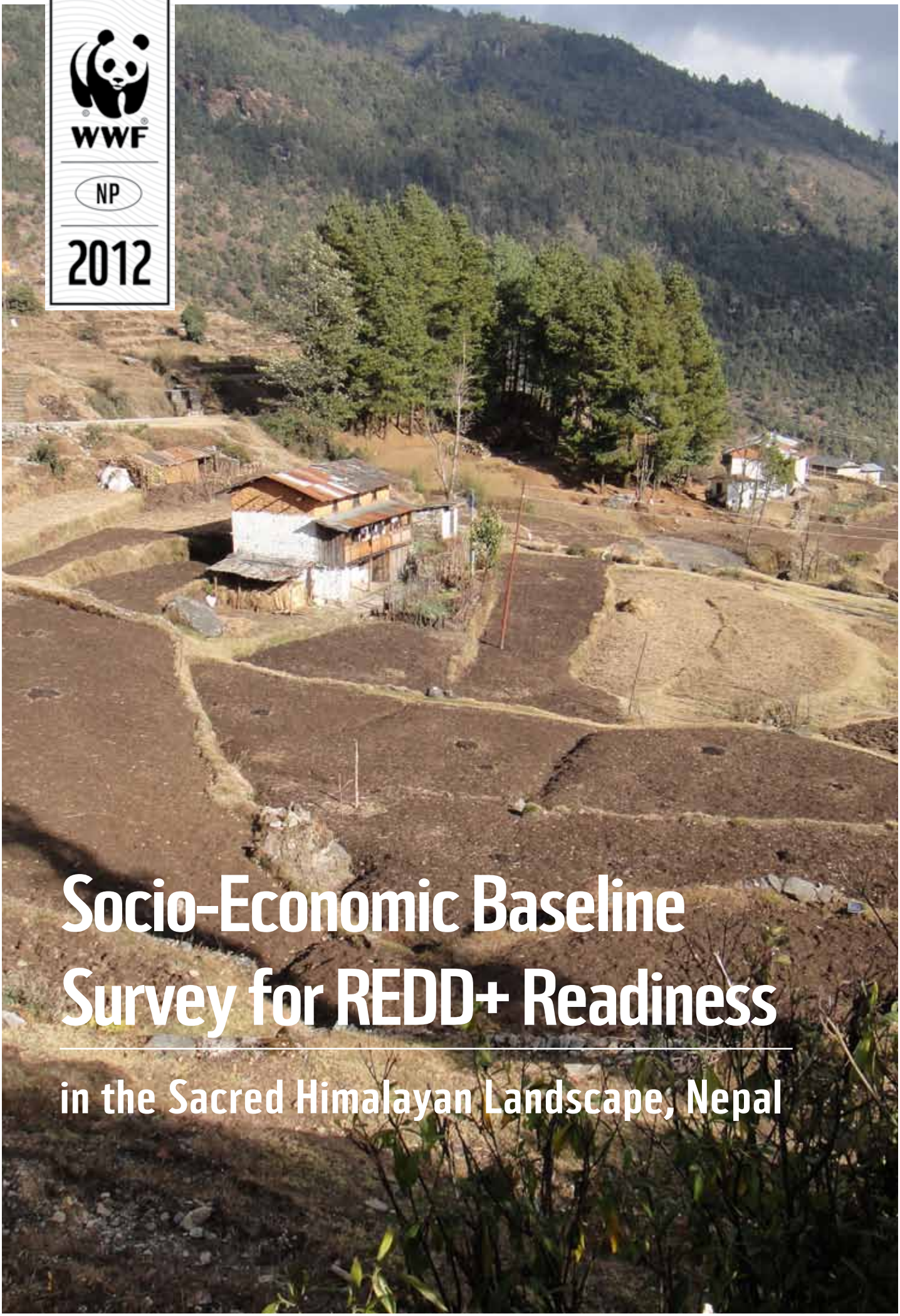

Socio-Economic Baseline Survey for REDD+ Readiness

in the Sacred Himalayan Landscape, Nepal

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Front cover photo: A mid-hill homestead with access to road and electricity in Dolakha (Photo: Khadak Rokaya)

Photo credits: Mountain Spirit, Kathmandu, Nepal.

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Socio-Economic Baseline Survey for REDD+ Readiness

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FOREWORD

The recent national census revealed significant changes in population size in the mountain ecological zone. Most of the program areas in SHL fall under the mountain ecological zone which suffers from rapid migration of youth and communities from the mountains to other ecological zones and countries to seek better economic opportunities to enhance their livelihoods. The trend of internal migration, in effect, poses a critical challenge for the continuous safeguards and conservation of natural resources, biodiversity and culture.

In order to document the scenario of socio-economic strata, livelihoods dependency and resource consumption (access, control and pressures) amongst mountain communities, WWF Nepal commissioned a socio-economic study in the Sacred Himalayan Landscape. The findings of the study are expected to be a valuable tool in planning for REDD+ and livelihoods-related interventions including addressing the drivers of deforestation and forest degradation.

I would like to thank all the respondents and the technical team from WWF Nepal and Mountain Spirit for helping produce this report.

I also express my gratitude to our partners and donors especially the Government of Nepal, Ministry of Forest and Soil Conservation, Department of National Parks and Wildlife Conservation, Department of Forests, Ministry for Foreign Affairs of Finland, WWF Finland, WWF US, WWF UK, and WWF International for their technical inputs and financial support for helping commission this study.

I hope this document is useful for future planning on REDD+ Readiness related issues pertaining to sustainable livelihoods, social, environmental and economic safeguards, and addressing the drivers of deforestation and forest degradation.

Anil Manandhar
Country Representative

EXECUTIVE SUMMARY

Nepal has been involved in the Reducing Emissions from Deforestation and Degradation (REDD) process since March 2008. Following submission of the Readiness Plan Idea Note (R-PIN) in April 2008 and the revised Readiness Preparation Proposal (R-PP) in October 2010, Nepal has signed a Supplemental Grant Agreement with the World Bank for US$3.4 million. This fund will be used to initiate the REDD preparation phase and to develop the Procurement Plan for grant-financed activities.

There are currently five major REDD+ projects recognized by the Government of Nepal. Among these projects, three have a focus on developing methodologies for REDD+, while the remaining two have a focus on awareness and capacity building. WWF Nepal Program's 'REDD+: Reducing Poverty in Nepal' is a major REDD+ project whose goal is to prepare for REDD++ with the establishment of an equitable carbon financing mechanism.

The first phase of WWF Nepal's REDD+ Readiness project was implemented in 13 districts of the Terai Arc Landscape (TAL) from 2009-2010. During the second phase, the project is being scaled up to the Sacred Himalayan Landscape (SHL) Nepal with lessons learned from the TAL-Nepal implementation phase. In line with WWF's experience with its REDD+ Readiness pilot project in TAL-Nepal, this study was conducted with the major objective of developing a comprehensive socio-economic baseline of SHL-Nepal. Moreover, key policies that affect livelihood dynamics with the implementation of REDD+ in the landscape were analyzed.

The Sacred Himalayan Landscape is a transboundary landscape in the Eastern Himalayan region of Nepal, India and Bhutan. In Nepal, the landscape extends from Langtang National Park to Kangchenjunga Conservation Area and encompasses an area of 28,680.72 sq km.

SHL-Nepal is home to a total population of 2,893,805 (approximately 52% females) representing 11% of Nepal's total population in 2011. More than half the population in SHL-Nepal is in the economically active age group between 15-59 years. Children below 15 years constitute almost 40% of the population, while the elderly (i.e. 60 years and above) account for only 7.5%. More than half the population in SHL-Nepal areAdivasi Janajatis (indigenous groups). Among the 59 Janajati groups occurring in Nepal, 41 occur in SHL-Nepal. The five most represented Janajati groups in the landscape are Rai, Tamang, Limbu, Newar and Magar.

Indicators of livelihoods are generally low in SHL-Nepal. Agriculture is the major occupation for 83% of the population in the landscape, but a third of the population own marginal farms of less than 0.5ha size. More than half the children under 5 years experience chronic malnourishment. Only 16% of households in the landscape have access to electricity and fuelwood is the major source of energy for cooking for 90% of households. Average per capita income of SHL-Nepal was Rs 15,975 in 2004, 10% less than the national average per capita income. More than half the population in SHL-Nepal is literate, but female literacy (41%) is lower than male literacy (63%).

Communities in SHL-Nepal are vulnerable to various threats that are either natural, anthropogenic or both in nature. Earthquakes; climate-related events such as landslides/mudflows, drought, fire, and glacial lake outburst floods (GLOFs); diseases,

particularly water-borne diseases; global market change; and tourism are some of the vulnerabilities faced by communities in the landscape.

Implementation of REDD+ in SHL-Nepal faces a number of socio-economic challenges. The uncertainties regarding indigenous rights over natural resources following REDD+ implementation is a contentious issue. Moreover, potential restrictions on use of forest products by local communities may be an undesirable outcome of REDD+ implementation in the landscape. In addition to REDD+ issues, there already exist conflicting forest-related policies that compromise the integrity of community forests in the landscape.

REDD+ implementation in SHL-Nepal can be linked to national priorities of alleviating poverty and enhancing livelihoods of people dependent on forest resources. Multi-stakeholder participation is crucial at all levels of REDD+ implementation: national, sub-national, and local levels. Community forest user groups are effective bodies at the local level for REDD+ implementation in the landscape. Thus, in addition to conserving forests and forest ecosystems, implementation of REDD+ in SHL-Nepal can provide benefits to local communities in the landscape.

ACKNOWLEDGEMENTS

We would like to thank WWF Nepal for providing us the opportunity to conduct this comprehensive socio-economic baseline study for REDD+ readiness in the Sacred Himalayan Landscape. We are particularly grateful to Mr. Tara Gnyawali, Sr. Livelihoods Expert, WWF Nepal, for his guidance and support during the study. Thanks are also due to Mr. Roshan Sherchan and Mr. Ugan Manandhar at WWF Nepal and Ms. Maija Kaukonen at WWF Finland for their input to this report.

In the field, we are particularly grateful to the district FECOFUN chapter offices of Bhojpur, Dolakha, Ilam, Khotang, Phidim, Ramechhap, Rasuwa and Sindhupalchok, who coordinated our interaction workshops and CFUG surveys. The members of Syaubari CFUG – Rasuwa, Piple CFUG – Ramechhap, Devisthan CFUG – Khotang, and Malingay Gahiri Masane CFUG – Ilam, were ever so kind to participate in our comprehensive socio-economic survey. We thank them for sharing their information with us.

In Kathmandu, we thank Mr Dilraj Khanal, Legal and Organizational Facilitator – FECOFUN, for sharing his knowledge and expertise on REDD+ policies in Nepal. Mr Brian Peniston and Mr Karma Bhutia at The Mountain Institute are also acknowledged for sharing information on TMI's work on REDD+ in eastern Nepal.

Mountain Spirit Project Team
March 2012

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ABBREVIATIONS/ACRONYMS

AEDC	Alternative Energy Development Center
ANSAB	Asia Network for Bio-Resources
BZ	Buffer Zone
CA	Constituent Assembly
CBO	Community Based Organization
CBS	Central Bureau of Statistics
CFUG	Community Forest User Group
CHAL	Chitwan-Annapurna Landscape
DADO	District Agriculture Development Office
DDC	District Development Committee
DEO	District Education Office
DFID	Department for International Development
DFO	District Forest Office
DSCO	District Soil Conservation Office
EIA	Environmental Impact Assessment
FCPF	Forest Carbon Partnership Facility
FECOFUN	Federation of Community Forestry Users, Nepal
FNCCI	Federation of Nepalese Chambers of Commerce and Industry
GDI	Gender Development Index
GoN	Government of Nepal
HDI	Human Development Index
HPI	Human Poverty Index
ICIMOD	International Centre for Integrated Mountain Development
IEE	Initial Environment Examination
INGO	International Non-Governmental Office
KCA	Kangchenjunga Conservation Area
LFP	Livelihoods Forestry Programme
LNP	Langtang National Park
MFSC	Ministry of Forests and Soil Conservation
MSFP	Multi-Stakeholder Forestry Programme
MT	Metric Ton
NCP	Nepal Communist Party
NEFIN	Nepal Federation of Indigenous Nationalities
NGO	Non-Governmental Organization
NTNC	National Trust for Nature Conservation
PES	Payment for Environmental Services
PRA	Participatory Rural Appraisal
RECOFT	Regional Community Forestry Training Centre
REDD	Reducing Emissions from Deforestation and Degradation
R-PIN	Readiness Plan Idea Note
R-PP	Readiness Preparation Proposal
RPP	Rastriya Prajatantra Party
SABSTA	Subsidiary Body for Scientific and Technological Advice
SDC	Swiss Agency for Development and Cooperation
SHL	Sacred Himalayan Landscape
SNP	Sagarmatha National Park
SNV	Netherlands Development Agency
TAL	Terai Arc Landscape
TAR	Tibet Autonomous Region
TMI	The Mountain Institute
UML	Unified Marxist Leninist
UNDP	United Nations Development Programme
UNFCC	United Nations Framework Convention on Climate Change
VDC	Village Development Committee
WWC	Wildlife Works Carbon
WWF	World Wildlife Fund (also known as World Wide Fund for Nature)

Sub-alpine temperate forests in Sacred Himalayan Landscape-Nepal (Photo: Khadak Rokaya)

INTRODUCTION

REDD+ READINESS IN NEPAL

Nepal's involvement in the Reducing Emissions from Deforestation and Degradation (REDD) process officially started in March 2008 when the Government of Nepal (GoN) submitted a note to the UNFCCC 's Subsidiary Body for Scientific and Technological Advice (SABSTA) Committee on Nepal's position on forest carbon financing (Dahal and Banskota 2009). Subsequently, Nepal submitted an R-PIN (Readiness Plan Idea Note) to the World Bank's Forest Carbon Partnership Facility (FCPF) in April 2008 with the Ministry of Forests and Soil Conservation (MFSC) as the country's focal agency. The R-PIN was supported by International Centre for Integrated Mountain Development (ICIMOD), Swiss Agency for Development and Cooperation (SDC), WWF, Netherlands Development Agency (SNV), National Trust for Nature Conservation(NTNC), Forest Action, and Federation of Community Forestry Users, Nepal (FECOFUN).

Box 1. R-PP Vision

"By 2013 and beyond, our greenhouse gas emissions resulting from deforestation and forest degradation will be significantly reduced by forest conservation and enhancement, by addressing the livelihoods concerns of poor and socially marginalized forest dependent people, and by establishing effective policy, regulatory and institutional structures for sustainable development of Nepal's forests under the forthcoming new constitutional framework."

In July 2008, Nepal's R-PIN was selected along with those of 13 other tropical countries. Subsequently, a REDD Forestry and Climate Change Cell was established within MFSC and chaired by the Joint Secretary of MFSC. The REDD Cell developed the Readiness Preparation Proposal (R-PP) which included a roadmap for developing and implementing the REDD strategy. The R-PP was submitted in April 2010, and following recommendations from the FCPF's Sixth Participating Committee (PC6) Meeting, a revised R-PP was submitted in October 2010. On 29 March 2011, Nepal signed a Supplemental Grant Agreement with the World Bank for $3.4million for initiation of REDD preparation phase and Procurement Plan for grant-financed activities.

Currently, there are five major REDD+ projects in Nepal (GoN/MFSC 2011b). These are summarized in Table 1.1. Among the five projects, three have a focus on developing methodologies for REDD+, while awareness and capacity building is the major focus of the remaining two projects. The majority of projects are halfway through implementation or nearing completion, except for the Plan Vivo project which is yet to be implemented although its project document has already been prepared.

In addition to the projects summarized in Table 1.1, there are a number of projects with climate change and REDD+ components:

- The Multi-Stakeholder Forestry Programme (MSFP) is a ten-year program (2010-2020) being implemented by MFSC, DFID, SDC and Government of Finland. Building on GoN's past 20 years of forestry work, the goal of MSFP is to contribute to improved livelihoods and resilience of poor households and disadvantaged groups in Nepal.
- Hariyo Ban Program is a USAID-funded five-year program (2011-2016) whose goal is to reduce the adverse impacts of climate change and threats to biodiversity in Nepal. The program, whose geographical focus is the Chitwan-Annapurna

Landscape (CHAL) and Terai Arc Landscape, is jointly implemented by WWF, CARE, NTNC and FECOFUN.

- The Mountain Institute (TMI), in partnership with Wildlife Works Carbon (WWC), has developed a project design document for REDD+ implementation in Ilam, Panchthar and Taplejung Districts of eastern Nepal. This document has been submitted to the government and is awaiting its approval.

Table 1.1. Five major REDD+ projects in Nepal

Project # 1.	**Design and Setting up of a Governance and Payment System for Nepal's CFM under REDD+**
Focus	Developing methodologies for REDD+
Implementing Agencies	ICIMOD Asia Network for Bio-Resources (ANSAB) FECOFUN
Duration	2009-2013
Project Goal	To pilot a REDD+ payment mechanism in community-managed forests in three watersheds of Nepal that would support a longer term goal of establishing a national demonstration payment mechanism for carbon credits in community forestry sector.
Project Objectives	- Strengthen capacity of civil society actors in Nepal to ensure their active participation in the planning process and in preparation of national REDD+ strategies. - Establish a Forest Carbon Trust Fund that is sustainable and creditable in the long run. - Contribute to development of REDD+ strategies that can effectively and efficiently monitor carbon flux in community managed forests.
Working Areas	1. Dolakha District: Charnawati River Watershed 2. Gorkha District: Ludikhola River Watershed 3. Chitwan District: Kayarkhola River Watershed
Project # 2.	**REDD+: Reducing Poverty in Nepal**
Focus	Developing methodologies for REDD+
Implementing Agencies	WWF Nepal Winrock International
Duration	Phase I: 2009-2010 Phase II: 2011-2013
Project Goal	To prepare for REDD++ and have an equitable carbon financing mechanism in place.
Project Objectives	- Enhance knowledge and scientific basis on forest carbon. - Strengthen capacity of government and local communities on forest carbon, including REDD+ mechanisms. - Develop policy and institutional framework for implementation of REDD+.
Working Areas	Terai Arc Landscape (TAL) Nepal: 13 mid- and western Terai districts, and lower belt of Argackhachi District.
Project # 3.	**Plan Vivo Project**
Focus	Developing methodologies for REDD+
Implementing Agencies	Livelihoods and Forestry Programme (LFP)/DFID Rupantaran Nepal

Duration	(To be implemented)
Project Goal	To enhance livelihoods and reduce vulnerability of poor rural people in selected communities in Nepal.
Project Objectives	- Contribute to assisting rural communities in accessing additional financial resources from payments for environmental services (PES) in the form of Plan Vivo credits. - Contribute to piloting and enhancing learning and capacity building amongst local communities and other government and non-government stakeholders so that these pilot approaches can be extended more widely in Nepal.
Working Areas	1. Baglung District: Resha & Damek VDCs 2. Dhankuta District: Budimorang & Khuwaphok VDCs 3. Rupandehi District: Saljhandi & Suryapura VDCs 4. Dang District: Rampur & Laxmipur VDCs
Project # 4.	**Grassroots Capacity Building Program for REDD+ in the Asia-Pacific**
Focus	Awareness and capacity building
Implementing Agencies	Regional Community Forestry Training Centre (RECOFT) FECOFUN
Duration	2009-2013
Project Goal	Grassroots forest sector stakeholders in the Asia-Pacific Region actively contribute in the success of REDD+ mechanism and take full advantage of resultant benefits for local socio-economic development.
Project Objectives	- Enable grassroots forest stakeholders to participate to their full potential in planning and implementation of REDD+ related activities by addressing their key knowledge gaps.
Working Areas	16 districts: Nawalparasi, Rupandehi, Kapilbastu, Dang, Surkhet, Banke, Bardia, Kailali, Kanchanpur, Dadeldhura, Sindhupalchok, Kavrepalanchok, Bhaktapur, Ilam, Jhapa, Morang.
Project # 5.	**Climate Change and Partnership Program**
Focus	Awareness and capacity building
Implementing Agencies	Nepal Federation of Indigenous Nationalities (NEFIN)
Duration	2009-2012
Project Goal	To contribute to the development and implementation of approaches in national REDD+ strategies that take both long-term forest conservation and the rights and concerns of indigenous peoples into account.
Project Objectives	- Increase awareness on climate change and REDD+ among in digenous peoples and build their capacity to participate actively in developing national REDD+ strategies. - Increase awareness among concerned government agencies on the need to include concerns of equity, social justice and poverty reduction in general, and rights and needs of indig enous peoples in particular, in national REDD+ strategies. - Strengthen indigenous peoples' community-based forest con servation and to promote REDD+ partnership between national governments, bilateral and multilateral

	donors and private companies, and indigenous peoples, on the basis of community-based forest management and conservation.
Working Areas	65 districts where NEFIN's District Coordination Committees exist.

Source: GoN/MFSC 2011b.

STUDY OBJECTIVES

WWF Nepal is implementing the REDD+ Reducing Poverty in Nepal project in the Terai Arc Landscape (TAL)-Nepal since 2009. The first phase of the project was implemented from 2009 to 2010 in 13 districts of TAL–Nepal. During the second phase, the project is being scaled up to the Sacred Himalayan Landscape–Nepal with lessons learned from the TAL–Nepal implementation phase.

In line with WWF's experience with its REDD+ Readiness pilot project in TAL–Nepal, this study was undertaken with the major objective of developing a comprehensive socio-economic baseline of SHL–Nepal. Major outputs of this report include:

1. Livelihoods Baseline and Analysis: A detailed socio-economic baseline of SHL–Nepal focusing on resource holdings, livelihoods subsistence strategies, and livelihood issues are included.
2. Key REDD+ Policies: Key policies that affect livelihood dynamics with REDD+ implementation are analyzed.
3. Recommendations: This report includes recommendations for addressing key livelihood issues that will be impacted by REDD+ implementation in SHL–Nepal.

METHODOLOGY

Desktop Study

A comprehensive desktop study was conducted to acquire socio-economic information on SHL-Nepal. Most data were obtained from the Nepal Census of 2001, although select population data was available from the 2011 Census. Additional socio-economic data were extracted from District Profiles, previous socio-economic surveys conducted by WWF in protected areas (KCA, LNP/BZ, and SNP) and sub-basins (Dudh Koshi and Indrawati) in SHL-Nepal, ICIMOD's Districts of Nepal: Indicators of Development (2003), and UNDP's Human Development Report (2004).

District PRA

Participatory Rapid Appraisals (PRAs) were conducted in eight district headquarters in SHL-Nepal: Bhojpur, Dolakha, Ilam, Khotang, Phidim, Ramechhap, Rasuwa, and Sindhupalchok. The PRA workshops were conducted through logistical and administrative support from the respective district FECOFUN chapter offices. FECOFUN contact persons and participants in the district PRAs are listed in Annex 1. Participants included representatives from District Development Committees (DDC), District Forest Offices (DFO), District Education Offices (DEO), Community Forest User Groups (CFUGs), Federation of Nepalese Chambers of Commerce and Industry (FNCCI), local non-governmental organizations (NGOs), political parties, and journalists, among others. Qualitative information on natural and social resources in each district, historical trends related to natural resource management, and organizations involved in climate change and/or REDD programs were acquired from the district PRA workshops. This information was used to verify or supplement information obtained from the desktop study.

Socio-Economic Survey

A comprehensive socio-economic survey was conducted among four CFUGs in Ilam, Khotang, Ramechhap and Rasuwa Districts. While the district level analysis provided

relevant information at the landscape level, analyzing information at the CFUG level provided detailed information on livelihoods dynamics at the community level (Figure

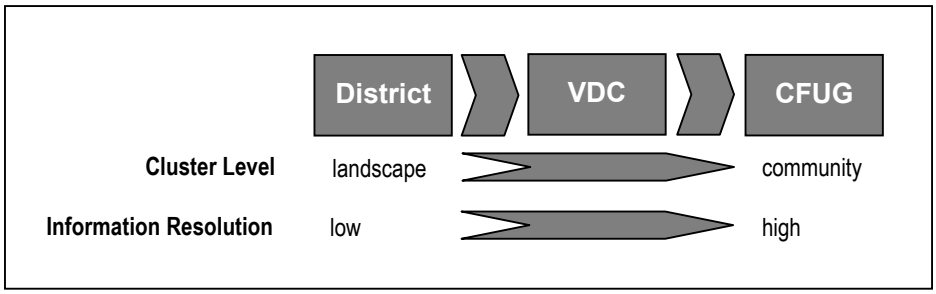

Figure 1.1. Comparison of data obtained at district and CFUG levels for landscape-level analysis.

1.1). However, because of time limitations, additional CFUGs could not be surveyed and inferences for the landscape based on these four CFUGs cannot be made.

Each CFUG was determined following a step-wise selection process (Figure 1.2):

1. **Distance from district HQ:** In order to complete field work in the stipulated time-frame, CFUGs that could be accessed from the district headquarters in less than four hours (by foot or by vehicle) were shortlisted.
2. **Community forest size:** Because the potential for carbon trading is higher in larger sized forests, community forests larger than 20ha were further shortlisted.
3. **CFUG membership:** Given the time constraints, CFUGs with approximately 150 households were then selected. This would represent a larger proportion of the community in the selected district.
4. **Varied ethnic composition:** Finally, CFUGs with heterogeneous ethnic composition, with particular emphasis on CFUGs composed of indigenous groups, were selected.

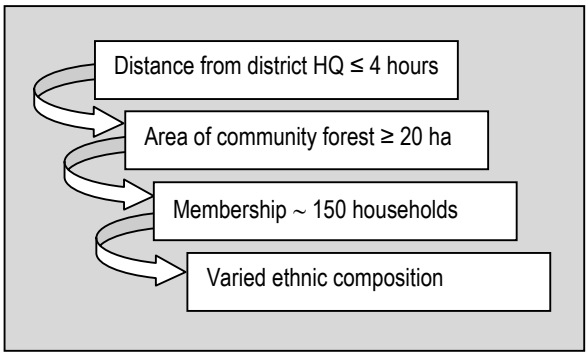

Figure 1.2.Step-wise selection of CFUGs for household survey.

While a number of CFUGs were shortlisted in Kathmandu, the final selection was done in the field with support from the respective district FECOFUN chapter offices.A total of

SN	CFUG District	Area (ha)	Households		
			Total #	# Surveyed	% Surveyed
1.	Syaubari CFUG Rasuwa	141.8	165	75	45
2.	Piple CFUG Ramechhap	206.0	273	79	29
3.	Devisthan CFUG Khotang	20.5	202	75	37
4.	Malingay Gahiri Masane CFUG Ilam	103.5	125	78	62
		Total # of surveys		**307**	

307 household surveys were conducted (approximately 30% households at each CFUG) (Table 1.2). Data were analyzed for descriptive statistics using SPSS.

LIMITATIONS OF THE STUDY

The socio-economic baseline of SHL-Nepal relies heavily on secondary information. Although the Nepal's population census of 2011 was conducted in 2010, results of the census are not yet completely available. As a result, much of the socio-economic information is based on the 2001 census. However, preliminary information on Nepal's recent demography is available online (census.gov.np/images/pdf/Preliminary Leaflet 2011.pdf) and this has been used for determining the population of SHL-Nepal.

There are 18 districts in SHL-Nepal, among which five districts are only partially included in the landscape (Appendix 2). These five districts include Udayapur, Sindhuli, Kavrepalanchok, Nuwakot and Rasuwa. While only one VDC – Ghyangphedi VDC – of Nuwakot District falls within SHL-Nepal (representing only 2% of total VDCs in the district), approximately 86% of VDCs in Kavrepalanchok District is included in the landscape. Where possible, only information for VDCs falling within SHL-Nepal are included in the analysis. In some analyses where it was felt that the district information did not represent Ghyangphedi VDC, Nuwakot District is excluded from analysis for the landscape.

Because of time and budget constraints, only four CFUGs could be surveyed in the landscape. District-level information cannot be inferred from these CFUGs, so these CFUGs are treated as independent clusters in the landscape. These CFUGs are potential gateways for WWF's project intervention on REDD+ in SHL-Nepal.

THE SACRED HIMALAYAN LANDSCAPE-NEPAL

CONTEXT

Geography

The Sacred Himalayan Landscape is a transboundary landscape in the Eastern Himalayan region of Nepal, India and Bhutan. It extends from Langtang National Park in Central Nepal, through the Kangchenjunga region in Sikkim-India, to the Toorsa Strict Nature Reserve in Western Bhutan and covers an area of 39,021 sq km.

In Nepal, the Sacred Himalayan Landscape extends from Langtang National Park in its western boundary to Kangchenjunga Conservation Area in the east (Map 2.1). SHL-Nepal encompasses an area of 28,680.72 sq km, equivalent to 73.5% of the total transboundary landscape. Physiographic zones in SHL-Nepal include Terai (1.7% of total area), Hill (45.7%), and Mountain (52.6%). Most of the landscape falls under forest (35.7%) and agricultural land (32.6%) categories, while a significantly smaller proportion are under snow and glacier (12.3%), barren land (6.7%), shrublands (4.9%), alpine meadow (4.2%), grasslands (2.8%), and water bodies (0.2%).

Map 2.1.Political boundaries and physiographic zones in SHL-Nepal.

Demography

The Sacred Himalayan Landscape-Nepal is home to a total population of 2,893,805 (approximately 52% females) representing 11% of Nepal's total population of 26.6 million in 2011 (Table 2.1). From 2001 to 2011, average annual growth rate was negative (-0.25%) in comparison to Nepal's annual growth rate of 1.40. Among the 18 districts

Homestead adjacent to a community forest in Solukhumbu District

in the landscape, Udayapur District has the highest annual growth rate (1.13%) while TerhathumDistrict has the lowest (-1.06%). There are 635,229 households in the landscape with an average household size of 4.56. Average population density in the landscape is 101 persons per sq km; Dhankuta District has the highest population density (184 per sq km) while Solukhumbu District has the lowest (32 per sq km). Population density is generally lower in districts where protected areas are located: Sankhuwasabha, Solukhumbu and Taplejung Districts (Table 2.1).

More than half the population (52.9%) of SHL-Nepal is in the economically active age group between 15-59 years (Figure 2.1; Annex 3). Within this age group, distribution of females is higher (27.5%) than males (25.4%). Children below 15 years constitute almost 40% of the total population (males 20.0% and females 19.6%), while the elderly population (i.e. 60 years and above) account for only 7.5%. The distribution of population in the landscape among these three age groups is similar to that for Nepal.

Table 2.1. Population distribution in SHL-Nepal.

SN	District	Population			Total HH	Average HH size	Population Density**
							persons/sq km)
		Male	**Female**	**Total**			
1.	Taplejung	61,442	67,105	128,547	27,761	4.63	35
2.	Panchthar	93,884	104,478	198,362	44,773	4.43	160
3.	Ilam	144,125	151,699	295,824	66,458	4.45	174
4.	Dhankuta	76,980	87,153	164,133	38,146	4.30	184
5.	Terhathum	47,357	54,352	101,709	22,409	4.54	150
6.	Sankhuwasabha	75,973	83,676	159,649	36,883	4.33	46
7.	Bhojpur	86,663	97,255	183,918	40,720	4.52	122
8.	Solukhumbu	51,885	54,887	106,772	25,367	4.21	32
9.	Okhaldhunga	68,893	79,427	148,320	32,847	4.52	138
10.	Khotang	98,860	110,270	209,130	42,649	4.90	131
11.	Udayapur*	43,785	44,430	88,215	15,055	5.86	
12.	Sindhuli*	34,382	35,065	69,447	12,023	5.78	
13.	Ramechhap	94,925	110,387	205,312	45,036	4.56	133
14.	Dolakha	88,163	100,023	188,186	48,414	3.89	86
15.	Sindhupalchok	139,602	149,853	289,455	69,600	4.16	114
16.	Kavrepalanchok*	167,440	176,884	344,324	64,340	5.35	
17.	Nuwakot*	1,449	1,247	2,696	532	5.07	
18.	Rasuwa*	5,222	4,585	9,807	2,216	4.43	
	TOTAL	**1,381,029**	**1,512,776**	**2,893,805**	**635,229**		

Source: CBS 2011.

* *Population calculated only for VDCs included in SHL Nepal: 2004 population projected for 2011 using annual growth rates for respective districts.*

** *Population density not calculated for districts which are only partially included in SHL-Nepal.*

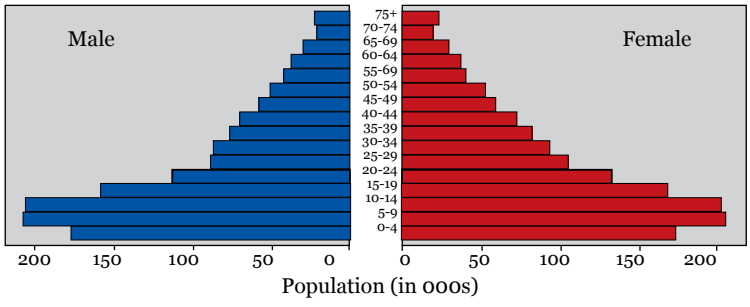

Figure 2.1. Population distribution by age groups in SHL-Nepal.

More than half the population in SHL-Nepal are Adivasi Janajatis (indigenous groups) (Figure 2.2; Annex 4). Both hill and Terai/Madhesi Janajati groups are represented in the landscape (Table 2.2), although the latter constitute only 0.2% of the total Janajati population. Brahman/Chhetri form the second most dominant group and represent 32% of the population. Dalits, both hill as well as Terai/Madhesi Dalit groups, form almost 8% of the population. Terai middle castes, Muslim and other groups constitute only a little more than 1% of the population in the landscape.

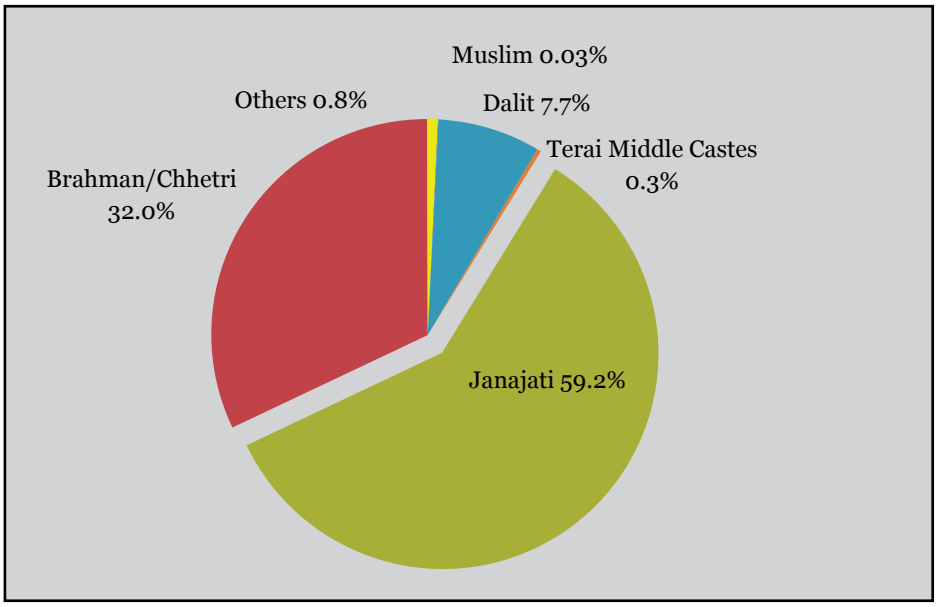

Figure 2.2. Distribution of caste/ethnic groups in SHL-Nepal.

Table 2.2. Distribution of ethnic groups by categories in SHL-Nepal.

	Categories of Janajati Groups in Nepal					
	Endangered	**Highly Marginalized**	**Marginalized**	**Disadvantaged**	**Advanced**	**Total**
% of Total Janajatis	0.2	2.8	28.0	56.6	12.4	100
# of Janajati Groups	7	9	14	9	2	41
Janajati Groups % of Category (% of Total	Hayu 31.1(0.07) Lepcha 11.4 (0.01) Raute 1.5(<0.01) Kusunda0.5 (<0.01) Meche*0.5(<0.01) Raji 0.4(<0.01)	Thami 42.5(1.2) Majhi 38.0 (1.1) Danuwar 17.8(0.5) Chepang 1.0(0.03) Dhanuk* 0.3 (0.01)	Tamang 84.2(23.6) Bhujel 6.1 (1.7) Sunuwar 6.0 (1.7) Bhote 1.4 (0.4) Pahari 1.1(0.3) Tharu* 0.5(0.1)	Rai 42.6 (24.1) Limbu 25.4(14.4) Magar 15.4 (8.7) Sherpa 9.6(5.4) Gurung 5.1(2.9) Yakkha 1.5(0.8) Jirel 0.5(0.3)	Newar 99.9 (12.3) Thakali 0.1 (0.01)	

<0.1 (<0.01): Kisan*	Bote 0.2 (0.01) Jhagar* 0.2 (<0.01) <0.1 (<0.01): Baramu Santhal/Sattar*	Kumal 0.5(0.1) <0.1 (<0.01): Darai Dhimal* Dura Gangai* Rajbansi* Tajpuriya* Walung	<0.1 (<0.01): Byangsi Chhantel

** Terai/Madhesi Janajati groups.*

Among the 59 Janajati groups occurring in Nepal (NEFIN 2008), 41 occur in SHL-Nepal (Table 2.2). The five most represented Janajati groups in the landscape are: Rai (24.1%), Tamang (23.6%), Limbu (14.4%),Newar (12.3%) and Magar (8.7%). Based on NEFIN's categories of Janajati groups in Nepal, the Disadvantaged category accounts for more than half the total number of Janajatis, followed by the Marginalized category (28%), Advanced (12.4%), Highly Marginalized (2.8%) and Endangered (0.2%). Seven Janajati groups represent the Endangered category: Hayu, Lepcha, Raute, Kusunda, Meche, Rajiand Kisan, among which Meche and Kisan are Terai Janajati groups. Among the indigenous groups occurring in very small proportions (<0.01% of total), half are Terai/Madhesi Janajati groups.

CURRENT STATUS OF LIVELIHOOD CAPITALS IN SHL-NEPAL

Natural Capital

Biodiversity

The Sacred Himalayan Landscape-Nepal is rich in both floral and faunal diversity (GoN/MoFSC 2006). Owing to sharp altitudinal and climatic variations, SHL-Nepal has unique ecological and biological attributes, including ecological communities in the world's highest ecosystem. The floral diversity ranges from subtropical to alpine vegetation (Table 2.3). Many of these plant species have medicinal value and are harvested for both household, as well as commercial purposes. Significant among these are Dactylorhiza hatagirea (Nepali: panch aunle), Hippophae tibetana (bhui chuk), Swertia multicaulis (chiraito), Lilium nepalense (ban lasoon), Mahonia napaulensis (jamane mandro), and Zanthoxylum armatum (timbur).

The faunal diversity of SHL Nepal includes both globally threatened species, as well as endemic species (GoN/MoFSC 2006). At least 85 mammal species, over 440 bird species, 41 amphibian species, and over 200 butterfly species are known to occur in the landscape. The charismatic snow leopard (Uncia uncia) is a globally threatened species that is found in the landscape. 13 species of pheasants occur in the landscape, among which six are endemic: Francolinus francolinus (Black francolin), Ithaginis cruentus (Blood pheasant), Lophophorus impejanus (Himalayan monal), Lophura leucomelanos (Kalij pheasant), Pucrasia macrolopha (Koklass pheasant), and Tragopan satyra (Satyr tragopan). Among the amphibian species, the Indotestudo (Testudo) elongata is a globally endangered species of turtle. Moreover, several species of endemic frogs and salamanders occur in SHL-Nepal.

Table 2.3.Vegetation types occurring in SHL-Nepal.

Vegetation Type	Elevation Range (m)	Representative Tree Taxa
Subtropical	1000-2000	Castanopsis tribuloides, Schima wallichii, Engelhardtia spicata, Alnus nepalensis, Eurya acuminate, Ostodes paniculatus, Pinus roxburghii, Bischofia javanica
Temperate	2000-3000	Quercus spp., Litsea spp., Rhododendron arboretum, Acer campbellii, Tsuga dumosa, Daphniphyllum himalayense, Magnolia campbellii
Subalpine	3000-4000	Abies spectabilis, Betula utilis, Rhododendron spp., Juniperus spp., Sorbus microphylla, S. vestita, Lindera heterophylla, Gamblea ciliata
Alpine	4000-5600	Abies spectabilis, Sorbus microphylla, Rhododendron spp., Salix spp., Juniperus spp.
Nival	> 5600	-

Protected Areas in SHL Nepal

The Sacred Himalayan Landscape-Nepal includes five protected areas (Table 2.4; Annex 5): Kangchenjunga Conservation Area, Makalu Barun National Park and Buffer Zone, Sagarmatha National Park and Buffer Zone, Gaurishankar Conservation Area, and Langtang National Park and Buffer Zone. Approximately 35% of the total area of the landscape falls under the three protected area categories:national park (4,358 sq km), conservation area (4,214 sq km), and buffer zone (1,525 sq km). The most recently declared protected area in the landscape is Gaurishankar Conservation Area (2,179 sq km) which was included in Nepal's Gazette Notice on 11 January 2010.

Table 2.4. Protected areas in SHL-Nepal.

SN	Protected Area	Area (sq km)	Year Gazetted	IUCN Management Category
1.	Kangchenjunga Conservation Area	2,035	1997	VI
2.	Makalu Barun National Park	1,500	1991	Core Area I; National Park II
	Buffer Zone	830	1999	VI
3.	Sagarmatha National Park	1,148	1976	II
	Buffer Zone	275	2002	VI
4.	Gaurishankar Conservation Area	2,179	2010	VI
5.	Langtang National Park	1710	1976	II
	Buffer Zone	420	1998	VI
	Total	**10,097**		

Source: Bhuju et al. 2007

Forests

Forests occupy approximately 36% of the total land cover in SHL-Nepal (GoN/MFSC 2011a). These forests fall under five management categories: national, community, leasehold, private and religious (Figure 2.3). Almost three quarters of the forests in the landscape are national forests, a large portion of which falls within protected areas. Community forests account for approximately 25% of the forests. Leasehold, private and religious forests represent less than 1% of total forests in the landscape.

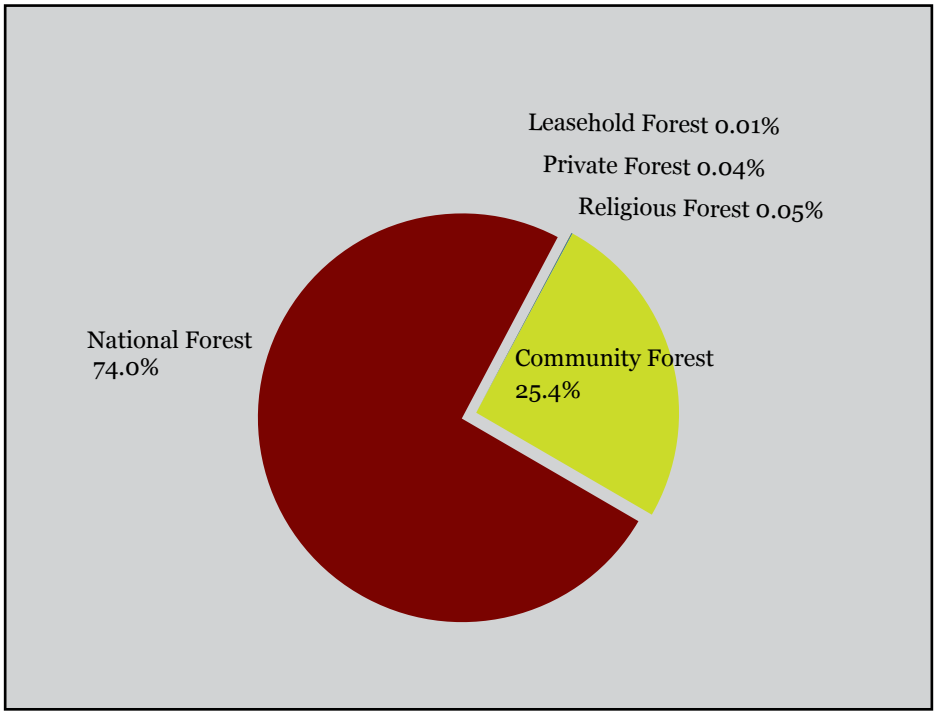

Figure 2.3. Forest management categories in SHL-Nepal.

Community forests in SHL-Nepal collectively occupy an area of 459,633.3ha, equivalent to 16% of the total area of SHL-Nepal (Table 2.5). These community forests are managed by 4,206 CFUGs that provide benefits to 472,292 households (74% of all households in SHL-Nepal).

In addition to performing various ecosystem services, forests are also important for the livelihoods of communities in the landscape. They are a source of timber, as well as non-timber products which include fuelwood, fodder, litter, medicinal plants, and edible plants among others. These products are extracted from both community, as well as national forests.

Table 2.5. Community forests in SHL-Nepal.

SN	District	CF Area (ha)	CFUG	
			Total Number	# Households in CFUGs
1.	Taplejung†	76,626.7	104	6,722
2.	Panchthar	11,950.2	151	15,686
3.	Ilam	49,119.6	218	32,039w
4.	Dhankuta	29,413.9	362	42,718
5.	Terhathum	17,520.3	322	26,704

6.	Sankhuwasabha†	29,518.3	347	30,548
7.	Bhojpur	39,025.6	506	48,662
8.	Solukhumbu†	28,527.7	155	20,360
9.	Okhaldhunga	19,678.4	219	31,119
10.	Khotang	32,275.1	216	30,363
11.	Udayapur*	15,692.5	82	9,884
12.	Sindhuli*	9,175.0	45	5,340
13.	Ramechhap	26,861.9	339	39,546
14.	Dolakha	29,901.4	280	41,229
15.	Sindhupalchok†	30,515.2	501	56,551
16.	Kavrepalanchok*	12,216.2	314	29,623
17.	Nuwakot†*	-	-	-
18.	Rasuwa†*	1,615.3	45	5,198
	TOTAL	**459,633.3**	**4,206**	**472,292**

Source: DoF 2011.
†Community forests in protected areas of these districts are also included: Kangchenjunga Conservation Area in Taplejung District; Makalu Barun National Park Buffer Zone in Sankhuwasabha District; Sagarmatha National Park Buffer Zone in Solukhumbu District; and Langtang National Park Buffer Zone in Sindhupalchok, Nuwakot and Rasuwa Districts.
** Community forest area and CFUGs calculated only for VDCs included in SHL Nepal.*

Water

Almost 75% of the households in SHL-Nepal have access to drinking water (Annex 6). In Ilam and Taplejung Districts, a little more than 90% of households have access to drinking water. On the other hand, more than half the households (57%) in Bhojpur District do not have access to drinking water. On average, 25.6% of households in the landscape do not have access to drinking water.

Drinking water sources include piped water, well/spring, dhaara water, river and others. In SHL-Nepal, piped water is the most common source of drinking water (for 77.5% of households), followed by dhaara (8.8%), well/spring (5.1%) and river (1.1%) (Figure 2.4). Unlike the Terai, tube-wells are not used as a drinking water source in SHL-Nepal.

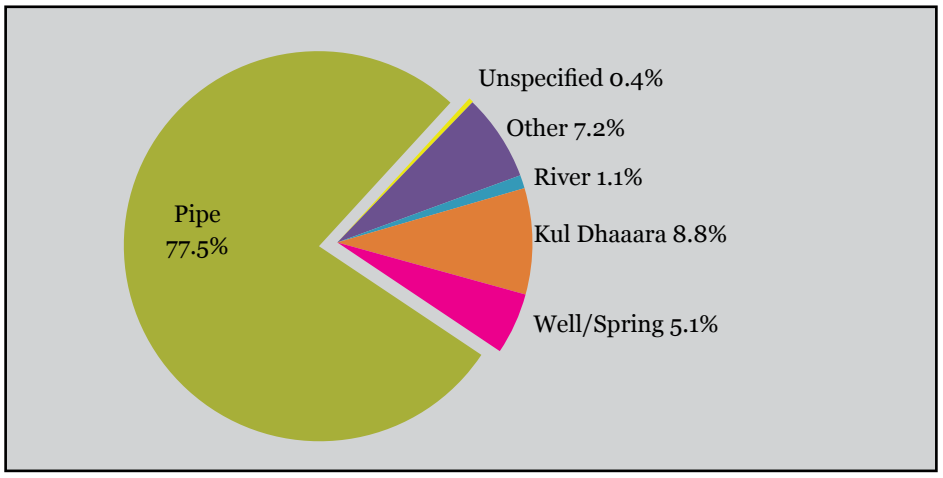

Figure 2.4. Sources of drinking water for households in SHL-Nepal.

Food Production

Agriculture is the major occupation for the majority of households in SHL-Nepal (Table 2.6; Annex 7). However, despite the dependency of 83% of households on agriculture, a little over a third of the households (34.5%) have marginal farms with area less than 0.5 ha. In Sindhuli District, more than half the population (59%) is marginal farm holders.

Based on the production of paddy, wheat, maize, millet, barley and potatoes, average per capita food production in SHL-Nepal is 3,435 Kcalories per day (Table 2.6). Food production is highest in Bhojpur District (4,855 Kcal/day) despite approximately a third of the households owning farms of marginal size. On the other hand, food production is lowest in Dolakha District (1,774 Kcal/day) where the proportion of agriculture-based households is lowest relative to other districts in the landscape.

Table 2.6. Food production in SHL-Nepal.

Major Occupation:	
- agriculture	82.8%
- non-agriculture	17.2%
Proportion of households with marginal farms (farm size <0.5 ha)	34.5%
Per capita food production (paddy, wheat, maize, millet, barley, potatoes)	3,435 Kcal/day
Chronic malnourishment among children (less than 5 years age)	53.8%

Source: ICIMOD 2003; UNDP 2004.

Energy Source

Only 16.4% of households in SHL-Nepal have access to electricity (Annex 8). The proportion of electrified households in the landscape is significantly lower than in the country (31.1%). Khotang District has the least access to electricity (only 3.9% of households are electrified), followed by Panchthar (5.1%), Bhojpur (5.4%) and Okhaldhunga (5.7%). On the other hand, three districts have higher access to electricity than the national average: Kavrepalanchok (43.2%), Nuwakot (33.7%) and Rasuwa (32.6%). The proximity of Kavrepalanchok District to the Central Grid System increases its access to electricity. Rasuwa District is the site where the 20 MW Chilime Hydropower Project is installed, therefore households in both Rasuwa and Nuwakot Districts have access to electricity generated by this project.

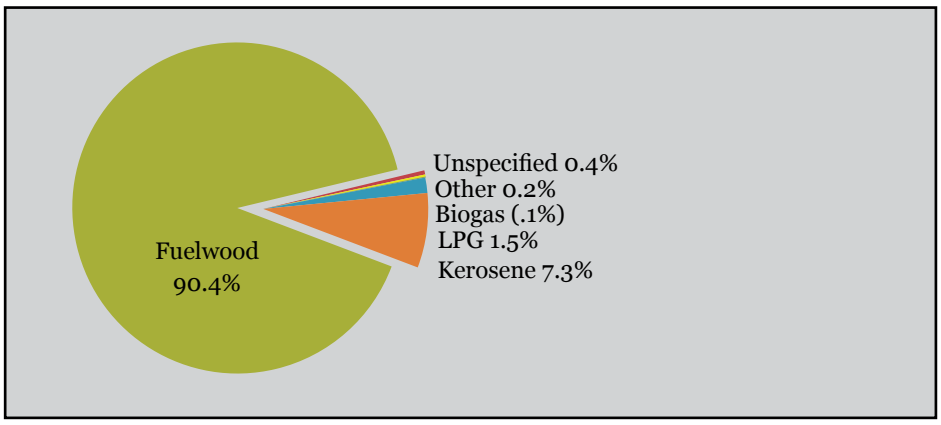

Figure 2.5. Sources of energy for cooking in SHL-Nepal.

Fuelwood is the major source of energy for cooking and is used by an average of 90.4% households in the landscape (Figure 2.5). Other sources of energy include kerosene (7.3%) and LPG (1.5%). Biogas, including gobar gas, is used by a negligible proportion (0.1%) of households in the landscape.

Annual household fuelwood use is different for communities across the landscape. On average, communities in the lower and middle hills of the landscape use 5.7 MT and 5.9 MT fuelwood per household per year respectively, while at higher elevations the use of fuelwood is lower with an average use of 2.5MT per household per year (Table 2.7). Community forests contribute up to 86% of community needs for fuelwood in the landscape.

Fuelwood use is generally lower at higher elevations for a number of reasons. Much of the higher elevation regions in SHL-Nepal are protected areas (Table 2.4) with restrictions on fuelwood extraction from forests. Moreover, a number of these sites are also popular tourist destinations, such as Sagarmatha National Park and Langtang National Park, where the use of alternative energy – kerosene, electricity – is more viable. The use of agricultural residues and yak dung are also common in high elevation regions of the landscape.

Table 2.7. Fuelwood required by households in SHL-Nepal.

SN	Elevation range (m)	Average annual fuelwood use per household (MT)	Amount contributed by community forests (range%)
1.	300-1500	5.7	25-71
2.	1500-3000	5.9	4-86
3.	>3000	2.5	na

Refer to Annex 9 for details.

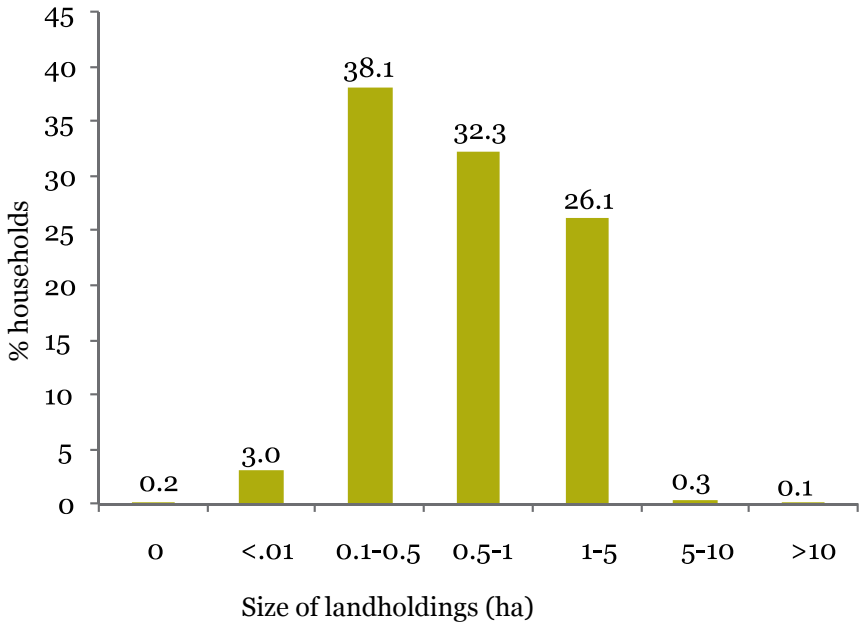

Figure 2.6. Land ownership patterns in SHL-Nepal.

Financial Capital

Land is an important asset for families in SHL-Nepal. Almost all households in the landscape own land, while only 0.2% households are landless (Figure 2.6) (CBS 2004a). More than a third of total households own land between 0.1 and 0.5ha, 32.3% own land between 0.5 and 1ha, and 26.1% own land between 1 and 5ha, while 3% own land less than 0.1ha and only 0.4% have landholdings larger than 5ha.

Average per capita income of SHL-Nepal was Rs 15,975 in 2001 (UNDP 2004) (Annex 10). The SHL-Nepal per capita income was 10% less than the national average per capita income of Rs 17,722. Among districts in the landscape, only three had per capita income higher than the national average: Rasuwa District (Rs 24,379), Kavrepalanchok (Rs 21,262), and Solukhumbu (Rs 19,679).

Women's share in income accounted for an average of 36.7% in the landscape (Annex 10). This is higher than the average for Nepal (30.2%). In Sindhupalchok and Ramechhap Districts, women's share accounted for the highest proportion (48.8% and 46.0% respectively), while women's share in income was lowest in Tehrathum (31.7%) and Dolakha (31.9%) Districts.

Residents in SHL-Nepal have access to a number of financial institutions (Annex 10). There are at least 55 banks in the landscape ranging from Rashtriya Bank, Agricultural Development Bank, Banijya Banks (including private banks such as Nepal Investment Bank, Laxmi Bank, etc.), and finance companies. In addition to banks, there are more than 1,500 cooperatives providing local residents with access to credit. These cooperatives include agricultural cooperatives, multi-purpose cooperatives, and saving and credit cooperatives among others.

Physical Capital

Transport

Districts in SHL Nepal are connected by a road network extending over 2,467km (Table 2.8; Annex 11).

Table 2.8. Road network in SHL-Nepal.

	km	**%**
Type of Road:		
1. Blacktop	811.56	32.9
2. Gravel	437.26	17.7
3. Earthen	1,218.62	49.4
Total	**2,467.44**	**100.0**
Road Category:		
1. National Highway	650.11	26.3
2. Feeder Road – major	1,315.43	53.3
3. Feeder Road – minor	72.00	2.9
4. Mid-hill Road	403.90	16.4
5. Postal Road	26.00	1.1
Total	**2,467.44**	**100.0**
Other:		
Under Construction	130.22	
Planned	443.40	

Source: DoR 2010.

However, this road network represents less than a quarter of the total road network in Nepal. 130.22km of roads are currently under construction, while 443.40km of roads are planned for construction. All district headquarters in the landscape are connected by the current road network.

Of the total roads constructed in the landscape, more than half (53%) are major feeder roads, 26% are part of the national highway, 16% are mid-hill roads, and the remaining are minor feeder roads (3%) and postal roads (1%). Almost half the roads in the landscape are earthen roads, while 33% are black-topped and 18% are graveled roads.

There are 13 airports in SHL-Nepal (Annex 11). Among these, a few such as Syangboche, Langtang and Ramechhap, do not have scheduled flights and are mostly used by helicopters.

Communication

Communication facilities in SHL-Nepal include telephone, internet, cable and postal services (Table 2.9). Various types of phones have been distributed in the landscape, with mobile phone (cell-phones) services being available in all district headquarters. Internet services are also available in many districts including Dhankuta, Ilam, Okhaldhunga, Panchthar, Ramechhap and Taplejung, although these services are generally limited to district headquarters. Cable television services are also available in the landscape, although these are also generally limited to district headquarters.

Table 2.9. Communication facilities in SHL-Nepal.

Phones (# sets distributed):	
1. Tower	12,371
2. V-SAT	65
3. CDMA	769
4. Cell-phone	1,564
4. MARTS	104
5. VHF	38
Internet:	
1. Service providers (#)	8
2. Internet subscribers (#)	353
Cable:	
1. Cable operators (#)	29
2. Cable subscribers (#)	4,812
Postal Services:	
1. District Post Office (#)	17
2. Ilaka Post Office (#)	163
3. Atirikta Post Office (#)	575
Total	**753**

Source: District Profiles.

Postal services are available in all districts in the landscape. The postal service network includes one district post office at each district headquarter, 163 Ilaka post offices, and 575 Atirikta post offices in the landscape. Private companies offering courier mail services are also emerging in many district headquarters in the landscape.

Human Capital

Literacy

More than half the population in SHL-Nepal is literate (Figure 2.7; Annex 13). Male literacy is significantly higher (63.3%) than female literacy rates (41.0%). Ilam District has the highest rate of literacy (66.5%), while Rasuwa District has the lowest (34.0%). For population above 15 years, the adult literacy rate at 44.9% is lower than the general literacy rate indicating a relatively high rate of school drop-out. Similar to general literacy trends, adult literacy is highest in Ilam District (61.5%) and lowest in Rasuwa District (25.4%). Both general and adult literacy rates in SHL-Nepal are lower than the national average (Figure 2.7).

Almost one-fifth of total children (10-14 years) in SHL-Nepal are deprived of education (Figure 2.7; Annex 13). The rate is highest for Rasuwa District where 33.5% of school-going children are deprived of education, and lowest for Ilam (8.5%) and Kavrepalanchok (9.3%) Districts. Numerous factors contribute to children being deprived of education: distance from school, household poverty, and awareness levels among families, etc.

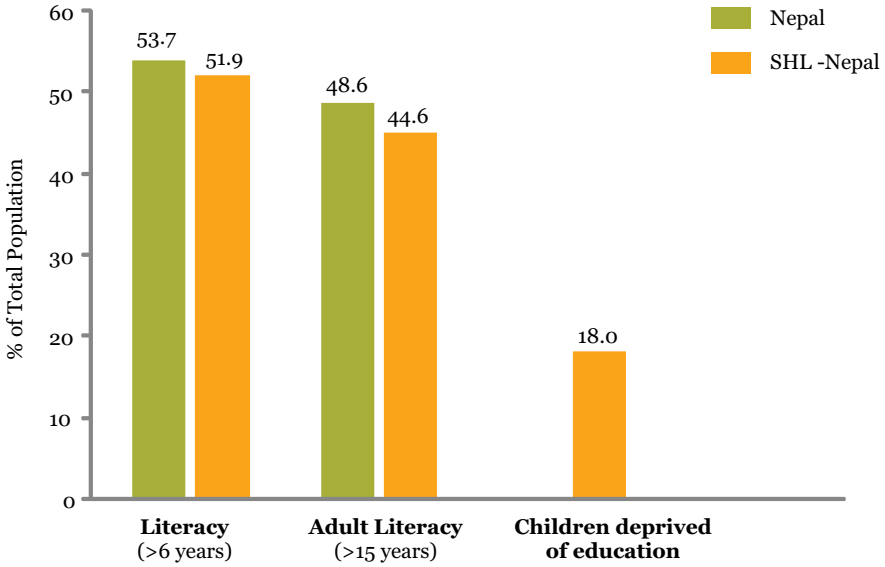

Figure 2.7. Comparison of literacy rates in SHL-Nepal and Nepal.

Table 2.10. Education institutions in SHL-Nepal.

Type of education institution	Number
1. Primary school	6,323
2. Lower secondary school	1,622
3. Secondary school	882
4. Higher secondary school	119
5. Campus	30
6. University	1
7. Vocational training center	43
8. Other	415

There are 8,977 formal education institutions in SHL-Nepal (Table 2.9; Annex 13). These include both community, as well as private schools. The majority of schools (70.4%) are primary schools. The only university in the landscape, Kathmandu University, is situated in Dhulikhel, Kavre District.

In addition to formal education institutions, there are also a number of vocational training centers, resource centers for non-formal education, and day care centers for pre-school children. These are operated by both government, as well as private sector.

Sanitation

Almost half the population in SHL-Nepal has access to toilets (Annex 14). Among these households, the majority (70.3%) use general toilets that include pit and compost toilets, and approximately 29% use flush toilets (improved toilets) (Figure 2.8). A little more than half the population (50.3%) does not have access to toilets.

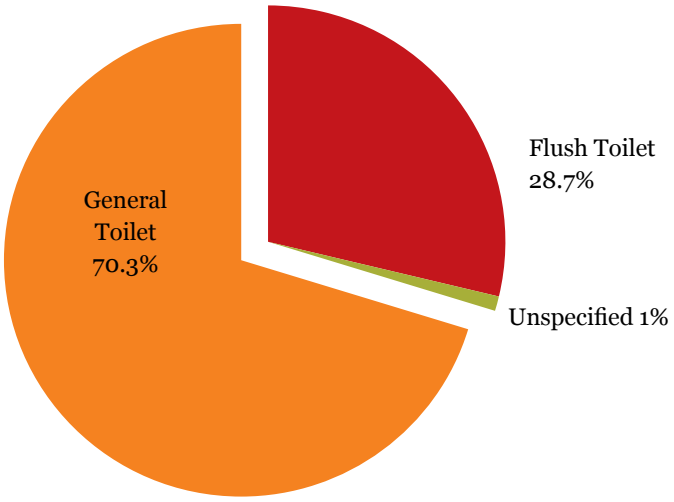

Figure 2.8. Types of toilets among households with access to toilets in SHL-Nepal.

Social Capital

There are numerous government and non-government organizations functioning at the regional, district, VDC, and village-levels in SHL-Nepal. An analysis of organizations working on forestry, climate change (including REDD+) issues indicated a number of key organizations.

Government Agencies:

- District Development Committees (DDCs) are the key government agencies in each district for implementation of conservation and development work.
- District line agencies including District Forest Office (DFO), District AgricultureDevelopment Office (DADO), District Soil Conservation Office (DSCO), Alternative Energy Development Center (AEDC), Department of Plant Resources, among others, implement various forestry and climate change related programs.

NGOs:

- FFECOFUN is a formal network of forestry user groups from all over Nepal. FECOFUN has chapter offices in most districts of SHL-Nepal.
- NEFIN is an autonomous and politically non-partisan national organization whose

mission is to acquire social equality and justice for indigenous nationalities by preserving their social, political, cultural and linguistic identities and by promoting their representation in every aspect of national life. NEFIN is implementing a REDD+ awareness and capacity building project in 65 districts of Nepal.
- NTNC is a not-for-profit organization working in the field of nature conservation in Nepal. NTNC has been entrusted by the Government of Nepal with the management of Gaurishankar Conservation Area.

International Aid Agencies and INGOs:

- Cesvi is an Italian INGO working on community forestry in Sagarmatha National Park Buffer Zone, Solukhumbu District.
- DFID, a UK government aid agency, is implementing its Livelihoods Forestry Programme (LFP) in Bhojpur, Dhankuta, Sankhuwasabha and Tehrathum Districts within SHL-Nepal. Furthermore, LFP will pilot its REDD+ Plan Vivo project in two VDCs of Dhankuta District.
- ICIMOD, along with ANSAB and FECOFUN, is working on a carbon-credit project in Dolakha District.
- SDC implemented the Nepal Swiss Community Forestry Project in Dolakha, Khotang, Okhaldhunga and Ramechhap Districts within the landscape. Although the project has now been phased out, there are still SDC-funded projects under progress in SHL-Nepal.
- The Mountain Institute (TMI) is developing a carbon credit project under REDD+ for Ilam, Panchthar and Taplejung Districts.
- WWF is supporting projects in the Sacred Himalayan Landscape, and in particular in Kangchenjunga Conservation Area, Langtang National Park and Buffer Zone, Dudhkoshi sub-basin, and Indrawati sub-basin.

Political Capital

96 residents of SHL-Nepal were elected to the 601-member Constituent Assembly in 2008 (Table 2.11; Annex 15): 45 representing Nepal Communist Party (NCP): Maoist, 25 Nepali Congress, 23 NCP: Unified Marxist Leninist (UML), 2 Rastriya Prajatantra Party (RPP), and 1 Rastriya Janashakti Party.

Table 2.11. CA members elected from SHL-Nepal.

Political Party	CA Total	# in SHL-Nepal	% of CA Total
NCP: Maoist	229	45	19.7
Nepali Congress	115	25	21.7
NCP: UML	108	23	21.3
RPP	8	2	25.0
Rastriya Janashakti Party	3	1	33.3
Others	138	-	-
TOTAL	**601**	**96**	

There are a total of 167,642 registered voters in SHL-Nepal (Bhattarai 2010). During the Constituent Assembly elections in 2008, 57.2% of the total registered voters voted in the landscape (Annex 15). Among the districts in the landscape, voter turn-out was highest in Rasuwa (66.1%), Ilam (65.7%) and Kavrepalanchok (65.4%) Districts. Bhojpur had the lowest voter turn-out in the landscape with only 49% of registered voters participating in the elections.

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Development and Poverty Indices

The Human Development Index (HDI) of SHL-Nepal (0.473) is similar to the HDI of Nepal (0.471) (Figure 2.9). Gender Development Index (GDI) of SHL-Nepal and Nepal are also similar. However, The Human Poverty Index (HPI) is higher in SHL-Nepal indicating a higher level of poverty in the landscape. A comparison of districts in SHL-Nepal indicates that Rasuwa is the least developed district (HDI 0.394; GDI 0.376, HPI 54.5), while Terhathum (HDI 0.523, GDI 0.504, HPI 40.9) and Ilam (HDI 0.521, GDI 0.513, HPI 33.7) are the most developed districts (Annex 16).

Communities in SHL-Nepal are vulnerable to various threats that are either natural, anthropogenic, or both in nature. These are summarized below.

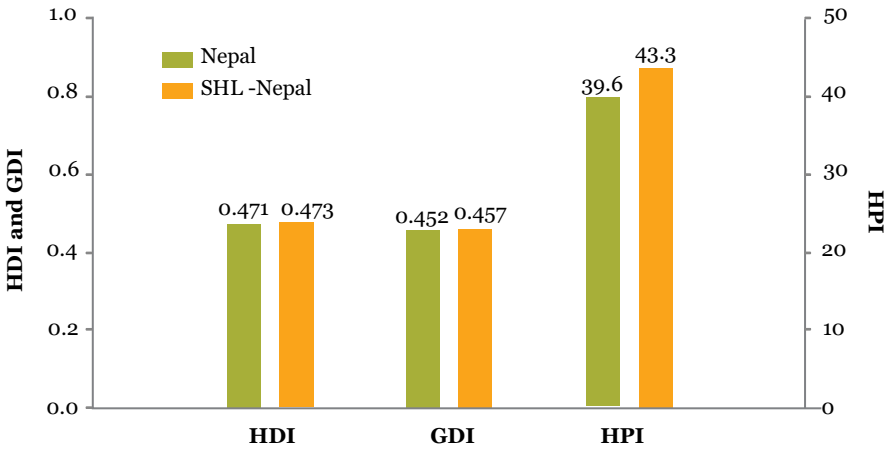

Figure 2.9.Comparison of HDI, GDI and HPI of SHL-Nepal with Nepal.

VULNERABILITIES IN SHL-NEPAL

Nature-Induced Threats

Earthquakes: Much of SHL-Nepal is situated over an unstable tectonic plate that is prone to earthquake events. Earthquakes directly impact the physical capital of communities, including various infrastructure, through which they affect other aspects of livelihoods such as shelter, education, health and income. Moreover, earthquakes can also active other disasters such as landslides, mudflows, floods, and even GLOF events.

Climate-related Events: Landslides/mudflows, drought and fire have been related to the changing climate in SHL-Nepal (RIMS-Nepal 2010). The geology and topography of SHL-Nepal predisposes it to landslide/mudflow events. Furthermore, human activities such as deforestation and conversion of forests to grazing and agricultural lands also increase the potential for such events. Landslide/mudflow events are associated with loss of human life and livestock, as well as damage to ecosystems, agricultural land and infrastructure. Landslide events below 3500m in SHL-Nepal are particularly critical because of higher densities of settlements at these elevations.

Droughts also threaten livelihoods as they reduce crop yields, affect drinking water supplies, and enhance the spread of invasive species of both plants and pests. Fires in the landscape result in loss of life and property, while also affecting the ecosystem.

Glacial Lake Outburst Flood (GLOF) events are also related to climate change. There are 16 potentially dangerous glacial lakes in the northern parts of SHL-Nepal (Table 2.12). Outburst events of these glacial lakes can have major implications to communities living downstream. In addition to causing loss of human life and livestock, GLOFs can destroy forests, agricultural lands and property, as well as infrastructure.

Table 2.12. Potentially dangerous glacial lakes in SHL-Nepal.

SN	Lake Name	Lake No.	Sub-Basin	Altitude (m)	Area (sq m)
1.	Nagma	Ktr_gl 191	Tamur	4,907	18,971
2.	na	Ktr_gl 146	Tamur	4,876	179,820
3.	Lower Barun		Arun	4,550	
4.	Lumding	Kdu_gl 28	Dudh Koshi	4,846	104,943
5.	Imja Tsho	Kdu_gl 350	Dudh Koshi	5,023	48,811
6.	Tam Pokhari	Kdu-gl 399	Dudh Koshi	4,431	138,846
7.	Dudh Pokhari	Kdu_gl 422	Dudh Koshi	4,760	274,296
8.	na	Kdu_gl 442	Dudh Koshi	5,266	133,752
9.	na	Kdu_gl 444	Dudh Koshi	5,056	112,398
10.	Hungu	Kdu_gl 449	Dudh Koshi	5,181	198,905
11.	East Hungu 1	Kdu-gl 459	Dudh Koshi	5,379	78,760
12.	East Hungu 2	Kdu-gl 462	Dudh Koshi	5,483	211,877
13.	na	Kdu_gl 464	Dudh Koshi	5,205	349,396
14.	West Chamjang	Kdu_gl 466	Dudh Koshi	4,983	6,446
15.	Dig Tsho	Kdu_gl 55	Dudh Koshi	4,364	143,249
16.	Tsho Rolpa	Kta_gl 26	Tama Koshi	4,556	231,693

Source: Bajracharya 2009.

Anthropogenic Threats

Diseases: Water-borne diseases such as diarrhea, cholera, dysentery and hepatitis, are common in SHL-Nepal. The prevalence of these diseases reflect the level of sanitation and hygiene – i.e. access to safe drinking water and improved toilets. Lack of adequate infrastructure and capacity to cope with these diseases makes communities in the landscape highly vulnerable to this threat.

Global Market Changes: Fluctuations in the global market for prices of food and petroleum products can affect livelihood costs in SHL-Nepal. When the cost of food and essential goods increase, poor people in the landscape are particularly vulnerable. The cost of internationally traded commodities - including cash crops such as coffee and cardamom, and minerals - are also dependent on global market prices. Changes in these prices affect the financial capital of households engaging in their trade.

Tourism: Tourism can exert pressures on forests and other natural resources. Deforestation, mismanagement of solid wastes and effluents, turf extraction at higher altitudes, soil compaction, and soil erosion are some threats that affect livelihoods in SHL-Nepal.

REDD+ POLICIES AND SHL-NEPAL

DRIVERS OF DEFORESTATION/ FOREST DEGRADATION IN SHL-NEPAL

Forest and shrub cover generally decreased in the mountain and mid-hill regions of Nepal between 1979 and 1994. During this time period, the annual rate of deforestation in Nepal was1.6 percent (PSPL/FECOFUN 2010). Major drivers of deforestation and degradation in SHL-Nepal include demand and supply gaps, forest fire, forest land conversion and illegal logging (Table 3.1). Illegal logging in SHL-Nepal is particularly driven by cross-border smuggling of timber to TAR-China through borders with low and ineffective security in Nepal's high-mountain regions.

Table 3.1. Drivers of deforestation and forest degradation in SHL-Nepal.

Mid-Hills	High Mountain
• Gaps in demand and supply	• Gaps in demand and supply
• Forest fire	• Gaps in demand and supply
• Use of land for other purposes	• Forest fire
	• Use of land for other purposes
	• Illegal logging

Source: PSPL/FECOFUN 2010.

FROM 'FORESTS' TO 'CARBON'

An undesirable outcome of REDD+ in Nepal is the perception of forests solely as 'carbon' sinks. The numerous products and services delivered by forests to communities are being overtaken by the prospect of carbon credits. Moreover, Nepal's history and success in community forestry is also being overshadowed by REDD+. The overall benefits of forests to local communities are far more important than the small add-on benefit of 'carbon'. Carbon-centric forest management may have the following repercussions:

- The natural composition of forests is likely to change with communities preferring fast-growing species and mono-culture plantations. This will affect both ecosystem services provided by forests, as well as predispose them to vulnerabilities (such as diseases and fire) that could cause further forest degradation.
- Communities who are conserving forests traditionally on a voluntary basis may likely withdraw their support once 'carbon' money flows into their funds.

CARBON MARKETS

An analysis of forests in Nepal's Terai and mountain regions indicated that while the status of mountain forests are generally stable or growing, they generate low-medium interest among international buyers of carbon credit (Table 3.1). In particular, forests in mountain protected areas generate both low interest for carbon credits, as well as in-country benefit sharing. On the other hand, Terai forests which are generally in a state of decline, are of high interest for carbon credits. Based on the original concept of REDD, good performances in highly deforested and degraded areas reap higher REDD benefits than forests having no negative impacts (Dahal and Banskota 2009).

Despite potentially low/medium interest among international buyers for carbon credits, community managed mountain forests have the highest prospect for in-country benefit sharing in Nepal (Table 3.1). Thus, CFUGs in SHL-Nepal are in a favorable position to benefit from REDD+ projects in the landscape.

Understanding climate change issues in Sacred Himalayan Landscape-Nepal (Photo: Mountain Spirit)

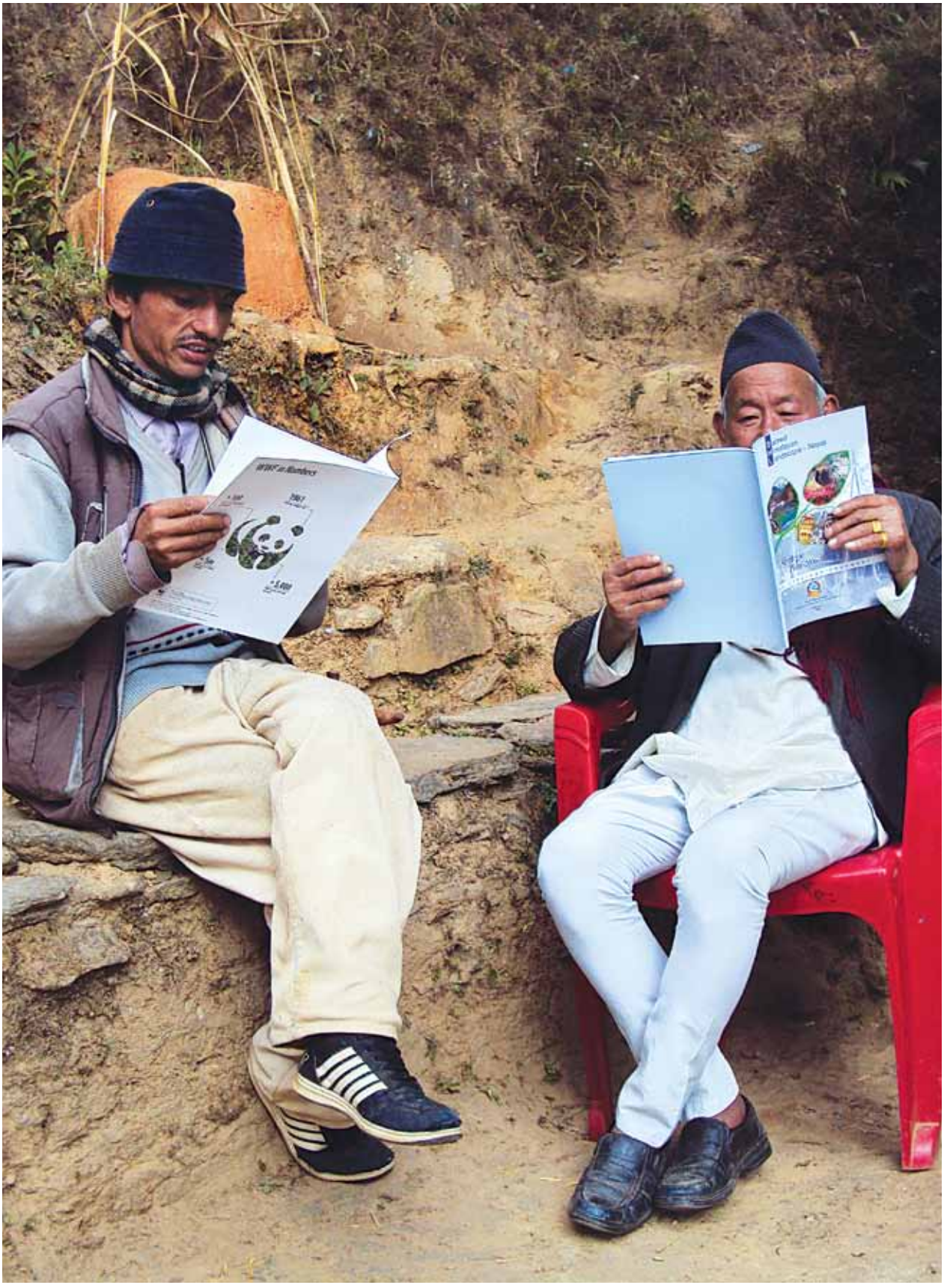

Table 3.2. Comparison of Terai and mountain forests for REDD prospects.

Forest Category (Biomass stock & area)	Status of Forest in Terai	REDD Prospect		Status of Forest in Mountain	REDD Prospect	
		Interest to Int'l Buyers	In-Country Benefit Sharing		Interest to Int'l Buyers	In-Country Benefit Sharing
Community Managed Forest	Stable/ declining	Medium	Medium	Growing/ stable	Low/ Medium	High
Government Managed Forest	Declining significantly	High	Medium	Stable	Low/ Medium	Medium
Protected Areas	Stable or growing	Low	Low	Growing/ stable	Low	Low
Total Forest	Declining	High	Complex and contested	Stable/ growing	Low/ Medium	Contested & risk of perverse

Source: Dahal and Banskota 2009.

CARBON OWNERSHIP

Ownership of carbon rights in forests has not yet been specified in Nepal. This is of particular concern for community forests where CFUGs own all forest products from their community forests provided they are managed according to an approved operational plan. However, carbon has not been specified as yet as a 'forest product'. In this regard, FECOFUN is actively lobbying for ownership of carbon in community forests by CFUGs.

INDIGENOUS RIGHTS

One of the leading contentious issues for REDD+ implementation in Nepal is the uncertainties regarding indigenous rights over their natural resources (Sherpa 2009). In the past, formulation of policies whose objective was to transfer management of natural resources to the State, resulted in the loss of the collective rights of indigenous communities over such natural resources. For example, Nepal's Land Act of 1964/65 abolished the indigenous Kipat system prevalent in Eastern Nepal and transferred collective rights over the land to individual rights. The establishment of Sagarmatha

Box 2. NEFIN perspective on REDD+.

The United Nations Declaration on Rights to Indigenous Peoples (UNDRIP) and International Labor Organization 169 (ILO 169) are important documents establishing rights of indigenous peoples.

In 2007, the Government of Nepal ratified ILO 169 and voted in favor of UNDRIP.

Based on these documents, the following rights must be ensured for Nepal's indigenous peoples:

- Right to self determination
- Right to full and effective participation
- Rights to land, territory and natural resources
- Right to free, prior and informed consent (FPIC)

Source: NEFIN 2010

National Park in 1976 also resulted in the loss of the traditional system of forest management – Singi Nawa. As a result, with REDD+ being another government-led program, there is speculation among indigenous communities regarding its benefits to indigenous communities, and its impacts on indigenous rights over natural resources. Major issues include doubts regarding displacement, landlessness and poverty that may arise as a result of REDD+ implementation in Nepal.

RECOMMENDATIONS

The Sacred Himalayan Landscape-Nepal is socially and culturally diverse, thus implementation mechanisms for REDD+ Readiness programs cannot be generalized for the landscape. However, based on priority issues identified during the REDD+ preparatory phase and lessons learned from on-going REDD+ projects in Nepal, the following recommendations are presented for SHL-Nepal.

I. Prioritization of sites for implementation of REDD+Readiness in SHL-Nepal.

The mid-hill region could be a priority focus area for REDD+ Readiness implementation in the landscape. With the exception of districts with on-going or potential REDD+ Readiness projects, the following districts are recommended within SHL-Nepal. These districts have fairly large areas of community forests (see Table 2.5) and hence can be of higher interest to potential buyers while in turn providing economic benefits to a larger proportion of communities in the landscape.

1. Bhojpur District
2. Dhankuta District
3. Khotang District
4. Okhaldhunga District
5. Ramechhap District
6. Sindhupalchok District
7. Terhathum District

II. Ensuring multi-stakeholder participation.

Multi-stakeholder participation at all levels of the REDD+ Readiness process is crucial for ensuring sustainability of the program. Key stakeholders who should be included in the program include women; indigenous people; Dalits; poor, forest dependent and landless households; Ministry of Forests and Soil Conservation and its related Departments; other service providers including district line agencies, local NGOs, CBOs, and FECOFUN among others; and political parties (Table 4.1).

Table 4.1. Key stakeholders of REDD+ Readiness implementation in SHL-Nepal.

SN	Stakeholders	SHL Indicators	Targeted Programs/Activities
1.	Women*	- 52% of total population - Low levels of literacy - High workload at household level - > 1/3rd share in income - Low representation in CFUG Ex Committees	- Capacity building (formal and informal) in forestry sector and enterprise. - Promotion of gender inclusive programs at both community and policy levels.

Women are important stakeholders of REDD+ programs in the landscape (Photo: Khadak Rokaya)

2.	Indigenous People*	- 59% of total population - High dependency on agriculture - High dependency on traditional fuel/energy source	- Documentation and promotion of traditional knowledge, practices and skills. - Capacity building (formal and informal) in forestry sector and enterprise. - Support for alternative energy use. - Community-based well being ranking and targeted programs for highly marginalized groups.
3.	Dalit*	- 8% of total population - Low levels of literacy - Low socio-economic indicators - High dependency on traditional fuel/energy source - Low representation in CFUGs	- Capacity building in enterprise and management. - Support for social mobilization.
4.	Poor*, forest dependent and landless	- 0.2% landless households in SHL-Nepal - HPI greater than for Nepal	- Support sustainable forestry enterprises. - Capacity building in forestry sector and enterprise.
5.	MFSC, DoF, DNPWC	- Key policy-level institutions in forestry sector	- Strengthen MIS.
6.	Other service providers (DDC/VDC/ district line agencies, NGOs, CBOs)	- Established network of service providers at district level including DDC, VDC, district line agencies, NGOs, CBOs and FECOFUN	- Coordination. - Awareness raising on REDD+ Readiness policies and process. - Capacity building.
7.	Private sector	- Private sector ranges from community-based enterprises to larger businesses eg Tamakoshi Community Resin in Ramechhap District.	- Development of pro-poor forest-based enterprises. - Capacity building for business/ enterprise management.
8.	Political parties	- 16% representation in CA - Represented by both major and local political parties	- Coordination. - Awareness raising.

** SHL indicators obtained from CFUG-level socio-economic baseline survey (Mountain Spirit 2012).*

III. Ensuring sustainable livelihoods.
The implementation of REDD+ Strategy in SHL-Nepal can be linked to national priorities for addressing poverty and enhancing livelihoods of people dependent on forest resources (GoN/MFSC 2010). This can be achieved through the following interventions:

- transferring additional government forests to local user groups;
- reducing forest product demand through efficient utilization of forest products (e.g. improved cooking stoves) or substitution (e.g. alternative energy);
- enhancing livelihoods diversity of poor and socially excluded households through income generation, enterprise, and employment;
- adaptation to climate change, especially of vulnerable households; and
- allocation of forest resources for poor and socially excluded households.

The impacts of REDD+ Readiness implementation on sustainable livelihoods of communities in SHL-Nepal can be measured through five major indicators: i) institutional capability and sustainability; ii) governance and social inclusion; iii) livelihood assets; iv) livelihood strategies, and v) vulnerabilities (WWF Nepal Office 2011). These are illustrated below with four CFUGs representing various locations in the landscape below (see supplemental document Mountain Spirit 2012).

i. Institutional Capability and Sustainability
For this study, four CFUGs were analyzed in detail within SHL-Nepal. Institutional details of the CFUGs are summarized in Table 4.2. While there is a mix of social/ ethnic groups in CFUGs of Ilam, Khotang and Ramechhap Districts, Syaubari CFUG of Rasuwa District is composed entirely of indigenous groups (Tamang and Newar) (Table 4.3). Dalits comprise 19% of households in Ramechhap and 4% in Ilam and Khotang Districts. Almost half the households in all four CFUGs are poor. Literacy level is highest in Ilam District (84%) and lowest in Rasuwa (65%). In comparison to other districts, a large proportion of community residents of Khotang have temporarily out-migrated for foreign employment.

Table 4.2. Details of CFUGs analyzed for socio-economic survey in SHL-Nepal.

CFUG	Location	Area (ha)	# hhs	# Committee Members	# Women in Committee	Approved Date	Revised Date
1. Malingay Gairi Masane	Nayabazar-1, Ilam	103.5	125	17	4	2055/01/13	2065/11/15
2. Devisthan	Diktel Khotang	20.5	202	17	2	2050/01/25	-
3. Piple	Kathjor-8 Ramechhap	206.0	273	15	5	2051/11/02	2058/03/28
4. Syaubari	Laharepauwa-8 Rasuwa	141.8	165	13	5	2049	2055

Table 4.3. Socio-economic characteristics of CFUGs in SHL-Nepal.

	Ilam	Khotang	Ramechhap	Rasuwa
Total # hhs	125	202	273	165
Indigenous (%)	45	39	52	100
Dalit (%)	4	4	19	0
Poor (%)	44	51	49	49
Literacy (%)	84	84	73	65
Agriculture primary occupation (%)	40	41	39	46
Foreign employment (%)	2	10	4	5

ii. Governance and Social Inclusion

Participatory Governance Assessment (PGA) indicated that governance level was highest for Syaubari CFUG, Rasuwa, and lowest for Malingay Gairi Masane CFUG, Ilam (Figure 4.1). Governance is low in Ilam despite high literacy levels within the CFUG. Ethnic homogeneity within the CFUG has higher correlation to institutional governance: in Syaubari CFUG, Rasuwa, where Tamangs are the dominant ethnic group (98% of households), governance is the highest relative to other CFUGs.

Ilam **Khotang** **Ramechhap** **Rasuwa**

Figure 4.1. Assessment of institutional governance in CFUGs of SHL-Nepal.

iii. Livelihood Assets

Livelihood assets vary across the landscape (Table 4.4). More than half the households in the four CFUGs across the landscape own pakkihouses (defined as houses with roofs made of CGI, slate, tile or stone). Livestock ownership, both large (includes cows and buffaloes) as well as small (includes goats and sheep), is common among the CFUGs. However, in Ilam, where households earn cash income from commercial vegetable gardens, livestock ownership is relatively low compared to other CFUGs. On the other hand, kitchen gardens are common in all CFUGs.

The level of access to entrepreneurial or income generating trainings is low among the CFUGs with less than one-third households participating in such trainings. Membership in community-based organizations other than CFUGs is also low and ranges from 5% households in Khotang to 16% households in Ramechhap. In the studied CFUGs, there are few revolving funds/cooperatives available from which households can benefit: only 31% households benefit from such funds in Rasuwa, 44% in Ilam and Khotang, and 52% in Ramechhap.

Not all households have access to safe and improved toilets in the four CFUGs. A number of households continue to use temporary pit toilets, particularly in Ilam. In Ramechhap and Rasuwa, community piped drinking water is common in contrast to Ilam where 80% households have personal piped water. Most households visit the health post, but less than half visit health posts for prenatal and postnatal care.

Table 4.4. Livelihood assets of surveyed CFUGs in SHL-Nepal.

	Ilam	Khotang	Ramechhap	Rasuwa
HHs with pakki houses (CGI/slate/ tile/stone roofs) (%)	96	85	61	97
HHs owning large livestock (%)	68	89	95	88
HHs owning small livestock (%)	58	83	94	55
HHs with commercial vegetable gardens (%)	15	3	2	0
HHs with kitchen gardens (%)	82	100	82	92
All eligible members in family are literate (%)	77	80	70	60
HHs with access to entrepreneurial/IGA trainings (%)	33	26	26	23
HHs with membership in more than 2 CBOs (%)	14	5	16	7
HHs benefiting from revolving funds/cooperatives (%)	44	44	52	31
HHs with safe and improved toilets (%)	53	71	77	60
HHs with personal piped drinking water source (%)	80	49	0	0
HHs visiting health post (%)	87	97	100	95
HHs visiting health post for prenatal care (%)	26	47	30	37
HHs visiting health post for postnatal care (%)	26	47	30	37

iv. Livelihood Strategies

Agriculture is the major livelihood source among household members in all four CFUGs (Table 4.5). Relative to other CFUGs, Ilam has a relatively high proportion of household members involved in business (17%) and unskilled wage labor (9%), while Ramechhap has a relatively high involvement in skilled labor (9%) and service (6%). More than half the households in Khotang have at least one member who is in a foreign country for employment. In Khotang, where agriculture is the major occupation, there are currently few options for other livelihood strategies resulting in a high out-migration rate for employment.

Table 4.5. Major livelihoods strategies of surveyed CFUGs in SHL-Nepal.

	Ilam	Khotang	Ramechhap	Rasuwa
Agriculture (%)	72	93	86	69
Business (%)	17	4	1	1
Unskilled wage labor (%)	9	-	2	1
Skilled labor (%)	4	-	9	3
Foreign employment (%)	22	51	41	28
Service (%)	2	2	6	1
Household work (%)	**2**	**2**	**0.4**	**0.5**

v. Vulnerabilities

Households in the landscape face numerous vulnerabilities ranging from food deficiency, agricultural challenges, health and sanitation issues, and financial problems (Table 4.6). Khotang CFUG has the highest proportion of households (37%) facing year-round food deficiency despite the majority of households (93%) being dependent on agriculture as a livelihood strategy. Households in Khotang are also heavily dependent on chemical fertilizers (89%) and pesticides/insecticides (24%). All households in Khotang, Ramechhap and Rasuwa, and almost all (97%) households in Ilam depend on fuelwood for cooking. Almost half the households in Rasuwa are affected by vector-borne diseases. This is also correlated to the fact that 40% households in Rasuwa do not have access to safe and improved toilets. In every CFUG, households have taken loans for basic needs of food, health and education.

Table 4.6. Livelihoods vulnerability of surveyed CFUGs in SHL-Nepal.

	Ilam	Khotang	Ramechhap	Rasuwa
HHs with year-round food deficiency (%)	31	37	27	21
HHs using chemical fertilizers (%)	74	89	39	97
HHs using pesticides/insecticides (%)	17	24	-	1
HHs using fuelwood (%)	97	100	100	100
HHs affected by vector-borne diseases (%)	23	27	37	45
HHs without toilets (%)	3	8	18	40
HHs taking loans for basic needs: food, health, education (%)	56	56	48	69

Thus, according to the livelihood indicators above, CFUGs in Khotang and Rasuwa represent challenging scenarios for REDD+ Readiness implementation where carbon funds can be channeled into livelihoods improvement.

In conclusion, it is important to ensure that communities have access to forest resources for household use despite implementation of REDD+ Readiness programs in SHL-Nepal. If these practices are not recognized as legitimate local actions, then the risks of forest loss will be high. Communities should also be duly recognized for their roles in forest conservation with adequate compensation from carbon 'funds'.

REFERENCES

Bajracharya, SR. 2009. Glacial lake outburst floods risk reduction activities in Nepal. Asia-Pacific Symposium on New Technologies for Prediction and Mitigation of Sediment Disasters.Japan Society of Erosion Control Engineering (JSECE) 18-19 November 2009, Tokyo, Japan.

Bhattarai, R (Editor). 2010. Mahaan Aitihasik Sambidhansabha 2064 ka Mananiya Sabhasadjyuharuko Sanchipta Byaktigat tatha Rajnitik Bibaran Smarika. Motherland Publication Pvt Ltd, Madhyapur-Thimi, Bhaktapur, Nepal.

Bhuju, UR, PR Shakya, TB Basnet and S Shrestha. 2007. Nepal Biodiversity Resource Book: Protected Areas, Ramsar Sites, and World Heritage Sites. International Centre for Integrated Mountain Development (ICIMOD) and Ministry of Environment, Science and Technology (MOEST), Kathmandu Nepal.

Carpenter, C. 2005.The environmental control of plant species density on a Himalayan elevation gradient. Journal of Biogeography 32:999-1018.

CBS. 2002. Population of Nepal: Village Development Committees/Municipalities. Population Census 2001.HMG/National Planning Commission Secretariat – Central Bureau of Statistics.

CBS. 2004a. National Sample Census of Agriculture, Nepal: Bhojpur District. HMG Nepal, National Planning Commission Secretariat – Central Bureau of Statistics.

_”_ National Sample Census of Agriculture, Nepal: Dhankuta District.

_”_ National Sample Census of Agriculture, Nepal: Dolakha District.

_”_ National Sample Census of Agriculture, Nepal: Ilam District.

_”_ National Sample Census of Agriculture, Nepal: Kavrepalanchok District.

_”_ National Sample Census of Agriculture, Nepal: Khotang District.

_”_ National Sample Census of Agriculture, Nepal: Nuwakot District.

_”_ National Sample Census of Agriculture, Nepal: Okhaldhunga District.

_”_ National Sample Census of Agriculture, Nepal: Panchthar District.

_”_ National Sample Census of Agriculture, Nepal: Ramechhap District.

_”_ National Sample Census of Agriculture, Nepal: Rasuwa District.

_”_ National Sample Census of Agriculture, Nepal: Sankhuwasabha District.

_”_ National Sample Census of Agriculture, Nepal: Sindhuli District.

_”_ National Sample Census of Agriculture, Nepal: Sindhupalchok District.

_”_ National Sample Census of Agriculture, Nepal: Solukhumbu District.

_”_ National Sample Census of Agriculture, Nepal: Taplejung District.

_”_ National Sample Census of Agriculture, Nepal: Terhathum District.

_”_ National Sample Census of Agriculture, Nepal: Udayapur District.

CBS.2004b. Nepal Living Standards Survey 2003/04.Statistical Report Volumes One and Two. HMG Nepal, National Planning Commission Secretariat – Central Bureau of Statistics.

CBS. 2007. Statistical Year Book of Nepal 2007. Government of Nepal, National Planning Commission Secretariat, Central Bureau of Statistics.

CBS. 2011. Preliminary Results of National Population Census 2011. http://www.census.gov.np/images/pdf/Preliminary Leaflet 2011.pdf

Dahal, N and K Banskota. 2009. Cultivating REDD in Nepal's community forestry: Discourse for capitalizing potential? Journal of Forest and Livelihood 8(1):41-50.

DoR. 2010. Statistics of Strategic Road Network. SSRN 2009/10.Government of Nepal, Ministry of Physical Planning and Works, Department of Roads.

GoN/MFSC. 2006. Sacred Himalayan Landscape-Nepal Strategic Plan (2006-2010): Broad Strategy Document. Ministry of Forests and Soil Conservation, Kathmandu, Nepal.

GoN/MFSC. 2010. Nepal's Readiness Preparation Proposal: REDD 2010-2013. Government of Nepal, Ministry of Forests and Soil Conservation.

GoN/MFSC. 2011a. Sacred Himalayan Landscape: Interim Implementation Plan, Nepal. Government of Nepal, Ministry of Forests and Soil Conservation, Planning and Human Resource Development Division.

GoN/MFSC. 2011b. Study on REDD Plus Piloting in Nepal. Government of Nepal, Ministry of Forests and Soil Conservation, REDD-Forestry and Climate Change Cell, Kathmandu, Nepal.

ICIMOD. 2003. Districts of Nepal: Indicators of Development. Update 2003. International Centre for Integrated Mountain Development and Central Bureau of Statistics.

Mountain Spirit. 2002. Successful Community Initiatives Project Document: Sagarmatha Region. Chaurikharka, Namche and Khumjung VDCs. Report prepared by Mountain Spirit for WWF Nepal Program. Kathmandu, Nepal.

Mountain Spirit. 2007. Socio-Economic Baseline Survey: Kangchenjunga Conservation Area Project. Report prepared by Mountain Spirit for WWF Nepal Program. Kathmandu, Nepal.

Mountain Spirit. 2008. Dudh-Koshi Sub-Basin: Socio-Economic and Resource-Base Study. Baseline Survey of Sikhu and Pankhu Khola Catchments. Report prepared by Mountain Spirit for WWF Nepal Program. Kathmandu, Nepal.

Mountain Spirit. 2012.Socio-Economic Baseline Survey for REDD+ Readiness in the Sacred Himalayan Landscape, Nepal. CFUGs Level Detail Socio-Economic Report. Report prepared by Mountain Spirit for WWF Nepal Program. Kathmandu, Nepal.

NEFIN. 2008. Categories of Indigenous Nationalities of Nepal. http://www.nefin.org.np/indigenous-nationalities/categorization

NEFIN. 2010. Nepali Indigenous Peoples' Perspective on Climate Change and REDD/REDD+. Nepalese Federation of Indigenous Nationalities, Climate Change-REDD Partnership Program, Galfutar, Kathmandu, Nepal.

PSPL/FECOFUN. 2010. REDD Strategy Options in Nepal. (Final Draft).Practical Solution Consultancy Nepal Pvt Ltd and Federation of Community Forestry Users Nepal.

RIMS-Nepal.2010. Assessing Climate Change Scenarios, Impacts and Identifying Adaptation Needs for Langtang National Park and Buffer Zone in Nepal. Study report submitted to WWF Nepal.

Sherpa, PD. 2009. Challenges and opportunities for indigenous nationalities in the face of REDD partnerships in Nepal. Indigenous Affairs 1-2:50-57.

UNDP. 2004. Nepal Human Development Report 2004: Empowerment and Poverty Reduction. United Nations Development Programme, Kathmandu Nepal.

UNDP. 2009. Nepal Human Development Report 2009. State Transformation and Human Development.United Nations Development Programme, Kathmandu, Nepal.

WWF Nepal. 2011. Putting the issues together: A case study analysis on conservation-livelihoods linkages in Khata Corridor, Bardia, Nepal.

ANNEXES

Annex 1 a.District FECOFUN chapter contact persons in SHL-Nepal.

District	HQ	Contact Persons		
		Name	**Position**	**Phone/Mobile**
Panchthar	Phidim	Mr Kaji Man Shrestha	Chairperson	mob: 97426 01675 9844621565
Ilam	Ilam	Mr Dhurba Shrestha	Chairperson	mob: 97426 55480 98426 45228
		Ms Manuta Rai	General Secretary	mob: 98179 67612
Bhojpur	Bhojpur	Ms Sabina Rai	Chairperson	mob: 98421 04692
		FECOFUN office		ph: (029) 420550
Khotang	Diktel	Mr Surya Rai	Chairperson	mob: 97430 06441
		Ms Bishnu Shrestha	General Secretary	mob: 98429 51765
		FECOFUN office		ph: (036) 420597 fax: (036) 420577
Ramechhap	Manthali	Mr Narayan Karki	Chairperson	mob: 97542 03171
		Mr Durga Bahadur Shrestha	Treasurer	
Dolakha	Charikot	Ms Sita KC	Chairperson	mob: 97440 22014
Sindhupalchok	Chautara	Mr Ram Chandra Basnet	Chairperson	off: (011) 620126
Rasuwa	Dhunche	Mr Rishi Paudel	Chairperson	mob: 97411 86713 off: (010) 540149

Annex 1b. List of participants in district PRA workshops.

District	SN	Participant	Position	Organization
Panchthar	1.	Bal Krishna Ojha	Chairperson	NGO Federation
	2.	Lok Bahadur Lorchan	Officer	District Education office
	3.	Yam Kumar Angbo	Chairperson	Salleri CFUG
	4.	Manoj Kumar Karna	Ranger	District Forest Office
	5.	Birkha Bahadur Waiba	Chairperson	Nepal Indigenous Federation
	6.	Nanda Nembang	Secretary	AEDC Nepal
	7.	Saraswati Siwakoti	Ni Ma Bi A	Women Development Office
	8.	Lava Prasad Banskota	Vice-Secretary	NCP (UML)
	9.	Chanduraj Angdembe	Secretariat member	
	10.	Mandera Ghaurali	Secretariat member	
	11.	Rajendra Kumar Rasailli	Member	RPP
	12.	Yuvaraj Thapa	Chairperson	Panchthar Udhyog Bannijya Sangh
	13.	Mitra Prasad Kafle	Former member	
	14.	Durga Prasad Timsina	Na Su	DDC-Panchthar
	15.	Lekhnath Khatiwada	Chairperson	Pact Nepal Panchthar
	16.	Tirtha Ram Mishra		
	17.	Bhawani Prasad Pokharel	Chairperson	Deurali CFUG
	18.	Narendra Kumar Kerung	President	Nepali Congress-Panchthar
	19.	Rajendra Prasad Kafle	Treasurer	FECOFUN
	20.	Kajiman Shrestha	Chairperson	FECOFUN
	21.	Devi Prasad Neupane	Secretariat member	FECOFUN
	22.	Laxmi Gautam	Chairperson	Federation of Nepal Journalists
	23.	Hom Bikram Thapa	Secretary	Sathhi Chulthhi CFUG
Ilam	1.	Padam Rai	JT	DLSO-Ilam
	2.	Devika Subedi	Member	Ilam Nagar Palika-Ilam
	3.	Chandra Kala Bhandari	Member	Shankar Dhan Samidhi
	4.	Sita Tamang	Member	Gurdum CFUG
	5.	Sabitra Rai	Member	Gurdum CFUG
	6.	Post Bahadur Shrestha		District Health Office

	7.	Bimala Devi Sharma	Member	NGO Federation
	8.	Devi Maya Khadka	Member	Seti Devi CFUG
	9.	Shakuntala Khawas	Member	Seti Devi CFUG
	10.	Chandra B Chauhan	Member	FECOFUN
	11.	Prem Kumar Pathak	Member Secretary	Khahare Puwajung CFUG
	12.	Shyama Chauhan	President	Khahare Puwajung CFUG
	13.	Santosh Kumar Jha	AFO	District Forest office – Ilam
	14.	Sushila Nembang	Member	FECOFUN
	15.	Shyam Bahadur Tamang	Member	Gitange CFUG
	16.	Padam Bahadur Tamang	Secretary	Gitange CFUG
	17.	Dil Bahadur Tamang	Chairperson	Gitange CFUG
	18.	Sanu Thapa	Member	CFUG
	19.	Mukta Rai	General Secretary	FECOFUN
	20.	Dhruba Shrestha	Chairperson	FECOFUN
	21.	Tima Khadka	Member	Banduke CFUG
	22.	Pavitra Kandel	Member	Banduke CFUG
	23.	Sushila Nembang	Member	FECOFUN
	24.	Chandra Khadka		
	26.	Buddhi Man Bhandari		
Bhojpur	1.	Surya Bikram Rai	Treasurer	FECOFUN
	2.	Tanka Bahadur Adhikari	JT	DAO
	4.	Yubaraj Maskey	DFO	District Forest Office
	5.	Birendra Mahaseti	AFO	District Forest Office
	3.	Dhirendra Parajuli	JTA	DSCO
	8.	Bishnu Kumari Tamang	Office Secretary	FECOFUN
	9.	Sabina Rai	Chairperson	FECOFUN
	13.	Tek Bahadur Thapa	Secretary	FECOFUN
	19.	Deepak Rai	Member	FECOFUN
	23.	Rajan Rai	General Secretary	FECOFUN
	6.	Him Bahadur Karki	NID	Nepal Police
	7.	Dambar Shrestha	NID	Nepal Police
	10.	Sambar Moktan	Secretary	Thulopakha ??
	11.	Hari Mahat		

	12.	Bipal Khatiwada	Energy Dev Officer	Renewable Energy for Rural Livelihoods Project, DDC: District Energy & Environment Section
	14.	Goma Wagle	WDO	Woman and Child Office
	16.	Siburam Rai	Student	Bhojpur Multiple Campus
	15.	Badri Kumar Paudel	Lecturer	Bhojpur Multiple Campus
	17.	Prakash Rai	Lecturer	Bhojpur Multiple Campus
	18.	Nima Sherpa	Lecturer	Bhojpur Multiple Campus
	20.	Dhan Kumari Bhujel	Member	Janajati Mahasanga
	21.	Dhruba Shrestha	Treasurer	Red Cross
	22.	Buddha Tamang	Assistant	DDC
	24.	Ehsan Rai	Program Anchor	Community FM Radio
Khotang	1.	Kalpana Tolange	CFF	FECOFUN
	2.	Loknath Khatiwada	Accountant	CSIDB
	3.	Yubaraj Rijal	Programme Coordinator	Balsewa Samaj Nepal, Khotang
	4.	Surya B Rai		FECOFUN
	5.	Mahendra Choudhary	Asst Forest Officer	DFO
	6.	Bodha Raj Paudel	Supervisor	Halesi Development Forum
	7.	Dip Narayan Rijal	Chairperson	NGO Federation, Khotang
	8.	Min Bahadur Thapa		District Education Office
	9.	Daman Rai	News Editor	FNJ Khotang/Rupakot FM
	10.	Bhima Kumari Bhujel	CFF	FECOFUN-Khotang
	11.	Pemba Tamang	Act District Coordinator	RRN, Khotang
	12.	Junu Rai	WDO	Women and Child Office
	13.	Amar K.C.	Advisory Committee Chairperson	Community Forest Village Unit
	14.	Surendra Kumar Rai	Member	FECOFUN-Khotang
	15.	Tek Bahadur Manandhar	Program Officer	Nepal Red Cross Society
	16.	Rup Maya Udas	Member	FECOFUN-Khotang
	17.	Ram Kumari Rai	Central Comm Member	FECOFUN-Khotang

	18.	Rajendra Rai	Member	FECOFUN-Khotang
	19.	Amar Bahadur KC		
	20.	Bishnu Shrestha	IS	FECOFUN-Khotang
	21.	Lekhnath Tamang	PHI	DHO-Khotang
	22.	Jai Narayan Katwal	Treasurer	Devisthan CFUG
	23.	Tanka B Thapa	Station Manager	Rupakot Radio, Khotang
	24.	Ravi Kiran Acharya	Officer	DDC, Khotang
	25.	Rashmi Rasaili	Representative	NCP (Maoist)
	26.	Shobha Thapa	Secretary	Sidhthan CFUG
	27.	Nishana Kiranti	Vice-Chairperson	District Women Coord Comm
	28.	Madhu Krishna Rai	Member	Khalle VDC
Ramechhap	1.	Dr Narayan Shrestha	Officer	District Livestock Devpt Office
	2.	Nirmal Shrestha	General Secretary	FECOFUN-Ramechhap
	3.	Durga Bahadur Shrestha	Treasurer	FECOFUN-Ramechhap
	4.	Khil Bahadur Tamang	Officer	DFO
	5.	Deepak Kafle	Officer	DEO
	6.	Sukram Ghising		Community Development Society
	7.	Dilip Kumar Chapagain	Officer	Local Development Office
	8.	Laxmi Pokharel		Women and Child Devpt Office
	9.	Maya Karki		Himawanti Nepal
	10.	Ambika Prasad Kafle	Proprietor	Tamakoshi Community Resin
	11.	Tika Prasad Bhatta	Chairperson	Nepal Patrakar Mahasangh
	12.	Laxmi Thami	Representative	Rupantaran Nepal/ Interim Forest Program
	13.	Ratna Prasad Kandel		Pahadi Samaj Kalyan Kendra
	14.	Chhabi Lal Ghimire		District Agriculture Devpt Office
Dolakha	1.	Tanka Bahadur Karki	Officer	District Agriculture Devpt Office
	2.	Ram Krishna Shrestha	Chairperson	Chyase Bhagwati CFUG
	3.	Padam Bahadur Moktan	Officer	District Health Office
	4.	Bikram Karki	Information Officer	DDO

	5.	Dr Ram Chandra Sapkota	Veterinary Doctor	DLDO
	6.	Ram Prd. Pokharel	Section Officer	DEO
	7.	Jeevan Lama	Chair per	NEFFIN
	8.	Harihar Neupane	Legal Advisor	FECOFUN
	9.	Sher Bdr. Bhujel	Editor	Kalinchwok F.M.
	10.	Hari Bdr. Shrestha	Member	FNCCI
	11.	Nani Maya Ghimire	Secretary	Simpaani CFUG
	12.	Narayan Thapa	Chairperson	Khorthali CFUG
	13.	Ram Prd.	Chairperson	Sipali CFUG
	14.	Arjun Dhakal	Reporter	Radio Sailung
	15.	Devi Bhujel		FECOFUN
	16.	Gayetri Acharya		FECOFUN
	17.	Raghu Subedi		FECOFUN
	18.	Basudev Neupane		District Soil Conservation Office
	19.	Sher Bdr. Shrestha	Officer	District Soil Conservation Office
	20.	Kedar Dahal	Officer	DFO
	21.	Sita KC	Chairperson	FECOFUN
Sindhupalchok	1.	Raju Bhai Shrestha		DDC
	2.	Rajendra Pyakurel	Information Officer	DDC
	3.	Murari Prasad Pokharel		DFO
	4.	Ram Chandra Basnet		FECOFUN
	5.	Madhu Sudhan Sapkota		SIDAC
Rasuwa	1.	Ramji Prd. Baral	Officer	DDC
	2.	Lhakpa Thokra Tamang	Chairperson	NEFFIN
	3.	Kheharu Yadav	CCA	DHO
	4.	Ram Prd. Shah	Officer	DFO
	5.	Ram Kumar Magar	Accountant	Search Nepal
	6.	Buddhi Raj Pathak	Officer	Langtang National Park
	7.	Sarita Thapa Magar	SSM	LNPBZSP
	8.	Bikram Lopchan	Secretary	Syaubari CFUG
	9.	Tara Devi Devkota	Program Coordinator	Seeds
	10.	Sunil Ghale	Treasurer	LACCOS

Annex 2. Summary of VDCs and Districts included in SHL-Nepal.

Devel-opment Region	Zone	District	# of VDCs in District	# of VDCs in SHL Nepal	% VDCs Included
Central	Janakpur	1. Dolakha	52	52	100
		2. Ramechhap	55	55	100
		3. Sindhuli	54	21	38.9
	Bagmati	Kathmandu*		1	-
		4. Kavrepalanchok	90	77	85.6
		5. Nuwakot	63	1	1.6
		6. Rasuwa	19	6	31.6
		7. Sindhupalchok	79	79	100
Eastern	Sagarmatha	8. Khotang	76	76	100
		9. Okhaldhunga	56	56	100
		10. Solukhumbu	34	34	100
		11. Udayapur	45	25	55.6
	Koshi	12. Bhojpur	63	63	100
		13. Dhankuta	36	36	100
		14. Sankhuwasabha**	33	33	100
		15. Terhathum	32	32	100
	Mechi	16. Ilam	49	49	100
		17. Panchthar	41	41	100
		18. Taplejung	50	50	100
TOTAL	**5**	**18**	**927**	**786**	**84.8**

** Kathmandu District is not included in SHL Nepal.*

*** Actual number of VDCs in Sankhuwasabha District is 34, and the entire district falls within SHL Nepal.*

Annex 3. Population distribution by age group in SHL-Nepal.

SN	District	Total		0-4 years		5-14 years		15-59 years		60-74 years		75+ years	
		Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
1.	Taplejung	66,205	68,493	8,470	8,303	19,010	18,949	33,642	36,298	3,977	3,894	1,106	1,049
2.	Panchthar	99,042	103,014	12,560	12,424	29,529	28,992	49,743	54,776	5,801	5,419	1,409	1,403
3.	Ilam	141,783	140,325	14,988	14,593	38,547	37,900	78,900	79,735	7,549	6,414	1,799	1,683
4.	Dhankuta	81,832	84,638	9,145	9,235	21,694	21,403	44,765	47,735	4,883	4,888	1,345	1,377
5.	Terhathum	54,932	58,179	6,378	6,174	15,422	15,354	28,737	31,915	3,387	3,574	1,008	1,162
6.	Sankhuwasabha	77,853	81,350	10,768	10,345	20,740	20,646	40,697	44,662	4,472	4,466	1,176	1,231
7.	Bhojpur	97,762	105,256	11,340	11,256	28,589	28,413	49,286	57,232	6,662	6,480	1,885	1,875
8.	Solukhumbu	53,178	54,513	6,417	6,186	15,101	14,937	27,702	29,512	3,249	3,178	709	700
9.	Okhaldhunga	75,011	81,331	9,924	9,626	22,675	22,248	36,024	42,656	5,003	5,365	1,385	1,436
10.	Khotang	112,821	118,564	15,148	14,621	34,053	33,055	54,565	62,327	7,221	6,762	1,834	1,799
11.	Udayapur*	39,131	39,708	5,446	5,373	11,961	11,751	19,248	20,182	2,007	1,886	469	516
12.	Sindhuli*	32,644	33,293	4,341	4,150	9,765	9,496	16,159	17,155	1,911	1,968	468	524
13.	Ramechhap	100,853	111,555	13,210	13,199	31,445	31,546	47,797	57,177	6,620	7,378	1,781	2,255
14.	Dolakha	86,110	89,805	9,558	9,634	24,115	24,142	45,811	48,652	5,482	5,860	1,144	1,517
15.	Sindhupalchok	152,012	153,846	19,913	19,016	39,975	40,209	79,998	82,770	9,722	9,448	2,404	2,403
16.	Kavrepalanchok*	169,757	174,691	18,837	17,941	49,107	47,158	88,665	96,212	10,387	10,485	2,761	2,895
17.	Nuwakot*	1,499	1,290	151	142	362	322	831	679	126	120	29	27
18.	Rasuwa*	5,333	4,682	595	578	1,194	1,121	3,056	2,579	385	330	103	74
	TOTAL	**1,447,758**	**1,504,533**	**177,189**	**172,796**	**413,284**	**407,642**	**745,626**	**812,254**	**88,844**	**87,915**	**22,815**	**23,926**
	% of Total	**100**	**100**	**12.2**	**11.5**	**28.5**	**27.1**	**51.5**	**54.0**	**6.1**	**5.8**	**1.6**	**1.6**

** Population included for only VDCs occurring in SHL-Nepal.*

Annex 4a. Classification of castes and ethnic groups in Nepal.

Major Groups	Caste/Ethnic Sub-Groups	All Caste and Ethnic Groups
1. Brahman/ Chhetri	1.1 Hill Brahman	1.1 Hill Brahman
	1.2 Hill Chhetri	1.2 Chhetri, Thakuri, Sanyasi
	1.3 Tarai/Madhesi Brahman/ Chhetri	1.3 Madhesi Brahman, Nurang, Rajput, Kayastha
2. Tarai/ Madhesi other castes	2.1 Tarai/Madhesi other castes	2.1 Kewat, Mallah, Lohar, Nuniya, Kahar, Lodha, Rajbhar, Bing, Malli, Kamar, Dhuniya, Yadav, Teli, Koiri, Kurmi, Sonar, Baniya, Kalwar, Thakur/Hazam, Kanu, Sudhi, Kumhar, Haluwai, Badhai, Barai, Bhediyar/Gaderi
3. Dalits	3.1 Hill Dalits	3.1 Kami, Damai/Dholi, Sarki, Badi, Gaine, unidentified Dalits
	3.2 Tarai/Madhesi Dalits	3.2 Chamar/Harijan, Musahar, Dushad/ Paswan, Tatma, Khatwe, Dhobi, Baantar, Chidimar, Dom, Halkhor
4. Newar	4. Newar	4. Newar
5. Janajati	5.1 Hill Janajati	5.1 Tamang, Kumal, Sunuwar, Majhi, Danuwar, Thami/Thangmi, Darai, Bote, Baramu/Bramhu, Pahari, Kusunda, Raji, Raute, Chepang/Praja, Hayu, Magar, Chhantal, Bankarya, Rai, Sherpa, Bhujel/Gharti, Yakha, Thakali, Limbu, Lepcha, Bhote, Byansi, Jirel, Hyalmo, Walung, Gurung, Dura
	5.2 Tarai/Madhesi Janajati	5.2 Tharu, Jhangad, Dhanuk, Rajbanshi, Gangai, Santhal/Satar, Dhimal, Tajpuriya, Meche, Koche, Kisan, Munda, Kusbadiya/Patharkata, unidentified Adibasi Janajati
6. Muslim	6. Muslim	6. Madhesi Muslim, Churoute (Hill Muslim)
7. Other	7. Other	7. Marwari, Bangali, Jain, Punjabi/Sikh, unidentified others

Source: UNDP 2009.

Annex 4b. Categorization of Janajati groups in Nepal.

Endangered Group	Highly Marginalized Group	Marginalized Group	Disadvantaged Group	Advanced Group
1. Kusunda	1. Majhi	1. Sunuwar	1. Chhairotan	1. Newar
2. Bankariya	2. Siyar	2. Tharu	2. Tanbe	2. Thakali
3. Raute	3. Lhomi (Shinsaba)	3. Tamang	3. Tingaule Thakali	
4. Surel	4. Thudam	4. Bhujel	4. Baragaunle Thakali	
5. Hayu	5. Dhanuk	5. Kumal	5. Marphali Thakali	
6. Raji	6. Chepang	6. Rajbangshi	6. Gurung	
7. Kisan	7. Santhal	7. Gangaai	7. Magar	
8. Lepcha	8. Jhagad	8. Dhimal	8. Rai	
9. Meche	9. Thami	9. Bhote	9. Limbu	
10. Kuswadiya	10. Bote	10. Darai	10. Sherpa	
	11. Danuwar	11. Tajpuriya	11. Yakkha	
	12. Baramu	12. Pahari	12. Chhantyal	
		13. Topkegola	13. Jirel	
		14. Dolpo	14. Byansi	
		15. Fri	15. Yolmo	
		16. Mugal		
		17. Larke		
		18. Lohpa		
		19. Dura		
		20. Walung		

Source: NEFIN 2008.

Annex 5. Details of protected areas in SHL-Nepal.

SN	Protected Area	Size (sq km)	Year Gazetted	District: VDCs
1.	Kangchenjunga Conservation Area	2,035	1997	Taplejung: 1. Lelep; 2. Tapethok; 3. Walangchung Gola; 4. Yamphudin
2.	Makalu Barun National Park	1,500	1991	Sankhuwasabha
	Buffer Zone	830	1999	Sankhuwasabha: 1. Kimathanka; 2. Chepuwa; 3. Hatiya; 4. Pathibhara; 5. Makalu; 6. Yafu; 7. Mangtewa; 8. Tamkhu; 9. Bala; 10. Sisuwakhola. Solukhumbu: 1. Bung; 2. Chheskam
3.	Sagarmatha National Park	1,148	19 July 1976	Solukhumbu: 1. Khumjung; 2. Namche
	Buffer Zone	275	1 Jan 2002	Solukhumbu: 1. Chaurikharka; 2. Khumjung; 3. Namche
4.	Gaurishankar Conservation Area	2,179	11 Jan 2010	Dolakha:1. Kalinchok; 2. Bigu; 3. Alampu; 4. Chilankha; 5. Lamabagar; 6. Orang; 7. Bulung; 8. Laduk; 9. Gaurishankar; 10. Khare; 11. Marbu; 12. Chankhu; 13. Suri; 14. Syama; Ramechhap: 15. Chuchure; 16. Gumdel Sindhupalchok: 17. Fulpingkatti; 18. Ghorthali; 19. Gumba; 20. Listikot; 21. Marming; 22. Tatopani
5.	Langtang National Park	1710	1976	Rasuwa: 1. Briddim; 2. Dhunche; 3. Langtang; 4. Syabru; 5. Timure; 6. Yarsa.
	Buffer Zone	420	1998	Nuwakot: 1. Gaonkharka; 2. Ghyangphedi; 3. Raluka; 4. Samuntar; 5. Shikharbesi; 6. Urleni Rasuwa: 7.Bhorle; 8. Briddim; 9. Dhaibung; 10. Dhunche; 11. Laharepauwa; 12. Langtang; 13. Ramche; 14. Saramthali; 15. Syabru; 16. Timure; 17. Yarsa Sindhupalchok: 18. Boruwa; 19. Golchhe; 20. Helambu; 21. Ichok; 22. Kiul.
	Total	**10,097**		

Annex 6. Household access to drinking water.

SN	District	HH With Access (%)	Source of Water (% households)					
			Pipe	Well/ Spring	Kul-dhaara	River	Other	Unspecified
	Nepal	**79.5**						
1.	Taplejung	90.7	90.3	3.3	4.9	1.0	0	0.5
2.	Panchthar	69.3						
3.	Ilam*	90.9	75.6	10.0	12.0	1.7	0.4	0.4
4.	Dhankuta	81.3						
5.	Terhathum	73.7						
6.	Sankhuwasabha*	65.8	50.7	6.6	0	0	42.7	0
7.	Bhojpur	57.5						
8.	Solukhumbu	76.7						
9.	Okhaldhunga	70.5						
10.	Khotang	64.7						
11.	Udayapur	69.7						
12.	Sindhuli	59.2						
13.	Ramechhap	72.9						
14.	Dolakha	82.7	82.3	2.6	13.6	0.9	0.1	0.5
15.	Sindhupalchok	82.0	81.4	6.5	12.1	0	0	0
16.	Kavrepalanchok	80.5						
17.	Nuwakot*	66.5						
18.	Rasuwa	85.2	84.8	1.4	10.0	3.1	0.1	0.5
	Average	74.4	77.5	5.1	8.8	1.1	7.2	0.4

Source: ICIMOD 2003.
** Source: District profiles. For Nuwakot District, only Ghyangphedi VDC is included in the analysis. Data not available for other remaining districts.*

Annex 7. Food production in SHL-Nepal

SN	District	Occupation (%hh)	HHs with Marginal Farms (%)		Per Capita Food Production	Chronic Malnourishment among Children
		Agriculture	Non-Agriculture	Farm size <0.5ha	Kcal/day (paddy, wheat, maize, millet, barley, potatoes)	(<5 yrs age)
	Nepal	68.7	31.3		3,222	50.5
1.	Taplejung	88.2	11.8	35.9	3610	44.1
2.	Panchthar	86.5	13.5	34.6	3674	60.9
3.	Ilam	85.7	14.3	26.0	3404	49.3
4.	Dhankuta	81.7	18.3	26.3	4844	48.1
5.	Terhathum	80.2	19.8	26.4	3828	67.9
6.	Sankhuwasabha	85.3	14.7	27.3	4056	54.3
7.	Bhojpur	87.6	12.5	35.9	4855	48.7
8.	Solukhumbu	89.0	11.0	33.9	3179	54.5
9.	Okhaldhunga	87.7	12.3	27.7	3195	60.7
10.	Khotang	89.5	10.6	35.7	3639	36.0
11.	Udayapur	74.1	25.9	33.0	2619	32.1
12.	Sindhuli	78.4	21.6	59.1	2727	60.0
13.	Ramechhap	80.1	19.9	35.4	2635	73.3
14.	Dolakha	74.7	25.3	35.7	1774	58.7
15.	Sindhupalchok	80.0	20.0	44.3	3161	62.2
16.	Kavrepalanchok	76.8	23.2	33.0	3722	35.8
17.	Nuwakot*			34.6	3812	61.3
18.	Rasuwa	82.2	17.8	35.9	3100	60.0
	Average	**82.8**	**17.2**	**34.5**	**3,435**	**53.8**

** Information not included for Nuwakot District.*
Source: UNDP 2004; ICIMOD 2003.

Annex 8. Access to electricity in SHL-Nepal.

		% Households	
SN	**District**	**With Electricity**	**Without Electricity**
	Nepal	31.1	68.9
1.	Taplejung	8.1	91.9
2.	Panchthar	5.1	94.9
3.	Ilam	21.4	78.6
4.	Dhankuta	17.0	83.1
5.	Terhathum	12.5	87.5
6.	Sankhuwasabha	12.2	87.8
7.	Bhojpur	5.4	94.6
8.	Solukhumbu	13.3	86.7
9.	Okhaldhunga	5.7	94.3
10.	Khotang	3.9	96.1
11.	Udayapur	13.5	86.5
12.	Sindhuli	8.7	91.3
13.	Ramechhap	6.9	93.1
14.	Dolakha	25.0	75.0
15.	Sindhupalchok	27.2	72.8
16.	Kavrepalanchok	43.2	56.8
17.	Nuwakot	33.7	66.3
18.	Rasuwa	32.6	67.4
	Average	**16.4**	**83.6**

Annex 9. Fuelwood requirements in SHL-Nepal.

SN	Site	Elevation (m)	Annual Fuelwood per HH (MT)	% fulfilled by Community Forests	Information Source
1.	Solukhumbu District:				Mountain Spirit 2002
1.1	Chaurikharka VDC	2285-2835	6.0	na	
	- On trek route		5.5		
	- Off trek route		6.8		
1.2	Namche VDC	3500	1.4	na	
	- House only		1.0		
	- House with lodge		2.9		
	- House with tea shop		1.5		
1.3	Khumjung VDC	3780-4240	1.1	na	
	- House only		0.7		
	- House with lodge		2.1		
	- House with tea shop		1.5		
2.	Dudh Koshi Sub-Basin:				Mountain Spirit 2008
2.1	Sikhu Khola Catchment		5.5	16	
	- upper catchment area	2150-2950	6.6	9.6	
	- middle catchment area	1490-2150	5.6	11.4	
	- lower catchment area	720-1490	4.2	71.3	
2.2	Pankhu Khola Catchment		6.1	27	
	- upper catchment area	1615-2280	6.2	3.5	
	- middle catchment area	1045-1615	5.4	24.7	
	- lower catchment area	380-1045	7.6	37.7	
3.	Kangchenjunga CA:				Mountain Spirit 2007
3.1	Yamphudin VDC		3.8		
3.2	Tapethok VDC		7.1	38.1	
3.3	Lelep VDC		6.2	85.8	
3.4	Walangchung Gola VDC		5.0		
4.	SHL-Nepal:				Mountain Spirit 2012
4.1	Malinge G M CFUG, Ilam		9.7	25.7	
4.2	Devisthan CFUG, Khotang		7.5	10.9	
4.3	Piple CFUG, Ramechhap		6.8	16.7	
4.4	Syaubari CFUG, Rasuwa		5.5	15.0	

Annex 10. Income and access to cash in SHL-Nepal.

SN	District	Per Capita Income (Rs)	Women's Share in Income	# of Banks	# of Cooperatives
	Nepal	17,722	0.302		
1.	Taplejung	15,814	0.334	2	
2.	Panchthar	14,504	0.399		
3.	Ilam	16,440	0.359	4	265
4.	Dhankuta	14,904	0.329	5	86
5.	Terhathum	16,861	0.317		
6.	Sankhuwasabha	16,999	0.335	5	56
7.	Bhojpur	13,556	0.392	4	40
8.	Solukhumbu	19,679	0.351	2	1
9.	Okhaldhunga	12,876	0.393	2	
10.	Khotang	12,905	0.384		
11.	Udayapur	13,196	0.384		
12.	Sindhuli	14,593	0.389	2	108
13.	Ramechhap	13,646	0.460	1	
14.	Dolakha	13,054	0.319		199
15.	Sindhupalchok	16,147	0.488	5	215
16.	Kavrepalanchok	21,262	0.333	20	495
17.	Nuwakot	16,733	0.324		
18.	Rasuwa	24,379	0.322	3	33
	Average	**15,975**	**0.367**	**55**	**1,498**

Source: UNDP 2004; District Profiles

Annex 11 a. Roads in SHL-Nepal.

SN	District	Type of Road (km)				Other (km)	
		Blacktop	Gravel	Earthen	TOTAL	Under Construction	Planned
1.	Taplejung		25.50	7.60	33.10	2.40	113.00
2.	Panchthar	34.86	57.00	107.00	198.86	17.40	
3.	Ilam	108.75	12.10	127.10	247.95		4.00
4.	Dhankuta	76.68	49.00	9.00	134.68		
5.	Terhathum	8.42		76.25	84.67	43.00	
6.	Sankhuwasabha	47.70	25.00	62.00	134.70		91.40
7.	Bhojpur		7.50	108.50	116.00		
8.	Solukhumbu			37.20	37.20		
9.	Okhaldhunga		8.79	62.91	71.70	9.00	56.00
10.	Khotang			196.76	196.76		
11.	Udayapur	90.86	42.00	111.00	243.86	20.00	1.50
12.	Sindhuli	42.50	29.60	129.90	202.00	26.00	76.00
13.	Ramechhap	2.00	25.70	49.30	77.00		
14.	Dolakha	86.68	30.00	20.00	136.68		55.00
15.	Sindhupalchok	107.31	19.84	69.10	196.25	10.42	
16.	Kavrepalanchok	111.09	33.73	4.30	149.12		
17.	Nuwakot	94.71	21.00	25.00	140.71	2.00	46.50
18.	Rasuwa		50.50	15.70	66.20		
	TOTAL	811.56	437.26	1,218.62	2,467.44	130.22	443.40

Source: DoR 2010.

Annex 11b. Airports in SHL-Nepal.

SN	District	Airports		
		#	Location	Remarks
1.	Taplejung	1	Suketar	
2.	Panchthar	0		
3.	Ilam	0		
4.	Dhankuta	0		
5.	Terhathum	0		
6.	Sankhuwasabha	1	Tumlingtar	
7.	Bhojpur	1	Taksar VDC	
8.	Solukhumbu	4	Syangboche, Lukla, Phaplu, Kangel	
9.	Okhaldhunga	1	Rumjatar	
10.	Khotang	1	Lamidanda	
11.	Udayapur	0		
12.	Sindhuli	0		
13.	Ramechhap	2	Ramechhap, Manthali	
14.	Dolakha	1	Jiri	
15.	Sindhupalchok	0		
16.	Kavrepalanchok	0		
17.	Nuwakot	0		
18.	Rasuwa	1	Langtang	
	TOTAL	**13**		

Source: DoR 2010.

Annex 12. Communication facilities in SHL-Nepal.

SN	District	Phones						Internet		Cable		Post Offices			
		Tower (PSTN)	V-SAT	CDMA	Cell-phone	MARTS	VHF	Provider	Sub-scribers	Oper-ator	Sub-scribers	District	Ilaka	Atirikta	Total
1.	Taplejung	537		439	1500			2	20			1	12	38	51
2.	Panchthar	500						1	20	1	450	1	11	34	46
3.	Ilam	1587						1	216	4	800	1	11	40	52
4.	Dhankuta	1152				43	8	1	54	2	525	1	13	23	37
5.	Terhathum	575				36	9		13	2	316	1	9	22	32
6.	Sankhuwasabha	690		330		20	3		10	3	725	1	13	24	38
7.	Bhojpur	350	8			5	1		5			1	14	48	63
8.	Solukhumbu	165	38							2	200	1	8	25	34
9.	Okhaldhunga	320	7				17	2	na	2	na	1	11	44	56
10.	Khotang											1	na	na	
11.	Udayapur											1	na	na	
12.	Sindhuli	478								1	761	1	12	42	55
13.	Ramechhap	515						1	15	1	12	1	12	42	55
14.	Dolakha	800								3		1	10	43	54
15.	Sindhupalchok	406								6		1	13	65	79
16.	Kavrepalanchok	4123								2	923	1	12	69	82
17.	Nuwakot*											-	-	1	1
18.	Rasuwa	173	12		65						100	1	4	13	18
	TOTAL	12,371	65	769	1,565	104	38	8	353	29	4,812	17	163	575	753

** Information included only for Ghyangphedi VDC in Nuwakot District.*

Source: District Profiles.

Note: Blank cells indicate no data; na indicates data not available in District Profiles.

Annex 13a. Literacy rates in SHL-Nepal.

SN	District	Literacy (>6 yrs)			Adult Literacy (>15 yrs)	Children deprived of education*
		Female	Male	Total		
	NEPAL	**42.5**	**65.1**	**53.7**	**48.6**	
1.	Taplejung	42.8	62.9	52.6	47.3	17.4
2.	Panchthar	45.6	65.7	55.4	50.0	13.5
3.	Ilam	58.6	74.4	66.5	61.5	8.5
4.	Dhankuta	47.5	68.4	57.6	58.6	10.2
5.	Terhathum	48.2	71.3	59.3	54.0	13.5
6.	Sankhuwasabha	45.1	63.7	54.2	47.5	15.8
7.	Bhojpur	46.3	69.0	58.0	46.8	12.9
8.	Solukhumbu	35.5	56.7	45.9	39.0	22.2
9.	Okhaldhunga	36.3	63.6	49.3	41.7	19.1
10.	Khotang	38.8	62.3	50.2	43.1	18.4
11.	Udayapur	42.2	64.5	53.3	47.3	20.8
12.	Sindhuli	38.7	62.6	50.5	42.3	22.0
13.	Ramechhap	26.6	58.3	39.4	31.2	28.3
14.	Dolakha	38.8	64.0	51.1	42.2	16.2
15.	Sindhupalchok	29.5	51.8	40.6	31.0	24.6
16.	Kavrepalanchok	52.8	75.7	64.0	56.1	9.3
17.	Nuwakot	40.7	62.4	51.4	42.5	17.8
18.	Rasuwa	24.5	42.5	34.0	25.4	33.5
	AVERAGE	**41.0**	**63.3**	**51.9**	**44.9**	**18.0**

** Calculated for children (10-14 years) as a percent of total children in the same age group.*

Annex 13b. Schools and training centers in SHL-Nepal.

SN	District	Number of Schools				Campus	University	Training Center	Other
		Primary	Lower Sec	Sec	Higher Sec				
1.	Taplejung	287	83	39	10	na	0	na	
2.	Panchthar	388	95	59	12	1	0	20	14
3.	Ilam	407	89	49	10	4	0	2	
4.	Dhankuta	319	91	57	4	1	0	2	
5.	Terhathum	245	71	35	12	2	0	na	
6.	Sankhuwasabha	356	81	43	7	3	0	2	3
7.	Bhojpur	363	90	46	4	1	0	1	
8.	Solukhumbu	245	62	35	6	3	0	1	
9.	Okhaldhunga	325	68	39	5	2	0	1	141
10.	Khotang	490	126	63	*na*	na	0	na	
11.	Udayapur	384	104	60	*na*	na	0	na	
12.	Sindhuli	502	106	58	13	2	0	7	70
13.	Ramechhap	408	96	50	*na*	na	0	na	
14.	Dolakha	377	90	52	*na*	na	0	na	
15.	Sindhupalchok	489	120	63	18	4	0	na	166
16.	Kavrepalanchok	627	227	122	18	7	1	7	21
17.	Nuwakot*	489	116	71	*na*	0	0	0	
18.	Rasuwa	105	23	12	*na*	na	0	na	
	TOTAL	**6,323**	**1622**	**882**	**119**	**30**	**1**	**43**	**415**

* Information included only for Ghyangphedi VDC in Nuwakot District.
Source: CBS 2007; District Profiles

Annex 14. Access to toilets in SHL-Nepal.

SN	District	HH With Access (%)*	Types of Toilet (% households)†			
			Flush Toilet	General	Unspecified	TOTAL
	Nepal	**47.5**				
1.	Taplejung	47.8	7.3	91.3	1.3	100
2.	Panchthar	57.1				
3.	Ilam	76.4	34.2	65.0	0.8	100
4.	Dhankuta	64.7				
5.	Terhathum	54.0				
6.	Sankhuwasabha	59.6	7.8	90.9	1.3	100
7.	Bhojpur	49.0				
8.	Solukhumbu	51.1	72.9	27.1	0	100
9.	Okhaldhunga	57.1	27.6	72.4	0	100
10.	Khotang	36.6				
11.	Udayapur	24.4				
12.	Sindhuli	27.4				
13.	Ramechhap	34.9				
14.	Dolakha	65.8	32.1	66.6	1.4	100
15.	Sindhupalchok	45.1	17.6	82.4	0	100
16.	Kavrepalanchok	63.8				
17.	Nuwakot	48.2				
18.	Rasuwa	31.9	30.3	66.7	3.0	100
	Average	**49.7**	**28.7**	**70.3**	**1.0**	**100**

** Source: ICIMOD 2003.*
† Source: District profiles, except for Solukhumbu District – extrapolated from Sikhu Khola Catchment, Okhaldhunga District – extrapolated from Pankhu Khola Catchment; Sindhupalchok District – extracted from Indrawati Sub-Basin.

Annex 15a. Elected Constituent Assembly members from SHL-Nepal.

SN	District	Political Party						
		Nepali Congress	NCP: UML	NCP: Maoist	RPP	Rastriya Janashakti Party	Other	Total
	Nepal							
1.	Taplejung	1	2	1	-	-	-	4
2.	Panchthar	1	1	1	-	-	-	3
3.	Ilam	3	3	2	-	-	-	8
4.	Dhankuta	1	2	2	-	-	-	5
5.	Terhathum	2	2	1	-	-	-	5
6.	Sankhuwasabha	2	1	2	-	-	-	5
7.	Bhojpur	1	-	3	-	-	-	4
8.	Solukhumbu	2	-	1	-	-	-	3
9.	Okhaldhunga	-	-	2	-	-	-	2
10.	Khotang	1	1	4	-	1	-	7
11.	Udayapur	3	1	5	-	-	-	9
12.	Sindhuli	-	1	4	-	-	-	5
13.	Ramechhap	1	-	4	1	-	-	6
14.	Dolakha	1	2	1	-	-	-	4
15.	Sindhupalchok	-	2	4	-	-	-	6
16.	Kavrepalanchok	3	2	4	-	-	-	9
17.	Nuwakot	3	3	3	1	-	-	10
18.	Rasuwa	-	-	1	-	-	-	1
	Total	**25**	**23**	**45**	**2**	**1**	**-**	**96**

Source: Bhattarai 2010.

Annex 15b. Voters turn-out in SHL-Nepal.

SN	District	# of Registered Voters	Actual # of Voters	% Voters of Total
	Nepal			
1.	Taplejung	107,714	56,557	52.5
2.	Panchthar	155,983	88,354	56.6
3.	Ilam	212,055	139,333	65.7
4.	Dhankuta	125,727	74,250	59.1
5.	Terhathum	90,935	51,024	56.1
6.	Sankhuwasabha	132,118	66,327	50.2
7.	Bhojpur	166,050	81,375	49.0
8.	Solukhumbu	84,182	42,300	50.2
9.	Okhaldhunga	129,378	66,564	51.4
10.	Khotang	182,794	90,102	49.3
11.	Udayapur	220,028	119,995	54.5
12.	Sindhuli	202,918	116,761	57.5
13.	Ramechhap	180,026	97,472	54.1
14.	Dolakha	165,928	96,853	58.4
15.	Sindhupalchok	260,357	160,411	61.6
16.	Kavrepalanchok	321,705	210,410	65.4
17.	Nuwakot	247,215	146,243	59.2
18.	Rasuwa	32,442	21,434	66.1
	Average	**167,642**	**95,876**	**57.2**

Source: Bhattarai 2010.

Annex 16. HDI, GDI and HPI of SHL-Nepal.

SN	District	Human Development Index	Gender-related Development Index	Human Poverty Index
	Nepal	**0.471**	**0.452**	**39.6**
1.	Taplejung	0.467	0.451	38.4
2.	Panchthar	0.484	0.472	42.1
3.	Ilam	0.521	0.513	33.7
4.	Dhankuta	0.507	0.493	34.4
5.	Terhathum	0.523	0.504	40.9
6.	Sankhuwasabha	0.481	0.467	43.5
7.	Bhojpur	0.472	0.457	43.6
8.	Solukhumbu	0.479	0.462	45.8
9.	Okhaldhunga	0.481	0.461	46.0
10.	Khotang	0.442	0.425	42.8
11.	Udayapur	0.488	0.474	40.0
12.	Sindhuli	0.469	0.453	48.3
13.	Ramechhap	0.434	0.414	53.4
14.	Dolakha	0.450	0.425	44.0
15.	Sindhupalchok	0.414	0.401	51.1
16.	Kavrepalanchok	0.543	0.527	33.5
17.	Nuwakot	0.463	0.445	43.8
18.	Rasuwa	0.394	0.376	54.5
	Average	**0.473**	**0.457**	**43.3**

Source: UNDP 2004.

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