

GEF SGP NEPAL COUNTRY PROGRAMME STRATEGY FOR OP6

ANNEX 1: Landscapes Baseline Assessment Report

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Summary Sheet

Characteristics/ Feature	Landscapes				
	Panchase	Kailali-Bardiya	Lumbini	Chitwan- Makwanpur	Morang-Jhapa- Ilam
1. Demographic Characteristics					
No. of districts (whole or part)	10	3	4	6	7
No. of VDCs	243	63	87	80	131
Population	1,646,780	1,553,089	1,649,764	2,251,097	2,231,686
Male	747,414	752,918	804,058	1,068,321	1,069,449
Female	899,416	800,171	845,706	1,188,111	1,162,147
Major castes	Gurung, Magar, Braman, Chhetri, and other	Tharu, migrant castes	Tharu, migrant castes	Tamang, Chepang, other castes	Rai, Limbu, Rajbanshi, and other
Major occupation	Agriculture, Foreign employment, livestock,	Agriculture, Foreign employment, livestock,	Agriculture, Foreign employment, livestock	Agriculture, Foreign employment, livestock	Agriculture, Foreign employment, livestock
2. Geological features					
Area (km ²)	4,551	2,698	1,229	2,189	3,132
Soil type	Alluvial, clay fertile soil	Alluvial, clay fertile soil, sandy	Alluvial, clay fertile soil, sandy	Alluvial, clay fertile soil	Alluvial, clay fertile soil, sandy
Rock	Sara-autoch tonous crystalline rock. late, phyllite and schist rocks	Dark-gray mud stone, medium to coarse-grained sand stone, pebbly sandstone and conglomerate	coarse- grained sand stone, sandstone and conglomerate foliated metamorphic	slate, phyllite and schist are foliated metamorphic rocks, coarse- grained sand stone	shale, slate, sandstone, graphitic schist, quartzite, phyllite, amphibolite
Climate	Subtropical- temperate	Tropical	Tropical	Tropical- subtropical	Tropical-temperate
3. Unique features	Beautiful natural scene, ridges, natural trekking route, lakes Orchid	Wetland- Biodiversity, Tharu culture	Heritage places, wetland- Biodiversity, Tharu culture	NP, Heritage places, wetland- Biodiversity, Chepang, tamang culture	Tea garden, wetland- Maipokhari (wetland), etc, dense forest
4. Land cover (km²)					
Forest	2,091.0	1,242.9	172.5	1,309.4	1,387.7
Shrubland	307.3	2.6	0	0.3	13.5
Grassland	564.3	18.0	0	12.4	53.2
Agriculture	1,291.7	1,203.3	926.5	778.8	1,546.5
Bare land	229.7	151.5	128.5	35.5	53.0
Builtup	29.2	5.7	0.1	21.7	28.8
Rivers	26.7	73.5	2.1	43.2	49.5
Lake	7.6	0.3	0.1	0.3	0
Snow/glacier	3.5	0	0		0.1
5. Ecological characteristics					
Biodiversity	Rich, orchid, fresh water flora& fauna	Rich, Dolphin, fresh water flora& fauna	Rich, habitat of sarus crane, fresh water flora & fauna	Rich, bats, fresh water flora& fauna	Rich, Rhododendron spp. fresh water flora& fauna,

Major ecosystems types	Six types: forest, shrub, grass, wetland, snow/glacier	Five types: forest, shrub, grass, wetland	Four types: forest, grass, wetland	Six types: forest, shrub, grass, wetland, snow/glacier	Six types: forest, shrub, grass, wetland, snow/glacier; includes Jalthal forest ecosystem
Forest types	Four	Two	Two	Four	Four
6. Major threats/gaps					
Ecological threats	Forest overstocking, decrease in water sources, invasion by alien species	Loss of habitat of flora & fauna (e.g. of dolphin, blackbuck), invasion by alien spp.	Loss of habitat of flora & fauna (e.g. Sarus crane)	Loss of habitat of bats & butter tree (<i>chiuri</i>), loss of agrobiodiversity, wetland encroachment	Loss of habitat of red panda, wetland encroachment, invasion of grasslands by alien species
Geological sensitivity	Slate, phyllite and schist are low strength and generally very weak, vulnerable to landslides	Siwaliks and recent deposits, sandstone, pebbly sandstone and conglomerate high grade of weathering	Metamorphic rocks with low rock mass quality-land instability, most probable. Very high weathering	Strong rocks, cementing materials, high the degree of weathering vary from place to place. deposits gravels, sands, silts and clays	Threat of landslides and other mass movement processes due to weak geological conditions, deformations and steep topography
Environmental threats	Landslides and siltation, decreasing soil fertility, pesticide use. increasing drought, decreasing water source	Flooding, siltation, Timber smuggling, decreasing water table, increasing drought	Sedimentation, siltation, sand and stone collection, timber smuggling	Earthquake erosion, siltation, Shifting cultivation, 50% decreasing water sources	Landslides and siltation, decreasing soil fertility, pesticide use, increasing drought,
Sustainability related threats	15- 20% migration to semi-urban and urban areas, 25-30% agriculture land not in use	Forest area converted into other uses, excessive use of natural resources	Forest area converted into other uses, excessive use of natural resources	Forest area converted into other uses, excessive use of natural resources	Migration into semi-urban and urban areas, 15-20% agriculture land not in use
Social discrimination	Violence against women increased by 10-15%, increasing human resources at rural area	Ex-Kamaiya (bonded laborers) settlement & livelihoods. Domestic violence on increasing trend	Domestic violence on increasing trend	Domestic violence on decreasing trend	Violence against women increased by 15-20%, increasing human resources at rural area
Women's participation in local NGOs, CBOs	Over 30%	30-35%	20-30%	Over 30%	25-35%
7. Opportunities/ Scope	Rehabilitation of degraded land, organic farming of vegetable and	Biodiversity conservation in wetland and forest ecology (i.	Degraded land rehabilitation, forest based enterprise,	Conservation based livelihoods program, Chure, Chamero (bats) &	Wetland based biodiversity conservation in Maipokhari,

	fruits, ecotourism, organic farming, -vegetable, fruits	e. dolphin), wetland management, indigenous knowledge promotion	alternative energy promotion, organic farming, -vegetable, fruits	Chepang promotional activities, organic farming of vegetable, fruits, honey	Betana and other wetlands, ecotourism development, organic farming of vegetable, fruits, Jalthal forest conservation
8. Collaboration area	Rehabilitation of degraded land, organic farming of vegetable and fruits, ecotourism, organic farming, -vegetable, fruits, marketing. adaptation plan	Wetland and forest biodiversity conservation dolphin, wetland management, indigenous knowledge promotion, livelihoods climate change adaptation plan	Production in degraded land, forest based enterprise, alternative energy promotion, organic farming, -vegetable, fruits adaptation plan	Conservation based livelihoods program, Chure, Chamero & Chepang promotion , organic farming, -vegetable, fruits, honey, agro-biodiversity	Biodiversity promotion in wetland based conservation i.e. Maipokhari, ecotourism development, organic farming, -vegetable, fruits, climate change adaptation plan
9. Major stakeholders	DDC/VDC, DFO, DISCO, DADO, DLSO,INGOs, NGOs, FECOFUN, Private sectors	DDC/VDC, DFO, DISCO, DADO, DLSO, INGOs, NGOs, FECOFUN, Private sectors	DDC/VDC, DFO, DISCO, DADO, DLSO, INGOs, NGOs, FECOFUN, Private sectors	DDC/VDC, DFO, DISCO, DADO, DLSO, INGOs, NGOs, FECOFUN, Private sectors	DDC/VDC, DFO, DISCO, DADO, DLSO, INGOs, NGOs, FECOFUN, Private sectors

1. INTRODUCTION

1.1 Background

The Global Environment Facility (GEF) Small Grants Programme (SGP) Nepal is preparing the Country Programme Strategy (CPS) for its 6th Operational Phase (OP6). This Baseline Assessment of selected landscapes was carried out for generating the required information from different sources that is required to prepare the Country Programme Strategy (CPS). The assessment process was guided by the CPS Consultation and Scoping Exercise in the country which lays out the consensus for the priorities and planning for delivering OP6 outcomes in the country. The Landscape Strategy describes the landscape approach for supporting global environmental activities in line with the selected strategic initiatives in the SGP Country Programme Strategy that would contribute to sustainable development at the community level.

1.2 Methodology

Selection and delineation of the landscapes

The community level landscapes were selected through national level consultation meetings and scoping exercise. The boundary of landscapes was delineated on the basis of area covering the significant natural features or areas of investments for the OP6, natural ridge lines, rivers and East-West highway. The source map is ICIMOD/ <http://geoportals.icimod.org/>. The selected five community landscapes are: Panchase, Lumbini, Kailali-Bardiya, Chitwan-Makwanpur and Morang-Jhapa-Ilam (Fig. 1).

The Panchase landscape covers whole or parts of Baglung, Gulmi, Kaski, Lamjung, Mustang, Myagdi, Parbat, Rukum, Syanjga, Tanahun districts, while the Kailali-Bardiya landscape includes Kailali, Bardiya and Surkhet districts. Similarly, the Lumbini landscape includes Arghakhachi, Kapilvastu, Palpa and Rupendhi districts. The Chitwan-Makawanpur landscape covers parts of Chitwan, Dhading, Gorkha, Makawanpur, Nawalparasi, and Tanahun districts. The Illam-Jhapa-Morang landscape includes parts of Dhankuta, Morang, Jhapa, Illam, Panchthar and Terathum districts. All the five landscapes are important from the perspectives of both biodiversity as well as cultural diversity, and inhabited by many of the country's disadvantaged human communities.

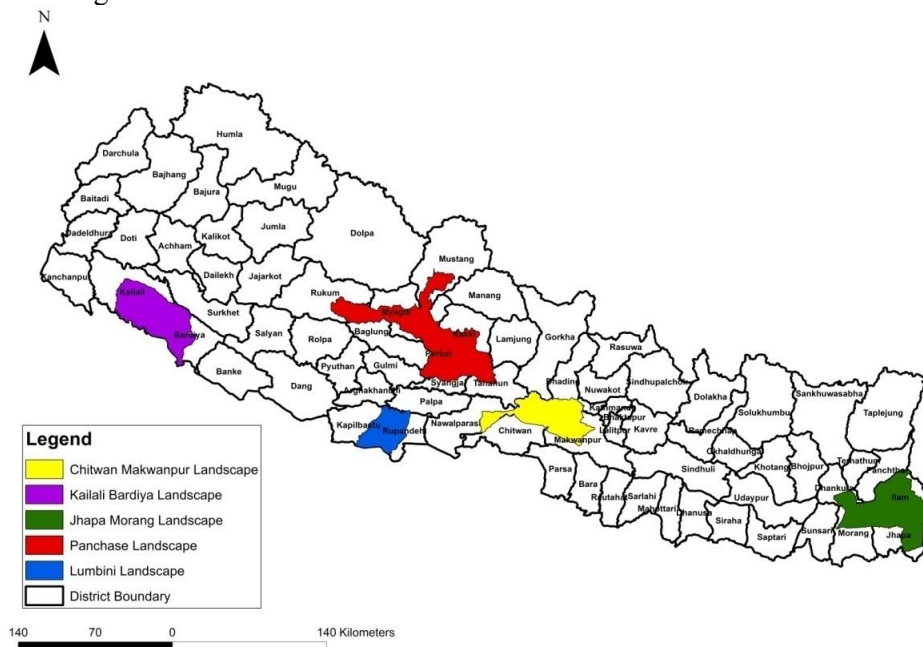


Fig. 1: Location of the selected landscapes

Data collection

The data and information used in this report were collected from secondary as well as primary sources. Primary data was collected by adopting a participatory approach. Separate checklists were prepared and used for consultation meetings and workshops conducted at the community, district and landscape level stakeholders. The checklists, among other, included key environmental issues, challenges, efforts of different agencies to address the issues, and opportunities of improved management of the natural resources for environmental and local livelihood benefits. One landscape level workshop was conducted in Panchase landscape. Some district level line agencies and other key informants were consulted at their offices.

A total of 11 field level consultation workshops were held with the involvement of concerned local communities and their organizations, civil society, local government authorities and other relevant partners at the community and district levels in each selected landscape. A total of 255 local people (including 39.6% women) participated in the community level consultation meetings (Table 1).

Table 1: Consultation meetings and workshop, and participants

Name landscape	District	No. of event	Total	Male	Female	Dalit	Janjati
Panchase	Kaski	1	24	24	0	3	2
	Baglung	1	24	15	9	0	11
Chitwan-Makwanpur	Chitwan	1	20	9	11	3	7
	Dhading	1	27	18	9	3	15
	Makwanpur	1	22	17	5	-	22
Kailali-Bardiya	Kailali	2	52	23	29	8	3
	Bardiya	1	14	11	3	0	3
Lumbini	Kapilbastu	1	26	9	17	0	25
	Arghakhachi	1	35	19	16	2	23
Panchase	Kaski	1	11	9	2	0	1
Total		11	255	154	101	19	112

Analysis of baseline situations

The data and information collected from each landscape was analyzed by using different methods, including SWOT analysis. All the information was evaluated, ranked and prioritized for each of the selected landscapes. The GIS maps prepared were validated during the field visits.

2. CHARACTERISTICS OF THE SELETED LANDSCAPES

2.1 Introduction

The five selected landscapes cove a total geographical area of 13,799 square kilometers. The boundaries and area covered by each landscape has presented in Table 2.

Table 2: Information of each landscape boundaries

Landscape	Boundaries				Area (km ²)
	North	South	East	West	
1. Panchase	Base of	Ridge (base	Range and Madi	Kali Gandaki	4,551

	Annapurna range	location Walling) and Seti river	river (Damauli)	river	
2. Kailali-Bardia	Chure mountain ridge	Nepal-India boarder and river	Babai and small tributaries	Basanta Corridor /river	2,698
3. Lumbini	Chure mountain ridge	Nepal-India boarder	Tinau river	Ban Ganga River	1,229
4. Chitwan-Makwanpur	Trishuli river	East-West Highway and Narayani river	Bhimphadi mountain ridge and base	Kawaswoti river	2,189
5. Morang-Jhapa-Ilam	Mountain ridge and Tamor River	East-West Highway; river and Nepal-India boarder	Nepal-India boarder	Ridge; streams	3,132

2.2. Physical characteristics

2.2.1 Panchase Landscape

Geology and structure

The landscape area consists of the whole or part of Rukum, Myagdi, Baglung, Gulmi, Kaski, Lamjung, Parbat, Syangja, Mustang and Tanahu districts (Fig. 2). The geological reference has been taken from the Geology of the Nepal Himalaya (Dhital, 2015). Geologically, the area is represented by Lesser Himalayan Sequence, Higher Himalayan Sequence and Tibetan Tethys Sediments as well as small portion of the Siwaliks.

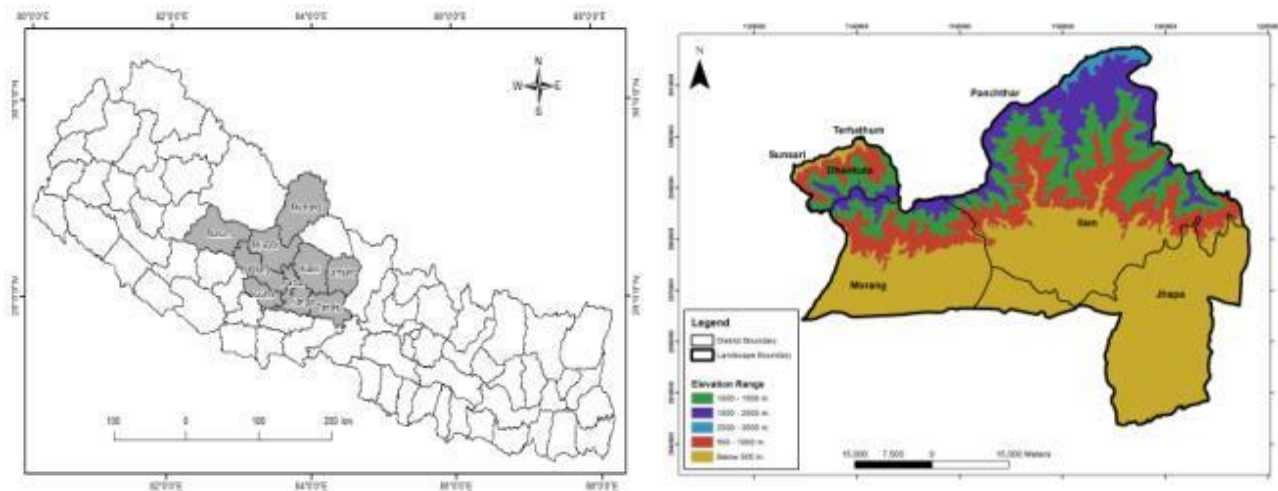


Fig 1: Location and elevation maps of selected landscape

The Lesser Himalayan Sequence consists of the Proterozoic shale, slate, sandstone, siltstone, graphitic schist, quartzite, phyllite and amphibolite along with Paleocene to Miocene rocks (Fig. 3). This geological map has been prepared modifying that of Dhital (2015) and referring to the geological map published by Department of Mines and Geology (DMG, 1994). Among the Lesser Himalayan rocks present in this landscape, slate, phyllite and schist are foliated metamorphic rocks with low strength and are generally very weak. The terrains comprising of these rocks are potentially unstable and many landslides are triggered in these terrains. Quartzites, Marbles and amphibolites are non-foliated metamorphic rocks with high strength and high rock mass quality in general, however chemical weathering can deteriorate the quality of marble. Shale, siltstone and sandstone are sedimentary rocks.

Among these rocks, shale and siltstone are not so strong and comprises of clay to silt sized minerals with problematic clay minerals. The strength of sandstone depends on the texture of minerals and the nature of cementing materials. Over the graphitic schists and marbles, the Main Central Thrust (MCT) brings the Higher Himalayan rocks, represented by coarse-grained gray to dark gray schists, pale quartzites, gray banded gneisses, augen gneisses and mylonitic gneisses. These are Higher Himalayan crystalline rocks that provide steep topography and vertical cliffs in some area. The major structures within the area are the Main Central Thrust (MCT), South Tibetan Detachment System (STDS), Great Mahabharat Synform and Great Midland Antiform.

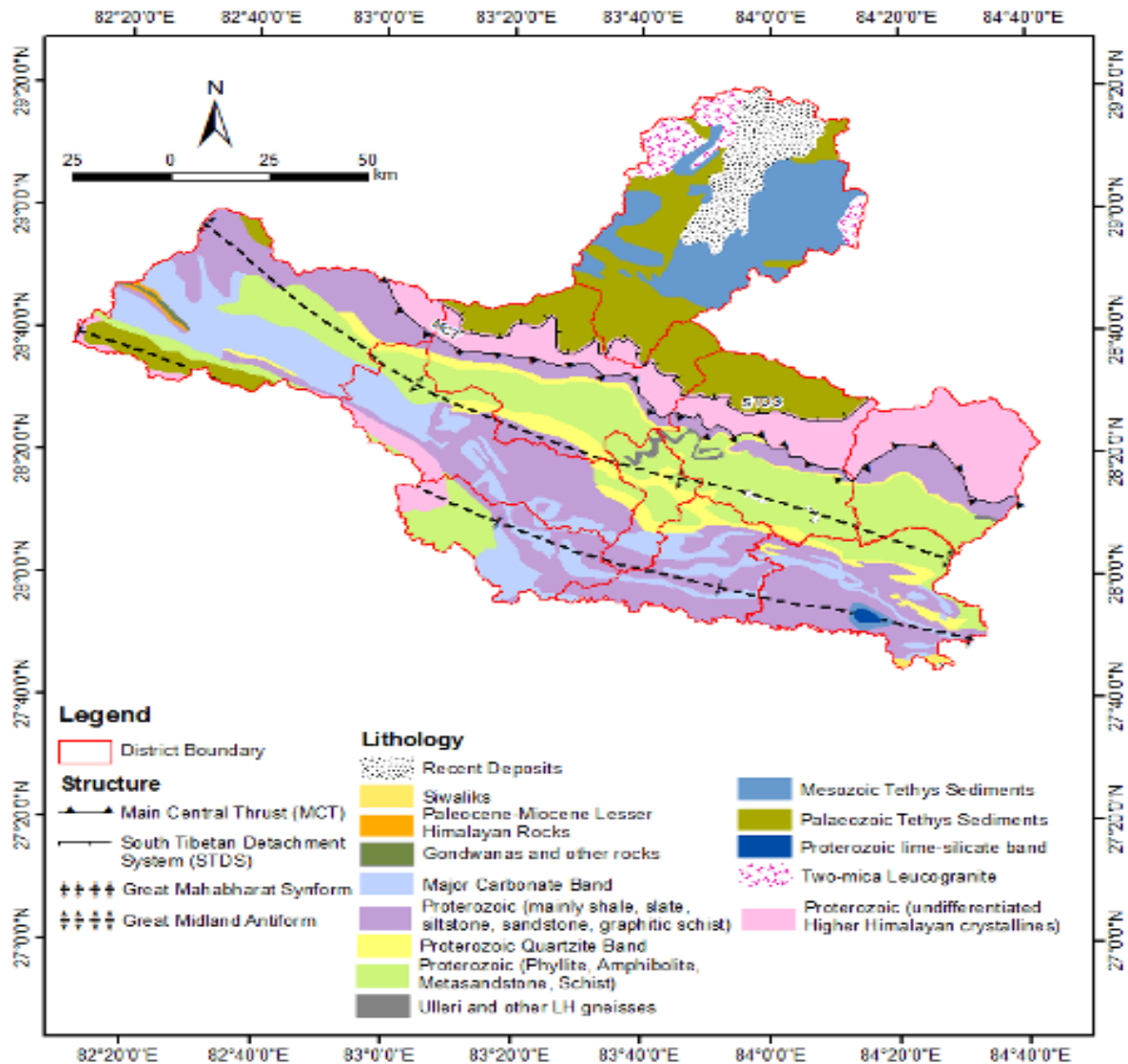


Fig 3: Geological Map of selected landscapes

Mass movement and landslides

Himalaya is a very young mountain. The area under this mountain system is potentially unstable in many parts as a consequence of the collision between two giant lithospheric Plates namely the Indian Plate and the Tibetan Plate. In the Panchase area, there are many places which are under the threat of landslides and other mass movement processes. These areas are generally hazardous to landslides due to weak

geological conditions, presence of geological structures, rock deformations and steep topography. The process is further exacerbated due to the occurrence of great and big earthquakes, intense rainfall and human induced activities like poor excavation practices for the road network. In many areas, past mega landslides have been reactivated mostly in Lesser Himalayan and Higher Himalayan Terrain. For this study, landslides in the study area have been delineated from Google images utilizing image analysis tools. The locations of the land slide areas (given in Fig. 4) can be potential threat to the nearby settlements. Google images of the respective landslides are provided in Fig 4.

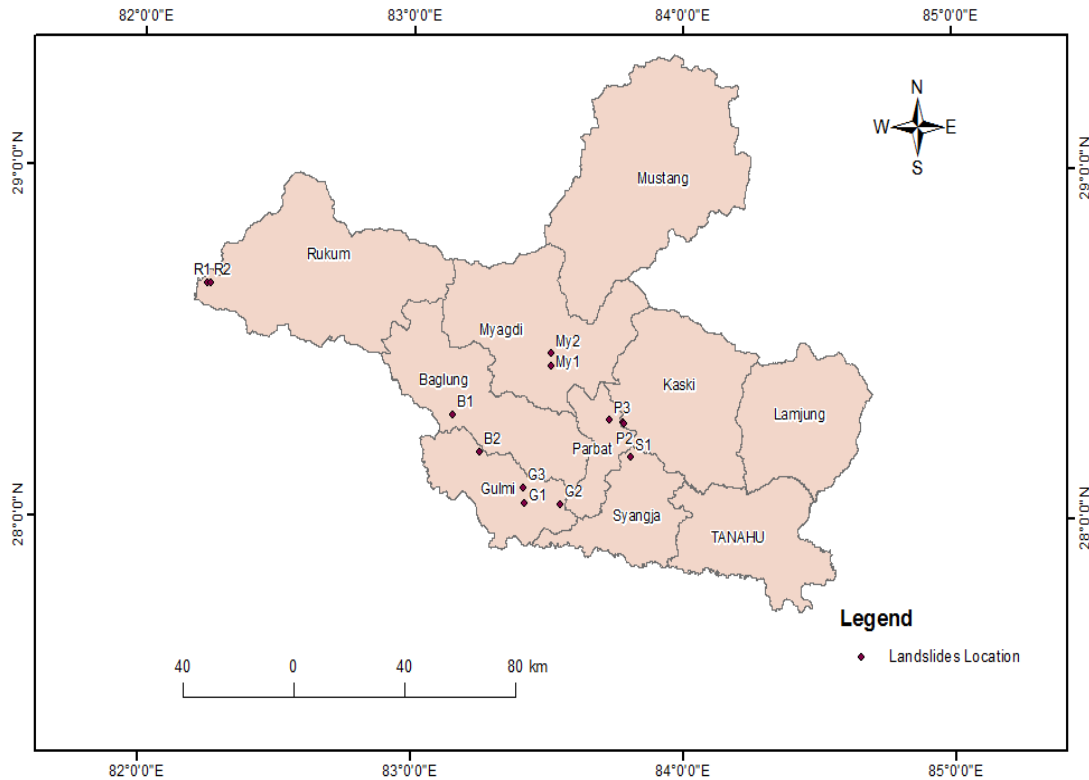


Fig 4: Landslides location map showing potential threat to nearby settlements

2.2.2 Kailali-Bardiya Landscape

Geology and structure

The landscape consists of the whole or part of Surkhet, Kailali and Bardiya districts (Fig. 5). Geologically, the area consists of the Lesser Himalayan Sequence, Siwaliks and Recent Deposits. Lesser Himalayan Sequence consists of the Proterozoic shale, slate, sandstone, siltstone, graphitic schist, quartzite, phyllite, amphibolite and metasandstone along with Paleocene to Miocene rocks (Fig. 6). The Siwaliks consists of fluvial deposits including dark-gray mudstone, medium to coarse-grained sand-stone, pebbly sandstone and conglomerate.

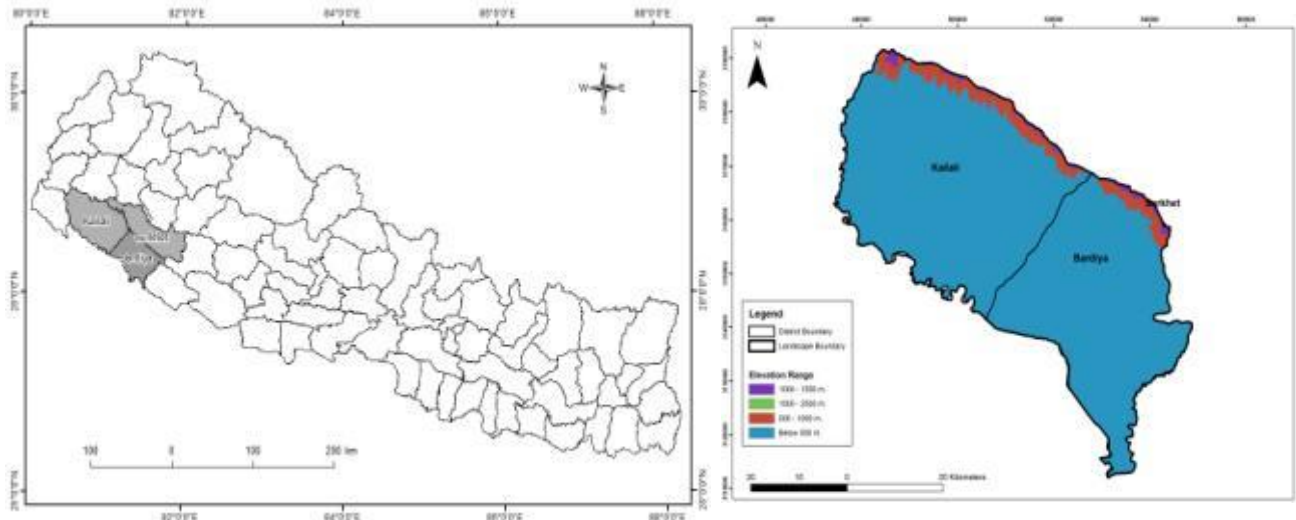


Figure 5. Location and elevation map of selected landscapes

These Siwalik rocks are very young and fragile, and high grade of weathering can be observed mostly in Lower Siwalik section and in mudstone rocks.

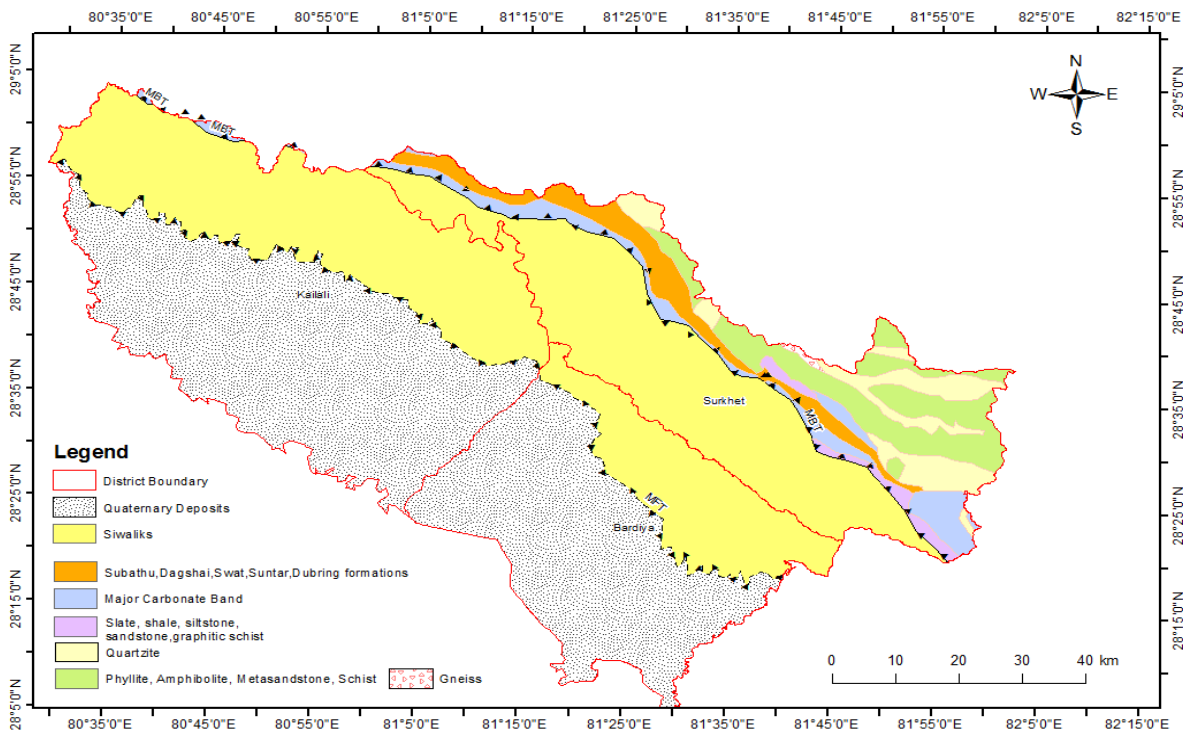


Fig 6: Geological map of the selected landscape

Among the Lesser Himalayan rocks present in this landscape, the slate, phyllite and schist are foliated metamorphic rocks with low strength and are generally very weak. The terrains comprising of these rocks are potentially unstable and many landslides are triggered in these terrains. Quartzites and amphibolites are non-foliated metamorphic rocks with high strength and high rock mass quality in general. However, chemical weathering can deteriorate the quality of marble. Similarly, Shale, siltstone and sandstone are

sedimentary rocks. Among these rocks, shale and siltstone are not so strong and comprises of clay to silt sized minerals with problematic clay minerals. The strength of sandstone depends on the texture of minerals and the nature of cementing materials. Recent deposits comprises of gravel, sand, silt and clay that are deposited by the river recently and are mostly found in plain areas and at the bank of low gradient rivers. The major structures passing through the study area are Main Frontal Thrust (MFT) and Main Boundary Thrust (MBT). No other major geological structures have been reported in this area.

Mass movement and landslides

The Himalaya is very young mountains in the world, and the areas under this mountain system are potentially unstable in many parts as a consequence of the collision between two giant lithospheric plates namely the Indian Plate and the Tibetan Plate. In the study area, there are many areas which are under threat of landslides and other mass movement processes.

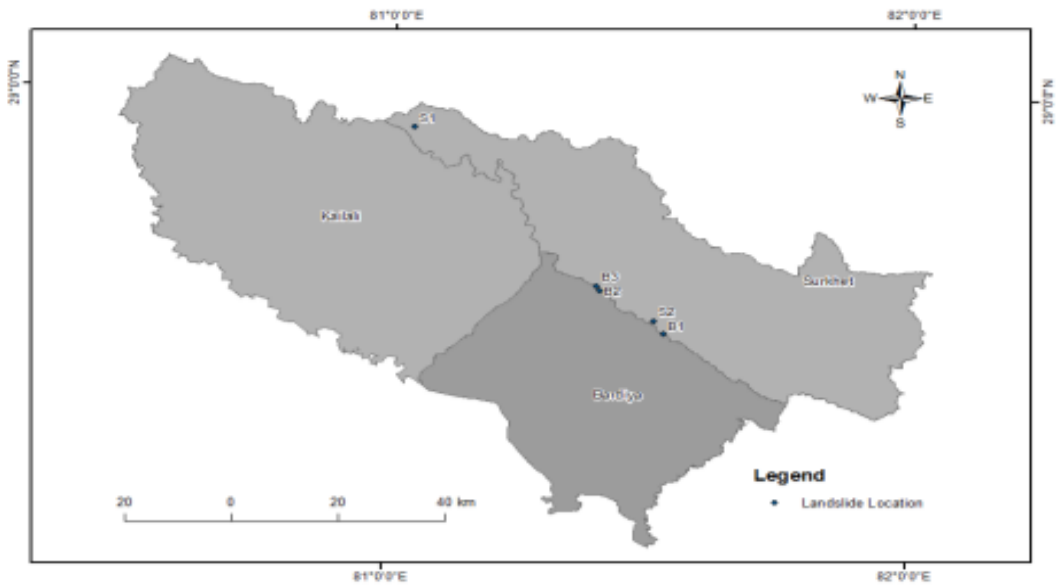


Figure 7: Landslides and potential threats areas in the Kalilai-Bardia Landscape

These areas are generally hazardous to landslides due to weak geological conditions, presence of geological structures, rock deformations and steep topography. The process is further exacerbated due to the occurrence of great and big earthquakes, intense rainfall and human induced activities like poor excavation practices for the road network. In many areas, past mega landslides have been reactivated mostly in Lesser Himalayan and Higher Himalayan Terrain. For this study, landslides in the study area have been delineated from Google images utilizing image analysis tools. The locations of the landslide areas are given in Fig.7 that can be potential threat to the nearby settlements. Google images of the respective landslides are provided in Fig. 7. In addition to these surface processes, there is potential of flood disaster mostly in the plain areas.

2.2.3. Lumbini Landscape

Geology and structure

The landscape consists of the whole or part of Arghakhanchi, Palpa, Kapilbastu and Rupandehi districts (Fig. 8). The geological reference has been taken from the Geology of the Nepal Himalaya (by Dhital, 2015) and geological maps prepared by the Department of Mines and Geology. Geologically, the area is represented by the Lesser Himlayan Sequence, Siwaliks and Recent Deposits. Lesser Himalayan

Sequence consists of the Proterozoic shale, slate, sandstone, siltstone, graphitic schist, quartzite, phyllite, amphibolite and metasandstone along with Paleocene to Miocene rocks (Fig. 9). The Siwalik consists of fluvial deposits including dark-gray mudstone, medium to coarse-grained sandstone, pebbly sandstone and conglomerate. Some portions of Gondwana rocks are also present in the Butwal-Tansen area. Among the Lesser Himalayan sequence, slate, phyllite and schist are foliated metamorphic rocks with low rock mass quality where land instability phenomena are most probable. The grade of weathering is very high in these terrains.

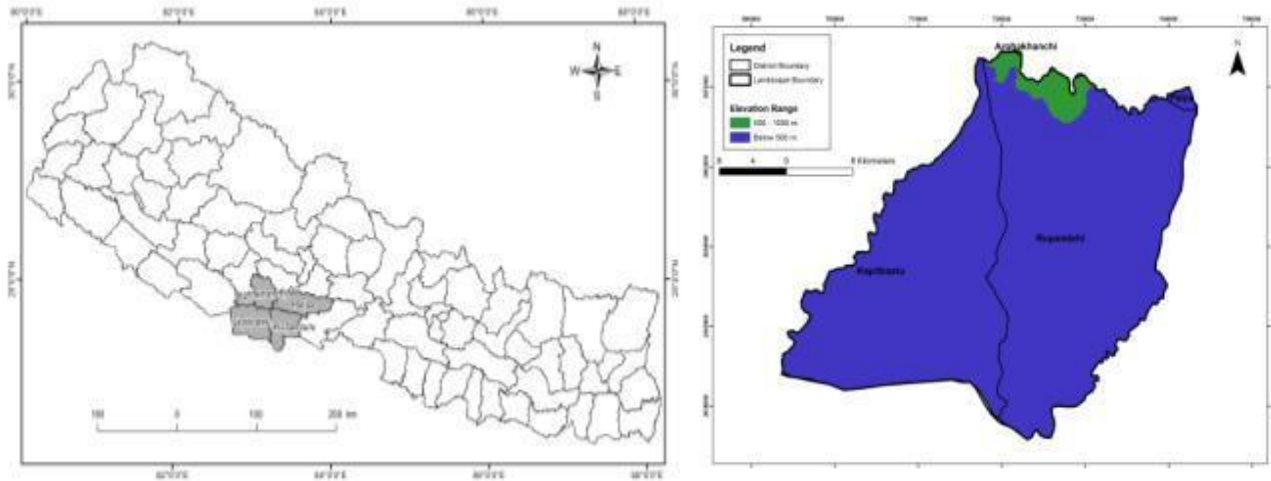


Fig 8. Location and elevation map of the Lumbini Landscape

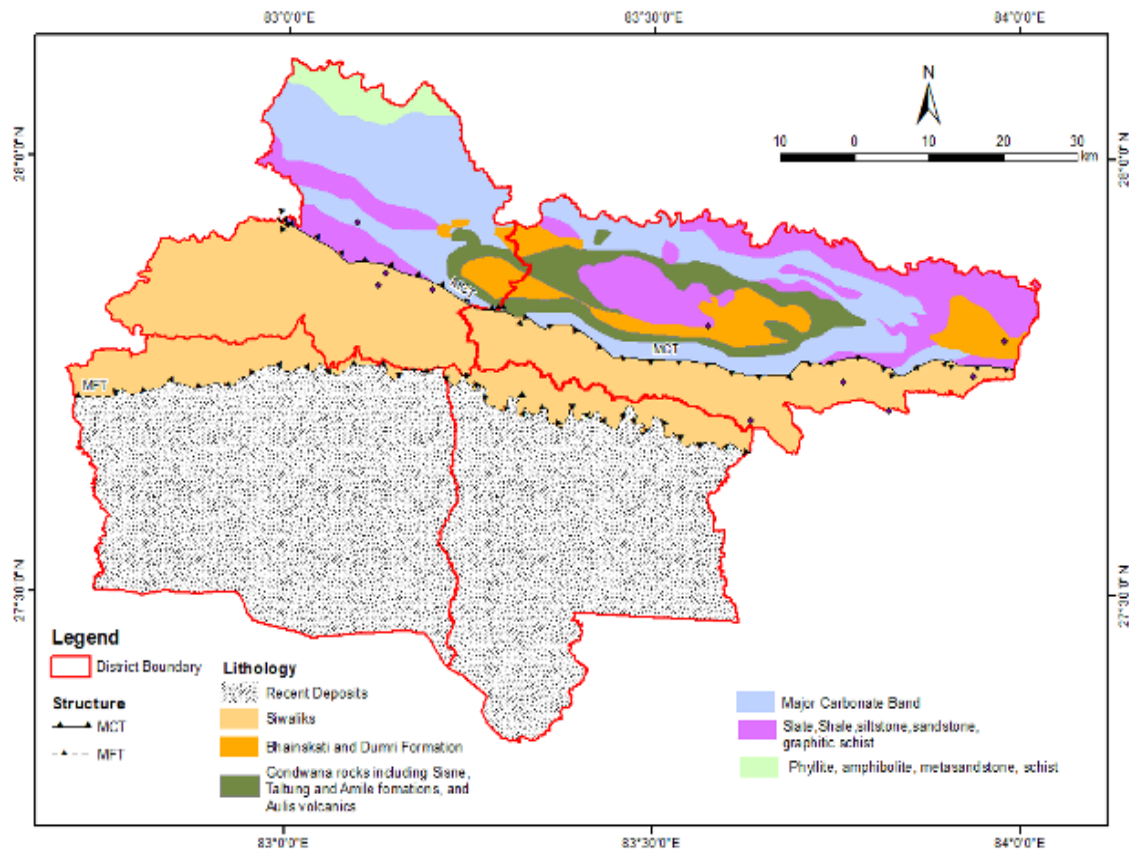


Fig: 9. Geological map of the Lumbini Landscape

Quartzites and amphibolites are non-foliated metamorphic rocks with high rock mass quality in general and generally the problem of land instability is not expected in these terrains. Regarding the sandstone of Lesser Himalaya, these are also strong rocks but the cementing materials and the degree of weathering vary from place to place. Recent deposits comprises of gravels, sands, silts and clays which are unconsolidated and are deposited by the rivers originated from the north. The major structures passing through the study area are Main Frontal Thrust (MFT) and Main Boundary Thrust (MBT). Other local structures like folds, faults and unconformities are also expected in this area, but detail study is required to identify and locate them.

Mass movement and landslides

In the study area, there are many areas which are under threat of landslides and other mass movement processes. These areas are generally hazardous to landslides due to weak geological conditions, presence of geological structures, rock deformations and steep topography. The process is further exacerbated due to the occurrence of great and big earthquakes, intense rainfall and human induced activities like poor excavation practices for the road network. In many areas, past mega landslides have been reactivated mostly in Lesser Himalayan and Higher Himalayan Terrain. Plane failure and wedge failure can be expected in the sandstone of Middle Siwalik whereas other types of mass movements like debris slide and shallow slides are most probable in other areas. For this study, landslides in the study area have been delineated from Google images utilizing image analysis tools. The locations of the landslide areas (given in Fig. 10) can be potential threat to the nearby settlements. Google images of the respective landslides are provided in Fig 10. In addition to this threat, the plain areas are highly exposed to flood hazard and flood disaster is quite possible in these areas.

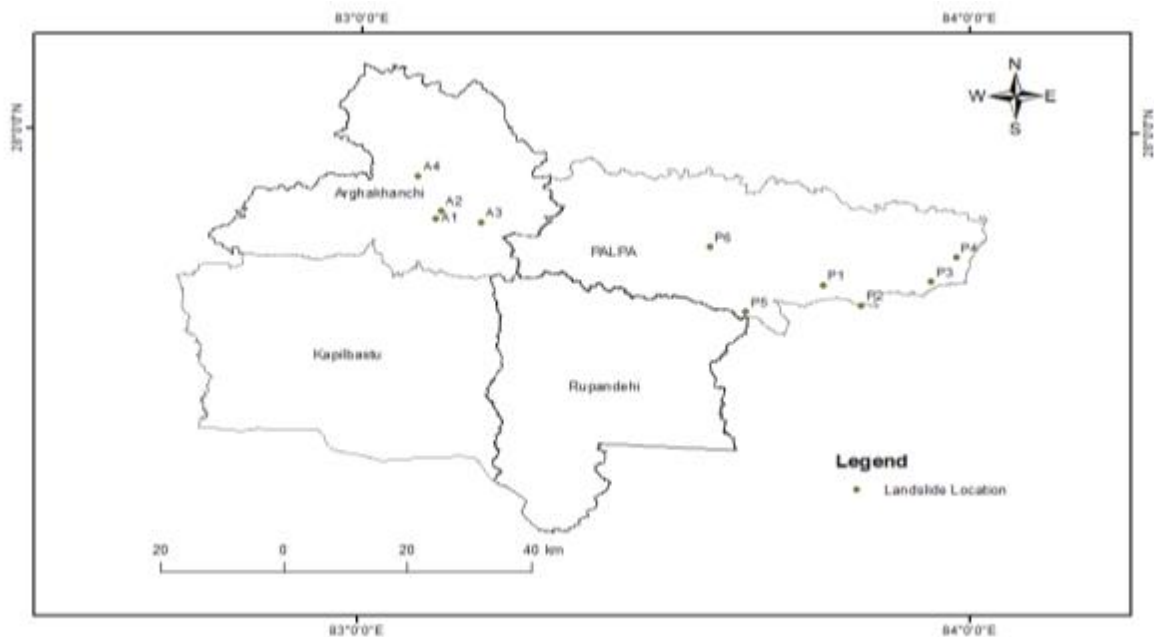


Fig.10: Landslides locations and potential threat to nearby settlements in the Lumbini Landscape

2.2.4 Chitwan-Makwanpur Landscape

Geology and structure

The landscape consists of the whole or part of Nawalparasi, Tanahu, Gorkha, Dhading, Chitwan and Makwanpur districts (Fig. 11). The geological reference has been taken from the Geology of the Nepal

Himalaya (by Dhital, 2015) and geological maps prepared by the Department of Mines and Geology. Geologically, the area consists of the districts of the Central Nepal. Lesser Himalayan Sequence consists of the Proterozoic shale, slate, sandstone, siltstone, graphitic schist, quartzite, phyllite, amphibolite and metasandstone along with Paleocene to Miocene rocks (Fig. 12). Over the graphitic schists and marbles, the Main Central Thrust brings the Higher Himalayan rocks, represented by coarse-grained gray to dark gray schists, pale quartzites, gray banded gneisses, augen gneisses and mylonitic gneisses. Among the Lesser Himalayan sequence, slate, phyllite and schist are foliated metamorphic rocks with low rock mass quality where land instability phenomena are most probable. The grade of weathering is very high in these terrains.

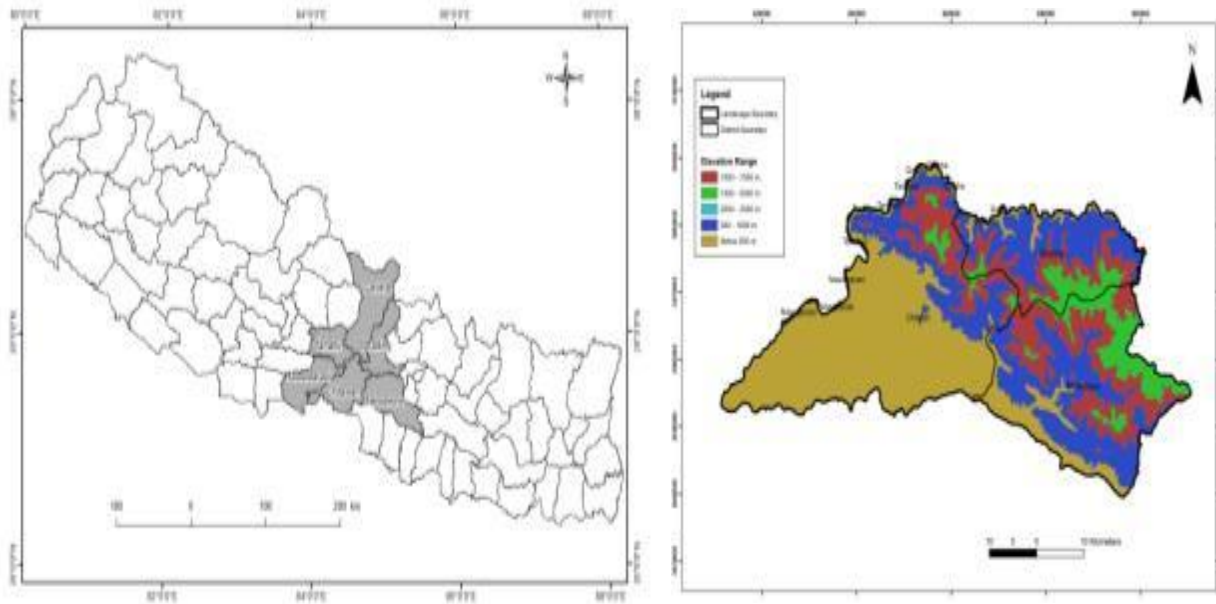


Fig. 11. Location and elevation map of the Chitwan-Makwanpur Landscape

Quartzites and amphibolites are non-foliated metamorphic rocks with high rock mass quality in general and generally the problem of land instability is not expected in these terrains. Regarding the sandstone of Lesser Himalaya, these are also strong rocks but the cementing materials and the degree of weathering vary from place to place. Recent deposits comprises of gravels, sands, silts and clays which are unconsolidated and are deposited by the rivers originated from the north. The major structures passing through the study area are Main Frontal Thrust (MFT) and Main Boundary Thrust (MBT). Other local structures like folds, faults and unconformities are also expected in these area. However, a detailed study is required to identify and locate them. The major structures within the area are the Main Central Thrust (MCT), South Tibetan Detachment System (STDS), Great Mahabharat Synform and Great Midland Antiform.

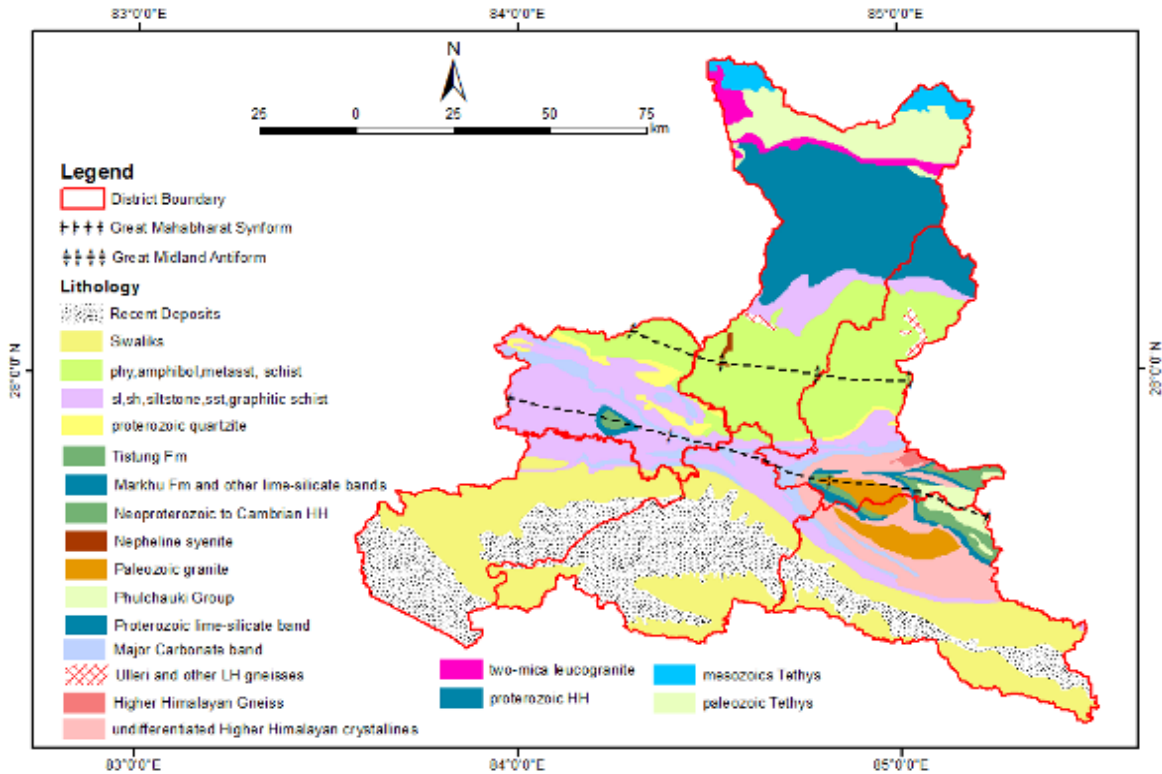


Fig. 12: Geological map of the Chitwan-Makwanpur Landscape

Mass Movement and Landslides

There are many areas in the landscape, which are under threat of landslides and other mass movement processes (Fig. 13). These areas are generally hazardous to landslides due to weak geological conditions, presence of geological structures, rock deformations and steep topography. The process is further exacerbated due to the occurrence of great and big earthquakes, intense rainfall and human induced activities like poor excavation practices for the road network.

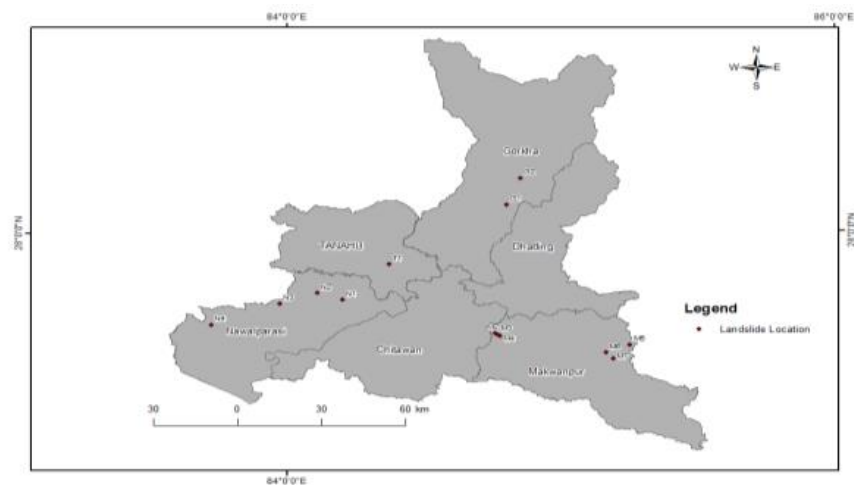


Fig. 13: Landslides locations & potential threat to nearby settlements in Chitwan-Makwanpur Landscape

In many areas, past mega landslides have been reactivated mostly in Lesser Himalayan and Higher Himalayan Terrain. For this study, landslides in the study area have been delineated from Google images utilizing image analysis tools. In addition to these threats, the plain areas are highly exposed to flood hazard and flood disaster is quite possible in these areas.

2.2.5 Morang-Jhapa-Ilam Landscape

Geology and structure

The landscape consists of the whole or part of Terhathum, Panchthar, Ilam, Jhapa, Morang, and Dhankuta districts (Fig.14). The geological reference has been taken from the Geology of the Nepal Himalaya (Dhital, 2015) and geological maps prepared by the Department of Mines and Geology.

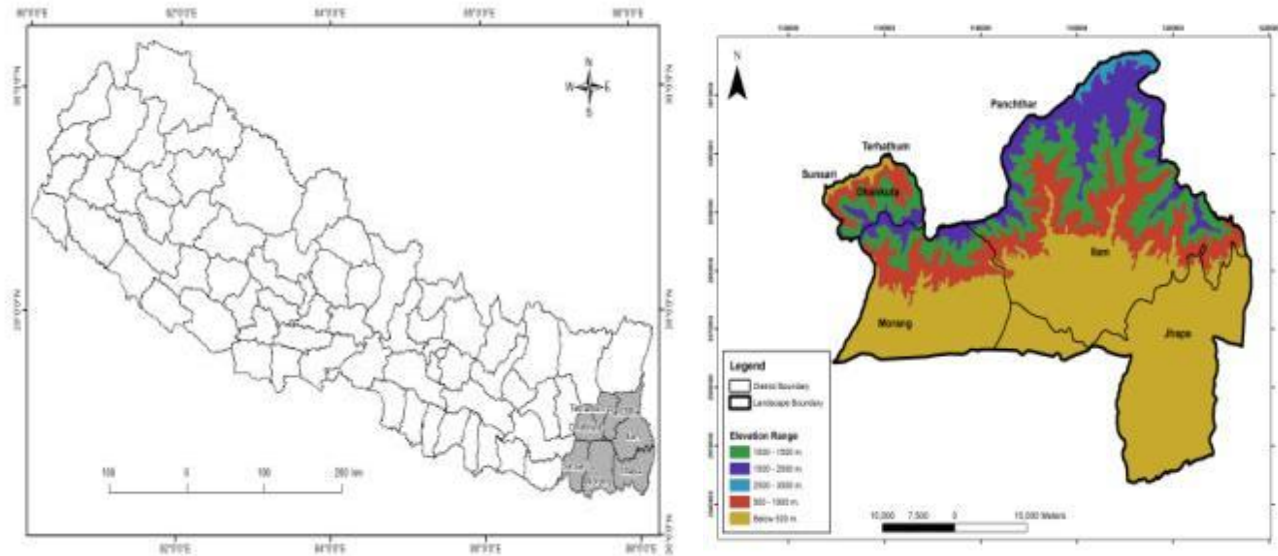


Fig. 14: Location & elevation map of selected landscape

Geologically, the area consists of the Higher Himalayan Sequence, Lesser Himalayan Sequence, Siwaliks and Recent Deposits. Lesser Himalayan Sequence consists of the Proterozoic shale, slate, sandstone, siltstone, graphitic schist, quartzite, phyllite, amphibolite and metasandstone along with Paleocene to Miocene rocks (Fig. 15). Over the graphitic schists and marbles, the Main Central Thrust brings the Higher Himalayan rocks, represented by coarse-grained gray to dark gray schists, pale quartzites, gray banded gneisses, augen gneisses and mylonitic gneisses.

Quartzites and amphibolites are non-foliated metamorphic rocks with high rock mass quality in general and generally the problem of land instability is not expected in these terrains. Regarding the sandstone of Lesser Himalaya, these are also strong rocks but the cementing materials and the degree of weathering vary from place to place. Recent deposits comprises of gravels, sands, silts and clays which are unconsolidated and are deposited by the rivers originated from the north. The major structures passing through the study area are Main Frontal Thrust (MFT) and Main Boundary Thrust (MBT). Other local structures like folds, faults and unconformities are also expected in this area but detail study is required to identify and locate them. The major structures within the area are the Main Frontal Thrust (MFT), Main Boundary Thrust (MBT), Arun River Window (ARW), Tamor River Window (TRW), Great Mahabharat Synform and Great Midland Antiform.

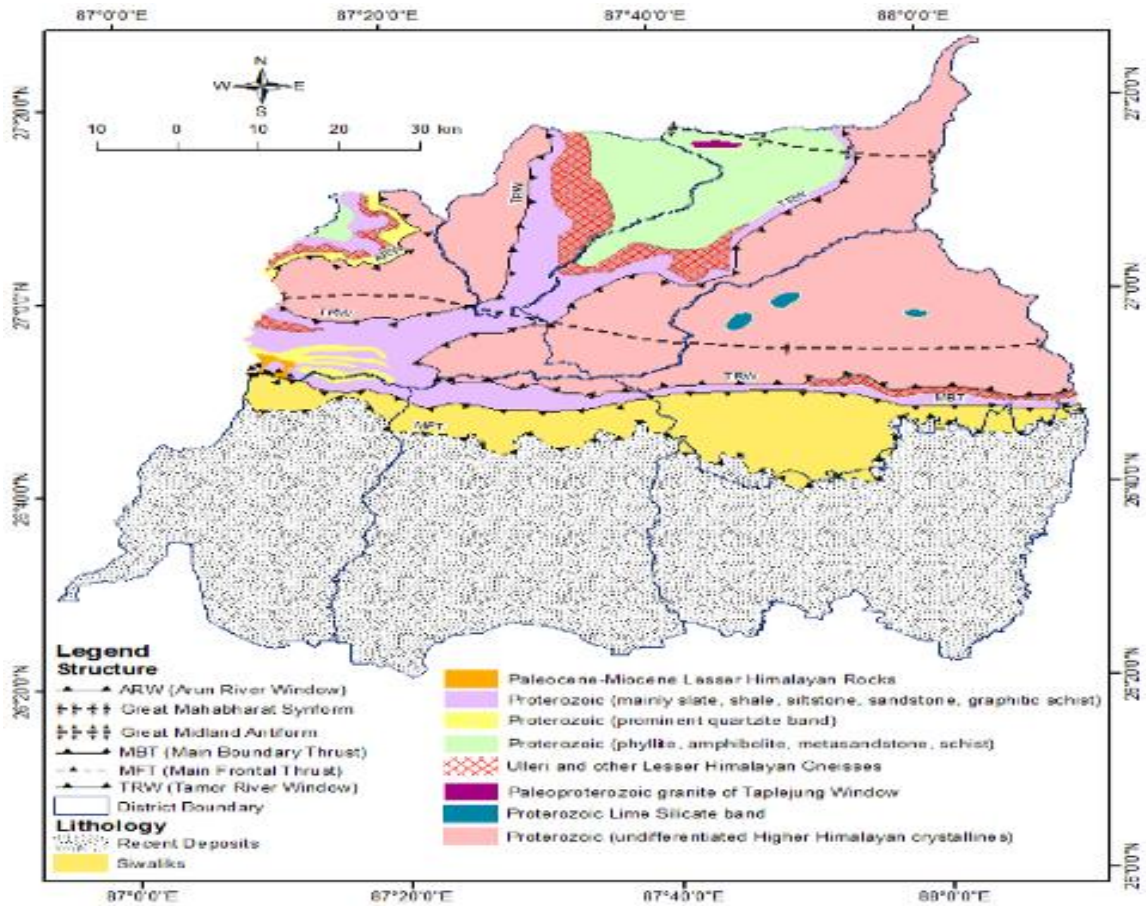


Fig. 15: Geological map of the Morang-Jhapa-Ilam Landscape

Mass movement and landslides

Many areas in this landscape are under threat of landslides and other mass movement processes. These areas are generally hazardous to landslides due to weak geological conditions, presence of geological structures, rock deformations and steep topography. The process is further exacerbated due to the occurrence of great and big earthquakes, intense rainfall and human induced activities like poor excavation practices for the road network. In many areas, past mega landslides have been reactivated mostly in Lesser Himalayan and Higher Himalayan Terrain. For this study, landslides in the study area have been delineated from Google images utilizing image analysis tools. The locations of the landslide areas are given in Fig. 16 that can be potential threat to the nearby settlements. In addition to this threat, the plain areas are highly exposed to flood hazard, and flood disaster is quite possible in these areas.

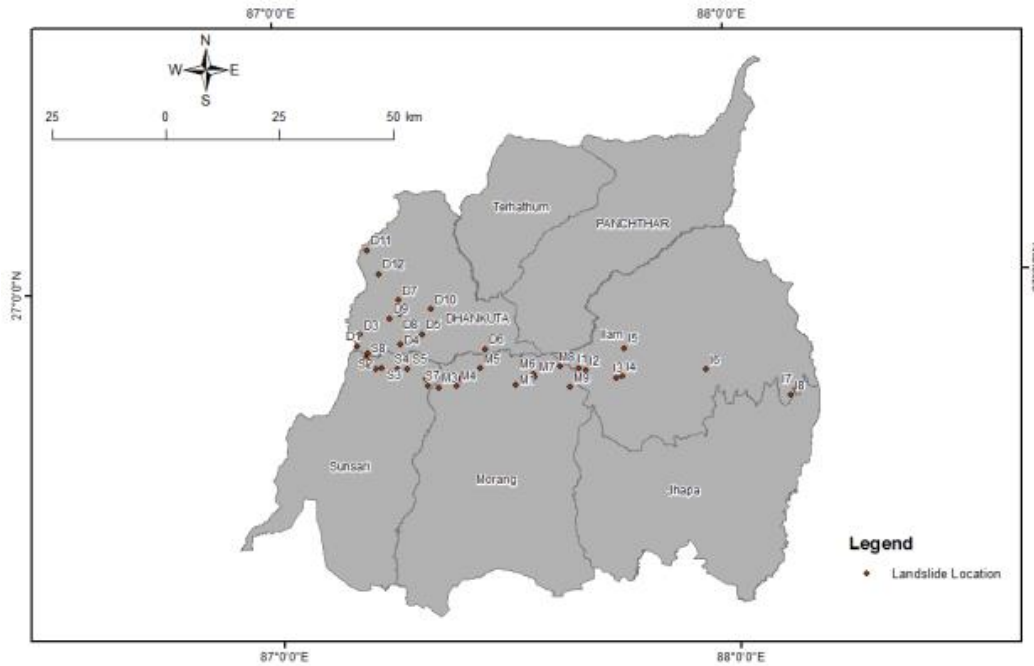


Fig. 16: Landslides locations & potential threat to nearby settlements

2.3 Land use/Land cover

The land cover status of each landscape has described by considered the forest, agriculture, rivers, lake and snow/glacier. The land cover condition of the each landscape has described separately as below.

2.3.1 Panchase Landscape

Land cover status

The panchase landscape is rich in forest resources (Table 3; Figure 17). The natural lakes, rivers, mountain ridges, ethnic culture ad high altitude trekking route are major unique features of this landscape.

Table 3: Land coverage condition of the landscape

S.N	Land Cover Type	Area (Square Km)
1	Forest land	2,091.0 (46.0%)
2	Shrub land	307.3 (6.8%)
3	Grass land	564.3 (12.4%)
4	Agriculture	1,291.7 (28.4%)
5	Bare area	229.7 (5.1%)
6	Built up area	29.2 (0.6%)
7	River	26.7 (0.6%)
8	Lake	7.6 (0.2%)
9	Snow/glacier	3.5 (0.1)
Total		4,550.9

Fig. 17: Land cover map of landscape



Districts covered (whole or part): Baglung, Gulmi, Kaski, Lamjung, Mustang, Myagdi, Parbat, Rukum, Syanjga, Tanahun.

Number of VDCs covered (whole or part): Kaski - 44, Parbat-55, Baglung-15, Myagd-39, Mustang-10, Syanjga-41, Tanahun-18, Gulmi-4 Lamjung-1 Rukum-7.

2.3.2 Kailali-Bardiya Landscape

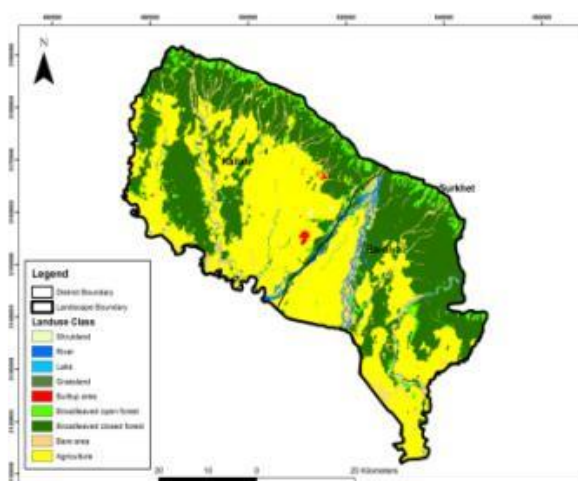
Land cover status

The Kailali-Bardiya landscape is situated in the Terai and Siwalik regions in the far-western development region of the Nepal. This landscape includes Kailali, Bardiya and Surkhet districts. It covers 2698 km² with different land covers. The area is rich in wetland and fresh water biodiversity. The ethnic (Tharu) culture with nature conservation, wetlands ecosystem are major unique features of this landscape.

Table 4: Land covers status

S. N.	Land cover Type	Area (Sq. Km.)
1	Forest area	1242.9 (46.1%)
2	Shrub land	2.6 (0.1%)
3	Grassland	18.0 (0.7%)
4	Agriculture	1203.3 (44.6)
5	Bare area	151.5 (5.6%)
6	Built up area	5.7 (0.2%)
7	River	73.5 (2.7%)
8	Lake	0.3 (0.0%)
Total		2698.0

Figure 18: Land cover map of landscape



District covered (whole or part): Kailali, Bardiya and Surkhet

No. of VDCs covered (whole or part): Kailali 35, Bardiya 26, and Surkhet 2

2.3.3 Lumbini Landscape

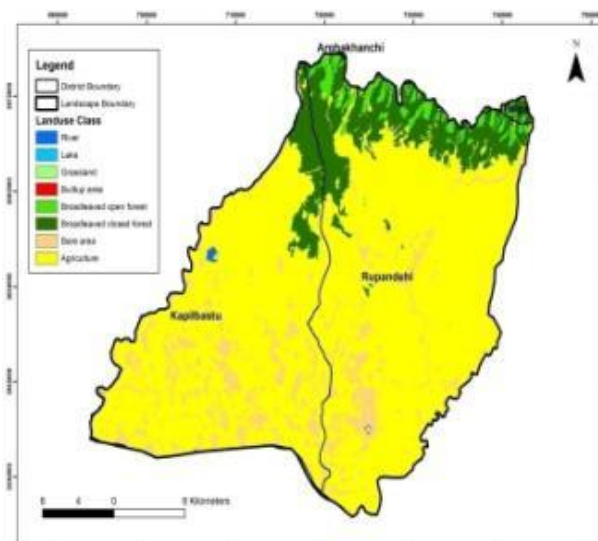
Land cover status

The Lumbini landscape is situated in the Terai and Siwalik regions in the western development region of the Nepal. This landscape includes Kapilvastu, Arghakhachi, Palpa and Rupandehi districts. It covers 1229 km² with different land covers. The detail land cover condition of landscape is shown in Table 5. The landscape includes many degraded land areas.

Table 5: Land covers status

SN	Land cover type	Area (Sq. Km.)
1	Forest area	172.5 (14.0%)
2	Shrub land	0.0 (0.0%)
3	Grassland	0.0 (0.0%)
4	Agriculture	926.3 (75.4%)
5	Bare area	128.3 (10.4%)
6	Built-up area	0.1 (0.0%)
7	River	2.12 (0.2%)
8	Lake	0.1 (0.0)
Total		1229.3

Figure 19: Land cover map of landscape



Districts covered (whole or part): Arghakhachi, Kapilvastu, Palpa and Rupendhi

No. of VDCs covered (whole or part): Arghakhachi 1, Kapilvastu 41, Palpa 4, Rupendhi 41

2.3.4 Chitwan-Makawanpur Landscape

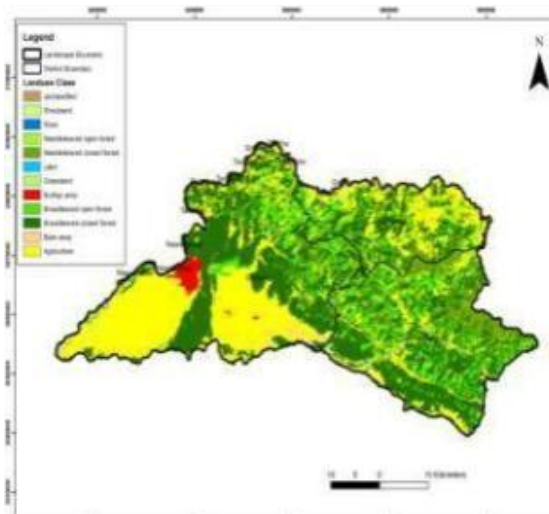
Land cover status

The Chitwan-Makawanpur landscape is situated in the Terai and Siwalik regions in the central development region of the Nepal. It covers 2189 km² with different land coverages. The detail land cover condition of landscape is shown in Table 6 and Figure 20.

Table 6: Land covers status

S.N	Land cover type	Area (Sq Km)
1	Forest area	1309.4 (59.8%)
2	Shrub land	0.4 (0.0%)
3	Grassland	12.4 (0.6%)
4	Agriculture	778.8 (35.4%)
5	Bare area	35.5 (1.6%)
6	Built up area	21.7 (1.0%)
7	River	43.2 (2.0%)
8	Lake	0.3 (0.0%)
Total		2188.8

Fig 20: Land cover map of the landscape



Districts covered (whole or part): Chitwan, Dhading, Gorkha, Makawanpur, Nawalparasi, Tanahun

No. of VDCs covered (whole or part): Chitwan 20, Dhading 15, Gorkha 6, Makawanpur 22, Nawalparasi 14, Tanahun 3

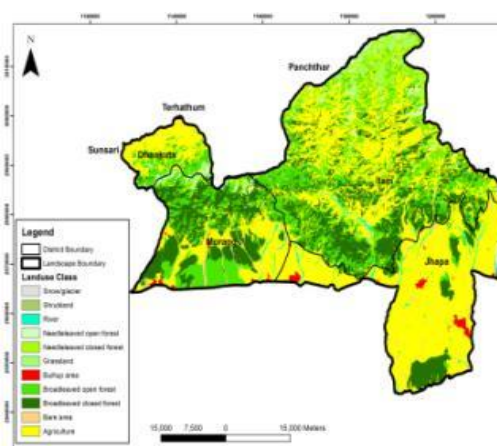
2.3.5 Morang-Jhapa-Ilam Landscape

The Morang-Jhapa-Ilam landscape is situated in the Terai, Siwalik and middle mountain regions in the western development region of the Nepal. This landscape includes Dhankuta, Ilam, Jhapa, Morang, Panchthar, Sunsari, Terathum districts. It covers 3132.35 km² with different land covers (Table 7; Fig. 21).

Table 7: Land covers status

S.N	Land cover type	Area (Sq. Km.)
1	Forest	1387.7 (44.3%)
2	Shrub land	13.5 (0.4%)
3	Grass land	53.2 (1.7%)
4	Agriculture	1,546.5 (49.4%)
5	Bare area	53.0 (1.7%)
6	Builtup area	28.8 (0.9%)
7	River	49.53 (1.6%)
8	Snow/glacier	0.11 (0.0%)
Total		3132.3

Fig 21: Land covers map



Districts covered (whole or part): Dhankuta, Ilam, Jhapa, Morang, Panchar, Sunsari, Terathum

No. of VDCs covered (whole or part): Dhankuta 17, Ilam 45, Jhapa 34, Morang 23, Panchathar 10, Sunsari 1 and Terathum 1

2.4 Socio-economic Characteristics

2.4.1 Panchase Landscape

Panchase' which literally means 'Five Seats', is the meeting place of 5 peaks, and the area is situated at the nexus of three districts, Kaski, Parbat and Syanja in the Western Region of Nepal. Panchase is an ancient pilgrimage climb. The 'Panchase Lake' is considered as a famous site for religious pilgrimage for the people of the area during "Balchaturdasi" in November. A large part of the area in the region is covered by forest and pasture land. The settlements are situated from the lower to middle part of the Panchase hill. This landscape has a total population of 1,646,780, according to the 2011 census with , 747,414 male and 899,416 female population.

Fig. 22: Administrative map of Panchase Landscape



In this landscape, the main castes and ethnic groups residing include Brahmin, Chhetri, Gurung, Magar, Thakali, Kami, Damai and Sarki. Agricultural production, livestock raising, foreign employment and

forest resources are main sources of livelihood of the local people in this region. The types of livestock kept by the people from villages surrounding this landscape mainly include: yak (Chauri), buffaloes, cow, Goat and Sheep. In the higher pasture, system of livestock farming is commonly known as *Goth* (huts used by herders). These *Goths* are used for raising their livestock permanently. In fact, there is a tradition to leave buffaloes temporarily in the higher pasture called *Lekh* and bring them back to the village once they begin milking. They earn money by selling milk, ghee and young male buffalo.

2.4.2 Kailali-Bardiya Landscape

Kailali-Bardiya landscape consist of Siwalik, plain area and Terai covering three districts, namely, Kailali, Bardiya and Surkhet districts in the far and mid western region of Nepal. This landscape has a total population of 1,553,089 according to the 2011

census, with male population of 752,918 and female population of 800,171. The major caste/ethnic groups residing in this landscape include: Tharu, Chhreti, Hill-Brahmin, Kami, Magar, Musalman, Thakuri, Yadav, Dholi, etc. Most of the inhabitants are Tharus, Chhetri, Hill-Brahmin Kami, Thakuri, Magar, Dholi, Dalit, Sarki, Musalman, etc. Agronomy is the base of economy, and rivers like Karnali, Mohana, Patheraiya, Kada Kamara and Surmi provide water for cultivation of the land. Kailali has more than 100 lakes and ponds, including Ghodaghodi Tal (a wetland), the largest lake in Terai.

Agricultural production, livestock raising and forest resources are main sources of livelihood of the local people in this region.

Fig. 23: Administrative map of Kailali-Bardia Landscape



2.4.3 Lumbini Landscape

This landscape encompasses districts such as Kapilvastu, Rupandehi, and Arghakhanchi. This landscape has a total population of 1,649,764 according to the 2011 census, with 804,058 male and 85,706 female population. The 2011 census found that 50 percent of the people in the district were Awadhi speakers, followed by Urdu, Tharu, and others are native Nepali speakers. The number of immigrants from the neighboring hilly region is increasing every year. Awadhi people, with a very rich culture, are the major inhabitants of this region. Similarly, Tharu people living in the western part of the district have their own distinct culture.

Fig.: 24 Administrative map of Lumbini Landscape

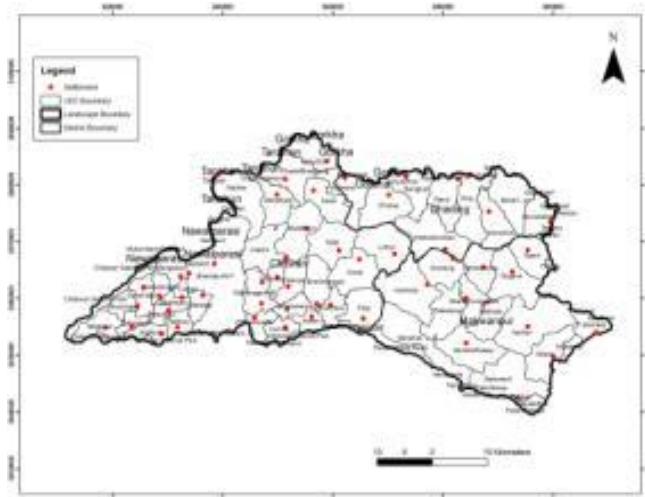


Most of the population of the district is dependent on agriculture. Paddy is a major crop of the district, while sugarcane is an important cash crop. A number of youths rely on foreign employment. More than half of the land in the district (58.45% or 82,622 ha) is under cultivation and 70 percent (98,956) of population are engaged in agriculture (Census, 2013). The diverse geography of the district is attributed to a combination of Terai plain (100 m msl) and Chure hills region (1219m msl) within an area of 1360 sq. Km provides a basis for diverse agriculture in the district. While about half of the vegetables, pulses, and oilseeds consumed are produced within the district, unmet increasing demands for the commodities are addressed through imports, mostly from India.

2.4.4 Chitwan-Makawanpur Landscape

This landscape encompasses districts such as Dhading, Chitwan and Makwanpur under the Western and center level development regions. This landscape has a total population of 2,251,097 according to the 2011 census, of which 1,068,321 are male and 1,188,111 are female. The people inhabiting Chitwan District are predominantly farmers cultivating mainly food and cash-crops such as rice, maize, wheat, beans, lentils, mustard and vegetables. The poultry industry in the district constitutes a significant proportion of the country's poultry industry. Chitwan is famous in Nepal for mustard growing and production of rice, wheat and vegetables, besides being famous for floriculture, mushroom cultivation and bee-keeping.

Fig. 23: Administrative map of Chitwan-Makawanpur Landscape

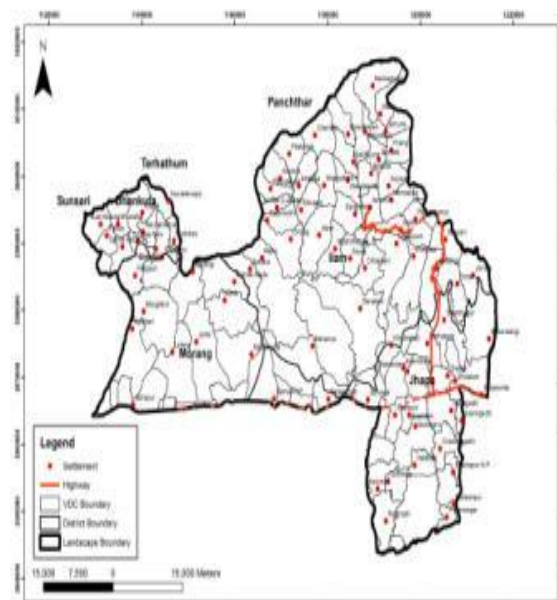


In this landscape, different ethnic groups Tamang, Newar, Magar, and marginalized groups such as Chepang including Brahmin, Chhetri, other caste and endangered groups such as Bankariya reside. The main caste/ethnic communities in the district are Tamang, Hill Brahmin, Chhetri, Newar, Magar, Gurung, Sarki, Chepang, Dalits, and Kumals. Most of the populations are dependent on subsistent agriculture and have low income for basic livelihood. Recently, there is a growing trend of outmigration of unemployed youth for jobs in foreign countries. The agriculture, vegetables, livestock and agro-forest enterprises, foreign employment are major occupation of this landscape.

2.4.5 Morang-Jhapa-Ilam Landscape

This landscape includes geographical areas of three districts, namely Morang, Ilam, and Jhapa in the eastern development region. According to the 2011 census, the landscape has a total population of 2,231,686, of which, 1,069,449 are male and 1,162,147 are female. The main inhabitants of Ilam include: Limbu, Rai, Yakkha, Lepcha, Newar, Tamang, Chettri, Brahmin, Sunuwar and Gurung. Ilam is known for its six "A"s: are Alu (Potato), Alan (Milk), Alainchi (Cardamom), Aduwa (Ginger), Amriso (Broom Grass), and Akabare khursani (Round Chillies), etc. although tea, bamboo, flowers and silk are also produced in Ilam.

Figure 24 Administrative map of Morang-Jhapa-Ilam Landscape



Jhapa is home to many indigenous ethnic nationalities such as the Rajbanshi, Limbu, Bengali, Gangai, and Dhimal. Other ethnic groups such as Dhangad, Santhal, Tamang, Uraon, Magar, Gurung, Sunuwar, and many others came to Jhapa in the late 19th century, as did the Brahmins, Chhettri, and Newar. The district has a diversity of cultures and religions.

The major caste/ethnic groups living in this district include: The major caste/ethnic groups living in this district include: Brahmin, Chherti, Tharu, Rai, Musalman, Limbu, Rajbanshi, Newar, Musahar, Gangai, Kewat, Yadav, etc. Agriculture, vegetables, livestock, tea and agro-forest enterprises, foreign employment are major occupation of this landscape.

2.5 Ecological Characteristics of the Landscapes

2.5.1 Natural ecosystems

Forest, shrub, grass, lakes, rivers and snow/glacier are major ecological systems in all of the landscapes. A brief ecological characteristics of the selected five landscapes are presented in Table 6. Overall, 84 percent of the landscapes area is covered by forest. Grasslands cover 8.8 percent, shrub 4.4 percent, rivers 2.7 percent, lakes 0.1 percent and snow 0.1 percent area is covered by snow/ glacier (Table 8).

Table 8: Landscapes' ecological characteristics

SN	Landscape	Area in square kilometer					
		Forest	Shrub	Grass	Lake	River	Snow/glacier
1	Panchase	2091.0	307.3	564.3	7.6	26.7	3.9
2	Kailali-Bardiya	1242.9	2.6	18.0	0.3	73.5	0.0
3	Lumbini	172.5	0	0.0	0.1	2.1	0.0
4	Chitwan-Makwanpur	1296.6	0.4	12.4	0.3	43.2	0.0
5	Morang-Jhapa-Ilam	1387.7	13.5	53.2	0.0	49.5	0.1
	Total area	6190.7	323.7	647.8	8.3	195.0	4.0
	% coverage	84.0	4.4	8.8	0.1	2.7	0.1

2.5.2 Forest and shrublands

The forests include conifer and broadleaved closed and open forests. Broadleaved closed forests cover 49.7 percent of the total landscapes area. Similarly, broadleaved open forest covers 20.2 percent, conifer closed forests cover 16.3 percent, and open conifer forests cover 13.8 percent. Panchase landscape has highest area under shrublands, which is followed by the Morang-Jhapa-Ilam landscape (Table 7).

Table 9: Landscapes by forest types

SN	Landscape	Area in square kilometer				Shrubs
		Needle leaved closed forest	Needle leaved open forest	Broad leaved closed forest	Broad leaved open forest	
1	Panchase	683.9	684.3	336.1	386.7	307.3
2	Kailali	0.0	0.0	1,114.6	128.3	2.6
3	Lumbini	0.0	0.0	144.8	27.7	0
4	Chitwan -Dhading -Makwanpur	209.0	78.7	605.8	403.2	0.4
5	Morang, Jhapa. Ilam	117.2	88.6	874.8	307.2	13.5
	Total area	1,010.1	851.5	3,076.0	1253.2	323.7
	% coverage	16.3	13.8	49.7	20.2	4.4

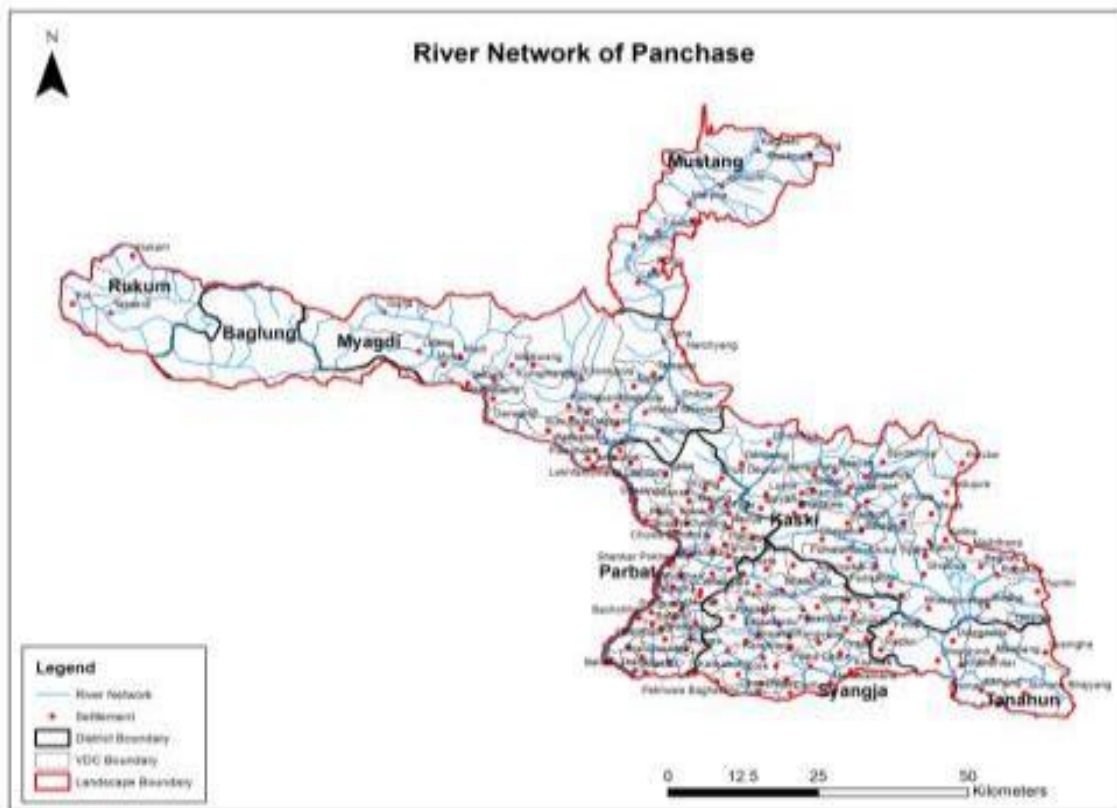
2.5.3 Rivers and lakes

The rivers and lakes are other major ecosystems found in the landscapes. Overall, rivers cover 2.7 percent and lakes 0.1 percent of the total landscapes area. The Panchase landscape has the highest coverage by lakes, which is followed by the Kailali-Bardiya, Chitwan-Makwanpur, and Lumbini landscapes, respectively. The Morang-Jhapa-Ilam landscape has the lowest coverage by lakes. The Kailali-Bardiya landscape has highest proportion area covered by rivers, followed by Morang-Jhapa-Ilam landscape.

Panchase Landscape river network

The Seti, Kaligandki, Modi, Kotre Khola are the main river systems including various tributaries. In this landscapes, the lakes (Ramsar sites) of national and international significance are also present in this landscape.

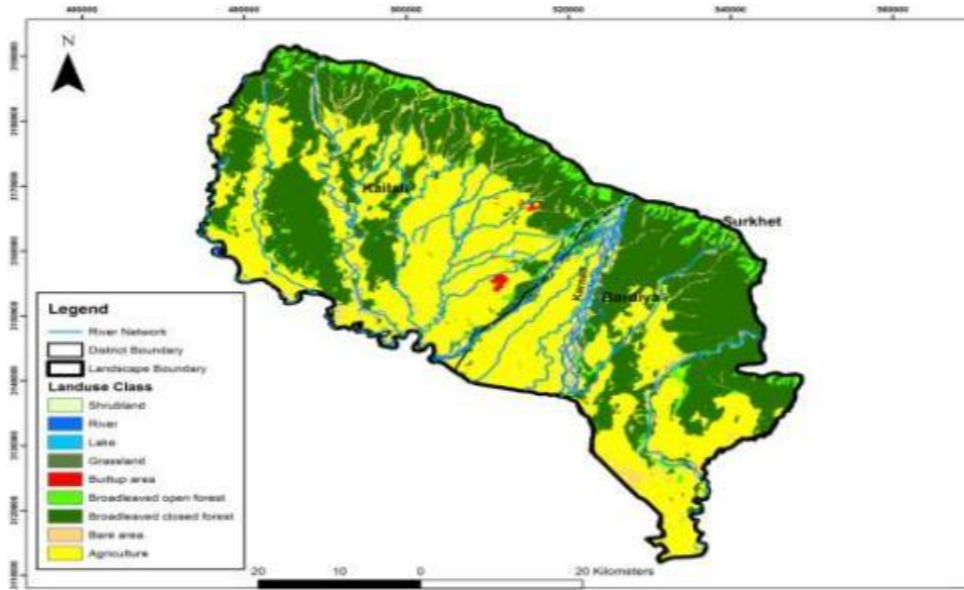
Fig. 25: River networks in Panchase Landscape



Kailali-Bardiya landscape river system

The river networks within this landscape includes Karnali, Mohana, Bheri rivers including various tributaries. The Ghodaghodi lake of Samar site significance including many lakes and ponds exist within this landscape.

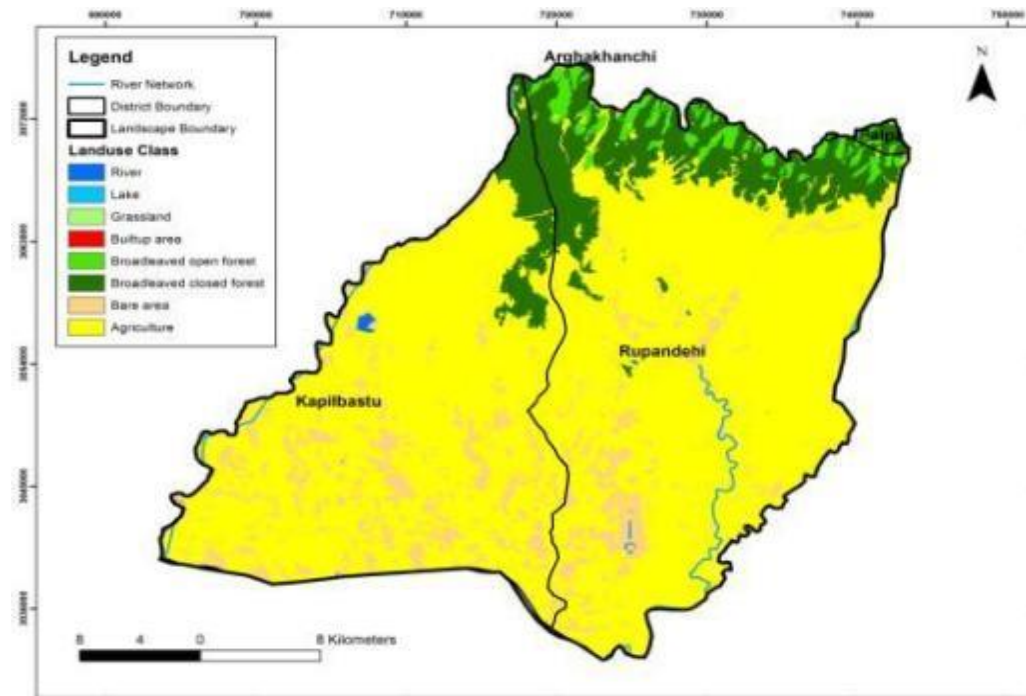
Fig. 26: River networks in Kailali Bardiya landscape



Lumbini landscape river system

The Banganga, Tinahu Khola including various tributaries constitute the river networks of this landscape. Similarly, Jagdishpur reservoir which is of Ramsar site significance and various lakes are located within this landscape.

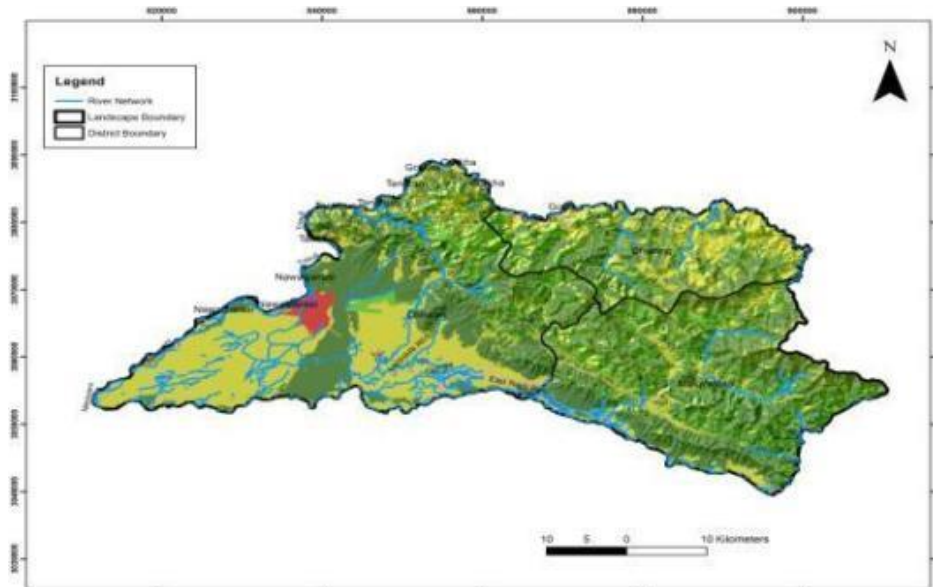
Fig. 27: River networks in Lumbini landscape



Chitwan-Makwanpur Landscape river system

The Trishuli, Narayani, Rapti including other tributaries form the river system network of this landscape, besides the presence of lakes (wetland) with international significance (e.g. Bishazar tal).

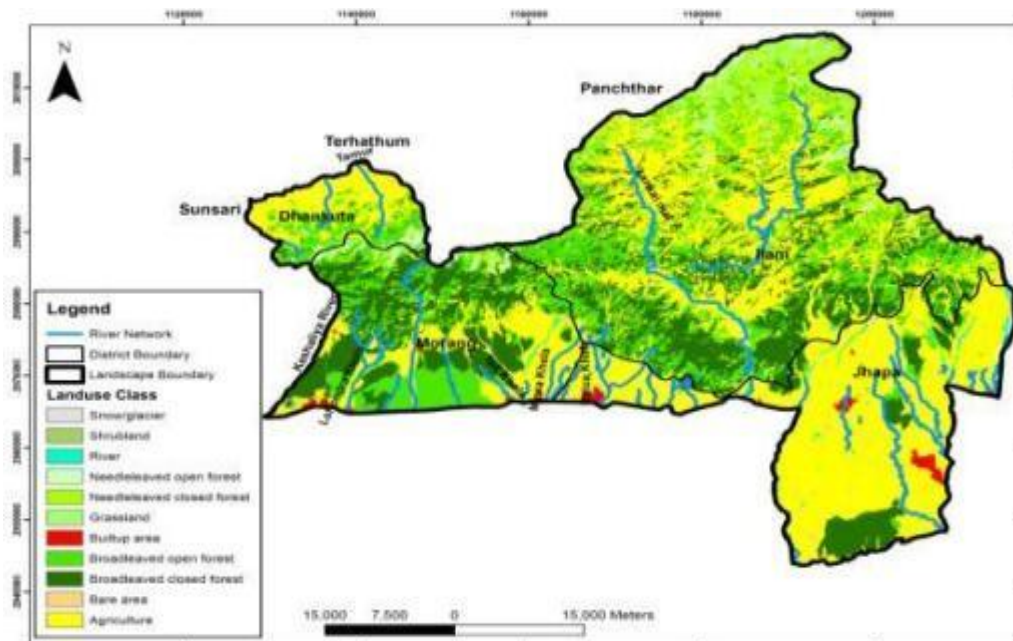
Fig. 28: River networks in Dhading-Chitwan-Makwanpur landscape



Morang-Jhapa-Ilam Landscape River system network

The Koshi, Kankaimai, Lohandra khola including various tributaries and Maipokhari, Rajarani and Betana lakes (wetland) exist within this landscape form the river network.

Fig. 29: River networks in Moarang-Jhapa-Ilam landscape



2. 6 Major Threats, Issues and Opportunities

2.6.1 Major threats and issues

The information concerning major threats and issues pertaining to the environmental, ecological and sustainability were gathered from the discussion and consultation with the communities including local authorities, civil society, community organizations, other relevant partners as well as through the review of related documents of each landscape. The threats/ issues are briefly presented in Table 10.

Table 10: Major threats/issues related to environment and ecology

Landscape	Major threats/ issues
Panchase	<ul style="list-style-type: none"> • Landslides and siltation • Decreasing soil fertility • Decreasing water sources and water quantity and quality • Increasing drought • Threats to native species and increasing invasion species • Facing effects of climate change phenomena on agriculture and wetland sectors • Outmigration of people to semi-urban/urban area (15-20%) • Increasing settlement in highly vulnerable area, e.g. Eroded area, river banks, etc • Increasing violence against women (resulting in divorce) • Deficit of human resources at local level due to foreign employment of young people • Increasing area of abandoned farm land in rural area (average- 25-30%) • Construction of rural roads in a haphazard manner • Over biomass stock in forests, as compared to the soil carrying capacity • Increasing trend of wildlife-human conflicts • Lack of coordination and cooperation between upstream and downstream communities
Kailali-Bardiya	<ul style="list-style-type: none"> • Flooding and rivers bank cutting and includes Sedimentation, siltation • Low level of awareness in biodiversity conservation at local level • Degraded the wetland condition through encroachment, siltation, biding of fish collection and <i>ad hoc</i> infrastructure development • Lakes in vulnerable condition (Of a total of 197 lakes, approximately 15-20% are in highly vulnerable condition) • Exploitation of local fishes using long and fine mesh net (for collecting fishes) • Degraded biological corridor (trans-boundary of Nepal-India border) • Facing effects of climate change on agriculture and wetland sectors. • Increasing trend of invasion of species • Mukta-Kamaiya and Kamlari related issues with respect to natural resources management. • Over grazing around wetland area • Excessive collection of timber, fuel wood, fodder and NTFPs • Land used to convert into semi-urban and settlement • Human-wildlife conflicts including killing of birds • Water pollution from agriculture chemical and fertilizers • Poor coordination and partnership among the development actors • Lack of identification of indicator species • Less priority on community based anti-poaching operation • Lack of habitat improvement interventions • Lack of harvesting techniques in NTFPs collection • Lack of legal status to Tharu Guruwa treatment centers

	<ul style="list-style-type: none"> • Lack of NTFPS for Tharu Guruwa treatment centers • Lack of harvesting and plantation techniques for NTFPs cultivation • Loss of blackbuck during flooding season due lack of rescue center • Threats to Dolphin conservation due to bidding for fish collection in Mohana river along the India and Nepal border.
Lumbini	<ul style="list-style-type: none"> • Sedimentation, siltation and river bank cutting including flooding • Degrading condition of most of the pond and lakes (wetland) due to encroachment and siltation • Loss of native species of lake and pond fishes due to bidding for commercial fishery. • Increasing invasion of species • Threats to native species of paddy and other cereal crops due to replacement by improved or hybrid varieties • Observed and realized the effect of climate change on agriculture, wetland and forest ecosystem. • Over grazing around wetland area • Excessive collection of timber, fuel wood, fodder and NTFPs • Haphazard collection of sand and stone collection • Land being used for conversion into semi-urban and settlement • Lack of In-situ conservation of threatened, endangered and commercially exploited plant species. • Exploitation of local fishes using long and fine mesh net (for collecting fishes) • Indiscriminate killing and poaching of wildlife such as tortoise, monitors, birds, rabbit, porcupine and boar • Human-wildlife conflicts including killing of birds • Water pollution from agriculture chemical and fertilizers • Poor coordination and partnership among development actors • Lack of identification of indicator species • Low priority given to community based anti-poaching operation • Lack of habitat improvement interventions of flora and fauna • Lack of appropriate harvesting techniques in NTFPs collection • Lack of coordination and cooperation between upstream and downstream communities
Chitwan-Makwanpur	<ul style="list-style-type: none"> • Landslides and siltation in plain area • Decreasing soil fertility due to use of large quantity of chemical fertilizer and pest. • Decreasing water sources (50%), shifting location and water quantity and quality. • Less facility of irrigation for commercial cultivation • Threats to native species like spring rice (ghaiyadhan), githa, bhykur, etc. and increasing invasion of species. • Shifting cultivation practices and increasing canavis (gaja) cultivation • Illegal hunting of wild animal, birds (Bats) and smuggling of timbers. • Land rights issues on cultivation of land of Chepang communities • Impacts of climate change (Drought) in agriculture and lack of skill and knowledge to combat climate change issues. • Over mature of butter tree (chyuri plant) species and no regeneration • Threats to Chyuri, Chamaro (Bat) and Chepang communities related culture. • Lack of coordination and cooperation between upstream and downstream communities
Morng-Jhapa-Ilam	<ul style="list-style-type: none"> • Natural habitat destruction has extirpated the Nepal Hornbill Rufous-necked Hornbill, resident birds from the area. Other rare and endangered broad-leaved forest birds like Rufous-backed Sibia and Yellow-cheeked Tit have become critically endangered. In addition, the extensive coverage of the pine poses

	<p>negative impact upon fog water condensing.</p> <ul style="list-style-type: none"> • Haphazard construction of road and over access of people, resulting in disturbance to wetland inhabiting flora and fauna. • Illegal collection of forest products and wildlife poaching • Chemical fertilizer and pesticide use for agriculture practices resulting in increased hazardous effects especially to water bodies and subsequent life forms. • Decreasing water level in Mai Pokhari pond, including other lakes within this landscape. • Poor conservation and ecotourism awareness among local people • Need of formal institution is being felt for conservation and development work, as well as rules and regulations development and implementation, monitoring including advocacy & lobbying for fundraising.
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2.6.2 Major scope/opportunities

The major opportunities in each landscape were derived from consultation, meeting and interaction with local communities, civil society, community organizations, other relevant partners and review of relevant documents of each landscape. The scope/opportunities are briefly presented below (Table 11).

Table 11: Major scope/opportunities

Landscape	Major scope/opportunities
Panchase	<ul style="list-style-type: none"> • Rehabilitation of degraded land and conversion into productive land for Cash crops, Fishery etc • Restoration of the degraded wetland and biodiversity (i.e. conservation from siltation, encroachment and invasion spp.) • Organic farming of vegetable and fruits, Coffee & tea promotion in farm land • Plantation in degraded land with MPTS • Promotion of livelihoods through development of small irrigation and conservation of water sources • Ecotourism based enterprise development i.e. Home-stay (by ethnic group), local raw materials based handicraft, etc • Agro-forest (including NTFPs) based enterprises with cultivation, collection center establishment, market linkage. • Biodiversity conservation (orchid, taxus spp. as IGA) • Micro finance institution development in rural areas (cooperative) • PES promotion and support for sustainable development • Gender awareness, empowerment of women for capacity, skill and techniques related to IGA, etc.) • Increasing the agriculture production through maximum use of abandoned agriculture land in rural area • Increasing the women's active participation in local level institutions such as CFUG, NGOs and user groups (currently only 25-30%) • Compost manure production enterprise at local level • Alternative energy development such as bio-briquette, micro hydropower, biodiesel, bio-gas, solar, ICS, etc • Local adaptation plan preparation for highly climate change vulnerable area.
Kailali-Bardiya	<ul style="list-style-type: none"> • Restoration of the degraded wetland and biodiversity through conservation from siltation and encroachment, invasion spp. i.e. Lakes, ox- bow lakes, ponds, etc. • Biological corridor enhancement, i.e., Basant and Laljhadi Mohana corridor • Native species (Hari hans, fishes, wild paddy, crocodile etc) conservation programme in Ghodaghodi lake in Kailali

	<ul style="list-style-type: none"> • Awareness programme on biodiversity conservation (Dolphin, Harihans and other inhabiting natives species in wetlands) • Developing inventory of lakes and ponds within landscape for advocacy on rights of wetlands based ethnic groups • Rehabilitation of degraded land (river belt) into production, such as cash crops (river bank), vegetation, fishery etc. • Plantation in degraded land such as river bank, road site & barren land • Promotion of Tharu-Guruwa treatment center with plantation of required NTFPs. • Skill and technology promotion for Tharu-Guruwa treatments center for production of medicines. • Advocacy to establish the rights of local ethnic group (Tharu) for operation of traditional treatment centres • Organic farming of vegetable and fruits with application of IPM techniques • Promotion of livelihoods through development of small irrigation and conservation of water sources • Ecotourism based enterprises development, i.e, home-stay establishment and promotion with ethnic culture • Development/promotion of agro-forest (including NTFPs) based enterprises • Micro finance development in rural area (establishment of cooperatives) • Gender awareness, traditional occupation promotion etc) • Increasing women active participation in local level institutions like CFUG, NGOs and user groups (currently only 30-40%), empowerment. • Compost manure production enterprise at local level • Alternative energy development such as bio-briquette, bio-gas, solar etc. • Local adaptation plan preparation for highly climate change vulnerable areas.
Lumbini	<ul style="list-style-type: none"> • Restoration of the degraded wetland through conservation from siltation and encroachment, invasion spp. i.e., Jagdishpur reservoir and other lakes, ponds) • Biodiversity conservation focus on Sarus crane (<i>Grus antigone</i>) conservation including wetland inhabiting flora and fauna • Inventory of lakes and ponds within landscape for wetlands conservation. • Rehabilitation of degraded land (river belt) into production, e.g. cash crops (river belt), vegetation, fishery etc. • Organic farming of vegetable and fruits with application of IPM techniques • Ecotourism based enterprises development, i.e., home-stay establishment and promotion with ethnic culture • Agro-forest (including NTFPs) based enterprises. • Gender awareness, capacity building on skill and techniques for IGA etc) • Increasing women’s active participation in local level institutions like CFUG, NGOs and user groups (currently only 30-40%), empowerment. • Compost manure production enterprise at local level • Alternative energy development such as bio-briquette, bio-gas, solar, ICS etc • Local adaptation plan preparation for highly climate change vulnerable areas.
Chitwan-Makwanpur	<ul style="list-style-type: none"> • Water sources conservation and maintenance for improving drinking water supply • Small irrigation construction for promoting the off season vegetable farming and regular crops • Organic farming for commercial purposes with application of IPM techniques • Restoration of the degraded land through bio-engineering process by application of low cost technology. • Promotion and networks development of local resources based production such as Broom grass, Bee keeping, Banana, citrus fruits, etc. as well as related market

	<p>and capacity.</p> <ul style="list-style-type: none"> • Rehabilitation of degraded land (river belt) into production, e.g., cash crops (river belt), vegetation, fishery, etc. • Conservation programme for Chamero (Bat), Chyuri and Chepang culture. • Conservation and promotion of agro-biodiversity i.e. native paddy, fishes etc. • Seedling production and plantation of Churi plants • Githa-Bhyakur plant species conservation programme • Compost manure production enterprise at local level • Alternative energy development such as bio-briquette, bio-gas, solar, ICS, etc. • Local adaptation plan preparation for highly climate change vulnerable areas • Community based seed bank establishment for local landraces conservation
Morang-Jhapa-Ilam	<ul style="list-style-type: none"> • Restoration of degraded wetlands from encroachment of human and invasion species, i.e. Maipokhari etc • Conservation focus on natural habitat of Hornbill Rufous-necked Hornbill and endangered broad-leaved forest birds like Rufous-backed Sibia and Yellow-cheeked Tit have become critically endangered. • Promotion of community based anti-poaching practices to control illegal collection of forest product and wildlife. • Promotion of organic manure (compost & vermin-compost) to reduce pollution of chemical fertilizer and pesticide to water bodies and subsequent life forms. • Construction of conservation ponds in the upstream site for promoting water level in different lakes within this landscape. • Promotion of skill and knowledge related to ecotourism awareness at local level • Establishment of formal institution at local level for policy formulation to conservation and implementation, monitoring including advocacy & lobbying for fundraising.

2.7 Key Strategic Initiatives, Plans and Actions Underway

Different government and non-government organizations including the local level communities have carried out various activities under their own strategy and plan. Based on strategy and plan, the following activities have been conducted in each landscape. The major activities which carried out in each landscape are presented below (Table 12).

Table 12: Key activities carried out in the selected landscapes

Landscapes	Key strategic initiatives, plans and actions underway
Panchase	<ul style="list-style-type: none"> • Disaster preparedness (awareness and capacity building) • Wetlands (lakes and pond) conservation programme • Orchid conservation programme in Panchase forest area • Soil and water conservation related activities (gabion, water sources, etc.) capacity building, IGA, • CFs stock and composition enhancement activities with biodiversity conservation, road side plantation, plantation in CF, seedling production • Agro-forest based biodiversity conservation programme such as Anadi rice, native fishes, seed bank, NTFPs, etc. • Organic vegetable and fruit production (for commercial purpose), coffee, tea Livelihoods related activities such as goat farming, fishery, NTFPs including Lapsi based enterprises (in Parbat), etc • Small irrigation and conservation pond for irrigation facility and recharging the wetlands

	<ul style="list-style-type: none"> • Mitigation and adaptation related activities for minimizing the adverse impacts of climate change (e.g., awareness, LAPA, etc.) • PES related awareness and mechanism development • Awareness activities related to gender and social inclusion • Ecotourism promotion activities, Home-stay, Mountain trekking, bird watching, observation of natural scenes.
Kailali-Bardiya	<ul style="list-style-type: none"> • Conservation programme of threatened species such as Dolphin, Harihans, Krishna Sagar, crocodile, etc. • Initiation to establish rescue center in Krishna Sagar conservation area • Awareness programme of biodiversity and conservation at local level, i.e., school programme- eco-clubs, exhibition, campaign, etc. • Community based biological corridor enhancement programme (Basant, Laljhadi Mohana and Khata PF) such as awareness, habitat and water sources conservation and corridor maintenance activities, etc) • Infrastructure for eco-tourism such as observation- tour, information center, water taps, etc) • Empowerment and capacity building of local Guruwa treatment centers in Tharu communities. • NTFPs cultivation in community forest • Establish saving groups and cooperatives • Plantation in degraded land around lake, river banks, road side, etc.) • Training on skill and knowledge development of local resource-based handcraft, rope, leaf plates (<i>Duna Tapari</i>), etc • Small irrigation and water sources conservation activities • Guruwa treatment center registration process with District Administration Office as NGO and advocacy for legal rights.
Lumbini	<ul style="list-style-type: none"> • Restoration activities of degraded wetland in Jagdishpur and other lakes and ponds at local level • Awareness programme of biodiversity conservation (Saru crane and migrating bird species) through school programmes, eco-clubs, campaign, demonstration, etc. • Maintenance and cleaning activities in the Jagdishpur and other lakes with involvement of local communities (CFUGs, NGO) • Infrastructure (shading, resting house, observation site, etc.) development at Jagdishpur lake for eco-tourism promotion • Baseline survey of Jagdishpur Reservoir Ramsar site, Kapilbastu • Awareness programme to establish common consensus between upstream and downstream people • Training on skill and knowledge development related to local resource-based handcraft, rope, leaf plates (<i>Duna Tapari</i>, etc), establish market center in collaboration with local cooperative for marketing • Agro-forest based enterprises such as fishery, poultry, goat farming, Sabai grass rope making, Duna tapari making, etc. • Saving groups and microfinance • Plantation in degraded land along river banks, lakes sides, etc. • Adaptation strategy and capacity building activities for minimizing adverse impacts of climate change (e.g., awareness, LAPA, etc)
Chitwan-Makwanpur	<ul style="list-style-type: none"> • Earthquake relief programme, i.e., Training on earthquake resistance house construction, awareness, financial support for building, rescue centers, etc. • Disaster preparedness (awareness and capacity building) like earthquake, landslides, erosion and flooding control (in Chitwan), etc. • Maintenance and conservation of water sources (destroyed by the earthquake)

	<ul style="list-style-type: none"> • Soil and water conservation related activities (gabion, soil and water sources conservation, etc.), capacity building, IGA, etc. • Organic vegetable production, livestock farming (goat, cow, buffalo, etc.), bee farming and banana and citrus farming, fishery, etc. • Agro-forest based enterprises (bamboo related materials, broom grass production, bio-briquette, honey production, etc.) • Agro-biodiversity conservation programme (conservation of native species like as cereal crops, fishes, etc). • Conservation programme of bat (<i>Chamero</i>), butter tree (Chyuri) and native honey) • Forest, forage, fodder, bioengineering and fruits related seedling production and plantation in degraded land and farm land • Conservation and livelihoods programme (conservation of shifting cultivation land by adopting SALT technology) • Cooperative and saving groups' formation and strengthening. • Market network establishment and promotion
Morng-Jhapa- Ilam	<ul style="list-style-type: none"> • Restoration of degraded wetlands (lakes and ponds) activities such as soil conservation, control of encroachment and invasion of species around the wetland areas • Disaster preparedness activities such as awareness and capacity building of local communities • Soil and water conservation related activities (gabion, water sources conservation, etc.) with capacity building, IGA, etc. • Biodiversity conservation and greenery promotion activities such as plantation in degraded land along the rivers, plantation in road sides and marginal land • Agro-forest based biodiversity conservation programme such as conservation of threatened bird species, native fishes, NTFPs, etc. • Livelihoods related activities such as goat farming, fishery, NTFPs, tea cultivation, etc. • Small irrigation and conservation pond for irrigation and recharging the wetlands • Mitigation and adaptation related activities for minimizing the adverse impacts of climate change (e.g., awareness, LAPA, etc.) • PES related awareness and mechanism development • Awareness programme related to gender and social inclusion • Ecotourism promotion activities, Home-stay, Mountain trekking, bird watching, observation of natural scenes, etc.

2.8 Stakeholders and their Roles

The major stakeholders and their roles were identified during the field level consultation workshops. The potential major stakeholders and their roles are briefly described below (Table 13).

Table 13: Key stakeholder and their roles

Landscapes	Key stakeholders	Roles and responsibilities
Panchase	<ul style="list-style-type: none"> • District Development Committee/Municipality/Village Development Committee • District Forest Office 	<ul style="list-style-type: none"> • Coordination and linkage among implementing agencies, fund raising support and co-funding, monitoring & evaluation • Technical support for CFUGs capacity building, enterprises development, biodiversity conservation, wetland management, etc.

	<ul style="list-style-type: none"> • District Soil Conservation Office • District Agriculture Development Office • District Livestock Service Office • Women and Children Development Office • Ecotourism Board • NGOs (Li-bird, MDO, GYC and others working NGOs) • INGOs (WWF, IUCN, Save the Children, CARE Nepal etc) • FECOFUN/CFUGs • Private Sectors (Hotel association, trekking association, industry, etc.) 	<ul style="list-style-type: none"> • Technical support for conservation groups' capacity building, IGA, awareness, gabion, check dam, • Technical support for farmer, seed support, commercial vegetable, fruits production, cash crops, agriculture biodiversity conservation, technology transfer, small irrigation cofounding, marketing, etc • Technical support to farmer for livestock farming, capacity building, enterprises development, support to genetic improvement of livestock through breeding programme. • Women empowerment and awareness related programme on women rights, role and responsibility, promoting social harmony through reduced gender and caste/ethnicity-based discrimination, child rights, etc. • Promotion of ecotourism at local, national and international levels, support at local level for ecotourism promotion activities. • Establish coordination and linkage between user groups and services providers, Social mobilization, IGA, awareness on disaster, gender, social inclusion/exclusion & discrimination, fund raising, co-funding for works of similar nature with other organizations • Technical and financial support for social mobilization, IGA, awareness on disaster, gender caste-based discrimination, enterprise establishment, education, environmental protection, biodiversity conservation, Co-funding and fund raising support, etc. • Coordination and networking, advocacy for users' rights, support for local to central level policy, strategy and plan preparation, awareness and community mobilization, co-funding in NRM based enterprises, improving condition of natural resources. • Collaboration (funding) in promotion of marketing and ecotourism and extension from national to international levels, production of NRM resources
Kailali-Bardiya	<ul style="list-style-type: none"> • District Development Committee/Municipality/Village Development Committee 	<ul style="list-style-type: none"> • Coordination and linkage among implementing agencies, fund raising support and co-funding, monitoring & evaluation,

	<ul style="list-style-type: none"> • District Forest Office • District Soil Conservation Office • District Agriculture Development Office • District Livestock Service Office • Women and Children Development Office • Ecotourism Board • NGOs (Unique Nepal, and others working NGOs) • INGOs (WWF-TAL, Save the Children, CARE Nepal, etc) • FECOFUN/CFUGs • Private Sectors (Hotel association, Home stay etc) 	<ul style="list-style-type: none"> • Technical support for CFUGs' capacity building, enterprises development, biodiversity conservation, wetland management. • Technical support for conservation groups' capacity building, IGA, awareness, gabion, check dam, etc • Technical support to farmer for seed, commercial vegetable, fruits production, cash crops, agriculture biodiversity conservation, technology transfer, small irrigation cofounding, marketing, etc. • Technical support to farmer for livestock farming, capacity building, enterprises development, support for genetic improvement of livestock through breeding programme • Women empowerment and awareness programme related to women rights, role & responsibility, promotion of social harmony through reduced gender and social discrimination, child rights, etc. • Promotion of ecotourism at local, national and international levels, support at local level for ecotourism promotion programmes. • Develop coordination and linkage with user groups and services providers, social mobilization, IGA, awareness on disaster, gender, social inclusion/exclusion & discrimination, fund raising, co-funding for similar nature works. • Technical and financial support for social mobilization, IGA, awareness on disaster, gender caste-based discrimination, enterprise establishment, education, environmental protection, biodiversity conservation, Co-funding and fund raising support, etc. • Coordination and networking, advocacy for users' rights, support for local to central level policy, strategy and plan preparation, awareness and community mobilization, co-funding in NRM based enterprises, improving condition of natural resources. • Collaboration (funding) in promotion of marketing and ecotourism and extension from national to international levels, production of NRM resources
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Lumbini	<ul style="list-style-type: none"> • District Development Committee/Municipality/Village Development Committee • District Forest Office • District Soil Conservation Office • District Agriculture Development Office • District Livestock Service Office • Women and Children Development Office • Ecotourism Board • NGOs (RIMS Nepal, Jagdishpur Conservation forum, and others working NGOs) • INGOs (WWF, Save the Children, CARE Nepal TAL, IUCN etc) • FECOFUN/CFUGs 	<ul style="list-style-type: none"> • Coordination and linkage among implementing agencies, fund raising support & co-funding, monitoring & evaluation, • Technical support for CFUGs' capacity building, enterprises development, biodiversity conservation, wetland management, etc. • Technical support for Conservation groups' capacity building, IGA, awareness, gabion, check dam, etc. • Technical support to farmer for seed, commercial vegetable, fruits production, cash crops, agriculture biodiversity conservation, technology transfer, small irrigation cofounding, marketing, etc. • Technical support to farmer for livestock farming, capacity building, enterprises development, support for genetic improvement of livestock through breeding programme • Women empowerment and awareness programme related to women rights, role & responsibility, promotion of social harmony through reduced gender and social discrimination, child rights, etc. • Promotion of ecotourism at local, national and international levels, support at local level for ecotourism promotion programmes. • Develop coordination and linkage with user groups and services providers, social mobilization, IGA, awareness on disaster, gender, social inclusion/exclusion & discrimination, fund raising, co-funding for similar nature works. • Technical and financial support for social mobilization, IGA, awareness on disaster, gender caste-based discrimination, enterprise establishment, education, environmental protection, biodiversity conservation, Co-funding and fund raising support, etc. • Coordination and networking, advocacy for users' rights, support for local to central level policy, strategy and plan preparation, awareness and community mobilization, co-funding in NRM based enterprises, improving condition of natural resources.
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	<ul style="list-style-type: none"> • Private Sectors (Hotel association, forest based enterprises etc) 	<ul style="list-style-type: none"> • Collaboration (funding) in promotion of marketing and ecotourism and extension from national to international levels, production of NRM resources
Chitwan-Makwanpur	<ul style="list-style-type: none"> • District Development Committee/Municipality/Village Development Committee • District Forest Office • District Soil Conservation Office • District Agriculture Development Office • District Livestock Service Office • Women and Children Development Office • Ecotourism Board • NGOs (Focus Nepal, Youth Society Nepal, MDI, MRC Nepal, RIMS Nepal and others working NGOs) • INGOs (WWF, IUCN, Save the Children, CARE Nepal etc) • FECOFUN/CFUGs 	<ul style="list-style-type: none"> • Coordination and linkage among implementing agencies, fund raising support & co-funding, monitoring & evaluation • Technical support for CFUGs' capacity building, enterprises development, biodiversity conservation, wetland management, etc. • Technical support for Conservation groups' capacity building, IGA, awareness, gabion, check dam, etc. • Technical support to farmer for seed, commercial vegetable, fruits production, cash crops, agriculture biodiversity conservation, technology transfer, small irrigation cofounding, marketing, etc. • Technical support to farmer for livestock farming, capacity building, enterprises development, support for genetic improvement of livestock through breeding programme • Women empowerment and awareness programme related to women rights, role & responsibility, promotion of social harmony through reduced gender and social discrimination, child rights, etc. • Promotion of ecotourism at local, national and international levels, support at local level for ecotourism promotion programmes. • Develop coordination and linkage with user groups and services providers, social mobilization, IGA, awareness on disaster, gender, social inclusion/exclusion & discrimination, fund raising, co-funding for similar nature works. • Technical and financial support for social mobilization, IGA, awareness on disaster, gender caste-based discrimination, enterprise establishment, education, environmental protection, biodiversity conservation, Co-funding and fund raising support, etc. • Coordination and networking, advocacy for users' rights, support for local to central level policy, strategy and plan preparation,

	<ul style="list-style-type: none"> • Private Sectors (Hotel association, forest based industry etc) 	<p>awareness and community mobilization, co-funding in NRM based enterprises, improving condition of natural resources.</p> <ul style="list-style-type: none"> • Collaboration (funding) in promotion of marketing and ecotourism and extension from national to international levels, production of NRM resources
Morang-Jhapa-Ilam	<ul style="list-style-type: none"> • District Development Committee/Municipality/Village Development Committee • District Forest Office • District Soil Conservation Office • District Agriculture Development Office • District Livestock Service Office • Women and Children Development Office • Ecotourism Board • NGOs (.....and others working NGOs) • INGOs (WWF, IUCN, Save the Children, CARE Nepal etc) • FECOFUN/CFUGs 	<ul style="list-style-type: none"> • Coordination and linkage among implementing agencies, fund raising support & co-funding, monitoring & evaluation, • Technical support for CFUGs' capacity building, enterprises development, biodiversity conservation, wetland management, etc. • Technical support for Conservation groups' capacity building, IGA, awareness, gabion, check dam, etc. • Technical support to farmer for seed, Commercial vegetable, fruits production, cash crops, agriculture biodiversity conservation, technology transfer, small irrigation cofounding, marketing, etc. • Technical support to farmer for livestock farming, capacity building, enterprises development, support for genetic improvement of livestock through breeding programme • Women empowerment and awareness programme related to women rights, role & responsibility, promotion of social harmony through reduced gender and social discrimination, child rights, etc. • Promotion of ecotourism at local, national and international levels, support at local level for ecotourism promotion programmes. • Develop coordination and linkage with user groups and services providers, social mobilization, IGA, awareness on disaster, gender, social inclusion/exclusion & discrimination, fund raising, co-funding for similar nature works. • Technical and financial support for social mobilization, IGA, awareness on disaster, gender caste-based discrimination, enterprise establishment, education, environmental protection, biodiversity conservation, Co-funding and fund raising support, etc.

	<ul style="list-style-type: none"> • Private Sectors (Hotel association, forest based enterprises etc) 	<ul style="list-style-type: none"> • Coordination and networking, advocacy for users' rights, support for local to central level policy, strategy and plan preparation, awareness and community mobilization, co-funding in NRM based enterprises, improving condition of natural resources. • Collaboration (funding) in promotion of marketing and ecotourism and extension from national to international levels, production of NRM resources
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3. ELABORATING SGP OP6 STRATEGIC INITIATIVES WITHIN LANDSCAPE

3.1 Strategic priorities for grant making in OP6

The strategic priorities were identified during the consultations and scoping exercises with the relevant stakeholders at the community and central levels. The identified strategic priorities are further elaborated within the landscape context with typologies of projects for grant making in OP6. During the OP6 period, the SGP Nepal has primarily focused its activities on the following thematic areas. Priority has been given to those aspects of the thematic focal areas that compliment the government's identified priorities related to GEF-6 strategic priorities.

- a. Restoration of degraded wetlands, focusing on the globally and nationally important wetlands (e.g. Ramsar sites).
- b. Reclamation of degraded public and community lands, particularly focusing on shifting cultivation areas, eroded area and water sources conservation.
- c. Promotion and mainstreaming of crop diversification, small irrigation and promotion of good agricultural practices, including innovative climate smart agro-ecology.
- d. Conservation of globally and nationally important ecosystems (such as World Heritage Sites, Important Bird Areas, nationally unique forest ecosystems), and endemic and threatened species of flora and fauna.
- e. Implementation of the government's recently developed Payment for Ecosystem Services (PES) policy in the SGP landscapes by encouraging co-funding from the private sector.
- f. Conservation of agro-and forest genetic resources, and equitable sharing of the benefits arising from conservation of these resources.
- g. Promotion of renewable and alternative energy and efficiency in use of energy by building on and further expanding of the past successful initiatives.
- h. Promotion of green economy and enhancement of local livelihoods through forest and agriculture based micro-enterprises (such as NTFPs, vegetable and fruit, livestock and ecotourism, etc.). Priority would be given to projects initiated and implemented by women, *Dalits* and other disadvantaged social groups.
- i. Community-based REDD+ in feasible areas.
- j. Forest and wildfire management
- k. Strengthening of CSO-government policy and planning dialogue platforms.
- l. Promoting gender mainstreaming and social inclusion

- m. Creating awareness and empowering local communities to participate in national and global environmental concerns.

Based on those strategic initiatives, the prioritized activities of five selected landscape are presented below (Table 14).

Table14: Prioritized activities in the five selected landscapes

Panchase	Kailali-Bardiya	Lumbini	Dhading-Chitwan-Makwanpur	Morang-Jhapa-Ilam
Restoration of degraded wetlands (listed in Ramsar sites) in Kaski and Baglung districts	Restoration of degraded wetland & biological corridor (i.e. wild rice, Cotton Pygmy-goose, Dolphin, Basant	Restoration of degraded wetland, e.g. Jagdishpur, other lakes (i.e. Sarus crane, migrating birds)	Maintenance & conservation of water sources (destroyed by the Earthquake	Restoration of degraded wetland & forest (Red panda) (e.g., Maipokhari Rajrani, Betana etc.)
Degraded land rehabilitation (eroded, landslides etc.) in Kaski, Parbat, Baglung, Myagdi	Degraded land (river bank) rehabilitation in Bardiya & Kailali	Degraded land (river bank) rehabilitation in Kapilbastu, Rupendehi	Organic vegetable and conservation based IGA (i.e. bee-keeping, fruits, and fishery)	Biodiversity conservation in wetland, & forest ecosystem Red panda, NTFPs, etc.
Conservation of ponds for recharging water sources & small irrigation in Kaski, Parbat, Baglung, Maygdi and Syanja	Promote ethnobotany and Tharu Guruwa treatment centers, in Bardiya & Kailali	Organic farming and river bank based IGA with ultra-poor groups in Kapilbastu and Rupendehi	Agro-biodiversity conservation programme (species like as cereal crops, fishes, etc.).	Organic vegetable and conservation based IGA i.e., fruits-banana, citrus, tea and marketing
Biodiversity conservation, orchid, NTFPs links with livelihoods	Promotion of Community based Biological corridor in Bardiya & Kailali	Promotion of agro- forest based enterprises	Land rights of groups & conservation of shifting cultivation land by through SALT technology).	Alternative energy development such as bio-briquette, biodiesel, solar, ICS, etc.
Organic farming and organic manure enterprises establishment in Kaski, Parbat, Baglung, Maygdi and Syanja districts	Organic farming and river bank based IGA with ultra poor groups	Organic farming and river bank based IGA with ultra poor groups	Promotion of agro- forest based biodiversity in Makwanpur	Agro-forest (including NTFPs) based enterprises in Ilam, Panchthar
Promote	Promotion of	Alternative	Alternative	Promote

community based ecotourism and conservation in Kaski, Baglung, Mygdi, Mustang districts	technology & marketing of wetland resource based IGA	energy development such as bio-briquette, bio-gas, solar, ICS	energy development such as bio-briquette, bio-gas, solar, ICS	community based ecotourism at Ilam, Dhankuta, Morang, Jhapa
Climate change , REDD + awareness , adaptation in all districts	Climate change REDD + awareness , adaptation in all districts	Climate change , REDD + awareness , adaptation in all districts	Climate change REDD+awareness , adaptation in all districts	Climate change, REDD + awareness , adaptation in all districts
Alternative energy development such as bio-briquette, biogas, solar, ICS, etc	Promote community based ecotourism in Kailali and Bardia	Promote ethnobotany and Tharu Guruwa treatment centers in tharu communities	Agro-forest (including NTFPs) based enterprises & marketing in Dhading and Makwanpur	Agro-forest (including NTFPs) based enterprises & marketing promotion

3.2. Indicators and targets and typologies of the projects to be considered in OP6

Based on the baseline information, the target, indicators and typologies of the project to be considered in OP6 strategies initiatives are briefly described below (Table 15).

Table 15: Target, indicators and typologies of the project

GEF SGP OP6 components	CPS components	CPS targets	Indicators	Means of verification	Example activities (typology of projects)
Community Landscape Conservation	Sustainable management of natural resources in selected landscapes	5,000 ha. within the five selected landscapes	Area (ha.) of landscapes applying conservation and sustainable use practices	Project completion, and monitoring reports	
	Conservation of wetlands	12 globally or nationally important wetlands	Number and area (ha.) of wetlands restored and/or conserved	Project completion, and monitoring reports; direct observations	Wetlands restoration, protection, and sustainable management

Conservation of ecosystems and species	1,000 ha globally or nationally significant ecosystems/habitats	Area (ha.) of globally or nationally significant ecosystems/habitats protected or sustainably managed	Project completion, and monitoring reports	Ecosystem based adaptation to climate change effects; community based conservation of significant habitats, corridors, bottlenecks and climate refugia
	10 endemic and/or threatened species and varieties of flora and fauna	Number of endemic and/or threatened species and varieties with maintained or improved and conserved status	Project completion, and monitoring reports; agency reports; interviews	Community based conservation of habitats of endemic and threatened species; community seed/gene banks; conservation of wild relatives of cultivated species
Reclamation of degraded lands	Reclamation of 500 ha. of degraded public and community land reclaimed	Area (ha.) of degraded land reclaimed and put under improved land use and climate proofing practices	Project completion, and monitoring reports; agency reports	Reforestation/afforestation of degraded lands; protection/management of regeneration; agro-forestry; soil and water conservation
	Sustainable management of 500 ha. of agriculture and forest land	Area (ha.) of land brought under sustainable forest, agricultural and water management practices	Project completion, and monitoring reports; agency reports	Sustainable management of natural and plantation forests; agro-forestry
Water sources conservation	25 highly degraded water sources reclaimed	No. of water sources brought under sustainable management practices	Project completion, and monitoring reports;	Sustainable management of water and agro-forestry

				agency reports	
	Implementation of PES in feasible areas	At least five PES schemes initiated or supported	Number of PES schemes initiated or supported in SGP intervention areas	Project completion, and monitoring reports; interviews	PES projects
Climate smart innovative agro-ecology	Promotion and mainstreaming of crop diversification	Increment of crop diversity in at least 75 ha. agriculture land	Area (ha.) brought under increased crop diversity	Project completion, and monitoring reports; agency reports	Relevant training and capacity building, study tours, demonstration of project activities
	Promotion of good agricultural practices	At least 150 households practiced organic and conservation-friendly agriculture	Number of farmer households practicing organic agriculture and other conservation-friendly agricultural and soil management systems	Project completion, and monitoring reports; agency reports	Relevant training and capacity building projects; study tours; production and distribution of quality seeds of native species
	Promotion of local level adaptation plan	50 local level adaptation plan prepared for reducing the effect of climate change on agricultural and soil management systems	Number of adaptation plan preparation and practicing	Project completion, and monitoring reports; agency reports	Relevant training and capacity building projects; plan preparation
Low carbon energy access co-benefits	Promotion of renewable energy, and efficiency in use of energy	At least two innovative locally adapted energy solutions developed and demonstrated	Number of innovations developed and demonstrated	Project completion, and monitoring reports	Innovative energy projects
		At least 16 renewable energy production and energy efficiency units established	Tonnes of CO ₂ avoided by implementing renewable energy, and energy efficiency measures	Project completion, and monitoring reports; agency reports; interviews	Projects related to solar, biogas, improved stoves etc.

		At least 500 additional households achieved access to renewable energy i.e., ICS, Biogas, bio briquette, etc.	Number of households in SGP intervention areas deploying innovative low-GHG technologies	Project completion, and monitoring reports; agency reports; interviews	Clean energy projects (such as solar, biogas, improved stoves) that directly benefit rural households
CSO-government policy and planning dialogue platforms	Strengthening of CSO-government policy and planning dialogue platforms	At least 30 local networks of farmers (agro-seeds producers, horticulture or organic), and NGOs/CBOs established with relevant local government agencies	Number and type of support linkages established with local government agencies	Project completion, and monitoring reports; agency reports	Capacity building & technology transfer projects (such as Agro-see, Horticulture, Organic with relevant stakeholders)
		At least 10 landscape, provincial or national level forums established to share experiences and lessons of different projects related to a particular thematic area	Number and type of forums or support linkages established with landscape, provincial or national level institutions	Project completion, and monitoring reports; agency reports	
Promoting social inclusion	Promoting gender mainstreaming and social inclusion	Gender mainstreaming and social inclusion considerations applied by 20 SGP grantees, SGP staff, NSC members and partners	Type and number of gender mainstreaming and social inclusion considerations applied	Annual monitoring reports	Relevant cross-cutting projects/activities
	Promoting meaningful participation of women, youth, <i>dalits</i> and indigenous local peoples in SGP activities	At least 20 new CBOs headed by these social groups formed or registered in the SGP intervention areas	Number of new CBOs formed or registered	Project completion, and monitoring reports	Relevant cross-cutting projects/activities
		At least 20 percent increase in representation of	Percent increase in representation of these social	Project completion, and	Relevant cross-cutting projects/activities

		these social groups in CBOs, NGOs, and other local bodies' executive committee within the OP6 period	groups in CBOs, NGOs, and other local bodies' executive committees in SGP intervention areas	monitoring reports	ties
Implementation of targeted economic activities for enhancement of women, and other disadvantaged social groups' livelihoods		At least 500 local households (gender disaggregated) received livelihood benefits from SGP initiatives	Number of disadvantaged households and individuals (gender disaggregated) benefiting from SGP projects	Project completion, and monitoring reports; agency reports; interviews with the beneficiaries	Relevant local micro-enterprises, and other income generating projects
		10 "green" projects initiated and managed by women, <i>dalits</i> and other disadvantaged social groups	Number of "green" projects initiated and managed by women, <i>dalits</i> and other disadvantaged social groups	Project completion, and monitoring reports; agency reports	Relevant local micro-enterprises, and other income generating projects
Giving special focus to women, disabled, and other disadvantaged social groups in awareness raising and capacity building activities aimed at empowering local communities		At least 25 awareness raising and capacity building events organized in SGP intervention areas within the OP6 period	Type and number of awareness raising and capacity building events organized	Project completion, and monitoring reports	Stakeholder workshops, proposal development workshops, training and other activities

4. MODALITIES OF IMPLEMENTATION

4.1 Modalities for implementation of OP6 strategic plan in the landscapes

The current modality for implementation of GEF/SGP is suitable for implementation of OP6 strategic plan. However, some revisions needed for linking and connecting the project within the landscape. At the local level, the coordination and network developing forum and unit already exist in each district under the District Development Committee (DDC) with involvement of local government agencies, NGOs, INGOs, Civil society and community level organization (CFUG) and District Forest Sector Coordination Committee (DFSCC) and monitoring unit under the DDC. Those forums are more appropriate for linking and connecting for effective implementation of OP6 SGP strategic plan and creating co-funding. Most of the implementing partners are basically located at the local level and well tied-up with local government

agencies and they are familiar with the local circumstances. Thus, they would develop the linkage and connection for effective implementation of plan and creating co-funding at the local level.

4.2 Strategy for effective engagement of local communities and other stakeholders

The community-based organizations, local communities including indigenous people and other non-governmental groups are eligible to apply for the project for implementation of OP6 strategic plan. The following strategies have been recommended by different level community consultation and relevant stakeholders meeting in selected five landscapes for effective engagement of local communities and other relevant stakeholders.

- The project should reflect the actual issues and needs felt by the community
- Ensure consideration of the community rights in terms of resources management with optimum utilization that contribute to develop ownership at community level.
- The project should directly benefit the local communities and other stakeholders.
- Ensure the community and other stakeholders for affordable co-funding and kind contribution to community-friendly project which contribute to create synergy in project implementation.
- The role and responsibilities of the local communities and other stakeholders should be specified at different phases of project implementation.

4.3 Strategy for knowledge management and scaling-up of good practices

The knowledge management and scaling-up of good practices are major components of the project plan. The following strategies are suggested for effective and efficient management of knowledge and its scaling up of good practices with the lessons learnt during the project implementation period in five selected landscapes.

- Establishment of community based information center with learning materials relevant for communities.
- Establish cross learning community center for cross learning and sharing of knowledge and skill among the selected five landscapes for up scaling of good practices.
- The learning materials should be published in local language with simple explanation
- Local communities should be involved in producing learning materials.
- Libraries (if feasible e-libraries as well) should be established in each landscape.
- The cross visit and observation activities should be carried out on regular basis within and out site of the selected five landscapes for scaling up of good practices..
- Ownership should be developed at the local level knowledge development center with the involvement of local NGOs, CBOs and networks.
- Promote the local level coordination and dialogue platform with involvement of community based organizations, local communities and its related networks for policy advocacy and scaling up the opportunities
- Effective and efficient dissemination system should be arranged at the community, national and international levels through monthly e-newsletters, scientific reports and other national as well as local print media.
- Audio-visual production of selected successful projects and dissemination through electronic media should be another strategy.

4.4 Strategy for monitoring and evaluation

Monitoring & Evaluation (M&E) is an important component of the project. SGP has carried out different types of Monitoring & Evaluation. The Participatory Monitoring and Evaluation is one of the effective methods for project evaluation and knowledge development. The following strategies are recommended for Participatory Monitoring and Evaluation at project level.

- Promote participatory monitoring and evaluation that enables community involvement from the initial phase to the completion phase of the project.
- Organize occasional group meetings and workshops of project managers and other key stakeholders to review and revise the monitoring strategies that are best suited for the field projects.
- Promote the involvement of local institutions, women, and communities (marginalized, *dalit*) in the monitoring and evaluation activities of the project at all levels that facilitates knowledge management and ownership development of project achievements.

REFERENCES

(to be completed)